

A
CYCLOPÆDIA
OR
DRUG PATHOGENESY.

A
CYCLOPÆDIA
OF
DRUG PATHOGENESY.

ISSUED UNDER THE AUSPICES OF
THE BRITISH HOMŒOPATHIC SOCIETY AND THE
AMERICAN INSTITUTE OF HOMŒOPATHY.

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VOL. III.

Iodoformum—Sabadilla.

LONDON:
PUBLISHED FOR THE BRITISH HOMŒOPATHIC SOCIETY
BY
E. GOULD & SON,
HOMŒOPATHIC CHEMISTS AND PUBLISHERS,
59, MOORGATE STREET, CITY, E.C.

NEW YORK:
BOERICKE AND TAFEL,
145, GRAND STREET.

1892.

PRINTED BY ALLEN AND UNY, BARNHOLE, NEW ENGLAND.

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PREFACE.

WITH this third volume we begin to see the end of our task. As far as we can estimate, vol. iv will not only complete our alphabetical series of drugs, but will leave space for the Index. How this shall be framed is a subject closely occupying our thoughts; and we invite regarding it the suggestions of our colleagues.

There is another matter also in which we should be glad of assistance. We have given no Appendix in the present volume, that all the supplementary material we have in hand may appear in one collection at the close of the main body of the pathogeneses. To aid us in making this complete, we should be very thankful for any references across which our colleagues may have come in their reading,—still more for actual observations, in print or manuscript, which we can incorporate with our own store.

In sending out the present volume, we have again to acknowledge with gratitude the aid we have received, both from those already named as our fellow-workers, and from fresh recruits—among whom we may specially mention Dr. Clifton, of Northampton, and Dr. E. A. Neatby, of London.

For the Austrian re-proving of *Natrum muriaticum*, Dr. Galloway has kindly allowed us to make use of his translation, prepared many years ago for the Hahnemann Publishing Society, but never printed.

We are indebted to Dr. Huber's collection for much of what is found under Mercury and its preparations; to Dr. Sorge's prize essay on Phosphorus for several of the sections on that drug; and to Dr. Black's contributions to the *Materia Medica, Physiological and Applied*, for a number of observations relative to *Nux vomica* and *Plumbum*.

THE EDITORS.

APRIL, 1890.

CYCLOPÆDIA

or

DRUG PATHOGENESY.

IODOFORMUM.

Tri-iodide of formyl, CHI_3 .

I. Proving.—1. *o.* Dr. UNDERWOOD, Jan. 23rd, 1871, experienced following symptoms while triturating drug up to 3rd potency :

Feeling of warmth in abdomen and rectum, with slight nausea and desire for stool (on four occasions) ; neuralgic pains in forehead (sharp, worse on stooping), in temples, also sharp, extending to behind ears, and in l. knee ; dull pains in forehead ; aching in decayed teeth (coming and going quickly) ; dryness of throat, with rawness on swallowing ; rheumatic pain in r. arm, worse when using it ; pain along course of l. crural nerve ; stitch pain on r. side of throat and in r. ear ; flatulent colic ; easy perspiration on motion ; pain in back, along spine ; dryness and stinging of lips ; fine sharp pains all over ; pain in l. elbow and along l. median nerve, with stitches in l. shoulder ; dryness of throat, with bitter taste ; pain in nerves of l. hand, worse on touching, and in l. chest ; rumbling in bowels ; nausea ; toothache in sound teeth ; sore pain in r. inguinal region ; cough from dryness of throat. Next m., pain in l. arm as if bruised, worse when touched.

A. Same, June 13th, took 1 gr. of 2nd trit at 10 a.m. Sense of stiffness in zygomatic muscles, with slight pain, increased by motion and bending forward ; dull pain in malar bones ; sharp pain in upper teeth ; stitches in temples (pain seems to sharply define course of nerves) ; weakness of knees on going upstairs ; desire as for liquid stool. At noon repeated dose. Neuralgic pains in various parts of body, worse from thinking of them ; continued pains in lumbar region, with weakness when straining ; weakness and pain in knees, worse when standing ; rheumatic pains in both gastrocnemii and in flexors of

legs; stitching pains in head and l. ear; pain along r. side of dorsal vertebrae; urine very yellow; stitch in r. instep and head, and in r. chest through to lower angle of scapula; sharp pain in l. hand and r. inguinal region; pain in inside of knees; flatulent colic and cutting pain in bowels; rheumatic pain in r. arm. During siesta, confused dreams of accident, &c.; better after sleep; cutting pain in l. ankle when walking in open air; pains renewed when riding in cars, and again in bed, then also cough and wheezing from mucus in throat; restless sleep, tossing, turning, full of dreams; headache on waking, pain in eyes, which are bloodshot, objects appear tessellated red (this disappeared after rising); violent itching of occiput. Took 1 dr. of 3rd dil. Sharp cutting in r. inguinal region, with desire for stool; sharp pain in nerves of l. arm and back; confusion in head, with slight nausea, feeling of faintness, drawing and pressing in malar bones, perspiration on head; dull pain in forehead, with shooting in r. ear, worse on descending stairs; wakefulness, jerks and shocks in nerves when trying to sleep; unusual susceptibility to heat of weather. (*Trans. of N. Y. State Hom. Med. Soc.*, ix, 237.)

2. J. H—, æt. 24, proved 2x and 3x dils. Took first (1 dr.) at 11 a.m. From time of taking it till e., sensation as of smelling fumes of iodine, though none had been about him. In 2 h., dull aching, increasing to heavy pain as from strong pressure, in r. lower maxillary bone, lasting 20 m.; then same sensation in both temples. In 4 h. severe aching in l. humerus; muscles around bone felt as if severely bruised. In 4½ h. dull sore pain in apex of r. lung; on breathing, lung felt as if two ulcerated surfaces were in contact. Took 1 dr. of 3x at 5 p.m. In 3 h. heavy feeling in head and dull aching at vertex. At n. slept soundly till 1.30 a.m., then woke suddenly, and felt as though he were smothering; room felt too close, though freely ventilated; head very heavy, so that he could not lift it from pillow; l. arm pained severely, also l. leg, particularly at lower half of tibia and fibula, extending into foot. This became less in 4 h.; then sensation as if something heavy were resting on chest, preventing its free expansion, lasting 4 h., gradually becoming less intense, and as it did so appearing to diffuse itself in extremities again; herewith also pain in l. breast, very severe, at first as if a deep ulcer had formed there, then like hand grasping base of heart; pulse 88. Restless and unable to sleep any more till 4.30, then slept about 1½ h., and later heavily, so that on waking he could hardly get roused. In m. head still felt heavy, aching now and then; pain seemed in bones of skull and mainly on l. side; r. eye sore and as if bruised. Metallic taste in mouth for most of d., teeth feel sore and as if too long; aching in l. breast at times, but less severe than last n.; l. arm and leg pain as if bruised, and as pain increases muscles feel as if ulcerated. Took another dose at 11 a.m.; after 2 h., very drowsy, and remained so for 2 h.; after 9 h. both lungs feel as if a heavy cold had been taken and had settled there,—soreness lasting 2 d. after this. For 3 d., flying neuralgic pains at times. (J. W. HAINES, M.D., *Ohio Med. and Surg. Rep.*, x, 175.)

II. *Poisonings*.—1. FRANZESKA B—, æt. 26, prostitute, entered hospital 1876; she is of medium size, well built, but greatly reduced

in her nutrition. Physical examination shows no abnormality in heart, lungs, or abdomen. Between and above the frontal eminences an ulcer denuding the pericranium. Suppurating gummata on both sides of the clavicles and on the humerus. On the right clavicle a necrotic bone protrudes. Large suppurating gummata on the tibia. Prescription: four iodoform pills twice daily (every pill 0.1 grm.) and ungu. iodoform. The result was very satisfactory; she took the pills regularly with the exception of a few d. when they were omitted on account of gastric troubles, so that after having taken 278 pills (27.8 grm.) the dose was reduced to six pills daily. By the close of March all the gummata were healed with the exception of the large one on the forehead, this necessitating a continuance of the iodoform. Suddenly on April 9th (since entering the hospital she had taken 42 grm. iodoform in 80 d.), after a hot bath she felt very dizzy and weak in the legs, and felt unable to knit, as diplopia had set in. This lasted 2½ d.; a clyster of vinegar and water brought no amelioration; the pills were left off. She then began to vomit, followed by deep sleep, from which she can be roused only with difficulty to take her meals or to answer the physician; all appetite gone. This again lasted 2 d. On afternoon of 2nd d. transient state of irritation interrupted the somnolence. She screams out, leaves her bed, but falls down after walking a few steps, talks nonsense unconnectedly, is unable to hold anything, and sees everything double, a state which already Rhigini designated as *ebrietas iodi*. After a few h. she becomes more quiet and returns to her somnolence. In 2 d. these paroxysms had reached their acme; the patient complained through the whole night of headache, vertigo when sitting up in bed. The talkativeness steadily increased, and fear of death with anguish was very pronounced. She hudds fast to any person near her bed, and bemoans her approaching death. Her body is in constant spasmodic motion; twitching of facial muscles, deep inspirations alternating with apnoea; towards evening patient is more quiet and conscious, but in n. is restless and sleepless, complaining of headache. Next m. she felt decidedly better, only weak, and diplopia was still present. The functions of the other senses were normal, and the pupils reacted normally. There is not a paralytic symptom, only every movement is made slowly and without energy. When she closes her eyes she cannot stand straight, but oscillates, nor can she walk well. Thus she remained from the 9th to the 15th, when a second attack set in with vertigo, vomiting, severe headache, and exquisite diplopia; but this paroxysm lasted only 1 d., and by the 21st she could walk alone, and had a good appetite. (OBERLAENDER, *Deutsch. Z. f. pr. Med.*, 1878.)

2. A woman of nearly 70 suffered for several years from syphilitic ulcers of the fauces with a considerably extensive necrosis of the hard palate. After entering the hospital pil. iodoform 4 twice a day and pencilling the necrotic parts with tinct. cantharidum (Dieffenbach) were ordered June 6th. On 14th, after having taken 5 grm. iodoform, the first symptoms of somnolence showed themselves. She does not know what she talks, walks with difficulty, like a person drunk. The preceding n. was sleepless, with excruciating pains in whole cir-

conference of the skull. 16th.—Perfect coma, patient sleeps quietly in bed, arms when raised up fall back in a relaxed condition, eyelids hardly offer any resistance to finger. She reacts promptly to cutaneous irritation, trying to ward it off. With great exertion is she roused at the hour of meals, and swallows mechanically the fluid nourishment poured in her mouth; pulse 80, respiration 20; stools regular, some incontinentia urinæ, the urine showing slight iodine reaction. During n. she is more restless, delirious, gets up and runs about room and must be brought back into bed. This comatose state lasted 5 d. After that, when shaken and loudly spoken to, she tries to open her eyes and slowly answers after some time. The next 5 d. her state remained the same; after that her mind became more clear, she complained of headache, and after many questions she described her state thus: "I always felt tired and worn out; every motion was difficult. I saw all persons and all objects as through a veil. I recollect the visits of my physician (but not that of my relations); always suffered severe occipital pains and scratching sensation in throat, and thirst" (even touching the occiput and neck was disagreeable to her through all her somnolence). "During the night I always slept quietly" (when, in fact, she was very restless). No diplopia was observed in this case. For a long time afterwards she complained of vertigo and lassitude. (*Ibid.*)

2. *σ.* SCHROZ says that there are persons who possess a peculiar idiosyncrasy towards Iod., which is not to be found out until, without any warning, it suddenly appears in the most severe symptoms of poisoning, and may lead to the rapid death of the patient, even though its application be immediately suspended. These symptoms are divided into six groups:—1. There may be elevation of temperature to 104° and more, without other phenomena (so-called "aseptic" fever). 2. In addition to fever, there may be depression of spirits, headache, loss of appetite, taste of Iod. in mouth, pulse being often very rapid and at same time small and compressible. On stopping the drug these symptoms at once disappear. 3. The pulse-rate may be increased to 150 or 180, and more. In spite of rapid cardiac action and small pulse, with anxiety, &c., amelioration may take place on stopping the drug; but there is, nevertheless, great danger. This condition may arise after the first application of an Iod. dressing, or it may only set in after toleration has been established for weeks. 4. The alarming rapidity of the pulse is accompanied by high fever, yet the sensibility is not diminished, and no symptoms of septicæmia arise, but the suspension of administration is not followed by reaction, and death follows. 5. After severe operations, although the pulse is very good, rapid collapse sets in, ending in death. It is, however, a question whether this is solely due to the iodoform. 6. The most alarming, and, by the relative frequency of their occurrence, as well as suddenness, most dangerous forms of poisoning, are the disturbances of the cerebral functions, which either take the form of acute meningitis, or of a psychological disorder (melancholia, &c.), and tend to a fatal termination, even though no particular elevation of temperature take place, and the application of the drug has been immediately suspended.

b. KÜSTZL relates several cases of fatal intoxication from the applica-

tion of Iod. in powder to wounds, in which the symptoms were much the same as those described by Schede, viz. disturbances of the digestive tract; fever; a peculiar influence on the central nervous system, characterised by depression, melancholia, dilatation of pupils, apathy, involuntary motions and urination, hallucination, &c.; rapid collapse and death. (*Lond. Med. Record*, x, 177.)

3. KOCHER has found Iod. a dangerous dressing. He has observed no fewer than 23 cases in which, used in the treatment of recent wounds, it acted as a poison. The chief symptoms are excitement, restlessness, and mental depression. The patient sometimes becomes delirious, and has mental delusions. Attempts are occasionally made to get out of bed and wander. These symptoms at once cease on changing the Iod. for some other dressing. The application of Iod. to a large fresh wound may be followed by total loss of memory and impairment of speech. In another case, after extirpation of cancerous disease of the rectum, and application of Iod. to the raw surfaces, the patient became very noisy and violent, and had what resembled an attack of acute mania. K— has also observed, after dressing with Iod., complete loss of consciousness. In this form of poisoning, there is usually great difficulty in getting the patient to take nourishment. The bladder has to be relieved by catheterism; the limbs, more particularly the arms, become stiff and contracted; and finally, in very severe cases, collapse may ensue. Iod. accelerates the pulse to a high degree. Notwithstanding this, and the mental excitement and restlessness, fever is seldom observed. The patient, after a prolonged toxic action of Iod., passes into a chronic condition of restlessness, and suffers much from loss of sleep and impairment of nutrition. The poisoning, as a rule, is much more severe when coming on rapidly after a surgical operation, than when it is due to the prolonged action of Iod. Iodoform differs from pure iodine in its poisonous effects, as it does not give rise to any exanthem or to nasal catarrh, or cause vertigo. It often acts as a poison when it has been applied in small quantities, and when the amount of iodine given off must be far too small to account for such toxic effects. Then, again, the symptoms of Iodoform poisoning may persist long after the disappearance of iodine from the urine and other excretions. (*Ibid.*, p. 236.)

4. In a recent paper in the *Allg. Wien. med. Zeitsch.* two cases in which an eruption was the apparent consequence of the external use of I. have been recorded by Zeissl. An ulcer on the leg of a boy of 3 was dressed with I., the dressing being several times changed in the course of a fortnight. At the end of that time the temp. rose suddenly to 105°, and a diffuse erythematous eruption appeared on the flexor aspect of the upper part of each arm and the inner side of each thigh. The affected areas were bright red in colour, the intermediate parts of the skin being normal. The child was somnolent, and vomited some greenish yellow masses. On the 3rd d. after the removal of the I. temp. became normal, and the exanthem gradually faded. During its existence, the urine gave a distinct iodine reaction, and contained some albumen and renal epithelium. The applications being resumed, another attack occurred precisely similar, attended with the same elevation of temp.

and albuminuria, disappearing 5 d. after the cessation of the dressing. Ultimately, however, tolerance of the I. was established. In another case, I. was applied to a fistula connected with carious bone. After a week patient was attacked with an eruption like urticaria, sharply circumscribed prominent red spots surrounded by reddened skin. Some of the raised spots had a diameter of 2 centimetres. They were especially abundant on the flexor aspects of the limbs. Urine contained no albumen. The application was discontinued, and the eruption subsided in the course of a week. (*Lancet*, 1882, i, 26.)

5. a. In chronic poisoning by I. the evidences of poisoning develop very slowly and insidiously. There is malaise and possibly some loss of strength, loss of appetite, with occasional vomiting, and above all the patient is weighed down with a sense of depression. There is usually a moderate degree of fever, and an unusually rapid pulse. The sleep is at first broken, and there is some wandering at night. Headache is not uncommon. In time the patient becomes apathetic and disposed to sleep. He is melancholic, his memory is distorted and impaired, he is troubled by the dread of death, or some impending danger, and takes no interest in his surroundings. He remains in a condition of drowsiness, he wastes, he possibly becomes dirty in his habits, his tongue becomes dry and brown, he makes no complaints, and sinks into a more or less complete state of hebetude. Some patients in this condition have lost power of their legs, and all control over their sphincters. Others have been able to be propped up in a chair, and to move about a little (as occurred in one of my own cases) until within a short while of death. In the fatal cases the patient becomes weaker and weaker, and in time utterly vacuous. He ultimately dies comatose. If the I. be left off, recovery may ensue in time, even when the symptoms have persisted in a marked manner for some time. In this phase of poisoning the progress of the case may be extended over weeks, and possibly over months.

6. In acute cases the symptoms develop much more rapidly, and they may indeed appear with some degree of suddenness. There is perhaps, in the first place, some malaise, then complaint of headache, which is often intense, and of vertigo. The sleep is broken or the patient is quite sleepless. There is excitement and wandering at n. The temperature is high without appreciable cause, and may run to 104°, 105°, or 106°. The pulse is remarkable in its rapidity, mounting often to 150 and 180. There is often albuminuria, the appetite is greatly impaired, and there may be vomiting. In one instance this vomiting was very obstinate. The excitement passes into delirium. The patient has hallucinations, sometimes hallucinations of grandeur, and his symptoms may approach those of acute mania. Patients in this condition have been removed to asylums. Among rarer complications are tremor, stiffness of certain limbs, convulsive movements, diplopia, and irregular respiration. Patient wastes, and, becoming more and more prostrated, may sink into a comatose condition and die. In not a few examples the symptoms have developed suddenly, and have commenced by sudden fever or sudden and intense headache, or sudden and unaccountable delirium. In some patients the symptoms

have very closely resembled those of meningitis—a circumstance that has been most usually noticed in children and young subjects. (TREVES, *Pract.*, Oct., 1886.)

6. In a girl, æt. 13, on whom T. had operated for ununited fracture of ulna, and dressed with I., the temp., which had been normal for three weeks, rose to 100° in the e. of June 1st. "The entire forearm became evenly swollen, œdematous, and a trifle red." The next day a crop of vesicles had appeared, about thirty in number, very small, limited to the forearm, and not more numerous in the vicinity of the wound. The e. temperature remained at 100° for six days. No more vesicles appeared, and those present soon became pustular, and by the sixth day were discharging. "On June 5th, a remarkable exanthem appeared." Its appearance had been preceded by intense headache and giddiness. With its development in the e., these symptoms disappeared. The forearm was less swollen. On m. of 6th, "the exanthem covered the left arm and shoulder, the greater part of the face, and nearly the whole of the front of the chest, and some parts of both sides of the neck." "The eruption appeared in the form of patches," consisting of closely-packed papules, of less size than a pin's head, and set upon a pink erythematous base. The papules could be felt as well as seen, and they were paler than the surrounding skin. The patches were irregularly round, and varied in size from a sixpenny to a half-crown piece, and the margins were well defined. There were no catarrhal or other constitutional symptoms after the rash appeared, and the child seemed quite well. The eruption was gone the next d. (*Ibid.*)

7. *e.* A man, æt. 61, was operated upon for strangulated femoral hernia. During the progress of the case, on Sept. 3rd, 1881, I. on lint was inserted into a sinus; on the 7th it was pulled into a sinus. It is recorded that the patient was emaciating rapidly. On Sept. 20th he was feeling low, and could eat no food; was dull, heavy, and exceedingly drowsy, disinclined to make any exertion; wandering at n. 26th and 27th.—Temp. 101.6°. Pulse 130. Tongue dry and brown. Wasting continues; patient is passing into a hopeless condition of hebetude and exhaustion. Oct. 1st.—Began to mend soon after the I. was discontinued.

8. A burn case; a man, æt. 34. Urine contained albumen, granular and hyaline casts, and triple phosphates. Dec. 12th.—I. applied. Temp. 101.6°. Pulse 108. 16th.—Burns satisfactory, but bronchitis has set in, and patient is delirious. Pulse 130. 17th.—Temp. 104°. Urine not albuminous. 31st.—Cough is bad, occasionally delirious, is emaciating rapidly. Patient got worse and died Jan. 31st. For a week before death pulse ranged from 145—155. Broncho-pneumonia and congestion of both bases were found at the autopsy.

9. Burn case; a boy, æt. 4. Admitted Jan. 1st, 1882. Next d. I. was begun. Temp. 102°; pulse 150. 5th.—Slept very little last n., and screamed as if suffering from meningitis; draws up legs a good deal; is suffering from intense headache. He remained in the same condition for the next few d. 9th.—Better, less screaming, more conscious. Temp. 100.4°. 10th.—Still screaming in a peculiar way. Pulse 144. 12th.—Temperature lower; more unconscious; very restless. 14th.

—"Twitching" and "rolling." 25th.—I. left off. 26th.—More restless, but less crying out; paler; more conscious. 2nd.—Screaming nearly ceased, takes notice. 17th.—Rational and quite restored to health.

4. Boy with lumbar abscess, which was opened Jan. 21st. Dressed with I. wool. Temp. 99.2°. 24th.—Urine 1037, loaded with urates. Temp. 99°. 26th.—Temp. 104.6° at 11 a.m. Pulse 138, weak. Skin hot and moist; vertical headache, drowsiness, nausea; breath smells of I.; discharge slight and sweet. The wound was washed out with carbolic acid; this was followed by better sleep, less headache, and disappearance of the nausea. Urine contains urates, but no albumen. Feb. 1st.—Went on well till this date. Then pain in occiput and l. lumbar region set in. Temp. 103.8°. Patient is drowsy, and has no appetite. Then he improved again until 17th. For 36 h. he was drowsy, had headache, nausea, and loss of appetite. Pulse frequent, full, and compressible. Temp. over 103°. After the 36 h. he improved, temp. fell to 101°, and he seemed himself again on the 19th. 19th, in e., temp. rose to 105.6°. A punctiform rash appeared over arms, knees, and dorsal surface of feet. Tongue furred, throat sore. 20th.—Rash is faint. Temp. 99°. Boy became, and remained, quite well. (Black, *Brit. Med. Journ.*, June 17th, 1882.)

8. After dressing a wound of head with I. for 3 weeks (during which there was nothing beyond loss of appetite) the patient suddenly began to behave as if out of his mind. The following d. he continued to talk nonsense, would not take any food, and would not remain in bed. During next n. he tried to run away, and became violent. This lasted till m. He was quieter when visited by Dr. Behring, but answered questions unwillingly and hesitatingly. Dr. B.—was struck with his wild look and his sunken features. The tongue was thickly coated and not tremulous; no tremor of hands (he had not been a heavy drinker). Temp. not more than 99°. Pulse 104 and of high tension. The use of potass. bicarb. as an antidote soon relieved the symptoms. He was restless next n. but did not wander. On 3rd d. appetite began to improve. The wound continued to do well. (*Deutsch. med. Wochenschr.*, Jan. 31, 1884, p. 68.)

9. A patient had insufflation of I. into tunica vaginalis. Suppuration was set up, with mental condition thus described: "Delusions, dressing himself in strange costumes, imagining himself of a prodigious height and growing rapidly. His ideas were all of an exalted character; he imagined he had the best tenor voice in the world, and proceeded to hire a large concert hall," &c. This patient was sent to an asylum; recovery took place in four months. (Black, *Brit. Med. Journ.*, 1885, i, 70.)

10. For painful local affections two patients received respectively twice a day for weeks a pessary and a suppository, each containing gr. v. of iodoform. After a time "they became so gradually unconscious, and the loss of power so imperceptibly came on, that general paralysis was feared. They lapsed into a dreamy state, followed in a few days by complete stupor and loss of power over the sphincters. They could be roused by great effort to take a little nourishment, but

soon lapsed into unconsciousness. This condition lasted some days, and passed off, leaving no permanent bad effects." (POLLOCK, *Pract.*, 1886, ii, p. 138.)

III. *Experiments on animals.*—1. The large proportion of iodine in this compound has led to its being ranked among the preparations of that substance, but a brief description of its action will throw doubts upon the propriety of this arrangement. Given to dogs in doses of 10—15 gr. it occasions* a sort of intoxication followed by depression. The animal lies still, and if he is aroused staggers in walking and then falls upon the side. After a few h. no traces of these effects remain. If the dose amounts to 50 or 60 gr. prostration and intoxication are succeeded by rapid pulse, with spasms of the limbs and opisthoronos, which occur in paroxysms ending in death. The breath smells strongly of the medicine. These various phenomena appear to show that Iod., by its primary action, at least, should be ranked with the anæsthetics. They give no indication of the large proportion of iodine it contains. (STILLÉ, *op. cit.*, ii, 859)

2. BINZ found that I., in moderate doses, and especially in cats, caused narcotic effects. In poisonous doses it produces acute fatty degeneration of heart, liver, and kidneys, and destroys life with manifestations of general paralysis and considerable decline of temperature. (OBERLANDER, *loc. cit.*)

3. The heart's beats (in a dog) were lessened, and the arterial tension, by the administration of 1 gramme, slightly increased; by more than 2 grammes tension was slightly diminished. The temperature rose a degree or two after a moderate dose; it was lowered by a large dose, and tetanic spasms came on. Local anæsthesia, paralysis, and diminution of reflex action occurred in the limbs into which the I. was injected; universal rigidity, persisting after section of the cord, set in later. From 3 or 4 grammes these followed: First, profound sleep, photophobia, anæsthesia, staggering gait, slight diminution of superficial and deep reflexes, and contracted pupils. Secondly, spasmodic paraplegia, with tremor on exciting voluntary movements, permanent erection of penis, and œdema of prepuce; later still a tendency to go backwards, and to turn round in a small space, was noticed. Thirdly, the animal repeatedly cried out, intense and general tetaniform contraction set in, with exaltation of the reflex irritability, clonic spasms, rotation of body, dyspœnia, and dilated pupils. The convulsions were uninfluenced by section of the cord. Large doses also cause nausea, vomiting, dysenteric stools, albuminuria, and hæmaturia, lessening of the number of and crenation in the coloured corpuscles, fatty degeneration of all the viscera, glomerulo-nephritis, intense hyperæmia of the cerebro-spinal nervous system, especially of the grey matter, accompanied by changes in the nerve-cells. (RUMBA, *Lancet*, 1883, ii, 119.)

* These results are Maitre's.—Ros.

IPECACUANHA.

Cephaelis Ipecacuanha, Rich. Nat. Ord., Rubiaceæ.

I. *Proving*s.—1. HAHNEMANN, *Mat. Med. Pura*, vol. iii of original, vol. i of translation. Contains 146 symptoms from self, 46 from 3 fellow-observers, and 41 from authors.

2. BOCK took Ip. for 2 d. at intervals of 2 h.; $\frac{1}{4}$ gr. caused after $\frac{1}{2}$ h. eructations, nausea, increase of saliva, then agreeable warmth in stomach and rumbling in bowels, at same time slight pinching, burning of upper lip and tongue, frequent yawning, feeling of weight and pressure in head, vertigo, pressure in head and forehead, as though the brain were compressed by two boards; pains in eyes like those in head, eyeballs seemed forced out of their sockets, and objects appeared in a mist. 1 gr. taken 2 h. later caused increased headache from forehead to crown, at same time sleepiness, pinching pains, distension of abdomen. 2 gr. caused after $\frac{1}{2}$ h. inclination to vomit, pain in bowels, distension of abdomen, dryness of fauces, pressure on chest, laziness and diminished thinking power. After 4 gr., violent pinching in stomach, distension of belly, great inclination to vomit, pressive and spasmodic pains in r. patella and l. arm, increased by touching, pinching pains in l. hip from crista ilii to trochanter major, then some stitches in r. tibia, feeling as if ants were running in calves, weariness of lower extremities. 8 gr. caused colic pains with rumbling in bowels and feeling of warmth extending to chest and sometimes accompanied by shooting. Inclination to vomit, burning pains in forehead, increased by touch. In larynx dryness, burning, and scraping. 15 gr. caused same symptoms in a greater degree, especially those of stomach, till in $\frac{1}{2}$ h. vomiting ensued, thereafter great drowsiness. (*Dis. de rad. Ipec.*, in *A. h. Z.*, xxxii, 68.)

3. LEMAKS took, Sept. 14th, 7 a.m., $\frac{1}{4}$ gr. rad. Ip. Soon, rumbling in stomach, warmth in stomach, increased flow of saliva, empty eructations. 7.30 a.m., same d., $\frac{1}{4}$ gr. Increased saliva, loathing, dazed head, chilliness, boring frontal pain, pain in umbilical region increased by pressure, great flow of saliva, with much loathing and feeling as if he would vomit, abdomen distended and pains constant, feet feel knocked off (*abgeschlagen*). Inclination to urinate, though he had done so at 6 a.m. and drunk nothing since, hands cold and moist, very weary, lazy, dull, and chilly. 8 a.m., inclination to vomit, pinching bellyache, much sneezing and thin discharge from nose, much thin saliva must be spat out, boring frontal pain, paleness, sunken features, repeated attacks of desire to vomit, with freedom from sickness in between, frequent chills. 8.45, weary, but feels better, good appetite, soon afterwards soft stool, the 2nd to-day—unusual. (*A. h. Z.*, xxxvii, 125.)

II. *Poisonings*.—1. A man engaged in pulverising ipec. root, who was suffering from slight cough and coryza, inhaled during 3 h. a quantity of the dust, which caused him to vomit three times and gave him oppression of the chest. Thereupon he left off pounding the

drug, but after 1 h. he had the most violent attack of suffocation, constriction of windpipe and throat, earthy cadaveric complexion, the most frightful anxiety during the suffocative attack; these symptoms increased every instant. Many remedies were tried with partial relief, but the symptoms recurred in an aggravated degree after 5 h., and he thought he should be suffocated. After taking a strong decoction of uva ursi leaves and chatany root he was almost instantaneously relieved, and in 1 h. could breathe freely, but the respiratory symptoms lasted several d., though in a more moderate degree. (PRIEGER, *Ruhr's Mag.*, xxxii, pt. 1, 182; *Frank's Mag.*, i, 548.)

2. Mrs. S—, æt. 26, at occasional intervals after her marriage to a medical man, was affected with a very troublesome shortness of breathing, attended with a remarkable stricture about her throat and breast, and with a particular kind of wheezing noise. The fits came on very suddenly; were often so violent as to threaten immediate suffocation; and generally went off in 2 or 3 d. with spitting of a tough phlegm of a disagreeable metallic taste. It was at last discovered that these attacks occurred whenever Ip. was being powdered or put up. By keeping her out of the way when this occurred she remained clear of the fits for 7 or 8 years together, but one e. her husband, having received a quantity of the powder, without considering opened it out and put it into a bottle. His wife, not being far off, immediately called out that she felt her throat affected, and was seized with the stricture upon her chest, and difficulty of breathing. She was exceedingly ill all n., and when I saw her between 2 and 3 a.m. she was gasping for breath at a window, as pale as death, her pulse scarcely to be felt, and evidently in the utmost danger of suffocation. Bleeding and laudanum had but little effect. After some sleep between 9 and 11 she got up, her breathing still very difficult and her eyes looking red and a little inflamed. There was some abatement of the distress from this time till e., when it returned in force and continued all n.; and this history was repeated without change for 8 d., and in a mitigated form for 6 d. more. She had a slight appearance of the menses about 4 or 5 d. after the accident occurred, although it was about the middle of the interval; coughed up at times some small quantities of blood, and had also some mixed with her stools and urine. (SCOTT, *Phil. Trans.* for 1776, part 1, p. 168.)

3. In October, 1824, being much lowered by over-exertion, while putting up a dose of powdered Ip., I was suddenly seized with a violent attack of asthma, attended with the most distressing dyspnoea and oppression at the præcordia. In spite of bleeding and active cathartics the attack lasted 5 or 6 d., and was several times repeated before I could convince myself that it was due to the drug. After a long change and rest, during which I was quite free from asthma, I resumed work in 1826, and, having occasion to take an emetic, chose Ip. wine. From the moment I swallowed it I felt in throat and stomach a sensation totally indescribable but as intolerable as if I had drunk melted lead. I leaped out of bed and rolled over the floor from side to side of the room. At length I drank copiously of warm water, which produced some vomiting and some mitigation of my intense sufferings. The distress slowly

subsided, and settled into one of my worst attacks of asthma. From this time forward I became subject to them whenever exposed to this drug or to the fumes of burning sulphur, the paroxysms always beginning with a feeling of irritation of the nasal mucous membrane, which rapidly spread along the bronchial ramifications. To diminish its sensibility I practised snuff-taking, and for the last 7 years have been free from a severe attack. But about 3 years ago I put my tongue to some liquid in a vial to ascertain its nature; and in an instant the peculiar burning, indescribable feeling came on in the mouth, rapidly extending to the fauces, and down the trachea and bronchia; and for 2 h. I suffered greatly and had considerable dyspnoea, all of which gradually disappeared.

b. I observed in some of my attacks a very curious sequela. When expectoration became free, in the mornings mouthfuls would be thrown up which any person at first sight would have pronounced to be a mass of small nearly transparent worms. On close examination I discovered it to be thickened mucus, which had collected in the small bronchia during sleep, and was now thrown off as casts of these tubes, often in such quantity as to surprise me that sufficient air could have passed through the lungs while sleeping for the purposes of life. (ROBERTSON, *Amer. Journ. of Med. Sci.*, N. S. vii, 252.)

4. a. I inherited from my mother's family, with a slender constitution, a strongly-marked nervous temperament; and, with advancing years, dyspepsia developed itself. In my 25th year I was the subject of an attack of pneumonia (autumn of 1822). After my recovery, which was rapid, my health continued as formerly, until the spring following, during which and the succeeding summer I had repeated and severe attacks of spasmodic asthma; arising, as I then supposed, from the exposure incident to my duties. The paroxysms usually came on suddenly, preceded by tickling in the nostrils, and sneezing, and continued from 3 d. to 3 weeks, during which I was unable to remain in a recumbent position. During a paroxysm, the dyspeptic symptoms were usually mitigated considerably. In the autumn following, more than 6 mo. after the first attack, I was led to attribute these paroxysms to the irritating properties of Ip. when inhaled. I was in the habit of using the drug freely in my practice, carrying it with me and dealing it out at the bedside. My attention once properly directed, I soon established the fact beyond all doubt by actual and painful experiments. Yet so new and singular was the fact that it was a long period before I could convince myself that even a single grain floating in the atmosphere of an ordinary room was capable of inducing a violent paroxysm of asthma, continuing weeks, reducing the strength as rapidly as an ordinary fever, and only terminating by cough and expectoration.

b. Early in the spring of 1825, I took $\frac{3jss}$ of the powdered root in tepid water, taking the precaution to have it weighed and mixed in a part of the house remote from my own room, not dreaming that any other form than dry powder would affect my breathing. In about the usual time for an emetic to operate, there seemed to be a simultaneous effort to breathe, cough, and vomit, while neither of these functions was performed in any degree of perfection—producing a state of suffer-

ing totally indescribable by words. The whole muscles of chest and abdomen seemed in a state of violent irregular spasm—every effort to vomit being interrupted by an attempt to cough; and notwithstanding a cold March wind was blowing, it became necessary to open the windows and support me in an erect position for nearly an hour to prevent immediate suffocation—an event momentarily expected by my friends. At the end of about an h., without any previous mitigation of symptoms, I was almost instantaneously and completely relieved, and at my own request was laid upon the bed. Breathing was free and natural, but weakness was extreme; at the same time a burning heat was diffused over the whole surface of the body, which, on examination, was found to proceed from a kind of erysipelatous eruption covering every portion, similar to what is seen after exposing the naked skin to a burning sun. The patches were circular, and varied from the size of sixpence to that of the palm of the hand—considerably elevated, with thick rounded edges, and of a fiery colour. I soon fell into a profound sleep, which lasted till m.; and there was no recurrence of dyspnoea. On two subsequent occasions I took a laxative pill containing a grain of Ip.; and in both instances, after 8—10 h., a severe paroxysm of asthma followed, continuing several d. (UKIEN TURNER, M.D., *Bost. Med. and Surg. Journ.*, xxix, 229.)

5. a. (After relating a similar experience to the foregoing, the writer adds). It is astonishing, I had almost said incredible, how small a quantity of Ip., inhaled, will produce the most sudden and violent paroxysms. A clerk in my drug store scattered a small quantity of Ip. on the counter, which he brushed off; the doors and windows were open, and a current of air had passed through the store for $\frac{1}{4}$ h. before I entered it; in 2 m. after my arrival I was seized with a violent sneezing, followed almost immediately with a paroxysm of asthma, which entirely disabled me for the d. Again, a young man in my office was directed to transfer a quantity of Ip. from a paper to a jar; I left the office for $\frac{1}{4}$ h. On my return I was almost instantly attacked with one of the most fearful paroxysms I have ever experienced; the extreme sense of suffocation, oppression at the præcordia, a most exhausting nausea, convulsive but totally ineffectual efforts to vomit, attended with simultaneous spasms of the diaphragm and muscles of the chest and abdomen, produced altogether a state of suffering which defies description. In each of these instances the quantity of Ip. inhaled must have been infinitesimally small.

b. That these effects of Ip. do not depend invariably on the irritating properties of the powder when inhaled, but on idiosyncrasy, seems established by the following circumstances. In the summer of 1841, I had a long course of bilious fever. The attack was marked by no particular symptom of disease of the lungs; but as soon as I commenced the use of Ip. or of Dover's powder as a febrifuge, I had a convulsive and harassing cough and dyspnoea; every effort to speak was interrupted by a spasm of the muscles of respiration, and a sense of sinking and oppression of the præcordia which constituted, in my opinion, the climax of human suffering. (PATTERSON, *Ibid.*, p. 411.)

6. M. M.—, pharmacien, has never been able to pass through his

shop when the Ip. drawer is open without feeling himself strangely suffocated. He is nevertheless strong and vigorous, not subject to asthma, and his pulmonary organs in good condition. So great is his susceptibility that when in his study, separated from the shop by a sitting room and a good-sized garden, he is yet conscious of the opening of the drawer containing the powder, and feels the asthmatic effect for several d. (IMBERT-GOURBEYRE, *Mém. sur l'Ipecacuanha*, Paris, 1869.)

7. M. B—, pharmacien, is obliged to leave his house, though occupying the third floor, whenever Ip. is powdered in the cellar, lest he should die of suffocation. Once, purchasing some articles of a wholesale druggist, he felt his usual dyspnoea on the opening of a certain bag, and had to leave the shop for a time. On his return some h. later he assumed that the bag contained Ip. The druggist denied that it was so, but one of his assistants recognised the bag as having some d. previously contained this substance, though subsequently it had been employed for another purpose. (*Ibid.*)

8. A hospital attendant, æt. 32, strong and healthy, passed through a room in which a bag of Ip. powder was being emptied into a vessel. He was immediately seized with dryness of fauces and sense of constriction of glottis. Face became red, conjunctivæ injected, thorax arrested in expiration, speech and cough impossible. In his anguish he rushed into open air, where he was able to take an inspiration, and sneezing occurred, and cough without expectoration. In 5 m. facial redness was somewhat lessened. Conjunctivæ were still injected, and he had violent headache, sore feeling in pharynx, and some hoarseness. Mucous membrane of velum and pharynx were much injected, and showed many small hæmorrhagic points. Breathing regular, 24, difficult without aid of auxiliary muscles, and noisy. Sharp vesicular respiration all over lungs, with loud whistling and râles. Expectoration of a moderate quantity of viscid lemon-coloured phlegm in balls, with traces of blood. No nausea; pulse 112; temp. normal. On 5th d. expectoration was purely catarrhal. Then followed a violent bronchial catarrh, with great exhaustion. After 14 d. he was well. (LOGE, *A. h. Z.*, civ, No. 23.)

9. a. On June 20th, 1856, I was asked early in m. to visit B— as soon as possible. He was employed in pounding at one of the city druggists, and had suddenly lost his sight, with horrible pain in eyes. Patient was 30, of pretty strong constitution; had served his time in the army, and had never been seriously ill, save for 13 weeks of intermittent fever in 1851. On arriving, I found him on a sofa uttering loud cries from pain and loss of sight. He said he had gone to bed quite well, and slept till 3 a.m.; he was then awakened by a dreadful pain in both eyes, especially the r. He could not sleep any more, the pillow was soaked with constant and copious lachrymation, and when daylight appeared he found to his horror that he was blind. Present condition,—features expressing pain; eyes closed, lids slightly swollen, especially r. He complains of acute tearing pains, which especially affect the r. eye and scarcely reach the forehead. On separating r. eyelids a gush of tears escaped. Ocular conjunctiva is congested in a circle, rosy-red, and infiltrated; so is that of lids, but in lesser degree.

Tunica vaginalis swollen; cornea dull and infiltrated, and on closer examination studded here and there with thickened patches, as if at these points the tissues were too closely united to be penetrated by the serum. Iris seemed dull and softened; pupil was contracted and gave little or no reaction, but it was of a pure black, and without any trace of obstacle to light,—yet sight was quite gone. L. eye presented same symptoms, but to much less degree; its sight was little affected. At first patient had experienced chills followed by heat, and, at last, after the pains had raged for some time, perspiration. No other symptoms.

Although patient spoke of having pounded Ip. the e. before, I could not trace the attack to this fact; and in absence of other exciting causes considered it the *début* of a masked intermittent. Treating him accordingly, pains first abated, then sight returned, so that by noon he could see and count my fingers held before his r. eye, and in afternoon he could distinguish the hands on a time-piece. Swelling and redness continued some time longer, but by e. his condition was very tolerable, and by the 26th he was well.

b. About 8 weeks after this I was called up for the same cause. The same phenomena had reappeared, only this time it was the l. eye that was most affected, and there was also nausea and vomiting. There seemed no cause for the attack, save that again on the previous e. he had pounded Ip. Inquiring now more closely into this matter, I found that only once before the last occasion had the patient been occupied with this drug, viz. in January; and he remembered then having experienced similar symptoms, especially in the r. eye; they had been ascribed to the entrance of a foreign body. This time I gave an emetic and ordered entire rest. The symptoms diminished regularly and without trouble and he resumed his work.

c. On March and next year B— came to me very early with his r. eye bound up. He had again, the previous d. at noon, been pounding Ip. In ½ h. he had felt a slight pricking and pressive pain in the eyes; in e. he could not read because the light blinded him; 5 or 6 times he saw flames before his eyes, whilst the pains kept on increasing. The conjunctiva began to redden, but there was little perceptible swelling. He went to bed at his usual h. and slept quietly till 2, when he awoke in violent pain with the pillow quite wet. At 3 he could no longer stay in bed. The r. eye was the worst, it was quite blind; with the l. he often saw iridescent rings of fire; the pain was incessant and momentarily aggravated by bright light. The other symptoms were as before. (TAMMAYN, *Journ. f. Pharm., &c.*, 1887, from IMBERT-GOURREYRE, *op. cit.*)

10. In small or nauseating doses Ip. produces malaise, with shuddering, chilliness, yawning, flow of saliva, and eructations. In somewhat larger doses it occasionally gives rise to uneasiness and rumbling in bowels, and sense of emptiness there, increased secretion of saliva and mucus, constriction of chest, irritation of throat, dry cough, occasionally spitting of blood or epistaxis, nausea, and inclination to vomit. Very soon after it is taken in full doses it excites vomiting, which is neither very severe nor frequently repeated, nor attended with

the same degree or even kind of sinking and prostration which rarrar emetic occasions. In all doses it is apt to relax the bowels, if they are in a healthy state. (STILLÉ, *op. cit.*)

11. A native student of the Campbell Medical School, æt. 23, took, Nov. 26th, 1874, at 6.15 p.m., about 35 gr. of powdered Ip. as an emetic for acidity of stomach. 6.30, griping in abdomen with a little vertigo and nausea; had a thin natural motion. Nausea and vertigo increased, and he felt hot inside. About 7 nausea was so great and distressing that he induced vomiting by finger in throat; ejected matters tasted sour, and consisted of some undigested rice mixed with a large quantity of mucus, no sign of drug. Vertigo and nausea relieved, but griping continued and increased. 8, large stool of watery character with some fecal matter; felt very weak and lay down on bed; griping less. 8.45, another loose stool. Felt excessively weak; griping again increased, and within 15 m. he passed another copious stool on floor, being too weak to walk to closet; stool was greenish yellow, and spotted over with little bits of thready white mucus. Griping after this became much less, but patient grew weaker and lay prostrate on bed. 10, cramps in fingers of both hands; slight general perspiration. 10.30, suddenly screamed out, complaining of drawing pain in r. great toe, which was seen spasmodically flexed. Immediately after, l. toe was in same condition, then feet, then calves. Now and then there was some stiffness in neck, especially in sternomastoids. After this spasmodic contractions went on irregularly in both upper and lower extremities, but more frequently and more severely in the latter, proving a severe torture to patient. 11.30, much restlessness; slight general perspiration; extremities somewhat cold; pulse soft, weak, slow. (Ginger frictions were applied to extremities, with hot bottles, and a draught of chloric ether and ammonia administered.) 12, pulse slightly better, but no relief to spasms; griping increased, and he passed a large watery stool, greenish in colour, with white mucus floating over it. Within 10 m. another stool of same character. Spasms became more severe; voice depressed; slight nausea and occasional retching. Another draught was given at 1 a.m.; several watery stools were passed unconsciously in bed; could not perceive whether he passed any water. No sleep; spasms constant. 2, chlorodyne, 30 min., was given. Another loose stool, of greenish colour and containing mucus, was passed. After an h., another dose of chlorodyne. After this patient felt very drowsy, and spasms began to come at longer intervals; they were also of shorter duration and less severe. Stools (fætid) were all the time being passed unconsciously in small quantity into bedclothes. At 5 a.m. a severe spasmodic contraction took place in r. foot, and immediately it was followed by a copious watery stool, with white mucus floating in it. After that (6 a.m.) bedclothes were changed and there were no more stools; no marked spasms; no vomiting, only a slight nausea, almost constant for 2 h. more. (SILVER, *Calcutta Journ. of Med.*, vii, 447.)

III. *Experiments on animals.*—1. Dr. POLICHRONIE (*Thèse de Paris*, 1874) has made a series of researches for the purpose of discovering

the mode of action of Ip. and of emetine. His conclusions are as follows:

a. Emetine is the really active principle of Ip.

b. Emetine is a very toxic substance. It kills animals in two ways, sometimes by the prostration of the nervous system which it causes, sometimes—when given in small doses—by the intense enteritis which it brings on.

c. Emetine brings on vomiting only at the moment of its elimination by the gastric mucous membrane, as proved by the delay of the sickness, and even more frequently its entire absence, after section of the two vagi; in this respect it acts quite differently from apomorphia and tartar emetic, these causing vomiting as quickly when the nerves are cut as when they are intact.*

d. Emetine has no vaso-constrictor action. (*Land. Med. Record*, iii, 59.)

2. PÉCHOLIER, in his experiments, employed emetine as well as the drug itself. The animals selected for experiment were rabbits and frogs,—the former because they do not vomit. The following are the results of the inquiry:

a. I. considerably diminished the number and energy of the pulsations of the heart in rabbits.

b. It notably reduced the number of respirations in these animals, as well as the afflux of blood to the lung. Indeed, the pale and exsanguine state of the pulmonary tissue displayed after death was remarkable; it was a veritable depletion of the lung.

c. In animals under its influence the temp. of mouth, axilla, and ear was lowered, while that of rectum remained stationary or rose.

d. In the digestive sphere, Ip. produced efforts at vomiting, hyperæmia of alimentary canal, and disappearance of sugar from liver.

e. The action on the nervous system was investigated in frogs. It reduced promptly the energy of the nervous system, and determined considerable collapse. The paralysis induced by it showed itself chiefly in the sensory system; motor nervous power and muscular irritability were merely diminished and not wholly abolished. (*Lancet*, April 25th, 1863.)

3. My experience of the effects of emetine is at variance on some points with that of M. Pécholier. In my cases the respiratory movements were increased in frequency, and the cardiac action was not less rapid than in health. In the lungs there was always, *post mortem*, more or less engorgement with blood, and in one case even lobular pneumonia was set up. (DYCE DUCKWORTH, *St. Barth. Hosp. Rep.*, v, 220.)

* The same results have been obtained by Chouppe (*Gaz. Méd. de Paris*, Aug. 10, 1874).—EDS.

IRIS.

Iris versicolor, L. Blue flag. Nat. Ord., *Iridaceæ*.

I. Proving.—1. *a.* Dr. W. A. Burr, May 15th, 1865, took 3 gr. of green root at 3 and 8 p.m. No effect, save locally from acidity of substance, and an unwonted emission at n. with amorous dreams. 16th.—Mouth and tongue feel as if they had been scalded; natural stool, but anus feels sore as if sharp points were sticking in the part. At 8 a.m. 10 gr., so acrid that it was with difficulty he could get his breath; much salivation (as yesterday); constant distress at anus, which felt as if prolapsed. At 1 p.m. 20 gr. of dried root; it was not acrid, but there was great distress in stomach $\frac{1}{2}$ h. after taking it, lasting 2 h. No other symptoms. 17th.—Took 30 dr. of a poor tincture. No symptoms, save that next m. he felt very irritable on waking. 18th.—Took 40 gr. of green root. In 15 m. profuse flow of saliva and tears; mouth and stomach feel on fire; almost impossible to breathe, it is so acrid; pain and burning distress at stomach, for $\frac{1}{2}$ h. awful to bear, continuing all afternoon and e., cold water does not touch it; profuse flow of saliva all d., constant eructations of tasteless gas; sleep very restless all n., with bad dreams. 19th.—Awoke at 4 with great rumbling and distress in umbilical and hypogastric regions, and with great desire for stool, followed immediately by a copious, thin, watery stool, which could not be retained a moment without much pain. Mouth feels as if it had been scalded; tongue thick and rough. At 8 another thin watery stool, with great rumbling in bowels; no appetite, loss of taste. At 11 took 40 gr.; acidity not felt so much. 1 p.m., great distress in epigastric region, profuse flow of saliva. 2.30, epigastric distress still increasing; very restless, could not be still a moment; felt as if he could not live, very much frightened; copious discharge of thin water from bowels gave no relief; inhaling chloroform eased somewhat. 3.15, another large stool, of water tinged with bile, running from bowels in a continuous stream till nearly 2 quarts had passed, with great rumbling but no pain. This gave great relief; felt quite well at bedtime. Sleep very restless; amorous dreams with emission. Very irritable during next d.; otherwise quite well.

b. Took 50 gr. of green root, chewed it, and swallowed juice at 11.30 a.m.; immediately great burning distress as before in epigastric region, but not much in mouth; profuse flow of saliva. At 2.30 p.m. large, yellow, papescient stool, with great rumbling and no pain; in 5 m. more, another large, watery stool; burning continues, it is fearful to endure. 2.45, flow of saliva abating; another watery stool, with colicky pains in epigastric and umbilical regions, which lasted for some h.; every few m. a copious watery stool, with great rumbling in bowels. By 6 began to feel very faint and exhausted, knees weak and trembling; anus feels on fire. With stool at 7 some tenesmus; food rises very sour. At 9, feeling much exhausted, was compelled to retire. At 4 a.m. great rumbling in bowels, with desire for stool; had a profuse watery one, followed by great straining with passage of a

little mucus. 5, another watery stool, followed by great straining, with passage of blood and mucus. 5.30, another stool of mucus streaked with blood, with great tenesmus. 7, stool of water and mucus with great straining; mouth tastes flat, tongue feels thick. 9, another copious stool of water and undigested food, with great straining; much exhaustion; eyes deeply sunken; teeth feel too long, and are very sore; dull, heavy headache; very hoarse; urine very scanty, of deep reddish colour; stomach very sour; bowels tender on pressure; loss of appetite. 10.30, another stool of mucus and water, with great tenesmus and rumbling; calves pain much in walking; thick flat taste. 12.45, small stool of mucus, with great tenesmus and rumbling; almost impossible to walk, limbs are so weak and painful; for last 6 h. mucous membrane of rectum has been prolapsed, with great smarting pains. 3, another small stool of mucus, with some tenesmus; urine very scanty, and burning when voided; constant eructations of sour gas; flying pains all through bowels. 10th.—Dull, heavy, frontal headache; flat thick taste; quite hoarse; urine very scanty and red, causing burning all along urethra for $\frac{1}{2}$ h. after voiding, glans penis swollen and red; severe backache; teeth all feel sore and elongated. 11th.—Felt quite well; but for two weeks occasional severe pains would shoot through temples. No constipation followed the diarrhoea.

r. Dr. Hare now proved Iridin, the oleo-resin obtained from the blue flag. May 26th, 1866, at 11 a.m., took 4 gr. of $\frac{1}{2}$ irid. At noon, dull, heavy, frontal headache; by spells, sharp pain in temples; tight, constrictive feeling of scalp. 3.15 p.m., food rises very sour. 3.30, took 8 gr. 10, soft papaceous stool without pain, but with rumbling; dull frontal headache; very restless at n., dreams of fighting, &c. 27th.—Much rumbling, with desire for stool; soft papaceous stool without pain; flat taste in mouth; teeth feel elongated and sore, in back upper and lower molars dull heavy aching pain for 3 h.; pain in forehead and l. temple, latter very sharp by spells; passed water but twice in d., very red in colour; restless n., emission with amorous dreams. 28th.—At 9 a.m. 10 gr. Frequent eructations of tasteless gas; rumbling all afternoon in umbilical region; pain in r. kidney for 3 h.; teeth still feel elongated and sore; great desire to sleep in daytime; fell asleep while reading, and dreamed of dissecting a woman hanging up by the heels in his office, awoke very much frightened, made several ineffectual attempts to get up to shut the door,—it was a veritable nightmare. 4.30 p.m., 14 gr. Soft papaceous stool at 9 p.m.; hands hot and dry all d.; restless n., dreams of snakes and everything bad, emission. 29th.—At 9 a.m. 20 gr. Hands hot and dry all d.; could not fix mind on study; constant tasteless eructations; passed scanty urine m. and n. only, with great burning in urethra for $\frac{1}{2}$ h. after; dull, heavy headache in forehead and temples, in latter sharp shooting by spells; dull, heavy pain in lumbar region all d.; soft papaceous stool at 2 p.m. 5, took 30 gr. Restless n., horrid dreams, great rumbling in bowels; emission with amorous fancies. 30th.—Mouth tastes flat; tongue coated white; headache as before, also lumbar pain; urine very scanty and high coloured; very soft yellow stool, with great rumbling in bowels but no pain. 31st.—

Took 40 gr. at 3 a.m. Dull, heavy headache all d.; great pain in lumbar and sacral regions, almost impossible to walk. At noon 18 gr.; soft mushy stool in e., with usual concomitants; restless n., bad dreams. June 1st.—Dull, heavy headache; back pains severely, very much worse on walking. At 8 a.m. usual stool and accompaniments; constant eructation of gas. 2nd.—Took 5 gr. of the pure Iridin. A good deal of pain in forehead and temples. 3, severe umbilical colic every few m. for 2 h.; great rumbling; papaceous stool in e.; restless n., dreamt of digging up corpses, and finally of falling into a grave, which woke him up in affright. 2nd.—Top of head has 26 pustules on it, some of them as large as a three-cent piece, situated on inflamed base of rose-colour, with red streaks running from one to another; they contained yellow matter, and were very tender to touch; gradually disappeared in 4 d. Took 10 gr. at 4 p.m.; headache as usual, also rumbling, and similar n. 4th.—Took 20 gr. at 9 a.m. Same symptoms. 5th.—Same; headache very troublesome. 6th.—Same, with profuse and frequent urination. 7th.—Headache gone, but this d. and next diuretic continued. On 8th felt quite well. (HALL, *New Remedies*, 2nd ed.)

2. a. About 15 m. after taking 3x dil. uneasy feeling in scrob. cordis, with rumbling in hypogastrium, nausea, and eructations of wind. Dull pain in r. parietal eminence, which increases steadily till it becomes a hammering pain, so much aggravated at first by motion that for the moment it appears unbearable, but by continued movement it gradually abates, returning again when at rest. Rheumatic pain in r. shoulder, worse on motion, especially on raising arm.

b. Immediately after taking ʒi, sneezing, nausea, and slight vomiting of watery and extremely sour fluid. About 2 h. after, stitch in lower occiput, more on r.; severe rheumatic pain in whole r. arm and in r. knee, worse on movement but continuing while at rest; acute and extremely severe boring pain in r. parietal eminence, causing him to bend down his head; pain in l. side, as though ribs were pressing hard on lower portion of lung, unable to take deep breath for the sticking and cutting pain it caused; short dry cough, excited by tickling in larynx, headache much aggravated thereby; slight toothache in a warm room; rumbling and uneasiness in stomach, with diarrhoea but little pain, stools lumpy, brown, and very offensive; sweat over whole body, particularly in groins; dry cracked lips; sharp cutting pain in urethra when commencing to urinate. After taking medicine 5 d. several small vesicles appeared on r. wrist, which gradually formed into pustules, having depression in centre; these dried up in n., leaving crusts, which remained 9 d. before disappearing.*

c. In ½ h. after taking nearly ʒss of tinct., feeling of rawness in throat; general languor; ill-humour; inability to fix mind on any subject; diarrhoea with colic; nausea for 1 h., then several times vomiting of thin watery fluid of exceeding sour taste; heat over whole body, then chilliness, with cold hands and feet; head feels very heavy, with r. supra-orbital pain; eyes dull, severe burning pain in r. internal

* The prover thinks it proper to state that he had been attending a severe case of smallpox.

canthus, eye filling with tears; sense of heat and fulness of head, with Bushed face; whenever attempting to laugh sensation as though a band was drawn tightly around forehead. Next d., sleepiness with great chilliness, only comfortable when near a hot fire, and even then chilly sensations are felt down back; violent tearing pains in r. hip and knee, also in shoulders, very severe, when worst lasting only about 3 m.; cutting and stitching in urethra when making water, with coldness and itching over genitals, itching being worse on scratching; vomiting of sour matter as before. All n. chilly over whole body, though abundantly covered; weakness and dependency, thinks he is going to be very sick, then laughs at his fears, which, however, soon return; dreams of suffocation and fire; 6 dysenteric stools during n., with pain and rumbling in hypogastrium. After these symptoms had subsided, there remained sore-throat and slight headache. (Dr. J. G. ROWLAND'S provings, in *Ibid.*)

3. Prover took, at different times, ʒss and ʒi, dil. and mother tincture. (No further information given.) Weakness and weariness in lower part of back for several d.; when walking, pain in r. hypochondrium and in several joints; sharp pain outside l. arm when moving it; swelling of gums inside under l. lower molar; redness of conjunctiva as from cold; for a d. or two much fecal flatulence, which relieves pain in abdomen; a number of shooting, shifting, and momentary pains in joints of hands and feet, worse on motion; boils on back, face, and hands; pain along posterior part of r. crista ili; urine more copious; pulse accelerated. After increasing doses, taken more frequently, empty eructations and pain in stomach, unusual restlessness at n., sleep disturbed by startings; tension and sticking pain in r. shoulder during motion, particularly on raising arm (this set in soon after commencing proving, and lasted 6 weeks after discontinuing medicine); itching of a greasy coating over mouth and tongue, early in m.; aching in stomach after drinking cold water; pains through d. in almost all limbs; same joint pains as before, worst in e. in writing, pains in phalanges of r. hand and in end of r. index (observed several weeks after proving); sharp pains in middle finger of l. hand, succeeded instantly by similar pain in a villa of same side (occurring frequently during about 3 m.); diarrhetic stool after breakfast and supper; veard irritable mood, disposed to find fault. (*Ibid.*)

4. As No. 3. Pulse somewhat accelerated; headache for a d., with great depression of spirits and general debility,—on 3rd d. pain shot like an electric shock from r. temple to l. occiput, and continued for about $\frac{1}{2}$ h.; crampy pains in r. lumbar region in e., continuing several h., and causing sweat to break out; woke up unusually early, with dry mouth and general depression; headache occurred irregularly for several d. Pimple on l. middle finger; next d. inflammation had extended over hand; the d. after it became more violent, and occasioned great pain; swelling was lanced, no pus found, but it was subsequently formed, and discharged through opening, round whose edges a fungous growth took place, pain extending up arm. There was a disposition to a similar formation on the index finger, but the inflammation soon subsided. During proving urine very copious, and of strong disagreeable odour; restlessness for 5 n. in succession. (*Ibid.*)

5. This prover (undescribed) took ʒi, trit. (in what manner not stated). Colicky pains during e. and n., obliging him to bend forward for relief, and attended with loss of appetite and great restlessness. Next d. colic continued, but was immediately removed by a dose of *nux vomica*; no appetite; restless at n., with troubled dreams. Next d. constipation (lasting several d.); several pimples on lower extremities and other parts of body, like mosquito bites; languid and feverish in afternoon, no disposition to mental or physical exertion. On 4th d. flushed face, fever, drowsiness, loss of appetite; weakness and languor, with rumbling in bowels; the m. after, thin, watery diarrhœa, continuing through d., debility and anorexia, diarrhetic stools next d., succeeded by umbilical colic in afternoon, ceasing at n. (*Ibid.*)

6. Dr. HOLCOMBE proved an "exceedingly strong" tinct. of root, taking 2 or 3 dr. 4 times a d. for 5 d. On 1st d. no symptoms but a good deal of hawking and clearing of larynx. On 2nd nothing but a slight, dull, stupid headache. On 3rd d. awoke with neuralgic pain in r. face, with darting stitches in two carious teeth; pain affects chiefly infra-orbital nerve. No appetite at dinner. In afternoon, severe colic, first in r. then in l. flank, with urging to stool. Very frequent, copious, perfectly limpid urine. Neuralgia passed off in e., and n. was good. On 4th d. facial neuralgia again, involving all branches of trigeminus; it began after breakfast, with stupid or stunning headache, and lasted several h. with great severity. Urine same. In afternoon a good deal of foetid flatulence; two greenish-black stools, with burning at anus. 5th d.—Neuralgia began again after breakfast, and continued with terrible severity for 20 h.; violent headache accompanied it, and general malaise. Urine became less frequent and quite high coloured; some disposition to stool, with burning at anus. Worn out by fatigue and suffering, he inhaled chloroform to get sound sleep, and abandoned proving. 6th d.—Dull soreness where neuralgia had been. Violent call to second stool by sensation as if wind were forcibly distending rectum; no wind was discharged, but he was relieved after passing a little greenish dark matter attended with severe burning in anus. On 7th and 8th d. no symptoms but frequent and painful hawking of tough mucus from larynx, and burning after stool, gradually diminishing. (*Ibid.*)

7. a. Dr. CONRAD WENDELHOFF, while preparing tinct., chewed (June 19th, 1867) a slice of fresh root. It caused great burning in throat, with redness, lasting 2½ h. He was suffering from severe (habitual) headache at the time; and this disappeared in ½ h., though hitherto it had invariably lasted till he went to bed.

8. Oct. 29th, at 10 a.m., took 2 dr. of 5x dil. Immediate dizziness, with pressure in forehead, also toward and out at ears; stiffness in trapezii; pinching at pit of stomach. After 12 h., rattling of mucus in chest, not to be raised by hawking. Awoke at n. with severe tickling under top of sternum, and dry cough, distressing because nothing could be raised (though the mucus still rattled low down) nor the tickling reached. 30th.—Mucus at length (10 a.m.) expectorated, with sweetish offensive taste; obstruction and catarrhal soreness of trachea, with frequent hawking and tickling cough. A.m., soreness of chest from nipple to nipple, with tender painful spot on r. border of sternum; pain on inspiration. Felt as if he had taken a cold, with lameness of trunk and lumbar region. While walking early, sudden lameness of posterior femoral region, causing a limp; in course of m. pain took direction of l. sciatic nerve, could not walk without limping; pain shooting from behind large trochanter down posterior part of l. thigh into foot on every motion, particularly when walking, till 4 p.m., when it passed off. (Never had anything of this nature before.) 31st.—Slept well at n., but immediately on rising had pain in l. sciatic, only in walking, but more acute and with more soreness than yesterday; leg weak, cannot walk without limping; yet violent exertion, running or jumping, does not increase the pain more than moderate exercise.

Slight hacking cough in m., without expectoration, and some soreness in larynx anteriorly.

c. On Dec. 1st and again on 3rd, prover having a sore-throat such as ordinarily went on to severe coryza and cough, he took 10 dr. doses of 3x dil. with the result of speedily extinguishing the trouble; but on e. of 1st he felt for 25 h. painful drawing and lameness behind l. trochanter, extending down to popliteal space, causing him to limp. Pain recurred slightly next d. also. From 13th to 18th he took daily a dose of 3x dil. m. and e., beginning with 10 dr. and ending with 25. 16th.—In m., while writing, sciatic twinges behind l. trochanter, several times, quite severe, with lameness. On 19th and 20th took 1, dil. m. and e., from 10 dr. to 20. Soon after taking first dose, nauseous feeling in abdomen, like beginning of sea-sickness; a faintness as if intestines were being revolved in wrong direction, lasting several h. Same sensation recurred towards e. 20th.—In m. stiffness in back, increasing on sitting down; on rising, violent painful tearing in loins, making it impossible to straighten body for some moments; could only gain erect position very gradually. Loins and back between shoulders remained stiff all m. Urine thick, of strong odour, and deep amber colour (owing to excess of uric acid); it flows without force, and even requires some effort to discharge it, but without pain. (A similar condition, with costiveness, had prevailed after taking med. for sore-throat early in month.) Sciatic pains—as if l. hip-joint were wrenched or forced to remain long in awkward position—several times in d. In m., soon after taking medicine, acute pains in head, as if top of head would come off, felt chiefly in forehead and vertex, after having been in cold air, and on making quick movements. 21st.—Several times during d. neuralgic pains like severe constriction round l. upper arm, forearm, and thigh; several times neuralgic twinges in hip-joint, as if wrenched, followed by a burning ache.

d. Jan. 26th, 1868, at 10 a.m. took 10 dr. of tinct. in a tablespoonful of water. In a few m., heat about fauces, soft palate and tonsils, soon changing into smarting and burning, relieved by inhaling cold air; deglutition not painful but more difficult; burning lasted over 2 h. While walking in e., slight l. coxalgia. After 8 h. still difficult deglutition while eating; food seems to stick in pharynx, requiring several efforts to swallow it. 27th.—At 10 a.m. repeated dose. Same local effects; heartburn several times in d. and frequent empty eructations. On Feb. 27th, took 30 dr., with usual but more prolonged local effects; and thereafter at various intervals several doses of same, from 10—50 dr., without experiencing anything more than slight twisting pain in stomach, and very frequent spasms of œsophagus, with dysphagia—food sticking in throat with choking and gagging. The rheumatic and neuralgic symptoms were not developed by the tinct. (*Trans. of Amer. Inst. of Hom.*, 1868.)

8. Mrs. N— took Iris (strength not stated) at 10.45 a.m. At once felt sudden dizziness, soon passing off. In $\frac{1}{2}$ h., slight pain in bowels with heat and soreness, as after a cold, and with premonitions of diarrhœa,—this for 3 h. After that, arms between elbow and shoulder became very lame, as after severe exercise, also sore to touch;

lame ness soon extended to shoulders and back of neck, like rheumatism after taking cold. Heat of palms; in e. frontal headache with dizziness occasionally. During n. stiffness and lame ness disappeared, but was followed by sore-throat, with slight soreness of chest. In m. raised some phlegm. Menses always regular and profuse, appeared 3 d. later than usual, and were scanty. On another occasion Mrs. N— took 1 dr. of 5x dil. This also was followed by immediate dizziness, and subsequent stiffness of trapezius, causing constant shrugging of shoulders and desire to twist head from side to side, lasting all forenoon. (*Ibid.*)

9. Miss I— took, Oct. 29th, 1867, 2 dr. of 5x dil. before going to bed, without effect. Next d. at 5 p.m. repeated dose. Slight pain in forehead, changing from side to side; heavy feeling in hands and elbows, as if prover had been drinking wine; pain in back. On 31st, pain in small of back all d. while sewing, and in forehead at intervals. P.m., heaviness of elbows and hands, with pain in back between shoulders, which finally settled in r. arm, between elbow and shoulder. (*Ibid.*)

10. Dr. SQUIER took repeated doses of tinct., from 1—10 dr. Much local burning, with visible redness of throat, ensued, but no other symptoms save slight dulness of head. (*Ibid.*)

11. Dr. BURMAN took same. Besides local irritation, as with No. 10, in 10 m. after first dose pulse, normally 72, was 89. After 3 dr., in 5 m. nausea and headache, latter soon subsiding (at other times felt chiefly in posterior fontanelle). After 12 dr., in 10 m. sleepy, with dulness and dizziness of head; nausea; belching of much wind. After 20 dr., in 8 m. sharp neuralgic pains in bowels. (*Ibid.*)

12. Three persons, a woman and 2 men, took the 5x dil. m. and e. They were unused to describing their bodily feelings. In the first the drug caused slight giddiness, coming on suddenly while walking within doors, and followed by lightness in head; weakness of memory (in 24 h.); and cramp in l. side, as from a knife, lasting a few m., followed after a while by darting pains in bowels. The second had tightness across forehead; nervous fretfulness, lasting all d.; cramp in l. side, under ribs. In the third the symptoms were toothache; tongue or gums greasy or slimy in m.; cracked lips; rough throat; running saliva; bad taste; flatulence; looseness of bowels; pain in fingers. (*Ibid.*)

13. Mrs. — took 3 or 4 pilules daily of 6th dil. 2nd d., 12 a.m., intense itching of face, worse when warm from exercise. 3rd d.—Great feeling of rawness of roof of mouth just behind front teeth, worse from hot or cold drinks, eating, touching with tongue, and especially from onions or cheese; also feeling as if skin of that part were hanging loose. Feels irritable; dislikes everyone. 4th and 5th d.—Symptoms all continue. 6th d.—Feeling of loose skin same; rawness extending backwards; rugæ of palate appear to sight enlarged and pale, and on r. side two are excoriated. Itching and disposition better. In e. rawness and feeling of loose skin have extended to throat; rawness is constant, aggravated as before. In afternoon throbbing pain in both mastoid processes, for 15 m., followed by tingling there for 3 or 4 m.,

then ceasing for 15 m.; warmth of hand slightly relieves pain; neither pain nor rawness prevented sleep. 7th d.—No itching; disposition natural; otherwise same as yesterday. 8th d.—On moving jaws tenderness of mastoid process extending half way down jaw along edge of bone. An additional dose of pulules to-day. 10th d.—Itching of face. 13th d.—Rawness of palate without feeling of loose skin, after eating cherries in m. (BERRIDGE, *North Amer. Journ. of Homœopathy*, N.S., ii, 57.)

II. *Poisonings*.—A lady took 2 or 3 one-grain pills of Iridin for several d. for constipation without any effect. She felt some slight colic after each, but finally I was called to her in one of the most severe attacks I ever witnessed. The symptoms were—facial and general appearance of anguish; much prostration; pulse feeble and frequent; much mental depression; frequent and violent efforts to vomit, resulting, however, in little more than an enormous discharge of air, which seemed to move off the stomach in very great force. There was cutting pain in umbilical, passing, as it were, by electric shocks to epigastric region, followed or accompanied by nausea, straining, and belching of wind; great commotion and rumbling in bowels above seat of pain, but little or none below, with no desire for stools. She vomited several of the pills before she was relieved. (SANFORD, in HALZ, *op. cit.*)

III. *Experiments on animals*.—I. a. Dr. BURT gave decoction to a young female cat at 2 p.m. In 5 m. nausea and vomiting of frothy mucus; states as if frightened. In 10 m. constant nausea, nothing but mucus vomited. In 15 m. lies on lounge, seeming quite herself. Gave ʒss of tinct. (a little wasted). In 6 m. very restless; crying fearfully; nausea and vomiting. 4-20, retching, mewing, eyes half closed, breathing very rapid, restless. 4-30, mewing and efforts to vomit; lies still. 4-36, running across floor with efforts to vomit; saliva runs from mouth constantly. 4-43, desperate but ineffectual efforts to vomit. 4-50, nausea and mewing, saliva running profusely. 5, retching; throws her head up and mews fearfully; resp. 72; mouth wide open. 5-20, nausea and moaning. 5-15, retching and sneezing; head hangs to floor. 5-30, nausea and vomiting; very restless; resp. 56; does not notice anything; mouth wide open and saliva running profusely; mews, and appears in great distress. 6, nausea continues, with great efforts to vomit; saliva runs from mouth constantly; groans and appears in great distress; nose rests on floor, mouth wide open. 7, still sick at stomach; saliva runs in large quantities; resp. 46. Gave ʒss more, and she died in 5 m. without a struggle.

b. P.M. 1 h. after death.—Pupils dilated; lungs very much congested, upper lobes filled with dark venous blood; heart filled with black blood; stomach much distended with gas, pyloric extremity covered with bile, as also duodenum; liver much congested, of black colour, bleeds profusely when cut into; gall-bladder half full of bile; pancreas very pale; all other organs natural. (*Ibid.*)

2. a. Same gave a female kitten, æt. 4 mo., at 2 p.m., 40 gr. of Iridin (a good deal wasted). 2-30, profuse flow of saliva; mouth wide open; wants to lie down all the time; breathing very rapid; mews constantly. 3, mews most fearfully; appears to be in great pain; rolls

from one side to other; mouth wide open; great dyspnoea; appears to be dying; secretion of saliva very limited. 3.35, still lying in same position, mewing at every breath; mouth filled with froth; walked 2 feet, staggering very much; dropped on side; resp. 48. 3.50, tries to walk, but falls; mews at every breath. 4, cannot stand; lies on its side; resp. 36; mouth open, filled with froth. 4.15, resp. 48. 5, gasping for breath, resp. 24; if spoken to mews fearfully, but cannot get up; in 10 m. crawled 2 feet; went into convulsions, which lasted 1 m., spasms were in forelegs and back; resp. 18; pupils dilated. 7, on its side, gasping for breath, resp. 18; cannot stand when lifted; ears and legs cold; mews fearfully by spells, as if suffering great pain; kicks and scratches much. 8.30, appears in great pain; mews at every breath. 9.30, went into spasms as before; had a watery passage, and died.

b. *P.M.* 10 h. after death.—Upper lobes of lungs very much congested; heart filled with dark venous blood; liver very much congested, especially l. lobe; gall-bladder half full; stomach almost bursting with gas; whole of intestines filled with mucus, water, and gas; pancreas red with blood, more congested than any other organ (Dr. Ludlam examined a portion, and found intense congestion of minute vessels and extravasation of blood into tissue of gland). (*ibid.*)

JABORANDI.

Pilocarpus pennatifolius. Nat. Ord., *Rutaceae.*

I. *Proving.*—1. When 6 gm. of the powdered leaves are given in infusion, very soon the face becomes red; the temporal arteries throb more strongly; then there is a peculiar feeling of heat in the mouth and on the face, and the flow of saliva begins. In a little while the forehead becomes moist, and the face more red; then beads of perspiration appear on forehead, cheeks, and temples. The flow of saliva increases, all the salivary glands successively contributing to this effect; the mouth is filled with immense quantities of fluid, and expectoration is incessant; at the same time perspiration covers the face and neck; then the whole body becomes red and moist, and a pleasant warmth is experienced; in a few m. perspiration breaks out over the entire surface, and soon runs down on all sides. Meantime other symptoms have supervened. The eyelids first become moist, then the lachrymal secretion gradually augments, and, after collecting in the canthi, rolls slowly down the cheeks; at the same time there is a copious discharge from the Schneiderian membrane, increased by the tears which escape through the nasal canals; moreover, there is increased activity of the mucous glands of the pharynx, trachea, and bronchi. All these effects reach their maximum of intensity in about $\frac{1}{2}$ h. after taking the drug, continuing thus for 30 or 40 m. Lying on one side, that the saliva may run more freely, the patient spits 10 or 15 times a m.; the flow is so rapid that he can hardly speak; the salivary glands are enlarged, and the mouth becomes hotter. The body is bathed in perspiration,

a shirt is wet through in a few seconds. Then a feeling of comfort or of weakness, as the case may be, is experienced. Thirst is intense. The pupils are slightly contracted. By degrees the excessive activity of the secretory processes is diminished; in 1½ or 1¾ h. the lachrymation, the nasal discharge, the bronchial expectoration, and finally the flow of saliva and the perspiration are notably lessened, and the parts involved gradually return to their normal condition. When the perspiration and salivation have ceased the subject is prostrated and drowsy. The parts which secreted so copiously are now very dry, especially the mouth and pharynx. There is also much thirst. (ROBIN, *Étude phys. et therap. sur le Jaborandi*, 1875.)

2. We made four experiments on 3 healthy lads (with a slight exception noted farther on) æt. 8—12. We gave 30 gr. of the infused drug with the dregs, and kept the lads in bed covered with their usual amount of bedclothes. We carefully examined the effect of the medicine on the sweating, salivary and bronchial secretions, pulse, respirations, and temperature. The lad on whom two of the experiments were made was slightly feverish (99'4° to 99'6°).

a. In 3 instances the drug produced perspiration; one lad's skin remained quite dry throughout the experiment. In 2 perspiration occurred in 10—15 m.; in the 3rd case it was delayed for 35 m., became profuse in 20—35 m. more, continued thus for 30—90 m., and remained slight from 2—4½ h.

b. There was some salivation in all cases, and in 2 it was profuse; but in the lad on whom 2 observations were made the effect on the salivary glands was very slight. The salivation was much more profuse in the lad whose skin remained dry. The salivation, when it occurred to a marked extent, began simultaneously with the sweating, was greatest when the sweating was most profuse, and lasted as long as it continued. In the lad who failed to perspire the salivation became profuse in 15 m., and so continued during 3½ h., and then in a less degree for 7 h.

c. We noticed an increase in the bronchial secretion, indicated by a loose cough, only in the lad on whom two observations were made, and in whom but a slight increase of salivary secretion occurred. The bronchial secretion was much more abundant in the 1st than in the 2nd observation; indeed in the 2nd there was very little cough.

d. In each observation a decided fall in the temperature occurred. In 2 cases during sweating the fall amounted to 1°, and in another it reached 2'6°. The observation was begun in the afternoon and continued till e. The reduction of the temperature persisted for the rest of the d.; but in the two m. observations the lowest temp. was reached about 1½ h. after the administration of the medicine. In 2 cases the fall began immediately; in another in 40 m., in another in 80 m. In the lad whose skin remained unperspiring there was a fall of 0'6°, which, beginning 45 m. after the administration of the medicine, lasted only 2½ h.

e. In each experiment the pulse became considerably quicker, 40—50 beats, reached its quickest 25—80 m. after administration, and acceleration continued more than 4 h. No close relation existed between the rapidity of pulse and fall of temperature. The heart beat

against the chest with increased force, there was distinct throbbing of the carotids, and the pulse was full as well as quick. In one lad, whose pulse was intermittent, the medicine entirely removed this irregularity.

f. In those instances in which sweating took place the face became flushed, and this was most marked when the perspiration was greatest. The flush involved the cheeks and ears. It soon passed away, and was succeeded by pallor, while yet the perspiration continued very free.

g. In 3 cases the medicine produced considerable drowsiness, the lads falling asleep during the observations. They were also a little sick, faint, and prostrate. The lad who failed to perspire vomited; the perspiration, therefore, was not due to nausea, nor, indeed, did they complain of it. The vomiting came on suddenly, and was not repeated. (RINGER and GOULD, *Practitioner*, xiii, 387.)

3. a. We have recently made 37 careful observations; 20 on adults, æt. 20—45; 17 on children, æt. 3—10. To the adults we gave 60 gr.; to the children 30 and sometimes 60. These investigations have led to the detection of several new and interesting effects of J. They show us that children are very little affected by the drug. In 2 cases only was the sweating abundant, in 8 it was slight, in 7 altogether absent. Salivation was generally absent, and never more than to make the mouth a little moister than usual; and so on with the other effects. In the adults the effects were as heretofore described. M. Rubin finds that the tears and the nasal secretion are increased, but in only 4 of our cases was such augmentation appreciable. In 11 cases complaint was made of pain over the pubes, and in some instances this was severe, and was generally accompanied by a strong desire to pass water, which afforded relief. A good deal of trembling, especially of the upper extremities, followed in 2 instances after the administration. One man complained of much throbbing of the head the d. following the experiment. Many patients complained of feeling alternately hot and cold, or chilly. One patient to whom we gave it was a nursing woman. Her milk, previously scanty, was greatly increased in quantity during the action of the drug.

b. Mr. JOHN TWENBY, having applied the extract to his own eye, finds that it causes contraction of pupil; tension of the accommodative apparatus, with approximation of nearest and farthest points of distinct vision; and amblyopic impairment of vision from diminished sensibility of retina. The effect reaches its maximum in 40 m., and goes off in 1½ h. (*Ibid.*, *Lancet*, 1875, i, 157.)

4. JOHN W—, æt. 17, drank, at 10.30 a.m., an infusion of ʒiiss. Just before taking drug skin was dry, temp. in axilla 98.25°, pulse 90. At 11.10 temp. was 97.9°, pulse 104. Skin was moist over whole body, face and forehead perspiring profusely. At this time he complained that mouth was filling with water, and said there was mist before eyes. At 11.40 temp. was same, pulse 96. Skin was perspiring profusely; salivation continued. He said he could not see anything on the other side of the ward, a distance of about 25 ft.; he could see anyone standing by the side of his bed perfectly distinctly. Pupils were unaltered. At 12.20 temp. was 96.6°, pulse 90, skin less moist, no derangement of vision, no salivation. At 1 skin was of natural

moisture, temp. 96-8°, pulse 96. (Sawyer, *Brit. Med. Journ.*, 1875, i, 174.)

5. Dr. HULL took 9j of leaves in infusion. The first effect, which came on about 8 m. after drinking the infusion, and chewing and swallowing about one half of the leaves, was a profuse flow of saliva, which continued about 3 h. During this time at least 30 or 40 oz. must have flowed. Following closely upon this came diaphoresis, which was extremely profuse, the perspiration running off in drops and saturating everything. In about 4 h. sudden and severe pain was experienced in the bladder, shooting down to the urethra, and causing exclamations. This was followed by cutting pain in the lower bowel, though there was no tendency to diarrhoea; it became so severe as to necessitate an opium suppository, which afforded great relief. About this time (1 h. after taking drug) cardiac irregularity was noticed, with great weakness and rapidity of action, and a nervous restless condition, with constant yawning. There was gradually developed a dimness of vision; and soon surrounding objects, beyond a couple of inches from the eye, became indistinct. A watch held closely could be read with ease. This condition lasted several h., when nausea came on, followed by severe vomiting, ejecting the contents of the stomach, finally bile, and then passing off as a continued retching. The unpleasant effects were counteracted by the administration of whiskey, about ʒij in water; and he fell asleep to awake next m. in a weak languid state, with excessive dryness of mouth and continued thirst. (*Phil. Med. Times*, vii, 434.)

6. Experiment by WM. MARTINDALE on himself; from 60 gr. of bruised leaf in 5 oz. boiling water, macerated 15 m. Took dose at 11.30 p.m.; in 5 m. felt a glow, increased circulation, uneasiness in head, became restless and secretion of saliva began to increase; in 15 m. perspiring freely. Salivation and perspiration continued profuse until sight became blurred—at a distance of 4 ft. could see a face, but could not distinguish the eyes; at 12.15 near objects could be seen distinctly, but not distant ones; pupils slightly dilated; pulse 96, rising to 104. Temp. not taken. Shivering came on about this time and the excessive perspiration (“a Turkish bath was nothing to it”) continued from all parts of the body; spirit and water was administered. Saliva required constant ejection; there was a kind of collapsed feeling to the cheeks. The speech was so affected that articulation was both difficult and indistinct. 1 a.m., vomiting ensued and was encouraged; it was followed by diminution of the symptoms, and after changing clothes and taking more spirits, at 1.40 fell asleep and slept quietly until 6 a.m. Felt squeamish all next d. The saliva collected was distinctly alkaline and measured 16 oz.; more escaped, which was not measured. (*Pharmaceut. Journ.*, 3rd ser., v., 561.)

7. a. W. L. WATKINS, M.D., æt. 23, health good, not affected easily by drugs. Dec. 1st, 1875, took ʒ dr. of 5x dil. m. and e. without effect, and repeated dose 3 times next d. with same result; which also followed use of 4th for 3 following d. On 6th, began to take 3x. On 1st d. no symptoms were noticed; but on 7th, 1 h. after m. dose, felt slight uneasiness in head, which during forenoon increased

to pain in occiput, extending to forehead, and lasting till late in afternoon. Did not take e. dose, but repeated med. before breakfast next d. About 1 h. after aching began in lower part of occiput, which increased in severity for 2 h., when it gradually passed off. During forenoon throat felt dry and inflamed; everything swallowed caused scraping sensation. P.m., inflammation increased; tonsils slightly swollen and jaws a little stiff. This soreness lasted 2 d. On 11th took same m. and e. After latter dose felt restless and anxious; dull pain in l. occiput; for 2 h. after going to bed could not get to sleep, on account of anxious and oppressed feeling in chest. After going to sleep dreamed of accidents and frights, which woke him up twice during n. Next m. quite a sore-throat, smarting pain; dull headache, mostly on l.; breathing hurried. Sore-throat and headache lasted till he went to bed; next m. headache had gone, but throat was still very sore. The feeling wore off gradually during d., and next m. he was quite well. On 15th repeated dose $\frac{1}{2}$ h. before breakfast, for which it seemed to take away all appetite, but 2 h. later he became very hungry. Usual headache came on towards noon, but did not affect appetite for dinner. Did not sleep well, from restlessness and sensation of firm pressure on chest, with hurried breathing. Next d., exhausted feeling; no headache in m., but it came on during d., and lasted till he went to bed.

6. On 19th began to take *xx*. After 10 dr., in 2 h. heavy dull pain in lower occiput, worse on l. side; prostration of strength, even a short walk causing weariness, hurried breathing, and palpitation. These symptoms lasted 4 d., headache going off first. On 24th, repeated dose. Same symptoms, with pain in cardiac region and anxiety. These symptoms lasted 5 d., becoming less severe each d. On Jan. 5th took *t₂*, and repeated it at n. without any effect. On 6th repeated dose. In about 2 h. return of symptoms of head and heart, with weakness, which lasted 3 d. After this repeated same dose with like result. On 13th took 10 dr. of tinct. This caused headache and suffocative feeling. Repeated dose next m. About noon there suddenly came on throbbing pains in forehead and vertex; then pains in chest and around heart, increasing in severity as those in head became less, heavy pressure on chest, hurried breathing, and great prostration. The symptoms became so bad that he was obliged to go to bed; for $\frac{1}{2}$ h. after so doing could only breathe with great difficulty, and with pains about heart there was severe palpitation. This condition remained at its height for 2 h., and then gradually abated, so that he was able to get up in the e. and study. For two weeks subsequently he had the headache almost every d. about noon, and the exhaustion had barely disappeared by the end of this time. (*Am. Obs.*, xliii, 345.)

8. Dr. W. IRVING THAYER, æt. 39, in perfect health, save that he has 3 papercut stools daily. July 20th, 1875, took repeated doses of 5—30 dr. of 1st dil. without effect. 21st.—Same result from 1 dil. taken in same way (up to 60 dr.). 22nd.—Made a tinct. of 1 to 5, and took it after same manner, without effect; but his sleep for this and the last 2 n. was early and profound. 23rd.—At 9 a.m. 5 dr., and at

10 a.m. 10 dr. of tinct. In $\frac{1}{2}$ h. after last dose dull heavy distress in pyloric region of stomach, as though some hard, indigestible substance were lying there. At 11.30, 10 dr., followed by same symptoms, but most acute. At 2 p.m. 5 dr., and at 4 p.m. 10 dr., which lasts in 20 m. slightly increased pain in stomach; but a full meal at 5 at once relieved it. 24th.—Two stools to-day instead of usual three, first constipated. At 9 and 10 a.m. 15 dr., and after 2nd dose distress at stomach,—a burning pain rather than the dyspeptic ache he experienced yesterday. At 11 a.m. 35 dr., and at 9 p.m. 40 dr. This m., also yesterday, noticed bright red spot on r. cornea, near iris; and in both eyes a vascular appearance, as from cold or overwork; pupil normal. 25th.—In usual state. 26th.—At 8.30 a.m. 30 dr., at 10.30 a.m. 30 dr., and at 2 p.m. 80 dr. In $\frac{1}{2}$ h. after last dose, copious perspiration; pulse (normally 80) 108; temp. 97°. At 3 p.m. 30 dr. At 5, overpowered with sleep while reading; slept $\frac{1}{2}$ h.; after waking, found cornea injected and quite red. 27th.—Eye less red. 28th.—At 2.15 and 3.15 p.m. 75 dr. After 2nd dose pulse 94. At 4.15 p.m. 100 dr. In $\frac{1}{2}$ h. gentle glow on face, as from exposure to sun and wind; slight increase in colour. 5, whites of eyes vascular again. 29th.—For last 3 d. stools have come only twice daily, but of same consistence. On 30th two stools, but exceedingly difficult to evacuate, consisting of long, large, and very dark fæces. 31st.—Between 6.30 a.m. and 1 p.m. 8 stools, watery, yellow, and coming with a gush. Felt an emptiness with this diarrhoea, but no pain whatever. At 1 took 15 dr., and repeated dose at 2. At 3.25 another similar stool. At 5 took 25 dr. At 5.25 stool as before, and again at 6; pulse then 100, temp. normal. Felt a little weak, chilly up and down back; glad to go to bed about 7.30; eyeballs sore on movement; dull throbbing ache at front and top of head. At 9 another stool. Feverish heat now, beginning in face, extended all over body; pulse 100. Fell asleep at 9.30, and spent one of the most wretched n. he ever experienced; smart fever, increased pain in head, general malaise (no thirst), very restless, talking, moaning, with some delirium. Stool at 1 a.m. Took belladonna, with some relief to fever and restlessness; but sleep disturbed by many distressing dreams. Ate a light breakfast. Headache, eyeballs very sore, tongue slightly furred. At 10 a.m. took some china. Stool at 2 p.m., yellow, better digested, but coming with gush. Eyelids stiff and very heavy after an hour's nap, very profound (as sleep has generally been since beginning proving); also considerable distress in stomach and lower half of œsophagus,—this was removed by pulsatilla. and.—Slept quietly and very profoundly; eyes in m. sore on movement. Five painless but watery stools. On 4th, continuing to have 5 to 10 similar stools daily, took gambogia ʒ, two doses of which cured it. (*Trans. of N. Y. State Hom. Med. Soc., N. S. ii, 122*).

9. a. DRASKE experimented on a number of patients with infusion of ʒj. Some took it cold, some hot; some took it all at once, some by instalments. In all there occurred increase of salivary secretion and perspiration. The salivation always occurred, and was so copious that in some cases as much as 200—300 ccm. of saliva were collected in

2—3 h.; it was of neutral reaction, sp. gr. 1002, containing much albumen. The increased secretion began to appear in 10—15 m. after taking medicine. The perspiration generally appeared first on face and chest, in numerous large drops. It lasted 2—3 h.; not longer, however, than the salivation. Both sometimes occurred whether the medicine was swallowed cold or hot, but in the latter case the perspiration was more copious. The patients had at the same time a feeling of increased warmth and face became red and turgid. The temp. at the commencement of the action rose from some tenths to 1° C., but afterwards fell rather below normal. In the beginning pulse was slightly quickened, but later it became slower. Sphygmographic tracings showed a very considerable contraction of the arteries during the action of the medicine. In some patients transient derangements of vision were observed, and only in a few slight contraction of the pupils. The urinary secretion was not increased but rather diminished. In some cases there was urging to urinate, and a tickling sensation in urethra. No effect was produced on the bowels, but some patients had eructations, nausea, and inclination to vomit; these symptoms only occurred when the whole drachm was swallowed at once. There were no after-symptoms.

b. When the drug was given in tincture, the salivation always ensued, but the perspiration was not always present. When ℥ij of tinct., corresponding to ℥j in infusion, were taken, salivation and perspiration were very copious. Visual derangements were very slight, or sometimes absent altogether. The tinct. seemed to be not so certain in its action as the infusion. (*Zitsch. d. allg. öster. Apotheker-Ver., May, 1875.*)

10. a. Among the incidental effects which have been observed, mention should first be made of the vomiting which occurs from $\frac{1}{2}$ h. to 1 h. after taking the drug, and which is always preceded by prolonged nausea. It is extremely annoying and exhausting to the patient, lasts for a long time, and may readily lead to dangerous collapse. In 41 experiments Riegel observed it 18 times, and 10 times nausea without vomiting. Lohrisch, in 30 cases, saw violent vomiting 12 times, and nausea with inclination to vomit 22 times. The nausea showed itself sometimes immediately, sometimes $\frac{1}{2}$ h. and even later, after taking the medicine.

b. After the nausea and vomiting, increased frequency of micturition is the most common symptom, occurring in about 40 per cent. of the cases. It appears so suddenly, and the desire is so great, that the patients are absolutely unable to resist it. Now and then a burning pain in the urethra and small of the back is also noticed, which is so intense as to draw loud cries of suffering from the patients.

c. The disturbances of vision so frequently noticed are also worthy of mention. The patients state that they are unable to see distinctly because there seems to be a veil before their eyes. A few authors claim also to have observed dilatation (? contraction.—Eos.) of the pupils in these cases, but Riegel was not able to confirm this statement.

d. In addition to these incidental effects, there also occur not infrequently hiccup, dizziness, headache, with a kind of stupefaction, and in some cases, a more or less intense chilliness appearing near the

close of the sweating, and also gastric and abdominal pains. After the cessation of the sweating, these symptoms come to an end. In very weak persons collapse without vomiting is occasionally observed. (LAWSON, *op. cit.*)

III. *Experiments on animals.*—1. *a.* In animals which perspire, it has been possible to ascertain that all the secretions connected with the alimentary canal—the bile and pancreatic juice, as well as the saliva—are increased. In dogs it produces a copious and sanguinolent diarrhœa. The urinary secretion, besides, is augmented in dogs; and there exists also an abundant flow of nasal and conjunctival mucus. Introduced into the stomach or into the crural veins, *J.* dilates the pupil (this, however, fails to occur when the sympathetic is divided in the neck). In toxic doses, *J.* retards considerably the beats of the heart, and sometimes ends by arresting them completely in diastole like muscarine. Applied directly, however, to the heart of the frog, *J.* arrests the heart in systole like digitaline. Atropine destroys its effects on the heart, and also arrests its salivation and sweating. The temperature of the animals experimented upon is generally elevated.

b. An infusion of 10 grm. of powdered leaves in 90 grm. of water was injected into the crural vein of a dog, in three portions, 2—3 m. apart. Some instants after first injection, saliva began to flow abundantly, and its eyes filled with tears. A little later, vomiting was produced, then diarrhœa. Sanguinolent mucus escaped from the nostrils. Pulse was small, unequal, 100; pupils at first enlarged, but soon returned to normal state. The animal trembled and appeared very feeble. It died during n. P.M.—Intense congestion of mucous membrane of stomach and bowels; brain and its membranes also congested. There were ecchymotic points in lung, especially below pleuræ. (VULPIAN, *Path. Exp.*, i.)

2. *a.* General nervous system.—Injected under skin of frogs Jaborandi causes tetanic convulsions, not unlike those of strychnia. These continue after removal of brain, but cease with destruction of spinal cord. In 2 dogs narcotised with morphia, and in 2 rabbits to which chloral had been given, no convulsions occurred. The difference between the frog and the mammal may have been a question of dose. No marked effect on the irritability of the motor nerves or of the muscles was noticed.

b. Circulation.—In the dogs and rabbits (narcotised as above) injection of Jaborandi into jugular vein was followed at once by distinct slowing of pulse. No initial quickening (as observed by Dr. Ranger in human subject) was observed. The pulse was diminished to one third of its previous rate. In the rabbit the effect rapidly reached its maximum intensity and speedily diminished. During the height of the effect stimulation of the pneumogastric nerve produced the ordinary inhibitory results, the heart's action ceasing in diastole and recommencing on the withdrawal of the stimulus. In the case of the frog the injection of atropine was necessary to cause the heart to begin work again. Jaborandi, while acting similarly in this respect to physostigma, does not so rapidly exhaust the inhibitory fibres. A rapid but not very great fall of blood-pressure occurred in the dog and rabbit. If the web

of the frog's foot be examined after injection under skin of back of Jaborandi, the arteries are seen to dilate and the capillaries and veins to become full and red. The rapidity of the flow diminishes considerably, sometimes amounting to complete stasis over the whole or the greater part of the web, while the heart is beating 20 per m. The stasis gives way partially when the heart is revived by atropine. The same stasis was observed whether the sciatic nerve was divided or intact. After the injection of Jaborandi into the jugular vein the vessels of the ear on the side on which the sympathetic was intact were dilated, but less so than on the side where the nerve was divided. Stimulation of the divided nerve caused contraction and pallor as usual. The tracing of the blood pressure was remarkable for the great flattening of the respiratory curves, a flattening which could not be explained by changes in the respiratory movements.

c. *Secreting organs.*—In the dogs and rabbits, very soon after injection, a thick viscid mixture of mucus and saliva dropped from the mouth and clear fluid ran from eyes and nose. When a cannula was placed in the submaxillary duct a flow of saliva like chorda-saliva soon took place. The secretion soon reached a maximum and speedily declined. It was unaffected by previous division of the chorda tympani, and was therefore peripheral in its mechanism. The Jaborandi seemed rapidly to exhaust the gland, as electric stimulation of the chorda tympani was followed by a much smaller flow than if Jaborandi had not been used. In the frog a viscid secretion from the mouth and from the whole surface of the skin occurred. In the dog, after death, a large quantity of mucus was found in the trachea and bronchi and much acid fluid in the stomach. Jaborandi appears to increase the peristaltic action of the intestines. (LANGLEY, *Brit. Med. Journ.*, 1875, ii, 241.)

Pilocarpinum.—Alkaloid obtained from Jaborandi.

I. *Provinge.*—1. The first and most constant action of pilocarpium muriaticum, even in small doses (0.5 cc. of a $\frac{1}{4}$ per cent. solution) is increased secretion of saliva; it comes on in from 3 to 5 m. after hypodermic injection in upper arm, and lasts hours longer than the increased secretion of sweat, more rarely does it cease simultaneously with the latter, and it occurs after doses that cause no diaphoresis. The duration and quantity of the salivation are proportioned to the strength of the dose. The diaphoresis, which very seldom fails to occur (and then from doses not exceeding 0.5 cc. of a $\frac{1}{4}$ per cent. solution), speedily follows the ptyalism, rarely 5 m. later; it begins generally in the head and gradually spreads all over body, accompanied often by an intense feeling of cold, so that the patients' teeth chatter and they wrap themselves up with warm coverings. The duration of this diaphoresis varies with the strength of the dose; with our usual dose, 1.0 cc. of a 2 per cent. solution, the duration of the sweating is on an average 1 h. if the patient remains out of bed, but can last 2 or 3 h. if he goes to bed. There is usually a slight quickening of pulse by from 5 to 20 beats, but with the cessation of the diaphoresis it reverts to the normal. Rarer is an increase of the temperature from 0.5° to 1° , which was

observed when the patient complained of intense feeling of cold. The feeling of great faintness is only in short fits, and does not last longer than the other symptoms (when the infusion of Jaboardi leaves is taken this symptom lasts 4 or 5 h. longer). Nausea only occurs when the saliva is not completely ejected. (There is no vomiting, which, again, is a marked symptom when the infusion is taken.) Contraction of the pupils occurs later, and survives all the other symptoms by, on an average, 12 h. On dropping into eye 1 dr. of the 2% solution the contraction begins in 10 m., attains its maximum in 20 to 30 m., lasts at that degree 3 h., and perceptible contraction remains for 24 h. The loss of weight from a copious secretion for 2 to 3 h. is on an average 2 kilogr., once it was 4 kilogr. (WESTER, *Centralbl. f. d. med. Wissenschaft.*, Berlin, 1879, 769.)

2. Made 12 experiments on 10 persons. 3 m. after hypodermic injection (quantity not stated, probably 1.0 ccm. of 2 per cent. solution) there came on salivation. This gradually increased, attained its maximum in 20 m., and remained there 1 h., then gradually declined, but after 5 h. it was still somewhat increased. In one case the ptialism was so great that in 100 m. after the injection 550 ccm. saliva was collected, of sp. gr. 1005. The amount of sweat during same period was from 500 to 700 ccm. Almost constant was an increase of the laryngeal secretion. From the flow of tears into nose the nasal secretion seemed to be increased. Once there was dysuria with violent but transient pain in glans penis. At the height of the diaphoresis the temperature in anus sank 0.5° to 0.6°, as the diaphoresis declined the temperature rose gradually to its normal height. The pulse is at first quickened. Sphygmographic observations showed a marking sinking of arterial tension a few m. after the injection and before the commencement of the sweating. Three of the probers had some eructation. In one case in which the patient expectorated no saliva and probably swallowed it, he vomited a meal taken 2 h. after the injection. In another case (saturnine paralysis) where there were profuse salivation and diaphoresis, the patient had intense cold feeling, with trembling of limbs and constriction of chest. (BARDENHEWER, *Berliner klin. Wochensch.*, 1877, 7.)

3. After injection (hypodermic) of 1 ccm. of 2 per cent. solution, the action commenced in from 1½ to 10 m. The action commenced soonest when the injection was performed on temporal region, latest when done on outside of thigh. The first symptom is a quite sudden salivation. The salivation attains its maximum in about 15 m., continues there 1½ to 2 h., and there flows from ½ to 1 litre of the watery saliva. Almost simultaneously, sometimes some m. later there occurs, along with increase of pulse by from 10 to 20 beats and feeling of warmth chiefly in the forehead, at the hair border, sweat, which in a short time extends over face, neck, chest, trunk, arms, and lastly, legs, lasts about 1½ h., but if the patient is wrapped up, from 2 to 3 h. The weight of the increased secretions is from 1 to 2 kilos. After a few m. the pulse rises, and as the symptoms of the drug decline the pulse falls till it regains its normal velocity. When the pulse began to rise some of the patients complained of throbbing in temples. The sphygmo-

graphic curve shows at the beginning an increase of the systolic elevation and a more perpendicular up-stroke, quicker descent of the katrotic limb, and distinctly marked reflex elevation, showing that the artery swells quickly and strongly and falls together rapidly, signs of relaxation of artery and quickened cardiac action. This is most distinctly seen after from 10 to 15 m., and then it gradually returns to the normal state. The temperature showed a slight elevation, 0.5° to 1° at the commencement of the quickening of the pulse, remained thus until the perspiration was profuse all over the body, then sank slowly for 3 to 4 h. to from 1° to 2° below the normal. Sometimes at the commencement of the sweating, sometimes during its course, there was cold feeling up to marked rigor (whilst the thermometer showed no decrease of temperature). Some had, after the occurrence of the pyalism, great chilliness, that sometimes lasted 1 h. After the remission of the chilliness the perspiration then set in. In another case the feeling of coldness only occurred when the pyalism and diaphoresis had attained their maximum. In some there was urging to urinate and occasionally even violent pains in urethra even when not passing urine. Occasionally there was increased secretion of urine. Nausea and vomiting were rarely seen. In women whose menses were always regular they came on 2 d. too soon. Contraction of the pupil after injection was not very obvious, but when instilled into the eye it commenced in 3 to 5 m., and attained its maximum in from 15 to 20 m. After 1 dr. only the action on the pupils lasted only 2 to 3 h., but when several drops were inserted the contractions lasted 24 h. (SCOTT, *Ibid.*, 141.)

4. Action begins 2 to 5 m. after injection of 2 per cent. solution. First, the forehead and face grow red, the veins of forehead swell, then sweat appears on face and all over body, and becomes very profuse. Salivation occurs often before the diaphoresis. There is often an increase of other secretions, lachrymation (the tears come through the nose), bronchial secretion increased, with loose cough and expectoration, then almost always increased urging to urinate and increased secretion of urine; but this is only transient. On the whole, the amount of urine passed during the 24 h. is diminished. Sometimes there is great sickness, followed by vomiting. Frequently there is great weakness and a kind of collapse. The proper effects of the drug last 2 to 3 h., then there ensues a feeling of exhaustion, during which the patient generally falls asleep and wakes refreshed. But this exhaustion sometimes lasts till next d. Before the outbreak of the sweat there is a dilatation of the blood-vessels, both arteries and veins, of the face and forehead. The temporal arteries, before scarcely visible, form a thick projecting cord whose pulsations are visible. The diameter of the arteries is increased to the double. The veins of the forehead appear as thick blue vessels. Radial arteries also dilated, and veins of forearm and hand. The pulse becomes more frequent, sometimes slightly, as from 80 to 84 or 88, usually to 100, and sometimes from 80 to 120. The sphygmographic tracing shows increased elevation of the systolic impulse. An increase of the temperature at the commencement of the action of the drug from 0.1° to 0.2° and even 0.5° was sometimes

observed, sometimes not. After the sweating the temperature gradually declined. With Mosso's instrument (plethysmograph) it was found that the forearm increased in size owing to the increased distension of its blood-vessels. (LEYDEN, *Ibid.*, 385.)

II. *Præparings*.—1. *a*. Although it has been found in the course of time that the use of this agent is attended with a number of unpleasant symptoms, its quality of developing its activity hypodermically causes it to present such great advantages over the leaves of Jaborandi, that the latter must be placed much below P. as a diaphoretic. According to Weber 1 ccm. of a 2 per cent. solution of the muriate = an infusion of 5 grm. of Jaborandi leaves. The quantity of saliva secreted after an injection varies, according to Losch, with the individuality of the patient. The saliva itself is tough, viscid, and often as thick as the white of egg. The salivation follows immediately upon the diaphoresis. In this last also the individuality of the patient plays a part, as is shown by the fact that some are bathed in sweat, while others transpire but slightly after the same dose. Rigors are now and then observed during the sweating. Intimately associated with these phenomena is increase in frequency of pulse, by 30—40 beats. The patients often complain of palpitation, and very sensitive persons of a feeling of anxiety, which, however, speedily passes away. Vomiting also occurs, and becomes very violent when it once begins. According to Losch, this symptom occurs once in 5 times in women, but only once in 10 times in men. It is usually followed by collapse. In children, in addition to vomiting, Demme saw weakness approaching to fainting, pallor of face, and distressing hiccup. Burning sensation in urethra or glans penis was also frequently noticed, usually associated with frequent micturition. Federschmidt also observed dysuria in 2 instances. During diaphoresis and salivation, patients sometimes complained of feeling as if their bladder was too full, and unable to empty itself. When injections were again practised upon the same persons, these abnormal sensations failed to appear. Disturbance of vision, characterised by mistiness, frequently occurs. In some persons this becomes so intense that they are unable to read large print 6 in. from the eye. There was not necessarily any coincident increase in the lachrymal secretion. The most unpleasant of all the incidental effects of P. is the collapse which appears both during the stage of secretion, and after it, even in robust persons. It may even have a fatal result. The heart must also be watched with the greatest care, particularly in persons with lesions of this organ, on account of the well-established enormous acceleration of its action, which is often attended with irregularity.

b. An observation of Rannelt's may be mentioned in this place. After the subcutaneous injection of 0.02 grm. in a patient with uræmia there appeared next m., after diaphoresis had passed off, a swelling of the submaxillary glands, to the size of a fist, and also of the parotids and tonsils, with fever. Under the use of atropia these phenomena passed off in the course of a d.

c. Great danger is incurred by the untimely use of P. in eclampsia. Sânger reports 3 such cases, in which the injection of 0.02 grm. was followed by œdema of the lungs. In one case, life was saved by the

antidotal employment of atropia, but death occurred in both the others. Sanger explains this injurious action of the drug by the deficient expectoration of the masses of mucus which are formed under its influence, and their entrance into the lungs. Expectoration cannot be performed, because unconsciousness and loss of activity are produced by the eclamptic attacks. (LEWIN, *op. cit.*)

JUGLANS.

Including *J. nigra*, L.; and *J. regia*, L. Nat. Ord., *Juglandaceæ*.

Juglans cinerea, bitter nut.

I. Proseps.—*a.* Dr. JOSEF P. PASKE took, Nov. 20th—24th, 1851, 4 dr. of 3rd dil, every n., without effect. On 25th, took 9 dr. of 1st dil. at n. In ½ h. slight vertigo, with sinking faint feeling in stomach, extending to abdomen. In 3 h., diarrhoea, with burning in anus before and after stool. 26th.—2 dr. in m. Pain in l. chest, feeling of weakness and debility. 27, slight nausea, with vertigo. 28, yellow frothy diarrhoea, with tenesmus and burning in anus after stool. Cramp-like pain in hip at n.

b. Dec. 21.—10 dr. of tinct. No symptoms. and.—25 dr. Nausea in m., dryness of fauces and sensation as if throat was swollen. 3rd.—2½ dr. Vivid dreams. 4th.—Aching of both ankles. Stitch-like pain under r. scapula, when swooping; pain in r. side of fauces. Aching in abdomen after dinner; soon after, diarrhoea with burning in anus. Aching in lumbar vertebrae, extending through loins and up spine; also in various parts of body. Feeling of lassitude; aching in arms and wrists, as if sprained by hard work. 5th.—Aching in occiput, in m. in bed, passing off on getting up. Numb pain in r. axilla, extending down arm along course of nerves, lasting ½ h. Pain under vertebral border of r. scapula, increased by moving part, and by drawing long breath. 6th.—Some scapular and axillary pain; also in r. knee, felt on going upstairs. 7th.—Still scapular pain; dryness of nose; aching in wrists, extending up arms; constipation. 8th.—10 dr. By 5th, scapular pain had become very slight, and by 10th had gone. On the 2 d., constipation. 12th.—60 dr. at n. 13th.—Aching in abdomen at intervals, with flatulence. Pain in lumbar and dorsal vertebrae at n. 14th.—Soft stool, with pain and flatulence in abdomen; aching in limbs; accelerated pulse.

c. Jan. 5th and 6th.—Took 25 dr. of 7th dil. at n., without effect till 8th, when he had aching in lumbar vertebrae and r. sacro-iliac symphysis; occasional sharp pains in calves; pain in either hypochondrium; dull aching in r. axilla, extending down arms, and in r. shoulder. 9th.—Dull pain in l. arm; occasional shooting pains in loins; pain under l. scapula, aching in r. At n., 25 dr. of 3rd dil. Very restless at n., tossing about a good deal while asleep. 10th.—Dull aching in r. shoulder; in sacro-iliac symphysis, worse while sitting, and between shoulders. P.m., aching in lumbar vertebrae, with restlessness; flatulent pain in various parts of abdomen; restless sleep. 11th.—A.m., painless diarrhoea; 25 dr. of 1st at n. 12th.—Roughness and soreness of throat; numb pain in wrists and arms; pain in l. knee and thigh; lumbar and sacro-iliac pain violent; dull headache for 3 h., worse on r.; burning in eyes; aching in r. axilla; restless sleep. 13th.—Aching in r. temple, lasting 3 or 4 h.; very restless in n. 14th.—Aching in region of inguinal rings, and great soreness there on rising from recumbent position.

d. Nov. 19th.—Took 5 dr. of 3rd dil., without effect. 20th.—10 dr. of 1st. at n. Pain in l. shoulder; oppression of chest, raising of a quantity of black-coloured blood; great tendency to sleep, frightful dreams; burning in pharynx. 21th.—5 dr. of tinct. Pain in l. shoulder, in elbows and knees; soreness of throat; great wakefulness; rigid state of muscles of neck; burning in abdomen after stool. (HARR, *New Remedies*, and ed., sub voce.)

e. A. I. A. CLARK, student, took, July 23th, 5 dr. of tinct. at 6 a.m. and 10 m., and 10 at 5 p.m. No symptoms during d., save that each dose produced burning and pricking in mouth and throat, arising as h. or two; but n. was very restless,

with frightful dreams. Woke in a. m. with headache and heavy yellow coating on tongue. 18th.—20 dr. at 5 a. m., 12 m., and 5 p. m. Same restless condition all n.; dreamed of being among Indians. Next m. heavy headache; left weary and interrupted. (All this very unusual.) 19th.—Throughout d. dry burning sensation of face, with intense erythematous redness; headache; mind so confused that he could not study; itching and prickling sensation on head, neck, and shoulders. 20th.—Took same as on 18th, with same symptoms, though redness and heat of face were even more aggravated. 21st.—As yesterday. Aug. 25th—26th.—Took 20 dr. 3 times which brought on its full cathartic action, producing 4 or 5 large bilious discharges in 24 h., without pain or griping. After subsidence of diarrhea these came on upper front chest and side of hand eruption like *exanthea simplex*; not troublesome, except when heated from exercise, when it has some itching prickling sensation as occurred during proving. (*Ibid.*)

1. Dec. 19th, 1870.—Took 10 dr. at 10 p. m. 20th.—13 dr. 3 times. Slight frontal pain; L foot numb whenever he sits still. 21th.—Awoke at 3 a. m., and could not get off again. Took 12 dr. 3 times. Feeling in forehead continued; headache more; slight umbilical pain; stool dark brown. 26th.—13 dr. 3 times. Sharp rheumatic pain in both shoulders and wrists; tongue white; stool small and brown; numb sensation at root of nose; constant yawning, without sleepiness. 27th.—16 dr. 3 times. Dull frontal headache; eyes red and swollen; sensation more frequent and copious; numbness in nose intense, rubbing relieves; sleep light and uneasy, very troublesome dreams. 28th.—13 dr. 3 times. Headache continues, appetite nervous, wants to eat constantly; throat feels very sore and swollen; dreams as before. 29th.—16 dr. 3 times. Severe ague chill (commencing in back) when sitting near warm fire, but no coldness of flesh; head itches constantly. 30th.—17 dr. 3 times. Ridiculous dreams all post n.; prickling sensation up and down spine. Continued to take 3 doses daily, increasing by 1 dr. each d., up to Jan. 1th, when he took 36 dr. 21st.—Symptoms as yesterday; stool, hitherto natural, fine part hard and brown, latter part diarrhetic and greenish-yellow. 22d.—Bowels confined; stitching in hepatic region; left dull and could not remember what he read. 23d.—No stool; dull, heavy, umbilical pain; absent-minded, forgets what he is about. 24th.—Same symptoms. 25th.—Severe dull headache all forehead, somewhat relieved p. m.; bowels moved with great effort, stool hard and brown. 26th.—Stool natural, severe frontal headache. 27th.—Same as yesterday. 28th and 29th.—Unusually sleepy. 30th.—Severe headache, can hardly see; terrible nausea commencing soon after rising; heat n. death-like feeling, with chill and shuddering all over body. 31st.—Nausea severe during n., but so relieved to-day that he can eat quite heartily; otherwise same. Jan. 1st.—Every sudden motion causes everything to fly dark so that he cannot see; giddy, as though he would faint away. 2nd.—Wants to be let alone, to do nothing but eat and sleep; cannot concentrate mind on any one subject; cold chills along spine. 3rd.—Similar symptoms. 4th.—Same normal conditions; back of neck feels lame; arm-itch and burn, with redness of skin, also redness and flushed appearance of face; eyes feel drawn together; stools soft, sticky, and dark; slippery taste in mouth. 5th.—Throat feels sore, at times even to swallow water; discharge of thin watery mucus from nose; arms burn and itch, scratching relieves; scalp itches intensely, has to scratch continually; tongue heavily coated white; constant headache; considerable burning and smarting on passing urine (every h. or two). 6th.—As yesterday, but no movement of bowels and more drowsiness. 7th.—Felt so lame he did not want to get up, but was relieved of faintness after getting up and moving about; head feels large as a barrel; cough and throat symptoms continue; stool hard and in balls; violent itching over whole body, shifting from place to place. 8th.—Symptoms as yesterday, but more aggravating. 9th.—Took no more medicine. Sick and weary, symptoms all keep up; bowels continue with considerable umbilical griping; pulse 90 (normally 75); clarity and feverish. 10th.—Fearful dreams all n., waking covered with sweat; headache less severe; can hardly get a long breath from oppression of chest; stool hard and dark brown; some chilliness alternating with flashes of heat; headache. 11th.—Nearly but not quite well. Found he had lost 4 lb. since commencing proving. (*Amer. Obs.*, vol. 173.)

II. *Parasitica*.—1. In doses of 2—3 gr. Juglandin acts as a drastic purge, producing irritation and inflammation of the mucous membrane of the bowels; it con-

toward, it is followed by a peculiar exanthematic eruption, very much resembling the flush of scarlatina. (PARNE, *Veg. Rem.*, sub voce.)

2. An old lady, after taking ʒ gr. of the solid extract daily for 7 weeks, had a pustular eruption appear on the thighs, hips, and nates, with intolerable itching and burning. A few pustules appeared on body, face and arms. The eruption continued for 3 weeks after the drug was discontinued. (P. H. HALE, in *Hale's New Remedy*.)

3. A man took ʒ gr. of Juglandin 3 times in d. While walking in e., felt sharp wrenching pain in l. side, and suffocating sensation in chest, compelling him to stand still for some m. for breath. This, however, did not alleviate pain, but ʒ dr. of Bryonia tinct. did so immediately. Being under impression that pain was from indigestion, he continued medicine next d.; and same symptoms recurred about the same time, again relieved by Bryonia. (BURNETT, *M. H. R.*, xii, 306.)

4. A strong healthy woman took ʒr. dil. for several weeks for eczema of hands. It seemed to produce the following symptoms:—"Feeling as if all internal organs were too large, especially those of l. side; very slight nose-bleed daily, for 3 or 6 d.; feeling 'all-overish,' as if bad illness were coming on; pain in centre of chest at various times by d. and n., with foreboding feeling at n.,—walking about did not aggravate pain; very pale complexion." (*Ibid.*)

Juglans regia. Walnut.

1. *Proving*.—J. G. CL. M.D., xx, 77, 24, phlegmatic-choleric temperament, in good health, took Sept. 22nd, 1842, 9 a.m., ʒ dr. tinct. of water hull. After ½ h. repeated eructations.—27th. 10 dr., frequent eructations, sometimes with hiccup, good appetite. After dinner distended abdomen and discharge of much flatus. 4 p.m., very copious soft stool, latterly nearly liquid, abdomen much distended all d.—28th. 30 dr., soon violent eructation. After 2 h. pain in l. side of abdomen under false ribs, increased by deep breathing, laughing, and sneezing, till 6 p.m. About noon frequent flushes of heat with confusion of head and presive pain over eyes, worse on moving. In afternoon frequent yawning and stretching. Appetite good, no stool.—29th. 40 dr., after ½ h. much eructation, pain in l. side of abdomen only when walking quickly, extending almost all over abdomen, appetite good, abdomen greatly distended. 7 p.m., stool scanty and hard, with straining.—26th. No med., abdomen still distended, no stool.—37th. 60 dr., immediately nausea and feeling of burning in stomach, eructation; on walking quickly dull pain on l. side of abdomen, head confused and pain in forehead, especially when shaken and on moving eyes, till noon. 2 p.m., healthy stool, afterwards disagreeable feeling of tension and fullness of abdomen.—22th. 100 dr., during forenoon violent loud eructations. From 2 a.m. occa-sional flushes of heat and coldness, with heaviness of head, which increased to pain after eating, but was gone by 3 p.m. After 4 p.m. itching for a long time on back of r. hand, making him scratch, then on feet, forehead, hairy scalp, abdomen, but nothing visible on skin. No stool, distended abdomen, much flatus, profuse discharge of urine. From 9 p.m. till he went to sleep hot head with cold extremities.—29th. No med. On waking m., tongue furred white, with bitter, slimy taste. Afternoon, normal stool, much urine. E., burning hot head and very cold extremities, pulse quick.—From Sept. 30th to Oct. 5th no med., no symptoms.—Oct. 6th, 9 a.m., 40 dr. tinct. of leaves. Immediately nausea, nasty bitter taste lasting 2 h., frequent eructations. 10 a.m., presive pain in forehead, especially over l. eye and in eyes; in nose and head feeling as of commencing coryza, confusion, sometimes vertigo, but very good appetite and normal stool. From 4 p.m. head free and light. Passed 50 oz. urine of normal character, no increase of thirst.—7th. Slimy taste on waking, and tongue covered with white mucus. 9 a.m., 60 dr., after which violent eructation, distended abdomen, normal stool, 61 oz. dark red urine.—8th, 9 a.m., 80 dr. Eructation, headache especially over l. eye; no stool, 64 oz. urine.—9th. No med. Normal stool, urine 40 oz.—10th. No stool, urine 44 oz.—11th. Normal stool, urine 38 oz.—12th to 13th. Daily normal stool, urine from 40 to 45 oz.—15th, m., 40 dr. tinct. of hull. Repeated eructation, normal stool, 47 oz. of normal urine.—20th. 40 dr., soon nausea, retching. After 2 h. slight wandering pains in bowels, confusion of head, burning in eyes. 2 p.m., normal stool. Third, urine 55 oz., passed at six times, once in middle of n., quite unusual.—22d. 60 dr., violent eructation and flatulency. After 7 h. confusion and headi-

ness of head, pain in forehead, especially l. side, general weariness and disinclination to usual occupations. After dinner head free and light; no stool, 46 oz. urine. To-day and yesterday burning-itching in anus, very violent, compelling constant scratching.—22nd. No med. Forenoon, when sitting, very severe short scratches on anal region, making him start, stool very firm, urine 54 oz.—23rd. Nourish but frequent itching in anus and copious discharge of urine.—24th. No stool. Itching in anus very severe in bed at n. in fits of about 5 m.; painful stitches in anus, so that he must frequently rise up, and for 2 h. could not sleep.

Sept. 27th, 1844, took 30 dr. of tinct. of leaves. After 1 h. slight drawing in bowels, abdomen distended, extreme hunger, constant itching on r. hand, 6 p.m., after supper, nausea, loathing of tobacco smoke, discontented feeling. In bed there came on burning and itching on skin of lower extremities, arms, and body, here and there, with restless tossing about and inability to sleep. Unusually copious urine.—28th. No med., no symptoms.—29th, m., 30 dr. Repetition of the drawing in hypogastrium, eructation, flatulence. After 1 h. frequent shivering and itching on r. thigh, in afternoon in fingers of r. hand. 3 p.m., copious stool, followed by burning pain and pricking in anus, constant urging to urinate, the urine dribbles away involuntarily.—30th. 30 dr., after 2 h. the drawing is abandoned, re-urged, with slight pruritic in spleen and eructation, pain in forehead over eyes with giddiness, itching on skin here and there. On nose small pimples, exuding when scratched (ordinary acne). In bed, e. excited as if tipsy, felt as if hovering in air.—1st, 9 a.m., 30 dr. After 4 h. drawing and lame feeling in legs and knees, with peculiar weakness interlocking with walking on account of frequent giving way of knees, until noon; a similar but slighter feeling in r. hand, lasting only a short time. Some pressing pain in forehead. In afternoon itching in several fingers of r. hand. 5 p.m., peculiar drawing pain in first phalanx of l. thumb and wrist, worse when moved, not increased by pressure, as if dislocated, lasting all e. In bed, same pain in r. big toe, many and restless dreams, much worse.—2nd. On waking m. pain in thumb and toe still present, that in the forenoon after getting up, but that in thumb lasts all d., often only when moved, but occasionally when at rest.—3rd, 9 a.m., 30 dr. Thumb still painful. Frequent itching and burning in anus. 6 p.m., nausea, very bitter taste, collection of saliva in mouth, frequent yawning, good appetite.—4th. Thumb still sometimes painful, sometimes the same sensation in r. index. Three pimples on the face. Burning in anus.—5th. 30 dr., two fresh and larger pimples on mouth. Was travelling till Sept. 14th. The pimples healed up after becoming pustular and forming scabs. In beginning of October took 3 times at intervals of 7 d. 30 dr. 1st dec. ill., which caused symptoms similar to those recorded, but milder.—12th and 13th. 30 dr. tinct., same symptoms, only stronger, appeared. About this time the r. axilla began to itch and burn, and the skin became sore and chapped. In Nov. the skin was quite red, desquamated, exuded, and a patch of eczema as big as half-crown appeared, with vesicles at its margin, which burst violently. The eczema became much worse after getting in a perspiration, sweat and discharge together made the linen greenish-yellow and stiff. Sometimes the pain was so severe that movement of the arm was impossible. The increased burning and itching was always attended by an aggravation and extension of the eczematous patch and vesicles, which came on a few h. after the burning. 18 Dec. a similar eruption came in the r. axilla, but never got so bad as the first. In Jan. a small furuncle appeared on the coracoid process of the r. shoulder, which suppurated and healed up in a few d., then on Jan. 10th a very large painful boil came on the biceps muscle about a inches above elbow, with a hard and red areola, that after poulticing discharged much pus and then healed quickly.—Feb. 8th. There appeared on the r. elbow a red spot an inch square, which itched violently, and on which a small yellow ulceration filled with pus appeared. They lasted about a week.—11th. The eczema in axilla not yet gone.—12th. In r. axilla hardly anything to be seen, but in l. there is a fresh eruption of small burning vesicles, which afterwards form a red exuding spot. The burning and discharge much increased by sweating, and the linen is stained greenish yellow and adhered to a large extent.—13th. A large boil appeared on r. side between ninth and tenth ribs, with considerable hardness and violent pain, it burst after 9 d., and discharged thick bloody pus, but soon healed, but left considerable hardness for a long time. In the middle of February there appeared on the arm, not far from the seat of the second boil, a red spot, which gradually rose up, at the end of 20 d.

attained the size of a hazel-nut and felt rather hard, something like a small encysted tumour or an indurated gland, but quite painless. About the same time as the trouble in the axilla came there appeared, first on the L instep then on the r., a peculiar cutaneous affection, which soon became troublesome, a red itching place the size of half-a-crown; on it arose small pimples, which became covered with small hard scabs. The whole spot became gradually elevated and very painful, the small scabs caused severe pain when passed on by the boot. When they were scratched off healthy epidermis was found beneath them. This affection continued till March, and then gradually went off, but the pain remained during the next few months of a bluish-red colour, and was swollen. By May the eczema in the axilla was completely gone, and also the small hard swelling on the arm, only a red colour remained there.—May 10th to 16th. Took every other day 30 dr. 1st dec. dil. On the 2nd d. felt a violent burning and itching, and there came a red spot size of half-a-crown on the outer side of forearm near elbow-joint, in the centre of which a small pimple rose. Next d. the red spot had disappeared, but the pimple increased in size, was very painful, and pus appeared in it, but it disappeared without bursting, and after 6 d. it was quite gone. He had never before suffered from any skin affection. (*Hygæa*, xiii, 70.)

1. G. LAURENZ FRITZ, surgeon, æt. 35, venous-bilious constitution, Sept. 16th, 1843, took 30 dr. tinct. of hulls. No symptoms.—17th. After 30 dr., eructation, distended abdomen, hard stool.—18th. 30 dr., violent eructation, distension and hardness of abdomen, flatulence, great hunger all d.—19th. 40 dr., yesterday's symptoms recurred, the flatulence was very troublesome, stool hard, frequent micturition, double the usual quantity of urine, causing him to get up at n.—20th. 70 dr., after 3 h.pressive pain on l. side of abdomen, with wandering pinching in bowels, abdomen very distended and hard, very hard stool, with little relief to abdomen. Urine copious and frequent.—Oct. 1st and 2nd. Same symptoms, but slighter.

4. Oct. 1st, 5 a.m., 40 dr. of tinct. of leaves, eructation.—4th. 50 dr., flatulence, rumbling in abdomen, firm stool, tympanitic distension of abdomen, with unusually great hunger, but not increased thirst, passed 2 or 3 times the usual quantity of dark red urine, had to get up 3 times at n. to pass it.—5th, 6th, 7th. Same symptoms.—4th. After some slight burning in penis, and there appeared a chaper excoriation where the prepuce is attached to penis. This increased, and after 8 d. developed into a suppurating stripe several lines in breadth half way round between glans and prepuce. Then it took on a worse appearance, the ulcer became deeper, its borders hard, its fundus lardaceous and easily bleeding, it looked very like a chancre. Often slight crusts formed, but the suppuration continued under these and they fell off, leaving the suppurating ulcer as before. Thus 19 d. passed, during which the ulcer continued to increase. After some d. more there was formed on the centre a firm healthy scab, which eventually fell off, and the skin beneath was healthy. The ulcer now changed into a small round ulcer, in appearance just like syphilis. These little ulcers became covered with scabs, and when they fell off the ulcers were healed. The whole process lasted 33 d.

c. Sept. 7th, 1844, m., took 30 dr. 1st dec. dil. tinct. of leaves, the same 9th and 14th. Flatulence, eructations, distension and hardness of abdomen, copious secretion of urine.—13th, 15th, 17th. 30 dr. tinct., same symptoms. On 17th observed a swelling on l. cheek and upper lip. (During the last two years had suffered severely from toothache and gumboils in l. upper incisors, though the teeth were sound.) Now on the same place there came on swelling without toothache, and after 3 d. the cheek over this part commenced to swell.—24th. On l. cheek a hard, red, very painful swelling, in the centre of which, $1\frac{1}{2}$ in. from ala nasi, was a normal, sharply-defined circular depression, dark red, soft, and yielding. Suppuration outwards being threatened, the tooth was extracted, and a large quantity of pus was discharged through the hole thus made. In a few days the swelling and redness were gone. (*Ibid.*, 79.)

7. Dr. M. MULLER, æt. 33, of lively, irascible temperament, quite healthy, took, Dec. 6th, 1842, 8.30 a.m., 30 dr. of tinct. of hulls. After $\frac{1}{2}$ h. slight pain in bowels above navel. After 1 h. urging to urinate. After 1 h. scanty discharge of clear urine. After $1\frac{1}{2}$ h. rheumatic pain in interior of knee-joint for 1 m., rendering walking difficult. After 4 h., contrary to custom, is calm and comfortable, intellectual faintness, no inclination for speaking or quarrelling. After $3\frac{1}{2}$ h. no inclination

to drink during or after dinner, he feels a kind of pleasure in keeping his mouth dry. After 6 h. less urine than usual. After 6½ h. cannot have his usual meals, though he felt disposed for it earlier than usual; electric shocks on both forearms and hands woke him up as soon as he began to sleep. Urinates at 4, 6, and 8 p.m., each time but little urine forms. At supper still without thirst, does not touch his wine, is inattentive when reading, pulse quicker and taller than usual. (*Ibid.*, 84.)

4. EDWARD BEGANO, surgeon, æt. 25, of robust constitution, and lazy apathetic mind, took, Sept. 5th, 1844, ʒ dr. tinct. of hulls. No symptoms.—6th. 40 dr., eructations, flatulence, distended abdomen, great appetite, hard stool. During d. frequent short stitches as if in both limbs, not affected by breathing or moving.—8th. 20 dr. tinct. of leaves caused eructation and flatulence.—11th. 60 dr., after ½ h. violent eructations and rumbling in abdomen; e., presive pain in head, especially forehead. Frequent eructions d. and n.—12th. 60 dr., eructation and flatulence, restless sleep at n. on account of itching of skin in various places, many dreams and erections.—13th. 30 dr., eructation, rumbling in belly, transient stitches in chest and discharge of much flatus; 3 or 4 erections during d.—From 14th to 20th, when he took no med., eruption of small red papule, some of which were larger and contained a viscid fluid (a kind of acne), appeared on neck, face, shoulder, and back. Frequent eructions d. and n., restless sleep and frightful dreams. (*Ibid.*, 85.)

5. OTTO KESLER, Divinity student, æt. 23, of viridulus habitus, took, Oct. 7th, 1843, ʒ dr. of tinct. of hulls. Frequent eructation, distension of abdomen, rumbling, and flatus, a fluid stool.—8th. 30 dr., abdomen tympanically distended, a liquid stool, head confused and heavy, hawked up much mucus, and must urinate frequently and copiously.—9th. 40 dr., abdominal distension so great that in spite of good appetite he dared not eat much on account of the feeling of fullness, no stool, violent headache (to which he was accustomed).—10th. 50 dr., increase of yesterday's symptoms. Stool after much straining, urine about double the usual quantity, though thirst was not increased.—11th. Stool hard, urine still copious, abdominal distension less. (*Ibid.*, 86.)

6. Dr. KUCHENMEISTER, æt. 26, Sept. 4th, 1844, took ʒ dr. tinct. of hulls. Soon, great eructation, and in afternoon a frequently recurring itching on sternum, compelling scratching.—5th. 30 dr., eructation, oppression of chest, frequent itching of hands, and uncommonly good appetite.—8th. 7 a.m., ʒo dr. Forenoon, shooting in l. hypochondrium under lowest ribs for some m.; continual eructations. Alasud noon, pain interfering with walking in r. patella. During dinner sudden call to stool, with extreme fulness in abdomen, and on the way home shooting and hindrance to walking, as if in inner side of tibia at knee-joint, for 20 m. Then stool, broken up but not hard, and another at 2.45 p.m.—8th. 45 dr., besides eructations, fulness of abdomen, pain in l. leg similar to that of 6th, very transient.—9th. Doll tearing toothache in carious teeth, worse in warmth of bed, and going off towards n.—10th. 50 dr., forenoon, a hitherto unknown inegrim in spot on l. parietal region, the size of a crown, lasting some hours, and becoming at one time so severe when speaking that he had to cease; went off after 2 h.—11th, 14th, 16th. Took each d. 40 dr. Observed the following gastric symptoms: hiccup, especially after greasy food, to a very violent degree; fulness causing necessity to go to stool; stool m. and generally again between 2 and 3 p.m., one afternoon 2 stools, never very copious; flatus that came away chiefly when lying; appetite only once affected, then, though hungry, he did not relish his dinner. Thirst increased, drank much. An old eczema which he had had for years on dorsal aspect of thumb, the size of a sixpence, which had almost disappeared under mercurium, commenced to itch and got red and sore. (*Ibid.*, 86.)

7. PAUL RADCLIFF, cabinet-maker, æt. 21, of robust frame.—Oct. 18th, 1841, ʒo. ʒo dr. tinct. of hulls. Eructation and flatus.—19th. 30 dr., sickness and inclination to vomit, soon followed by presive pain in epigastrium, and distension of abdomen. 22 p.m., woke suddenly from sleep, and vomited the food he had taken 3 h. before.—20th. 40 dr., nausea, rumbling in abdomen, flatus, stool with much straining, copious discharge of urine.—21st. After 50 dr. violent pain all through abdomen, somewhat relieved by eructation or discharge of flatus; urine so much increased that he had to pass it 7 times, whereas his usual number was 3. Two stools.—22nd. 70 dr., much flatus, profuse flow of urine.—23th. 71 dr., could not button clothes, the distension of abdomen was so great, at same time violent pressure in

stomach till noon, unfasted 3 times in course of forenoon. Appetite very great, 2 stools with great straining.—25th and 26th. Still shooting pains in hypogastric region when moving and stooping; urine very profuse. (*Ibid.*, 22.)

8. A. KURTZEL, æt. 37, robust, nervous, bilious temperament, took Sept. 26th, 1842, m., 20 dr. tinct. of hulls. Great appetite.—27th. 10 dr., thin stool, confusion of head, distension of abdomen, frequent eructation.—28th. 30 dr., 10 a.m., soft stool, heaviness and dull pain in head. 3 p.m., a second thin stool, occasional accumulation of saliva in mouth. From noon, burning hot hands and quick pulse (9 p.m., 106). E., perspiration all over.—29th. 40 dr., confusion of head, a liquid stool before noon, good appetite. 4 p.m., another liquid stool with full, hard abdomen, and much flatus. E., heat in whole body, pulse 116.—From 30th till Oct. 3rd no med. Stools regular.—4th. 50 dr., 5 liquid stools with rumbling and pinching in bowels, but constant good appetite.—5th. 55 dr., 3 diarrhetic stools with rumbling.—6th. 60 dr., 2 diarrhetic stools, tongue white, bitter taste, anorexia and headache. (*Ibid.*, 23.)

9. CARL TENZER, medical student, æt. 19, strong, healthy, Oct. 17th, 1842, took 10 dr. tinct. of hulls. No symptoms.—18th. 20 dr., in e. dull headache after exertion. Stool normal, urine very scanty.—19th. 30 dr., after dinner abdomen full and distended, urine scanty.—20th. 40 dr., abdomen very tense and full; after dinner dull headache. Stools always normal, urine always scanty. (*Ibid.*, 24.)

10. TH. S., housewifely, æt. 26, menses since 16 always regular.—Oct. 21st, m., 10 dr. tinct. of leaves. Slight nausea, and disagreeable feeling of fulness of abdomen.—22nd. 20 dr., drawing pains in abdomen, nausea and reaching.—23rd. 30 dr., violent pains in whole lower part of abdomen and nausea all d. with short intervals.—24th. 40 dr., abdominal pains very severe, pressing and drawing, aggravated by movement, menses came on 1/2 d. too early, whereupon the pains moderated. For the next 8 d. the menstrual discharge was profuse and blackish, often large lumps came away, the discharge used only to last 3 d. She also complained of general weakness and anorexia.—Nov. 1st. 30 dr., 2 stools, preceded by pinching.—3rd. 40 dr., 4 liquid stools with pressive pains in belly.—4th. 50 dr., 4 diarrhetic stools with pinching. Urine not increased. The three next d. the stools were normal, no pain in bowels.—8th. 60 dr., distension of abdomen, with frequent discharge of flatus, rumbling in bowels, and pressive pains in epigastrium; 4 diarrhetic stools.—9th. 70 dr., same abdominal symptoms, only more violent, pressive pains in forehead. Appetite good.—10th. 80 dr., diarrhœa and frontal headache, and pains in abdomen continued for some d. (*Ibid.*, 25.)

11. a. Oct. 1st, 1869, I procured a walnut, and after bruising it, hull and all, prepared a tincture with 95 per cent. alcohol. On 12th of same month, at 10 a.m., I took 5 dr. of this tinct. in 45 dr. of water, which was followed in 1/2 h. by eructations tasting of the drug; at 12 took 10 dr.; eructations tasting as after eating fat, and considerable yawning. 29th, 9 a.m., 10 dr. 3.30 p.m. 25 dr.; no new symptoms. Bowels confined since commencing proving. 30th.—Had evacuation from bowels; urine increased at least one half in quantity. At 12 took 30 dr., and at 4 55 dr., followed by eructations and flatulence. 31st.—At 10 took 40 dr. At 1 took 50 dr., which was followed in 1/2 h. by throbbing in both temples, and a sharp pain in front part of head, relieved by going into open air, and returning on entering the warm room. Nov. 1st.—Headache continues; increased flow of urine; bowels confined. At 10 took 60 dr.; at 12 80 dr. Had quite natural evacuation from the bowels. The increased urination, eructations, and flatulency were now becoming rather annoying. At 3 took 90 dr., and at 7 had sharp cutting pains in r. hypogastric region, lasting a few m. At 9 took 100 dr. Slept well during n., and all next d. had frontal headache, with yawning, and great desire to sleep. 4th.—Headache, and flushed face; no evacuation of bowels; urine diminished in quantity. 6th.—My r. ear aching, with feeling of fulness, and on 8th my left ear commenced in same way. I then had a discharge of pus from both ears until Dec. 10th. External part of r. ear was very much inflamed, and had two large and painful sores on it, similar to those I had seen on children who had eaten freely of the nuts.

6. Three months later (March 1st, 1870), feeling quite well, I took at 11 a.m. 10 dr., and at 1.30 20 dr., followed in 1/2 h. with eructations raving of drug, and increased flow of urine. At 3 took 10 dr., which was followed by sharp lancinating pain in forehead for several m.; and after lying awake for an h. that n. slept well.

2nd.—At 10 and 11 took 20 dr., and at 1.30 my l. ear commenced burning severely; became very hot and swollen, and before bedtime a poultice began to form on the inside; slept well during n. 20th.—Bowels constipated. 9. took 40 dr.; no new symptoms. 12, took 50 dr.; 31, took 60 dr. Burning in l. ear increased. 5. took 50 dr., and at 9 took 100 dr. For 2 d. to 19th, I had a discharge of pus from my ears (l. more than r.) with severe burning and redness of the external (l.) ear. When walking, there was a feeling as if something was dripping inside the ear at every step. During the greater part of the time that I was taking the drug I could not lay the l. side of my head on the pillow, on account of the soreness. (For several years during the winter I had been annoyed with a burning itching eruption on the lower extremity, always commencing as soon as I would undress. After taking the *Juglans regia* I was relieved of that trouble.) (H. L. SOOY, M.D., *Ohio Med. and Surg. Rep.*, iv, 116.)

KALI CARBONICUM.

Potassic carbonate, K_2CO_3 .

1. *Proving*s.—1. HANNEMANN, *Chronic Diseases*, part iv of original, vol. of translation. Contains 1650 symptoms from self and five others.

2. A middle-aged man took a drop of 12th dil. 3 times a d. for 5—6 d. He then had scraping sensation in throat, which felt dry, parched and rough; sensation as if there was no air in his chest and he could not breathe; violent throbbing and beating of heart on least exertion. (ROBINSON, *B. J. of H.*, xxiv, 515.)

KALI CHLORICUM.

Potassic chlorate, $KClO_3$.

1. *Proving*s.—1. C. W. A. BLAUFUSS, æt. 23, robust, choleric temperament.—Nov. 6th, 8 a.m., took 1 gr. After 1 h. pulse quickened.—7th, 8 a.m., 1 gr. No symptoms.—9th, 8 a.m., 3 gr. Oppression of chest with strong heart's beats.—13th, 9 a.m., 10 gr. Immediately taste like vitriol. After 6 h. pressure on epigastrium, pain in abdomen, cold shudder over back and neck with warm feet. After 2 d. dazed head.—*Time not indicated*; Frequently recurring twitching on lower and upper part of forehead going off after 8 h. Great rush of blood to eyes. No stool at 10 p.m., when he usually had one. Strong, almost audible, heart's beat with oppression of chest and cold feet. Pulse 80. Cold feet and palpitation of heart. Itching all over body, e. in bed, next morning numerous small red papules. Chilliness in open air for 2 d. Persistent chilliness. Intolerable heat in bed, e., febrile state with violently throbbing pulse and heart. Restless sleep often disturbed by disagreeable dreams. (MARTIN, *Archiv*, xvi, 1, 182.)

2. G. GRÄFE, æt. 22, sanguine temperament, took Nov. 6th, m., 1 gr. After 12 h. violent diarrhoea, always watery, at last after 6 d. nothing but mucus evacuated, went off on 9th d. Along with the diarrhoea, furred tongue and transient weakness. (*Ibid.*, 183.)

3. G. F. HILFERT, æt. 22, choleric temperament.—Nov. 6th, 1835, 6 a.m., 1 gr. Headache in afternoon.—7th, 1 gr., and after $\frac{1}{2}$ h. 1 gr. No symptoms.—8th, 1 gr. 3 times at $\frac{1}{2}$ h. interval. After 8 h., irritation in nose causing frequent sneezing with increased discharge, also next d. with jerking in masseter (the nasal symptoms occurred after 5 gr.).—*Time not indicated*: Pretty severe headache; tension in sinciput; papules on forehead, very hard dry stool; drawing in thigh and forearms; great weariness and drowsiness.—15th, m., 5 gr. Soon, pulse 70 (is usually 64). After 24 h. feeling of strength in eyes. After 36 h. pain in upper eyelids, papules between lips and chin. After 48 h. humming in ears, with painful stool, of dry fæces, latterly mucus and blood, and persistent pain in rectum; another such stool 4 h. later. After 60 h. eyes red and painful, very much out of humour alter cheerfulness. After 72 h. irritation in eyes with rush of blood into them, violent epistaxis. After 76 h. fæces soft, passed without pain.—*Time not indicated*: Increased sensitiveness of whole face, tearing in root of nose, tickling in canthi of eye; jerking in nerve of lower jaw at foramen maxillare posticum, transient bitter-sour taste.—May 9th, 1836, took 1 gr. No symptoms.—10th, 1 gr. No symptoms.—12th, 1 gr. Frequent sneezing.—21st, 4 gr. After 6 h. dryness in throat, hoarseness. After 8 h. persistent headache, pressure in r. and l. hypochondrium to navel. After 12 h. violent erections with emissions, chilliness e. through whole body. After 20 h. voluptuous dreams with emission. After 24 h. itching in urethra, continued erections with itching on scrotum.—*Time not indicated*: Restless sleep, flushes of heat in face.—24th, 4 gr. Pains in head.—26th, 4 gr. After 20 h. violent coryza. (*Ibid.*)

4. H. HOHN, æt. 21, nervous irritable temperament. Nov. 6th, 1835, 1 gr. After 2 h. pain in temporal region. After 4 h. cutting in stomach. Chilliness for several d.—7th, 2 gr., chilliness.—8th, 3 gr., miliary rash with single painful papules on l. shoulder for 10 d.—13th, 5 gr., after $\frac{1}{2}$ h. cutting headache down to malar bones. After 2 h. tension over forehead, then sneezing and coryza; pain from temples into carious teeth, violent pressure in eyes, sneezing, then coryza, eructation. After 7 h. toothache in upper jaw. After 24 h. hard stool. After 70 h. epistaxis at n. After 72 h. urine very turbid.—*Time not indicated*: Warmth in stomach. Pulse 78 (usually 70). Chilliness for several d.—May 23rd, 1836, 4 gr. Headache on l. side of head. Attack of ravenous hunger, later anorexia.—24th. Chilliness, ill humour, anxiety, hypochondriacal tension of ganglionic nerves lasts until relieved by epistaxis.—26th, 4 gr., after 24 h. nose bled twice; great hunger at unusual time. (*Ibid.*, 184.)

5. H. KUNZMANN, æt. 26, phlegmatic, in good health, took Nov. 6th, m., 1 gr. Immediately nausea with slight shivering. After $\frac{1}{2}$ h. eructation. After 8 h. tensive pain in r. hypochondrium relieved by discharging flatus.—*Time not indicated*: Turbid urine; shivering all over.—7th, 1 gr., after 3 h. flashes of light in both eyes when coughing and sneezing. Easily intoxicated by beer; urine turbid.—9th, 2 gr., after 1 h. confusion of head, weariness. After 2 h. vertigo after strong exercise with congestion of blood to head. After 2 $\frac{1}{2}$ h.

congestion of blood in chest, oppression of chest, violent heart's beats, pulse at r. wrist full, soft, lazy, 68, intermitting every 25 or 30 beats, not synchronous with heart's beats, which are 80, strong and regular, at l. wrist small, soft, compressible.—11th. 1 gr., urine turbid.—15th. 5 gr., the urine, previously turbid, became clear. Itching of skin, n., next m. small red papules on thighs and shoulder, not in the joints; they dry up after 40 h., and there then appear some small papules on face. (*Ibid.*)

6. E. MARTIN, æt. 26, irritable nervous constitution, subject to rheumatic affections, at present healthy.—Nov. 6th, 1835, took at 6 and 10 a.m. 1 gr. Immediately persistent bitter taste, cold feeling of tongue. Soon, slight tearing in r. wrist and along ulna. After $\frac{1}{2}$ h. pressive pain in r. malar bone under border of orbit, then tension in neck, cheek, and temple; this recurs after 8 h. After 1 h. violent sneezing, pricking burning in tongue; expectoration of mucus removes the bad taste. After $1\frac{1}{2}$ h. drawing in root of nose. After 3 h. tongue furred at back, anorexia, tightness of chest, confusion of head. After 6 h. repeated. After 12 h. very burning papule on l. cheek.—*Time not indicated*: Painful pressure in l. upper costal region; stool very sluggish, occurs at 11.30 p.m., liquid stool next m., urine very turbid, great chilliness, shivering all over body.—7th, at 6 and 10 a.m., 1 gr. After $\frac{1}{2}$ h. drawing and tension in r. side of face. After 1 h. violent sneezing. After 3 h. liquid stool. After 48 h. a very much inflamed hang-nail; urine turbid.—*Time not indicated*: Tension in r. cheek under eye, extending to ears, afterwards on l. side; gums bleed readily when brushing teeth.—10th, 6 and 10 a.m., 1 gr. After $\frac{1}{2}$ h. drawing pain in r. cheek, making him sneeze. After 1 h. violent sneezing.—*Time not indicated*: Tongue furred at back. Pressure in scrub. cordis with apathetic disposition and chilliness. Transient internal coldness in r. forearm. Itching vesicle on back of r. hand. Great chilliness. Tranquil dreams of prophecies of death on several n. Sad, desponding, apathetic disposition with chilliness in e. Sexual desire very much diminished.—11th, 6 and 10 a.m., 1 gr. Immediately bitter taste as usual. Chilliness with stiffness of hands; restless sleep, full of vexatious dreams. Quiet dreams of death from typhus fever.—12th. 5 gr. Soon coldness in precordial region. After 20 m. pressure and empty feeling in stomach. After $\frac{1}{2}$ h. eructation with nausea. After $\frac{1}{2}$ h. roughness in œsophagus. After 1 h. distinctly perceptible but not quick heart's beats with coldness in precordial region. After 20 h. much twitching in head and body. After 24 h. very itching papules with small vesicles on back of l. hand; disappeared during d. but recurred next m. After 72 h. rheumatic pains in several parts.—*Time not indicated*: Constant urging to stool, which is normal in character. Great chilliness with shivering.—17th. 5 gr., similar symptoms.—May 12th, 1836, m., 1 gr. K. chl. mixed with 1 gr. 3rd trit. Immediately coldness of tongue and œsophagus for 5 m. After 20 m. drawing in r. cheek and gums with a kind of cramp of muscles of r. cheek. After 1 h. slight irritation to cough in larynx. After 2 h. increase of saliva. After 3 h. drawing and tearing in both wrists. Taste of cherry-laurel water with salt.—16th. Same dose.

Drawing tension in r. cheek followed by desire to sneeze. Violent coryza with much sneezing and great flow of nasal mucus.—17th. Same dose. No new symptoms.—26th, 6 a.m., 4 gr. Immediately feeling of shivering. After 3 h. headache in l. temple; feeling of warmth in stomach; frequent rumbling in belly with tendency to diarrhoea. After 6 h. much flatus during d. After 12 h. frequent urging to urinate.—*Time not indicated*: Confusion of head when walking in open air. Drawing in r. cheek with pain in lobe of ear, worse sometimes in masseter muscle, sometimes under orbit. Sourish after-taste. Very itching papules and small vesicles on back of l. hand, going off during d. but returning next m.—27th, m., 4 gr. After 12 h. itching vesicles on back of r. hand, lasting several d. After 24 h. restless sleep, wakes towards m. from anxious dreams, lying on back, loudly snoring and breathing with difficulty.—*Time not indicated*: Tensive drawing in l. cheek under orbital border. Scraping in throat. Many not very itching vesicles filled with pus and with red areola on limbs. (*Ibid.*)

7. W. OENLER, æt. 22, of sanguine irritable disposition, took Nov. 7th, 1835, m., 1 gr. Much eructation, with pains alternately in chest and belly.—8th, 9th, 10th, m., 2 gr. No symptoms.—13th, m., 5 gr. Violent cough and coryza. Constant chilliness. After 7 d. urging to urinate.—May 21st, 1836, 4 gr. After 8 h. flow of mucus and saliva, sharp, burning, sour taste, pain in pelvic region, itching all over body.—23rd. 4 gr., the pain in pelvic region increases, and is accompanied by diarrhoea, which lasts 10 d., gradually going off.—24th, 4 gr., headache with vertigo. Papular eruption on thigh and r. corner of mouth. Many dreams of events that occurred during d. (*Ibid.*)

8. FR. RICHMANN, æt. 20, sanguine temperament, took November 6th, 1 gr. Disagreeable salt sour taste. Soon, sneezing. Swelling of upper lip. Some eructations, griping in belly. Pulse 74, generally 70. Coldness of r. arm.—7th. 1 gr. Soon sneezing; increase of swelling of upper lip.—15th. 5 gr., tension in face with forcing towards eyes, especially r. side. Urging to stool. On 5th n., epistaxis from r. nostril. After 6 d. spasm in l. eye, swelling of lower lip, cramp in r. index and leg. (*Ibid.*)

9. F. VULPIUS, æt. 21, phlegmatic melancholic temperament, took November 5th, 1835, 1 gr. Sneezing with violent coryza. Pulse, usually 65, rose in 4 h. to 80, then to 90, for several h.—Nov. 6th, 2 gr., sneezing with coryza, pulse 85.—7th. 3 gr., sneezing with coryza, sourish taste.—14th. 5 gr. Soon spasmodic drawing in cheek to maxillary joint, sometimes with tearing in superior maxilla. After 6 h. pulse 85. After 8 h. shooting pain in r. temple, going and coming; violent rigor, afternoon. After 12 h., in e., violent headache, goes off next d., spasmodic pressure in maxillary joint, with single stitches in both jaws and teeth, especially r. side; sneezing with coryza. After 24 h. pain in occiput, sometimes extending to both jaws; e., occasional shooting in various parts of face. After 28 h. vesicles on lower lip. After 72 h. rheumatic pains in various parts. After 6 d. pain in r. temple, urine very turbid.—May 18th, 1836. 4 gr., burning alkaline taste. After 6 h. violent shooting pain in r. knee-joint. After

48 h. confusion of head, some cough.—30th. 4 gr., violent coryza. (*Ibid.*)

10. F. WEATHER, æt. 23, choleric temperament, took Nov. 6th, 1 gr., 7th, 2 gr. No symptoms.—8th. 3 gr., violent itching all over body. (*Ibid.*)

11. P. H. WILKEN, æt. 22, sanguine temperament, took June 3rd, after breakfast, 4 gr. Immediately increased mucus in mouth. After 8 h. some stiches in eyes; empty feeling of occiput with peculiar feeling in nape muscles, then pain in occiput; anorexia.—4th, after breakfast, 4 gr. After 10 h. stool rather looser than usual. After 12 h., in e. oppression of chest with feeling as if lungs were slightly constricted with a narrow thread. Next m. this was nearly gone. He then took 4 gr. In afternoon the chest pain returned with greater force, and by e. had become very violent. The following 3 d. the chest pains continued, but went off on 4th d., when he took 4 gr., whereupon the chest pains recurred, but again went off in 2 d. Feeling of uneasiness. (*Ibid.*)

12. A girl, æt. 25, suffering from faceache, took $\frac{1}{2}$ gr. This caused dryness in throat and chest with cough and constriction of chest as from sulphur vapour. (*Ibid.*)

13. I took a single dose of 5 gr. dissolved in water, and found a sense of congestion to the head, accompanied by pain of forehead. A few weeks after, I took a dose of 10 gr., and the same symptoms were produced, continuing about 2 d. I then waited for a period of some months, and took a dose of 15 gr. in a glass of water. It first produced slight acceleration of spirits, followed by congestion of brain to such an extent that one half of head, face and nose felt paralysed. The symptoms continued for 2 d., and then gradually subsided. There was also a loss of taste, being scarcely able to distinguish different kinds of meat. The muscles of the palate felt contracted, and the mucous membrane of mouth and throat appeared tanned, as from tannic acid. I have frequently used (while attending scarlatina patients) a solution of K. chl. as a wash for the mouth in the m.; but if continued for 2 or 3 d. in succession, similar symptoms to those I have described, but in less degree, were produced. (OSBORN, *Lancet*, 1859, ii, 364.)

14. E. T. D—, in perfect health, took Jan. 7th, 1832, ʒj, and on 11th, ʒj, without effect. On 16th took ʒss, which caused considerable diminution of appetite, and some flatulence, for several d. On 21st, at 4 p.m., pulse 80, took ʒj. In an h. pulse was 64; in another h. it varied from 56 to 65, a little exertion or movement instantly raising it to latter number; it was also much smaller and weaker. Shortly after dose, weight, fulness and distension began to be felt in epigastric region, gradually increasing, with twisting sensation and flatulence, to 10 p.m., when brandy relieved. N. was quiet, but next d. weight and fulness, with twisting, recurred, amounting to rather severe pain, but subsiding spontaneously towards n. The same thing occurred on two following d., requiring opium for relief, and for some d. yet all food caused uneasiness. For several weeks following prover had hæmorrhoidal protrusion, which he had never experienced before. There

was also diuresis for first 18 h. (Tully, *Bost. Med. and Surg. Journ.* vi, 327.)

15. W. N. B—, in perfect health, likewise took ℥j and ʒj without effect. Jan. 16th, at 7 p.m., pulse 76, took ʒss. In an h. or two pulse was diminished considerably in force, and about 10 beats slower. Some diuresis occurred, but n. was quiet. Next d. strong sense of weight and distension at stomach, with deficient appetite and flatulence. These symptoms continued through 18th and 19th, so that animal food could not well be taken. On 21st, being well again, he took at 4 p.m. ʒj, pulse 72. In an h. it had fallen, and was considerably smaller and weaker than usual. It continued at same point to 7 o'clock, rising to 64 on exertion; by 8 it had fallen to 48, and was still smaller and weaker. Between 7 and 8 copious alvine evacuation. Between 8 and 9 walked $\frac{1}{2}$ mile, and immediately on returning had some heavy oppressive pain and sense of sinking at stomach, so urgent as to require speedy mitigation. Pulse now only 36; moderate sweating; 2 oz. of brandy relieved, and o. was quiet. Next m. weight and pain at stomach recurred, relieved by brandy again, but returning after food, and at length became so severe after a short walk as to require full doses of opium (up to 20 gr.). Pain had now extended to umbilical region, and become lancinating; there was swelling, hardness and soreness, and intolerance of least pressure, in both epigastric and umbilical regions, with inability to sit erect, and much flatulence and eructation. By e. the opium had relieved, but a paroxysm of vomiting occurred at 9 p.m. N. was good, and next m. he only felt some vertigo. (*Ibid.*)

16. Dr. TULLY himself took same doses with similar results, including the hæmorrhoidal protrusion, and rather more diuresis. (*Ibid.*)

17. ISAMBERT experimented on himself and others with K. chl. He found it eliminated rapidly and unchanged, principally by salivary glands and kidneys. Doses of 1—6 grm. produced no appreciable results. From 8 or more grm. salivation occurred for 2—3 h. with saline taste, and salivary glands continued "weak" for 5 or 6 d. A slight alteration in voice was noticed. The only constant effect on the digestive function was increase of appetite. In high doses it showed well-marked diuretic properties. Twenty grm. daily induced frequent micturition, and slight sense of weight and pain in renal region. Urine during whole time of elimination was strongly acid, and deposited urates abundantly. (*Ibid.*, lxiii, 32.)

II. *Post-mort.*—1. An inquest held Jan. 16th on the body of Mr. John S. Tuttle, of Bergen, New Jersey, revealed the fact that deceased was suffering from phthisis; that he applied to a physician, who ordered ʒviij of K. chl. to be put up in twelve packages, one of which was to be taken daily in a pint of water. He took 4 powders on 4 consecutive d., when pains in bowels became very severe, incessant vomiting came on, and finally death ensued. Drs. Booth and Olcott made a *P.M.* examination, and found external coat of stomach inflamed; internal coat was yellow (as was matter he had vomited), it was soft and could be easily separated off with the handle of the scalpel, leaving the muscular coat bare. Both witnesses were of

opinion that the medicine was the immediate cause of death. (*Brit. Med. Journ.*, 1861, i, 159.)

2. Dr. FOUNTAIN took on March 22nd, 1861, at a single dose, 1 oz. potass. chlor., with a view of verifying his belief in its innocuousness in large doses. The most violent results followed, viz. inflammation of the stomach and intestines, and a copious diuresis, lasting several h., followed by complete suppression of urine for 6 d. preceding his death. (*Amer. Med. Times*, April, 1861, p. 245.)

3. A little girl, æt. 2½ years, took about ½ oz. of potass. chlor.; she had severe vomiting, which lasted for 7 h., when she died of gastritis in spite of all help. Another remarkable symptom of the poisoning was the profound lethargy of the child, which probably prevented its showing symptoms of pain. (*Brit. Med. Journ.*, 1878, ii, 966.)

4. The patient was an Irish girl, single, æt. 20. She was admitted to N. Y. Hospital April 10th, 1888, at 4 p.m. She had taken on previous e. two tablespoonfuls of K. chl. by mistake for Rochelle salts. On admission she was in a state of profound prostration; temp. 99°, pulse 136, resp. 32. Surface was very cyanotic; breathing rapid, but not laboured; pulse very feeble. She vomited freely before and after admission. In spite of whisky, digitalis, and atrophanthus, symptoms grew worse. At 6 p.m. temp. had risen to 104°. During n. bowels acted 3 times, motions dark brown and semisolid; dark-coloured urine was passed involuntarily. It was proved to contain many blood-cells, large masses of altered hæmoglobin, and much albumen. Next m. temp. fell, and pulse and resp. improved for a few h. By noon pulse and heart were again profoundly weak, and temp. rose to 101.2°. There was a very extraordinary colour of skin, conjunctivæ, and lips, an intense anemia with a cyanotic hue, and a very distinct sepia-brown chocolate tint where epidermis was thin; also great restlessness. Inhalation of oxygen produced no improvement. She slept constantly, and died 37 h. after poisonous dose. At necropsy, colour of blood was not materially changed, and a slight hue of jaundice was added to the anæmic and chocolate colouring. Blood in the great vessels was liquid, and of very dark chocolate colour. Heart was soft and flabby; lungs normal, but cut surfaces very brown. Spleen was large and firm. Kidneys large, capsules non-adherent, surfaces smooth; bladder contained 3 oz. of urine, of dark brownish-black colour and not at all translucent. All viscera were coloured like blood. Microscopically, very extensive fatty degeneration of heart was evident, especially in papillary muscles of l. ventricle. Many straight tubes in pyramids of kidneys were found filled, even to distension, with broken-down blood-cells and methæmoglobin. Spectroscopic examination of blood revealed spectrum of methæmoglobin with much distinctness. Conversion of hæmoglobin into methæmoglobin explains dyspnoea and altered colour. (PEABODY, *N. Y. Med. Rec.*, July 21st, 1888.)

5. Man, æt. 53, had been for two years in the habit of taking K. chl. largely for chronic throat trouble. He looked very pale and waxy. He fell ill with feverish sore-throat, after having taken more of drug than usual; became very anæmic, passed no urine, vomited, and was

jaundiced. He became steadily weaker, and died comatose. *P.M.* appearances were as in former case, but spleen was six times its normal size. (*Ibid.*)

6. A healthy young man, æt. 22, had incautiously gargled with a strong solution of potass. chlor., in course of which he had swallowed a considerable quantity. The following d. he complained of sickness and of pain in the sides and loins. Signs of acute gastritis rapidly followed; nausea and severe pain in the splenic region were the chief symptoms. Some enlargement of the spleen detected. Heart and lungs were normal, but distinct cyanosis, especially of lips and extremities, was present. Two days after the poisoning severe vomiting set in and lasted till the end. Icterus followed, but disappeared before death. On 4th d. severe epistaxis; extreme præcordial anxiety followed, but without any notable signs in the heart or lungs; and some rigidity of muscles of extremities was observed. Death took place on 8th d. Throughout the illness hardly any urine was passed. Temp. subnormal; pulse fair. *P.M.*, 4 d. after death, revealed brown colour of blood-vessels; it was normal to spectroscope. Spleen greatly enlarged, brownish in places, and capsule soft. Kidneys enlarged and cortical portion expanded. Microscopically, the straight and convoluted lobes were found filled with numerous brownish, irregular-shaped masses of hæmoglobin. The stomach showed acute and chronic catarrh, with a few ecchymoses. The large intestine and rectum contained a large quantity of brownish watery fluid, and the mucous membrane appeared œdematous. Other organs normal. (*Med. Times and Gaz.*, 1883, ii, 526.)

7. *a.* Von Mering discriminates between acute and subacute poisoning by the chlorate. In acute cases—such, for instance, as result from one large dose, death results in a few hours from decomposition of the blood, with symptoms of severe vomiting, profuse diarrhoea, intense dyspnoea, cyanosis, and profound cardiac depression. After death a chocolate-brown colour of the blood is seen, while the tissues generally are relatively very little changed. The blood contains methæmoglobin, &c. With less acute forms death results from the accumulation of oxidation products in the organs as well as in the blood, especially in the kidneys.

b. The following conditions are seen: Greyish-violet petechiæ, icterus, accumulation of hæmoglobin in the blood, changes in the red corpuscles, dyspnoea, and cardiac depression; gastro-intestinal disturbances such as profuse diarrhoea and severe vomiting, the vomited matter being generally greenish black; and enlargement of the liver and spleen. Functional alterations in the kidneys, such as anuria, occur; the scanty, turbid urine having a reddish-brown or black colour, and exhibiting spectra of methæmoglobin and hæmatin, and being also highly albuminous. It also contains numerous detritus-masses of red blood-corpuscles in the form of brownish cylinders or flakes. Neuroses, uræmic convulsions, delirium, coma and rigidity of the limbs are observed.

c. The subjective phenomena are: Headache, anorexia, tenderness of the stomach on pressure, pains in the hepatic and lumbar regions,

intense oppression of the chest, and a feeling of extreme weakness. After death the characteristic chocolate colour of the blood is noticed; the spleen, liver, and kidneys are considerably enlarged and filled with accumulated products of destruction of red corpuscles. The greatest alteration is seen in the kidneys, in which both the straight and the convoluted tubes are filled with cylindrical or irregular brownish masses. The osseous marrow is brown and contains many decomposed blood-cells. The gastric mucous membrane is swollen and ecchymosed. (*Lond. Med. Record*, 1884, p. 518.)

8. A man, æt. 49, was ordered pot. chlor. on account of a vesical catarrh following gonorrhœa. He took by mistake 60 grammes (2 oz.) in 36 h. When seen by Dr. Böhm he was pale and collapsed, in a condition very suggestive of cholera, suffering greatly from pain over stomach, and with suppression of urine. Soon after a feeling of numbness and formication in the hands and feet came on, causing great distress and restlessness. The urine, blood, and the *P.M.* appearances were such as have been already described in other cases. (*Ibid.*, 1883, p. 436.)

9. Dr. F. MARCHAND has recently published four cases observed by himself (*Virchow's Archiv*, Bd. 77, Heft. 3), three of them fatal, and has found that the *P.M.* appearances and the microscopic alteration of the blood coincided with those observed in animals experimentally poisoned with potass. chlor. The ages of Dr. M.'s patients ranged from 3 to 7 years. The dose varied from 12 grammes in 36 h. to 25 grammes in 30 h. The symptoms were vomiting, hæmaturia, a more or less icteric tint of skin, rapid wasting of flesh and strength, delirium, and coma. The urine contained quantities of disintegrated blood-corpuscles. The blood itself was of a remarkable chocolate colour, which did not alter on exposure to air. The same colour can be produced artificially by adding chlorate of potash to blood. If the proportion of the salt be considerable, the blood assumes a syrupy and even gelatinous consistence, and the red corpuscles tend to agglomerate into glutinous masses. The spectroscope shows that the lines characteristic of the hæmoglobin have been replaced by a distinct absorption band in the red part of the spectrum, due to the conversion of the hæmoglobin into methæmoglobin, an oxidation product of the former. The poisonous effects of the drug are therefore probably the result of its oxidising action on the red corpuscles. The débris thereof are either excreted by the kidneys, colouring the urine brown, or they accumulate in the renal cortex and cause death by suppression of urine and "uræmia." The kidneys themselves are enlarged, and their surface is brown, but they exhibit no inflammatory appearances, the main alteration being the infarction of their tubules with corpuscular detritus. (*Med. Times and Gaz.*, 1879, ii, 640.)

10. Hæmoglobinuria produced by large doses of potass. chlor.—A woman was suddenly taken ill with cyanosis and dyspnoea, and passed masses of hæmoglobin both *per rectum* and *per vaginam*; the urine and the vomited matter also contained masses of hæmoglobin. On the 3rd d. of her illness, the patient became slightly jaundiced, while the cyanosis passed off; on the 4th d. she died. Beyond an

enlargement of the spleen, which was painful to the touch, no organ was found during life the seat of disease. The blood showed increase of leucocytes, but the red corpuscles showed nothing very abnormal. The *P.M.* examination showed all the organs healthy except the spleen, which was large, soft, and looked like a blood-clot; the blood was fluid and dark brown; the kidney showed, in the cortical and medullary parts, chocolate-coloured streaks. The microscopical examination of the kidneys showed the convoluted tubes and straight tubes to be filled partly with granules and partly with small round discs of the size of blood-corpuscles, in which, however, the colouring matter was precipitated. The glomeruli were perfectly intact. The hæmoglobin was not found within the glomeruli or in their capsules, but was abundant in the convoluted tubes, whose epithelium in most places was found intact. The patient had taken for a slight sore-throat about 1½ oz. solid pot. chlor. (DRESCHFELD and STOBEL, *Trans. Internat. Med. Congress*, 1881, vol. i, p. 398.)

11. AMY W., æt. 3, suffering from purulent ophthalmia, was ordered, on March 9th, 10 gr. chlorate of potash thrice daily. Much improvement resulted both locally and generally, and the medicine was continued until May 11th. The eyes several times seemed nearly well, but she had relapses due to unfavourable weather. Until May 11th the med. had apparently disagreed in no way; on this date the dose was reduced to 5 gr. "On May 18th she came with a very sore mouth. The saliva dripped from her lips, there were numerous follicular ulcers on the tongue and inside of lips, and one large one occupied a surface the size of a shilling on the back part of the dorsum of the tongue. The salivary glands were enlarged and tender, and the mouth full of saliva, although the pyalism was not extreme, nor were the gums sore. In the latter respect, and in the existence of the larger ulcers on the tongue, the stomatitis differed from that caused by mercury." (*Med. Times and Gaz.*, 1858, vol. i, p. 527.)

12. a. A young man suffering from an acutely inflamed carbuncle on the nape took the chlorate in 15 gr. doses every 4 h. for 2 d., and then had 2 symmetrical ulcers form on the side of the tongue, each being about the size of a fourpenny piece. There was no general stomatitis, and the sores healed slowly when the remedy was suspended.

b. To a boy, æt. 8, 8 gr. of the chlorate were prescribed thrice daily for pustular ophthalmia. After 4 d. the eyes were much better, but the mouth became affected by most acute ulcerative and follicular stomatitis. The whole mucous surface was red, and on the tongue, lips, and cheeks, &c., were numerous grey-based ulcers. The salt was not suspended, and in about a week the mouth was well again.

c. A little girl suffering from pustular ophthalmia. Stomatitis resembling that of the previous case, though less severe, was induced by the chlorate. It also disappeared whilst the remedy was continued.

d. A similar case occurred at the Metropolitan Free Hospital, also in a child. (HUTCHINSON, *Lancet*, 1858, vol. i, p. 265.)

e. Two years ago I gave the chlorate to a lady pregnant for the fifth time, and whose previous labours have all been premature. After using it for about 10 d. she became affected with spongy swelling of

the gums, accompanied by small, highly irritable ulcers on the tongue, cheeks, and gums, and by considerable salivation. These symptoms disappeared on giving up the medicine, but their appearance was always attributed by my patient to the use of the chlorate. The lady having again become pregnant I recommended her to resume the chlorate, but she had only used it for 8 d. when the same form of stomatitis recurred in a severe degree, and at once yielded on discontinuing the mixture. She has never at any other time suffered from sore mouth in any form. (JNO. TRAILL, *Lancet*, 1858, vol 1, p. 375.)

KALI MANGANICUM

Potassic permanganate, $K_2Mn_2O_7$

1. *Proving*.—1. Dr. H. C. ALLEN, April 26th, 1866, at 10.45 a.m., took 6 gr. In 20 m. hot burning sensation in cardiac extremity of stomach, with peculiar convulsive smarting sensation in throat and fauces, attended with slight inclination to swallow, and hot uneasy convulsive sensation throughout whole of œsophagus, which continued for 2 h., but as it was relieved by eating he attributed it to the irritating presence of the salt coming in contact with the mucous membrane of the fauces and alimentary canal. 1.45 p.m., took 20 gr. more. 4, felt burning stinging pain in fauces, extending down œsophagus to stomach, attended with dryness and constant inclination to swallow. 2.30, throat and fauces feel raw and sore, with acute pain extending to ears on swallowing. 3.40, hot burning pain in stomach which appears to radiate over the whole epigastrium. 5, continual dryness in the throat, with slight irritating harking cough on attempting to swallow. 5.30, deep-seated pain in lower part of larynx, particularly in region of cricoid cartilage; fauces red and inflamed, and desire to swallow increasing; whole throat and larynx feels as though the cavity was constricted, apparently from thickening of the mucous membrane. 7.5th.—Could take but 10 gr. to-day, as his throat was so painful that it was with difficulty he could swallow. Soon after taking at least nauseating sickening sensation in the stomach, and increase of all former throat symptoms, with loss of appetite and constipation. 2.6th.—At 9.40 a.m. took 15 gr. In 15 m. had short hacking cough, with constant painful urging to swallow, which produced nausea and inclination to vomit, with profuse lachrymation. 20, rough, raw scraping in the throat, with constant inclination to swallow, which is very painful. 20.30, sharp, piercing pain extending from throat to l. mastoid process of temporal bone, apparently along course of Eustachian tube. 21, constant inclination to hawk up something, which is ineffectual; mucous membrane of the throat and larynx feels thick, and larynx very painful. 22.30, throat very dry and raw, and sanious discharge from nose; nares feel stuffed and full, as in catarrh; discharge is blood-streaked, although he had no catarrhal symptoms at 9 a.m. Constant, short, painful, hacking cough, and what little is coughed up is streaked with blood, as if the throat were raw; very little nausea or pain in stomach compared with yesterday. A great deal of pain in throat all d., particularly on swallowing, for which there appears to be a constant desire. Discharge from nares and larynx is streaked with blood, and there is sensation on hawking or clearing larynx as though surface was raw. 9 p.m., throat, mouth, and lips in particular, are very dry, the latter smart when exposed to the cold air; urine more profuse than usual, and has to be voided more frequently. 27th.—Had a restless n. 2.30 p.m., took another 20 gr. In 1/2 h. increase of same smarting burning pain in throat, extending along œsophagus, attended with burning pain in stomach, 4, deep-seated sickening pain in stomach, with raw dryness in the throat, and constant inclination to swallow. 5, during last h. profuse flow of saliva from mouth (so much as to attract attention, although he had more or less all d., but was not sure it was caused by drug), with same constant inclination to swallow manifested after

each dose of drug, but has now become very painful. Uvula, soft palate and fauces mottled dark red colour, with livid spots here and there. Mucous membrane of fauces and posterior wall of pharynx feels thickened, and there is constant hawking up of thick, blood-streaked, tenacious mucus, which appears to be abundant, but in reality is very little; aching pain in region of cricoid cartilage, aggravated by every attempt at deglutition. Appetite not much affected, but obstinate constipation ever since he began to take drug. 27th.—At 6 p.m. took 20 gr. In 15 m. more violent pains in the throat than he had yet experienced, with nausea and vomiting, first of contents of stomach, afterwards of thickropy fluid, which is ejected in large quantities, but with very little difficulty. Profuse salivation, 5, 35, fauces and pharynx are red and very painful, and efforts of deglutition almost incessant, with profuse flow of saliva, which is allowed to escape from the mouth on account of the pain produced by swallowing. Urine very profuse and clear. 7, nausea and vomiting of the same thick mucus continues; head feels full, face hot, pulse 91, and a profuse perspiration makes its appearance. Compelled to assume recumbent position. Throat feels raw and swollen, and is very painful, even when not attempting to swallow. Profuse flow of watery urine. Slight hæmorrhage from nose; feels weak and very much prostrated; efforts of deglutition incessant and very painful. 8, 30, took 20 gr. more. In 20 m. felt aggravation of all former symptoms; nausea and vomiting to such a degree that he began to search in vain for an antidote. 9, profuse hæmorrhage from nose; coughing, intense, painful inclination to swallow, but cannot do so; profuse flow of saliva, with burping, raw, smarting, nauseating pain in fauces, pharynx, larynx, and extending down œsophagus to stomach; vomiting incessant, though painless; everything that is hawked up from the throat is streaked with blood; sanguinous discharge from nares; posterior nares are painful, and mucous membrane appears to be thickened so as almost to fill the cavity; speech painful and difficult, hoarse, as though he had tonsillitis; pulse 94; considerable difficulty is experienced in opening mouth, on account of soreness of parotid glands and muscles of neck. 9, 30, nasal hæmorrhage not so profuse as before. 10, almost constant flow of ropy mucus from stomach, which is ejected without pain, but does not in the least relieve the nausea. Had a sleepless n; fever, thirst, but inability to drink, and was compelled to urinate 4 or 5 times (an unusual circumstance with him); urine clear, watery, and in considerable quantities each time. 19th.—Did not feel inclined to take any more of drug; could eat no solid food on account of swollen and painful condition of the throat; felt weak and unable to attend to any business; profuse salivation still continues, but has had no vomiting to-day; urine profuse; obstinate constipation. Pulse at 2 p.m. 86. 20th.—Took no more of drug to-day, in order to take something purgative, as he had been unable to eat for 2 d. Symptoms gradually abating; salivation still profuse, and throats swollen and very painful. May 21.—Took 30 gr. at 7.35 a.m. In a short time a return of all symptoms previously related, especially inclination to swallow, which had in some degree abated since leaving off use of drug. No new symptoms were developed. 21, took 30 gr. In ½ h. return of all symptoms in aggravated form, particularly hoarse and throat symptoms; coughing, or even hawking, brings up sanguinous fluid; increased flow of saliva, which runs out of mouth almost constantly, with more pain and difficulty of deglutition than ever. Nasal hæmorrhage, and vomiting of same ropy fluid, without pain. Pulse at 9 a.m. 95. Head feels dull, throat dry, painful, with incessant attempts at deglutition, which it seems almost impossible to restrain. Uvula œdematous, and very much elongated. 2nd.—At 9 a.m. took 30 gr. Soon felt increase of pain in throat, and constant inclination to swallow. The vomiting, which had ceased last e., returned in aggravated form, attended with burning, nauseating pain in stomach and duodenum, which became almost insupportable. Salivation profuse; sanguinous discharge from nares; acute pain in throat, extending to ears and larynx, and producing rattling cough. 11 m.—Soft palate swollen; uvula swollen, and looks œdematous and of a dark red colour; whole throat feels raw, and everything which is raised by coughing is streaked with blood. 3rd.—Repeated dose at 10.30 a.m. Nothing new was developed, but an active increase of all symptoms previous. Muscles of the neck feel sore, particularly digastric and stylo-hyoid; and cervical glands opposite hyoid bone are swollen and very painful. Small increased spots here and there on walls of throat, with stinging, burning pain. 4th.—At 2 p.m. took 30 gr. more. In 30 m. profuse discharge of saliva and urine; nausea and vomiting, and terrible weakness and languor, particularly

of lower limbs, which compelled him to lie down. Legs feel as though he could not move them, and tremble when he attempts to stand. Nose feels stuffed and full, and hæmorrhage sets in on every attempt to free the obstruction; thin discharge from nares, which excoriates and irritates mucous membrane; throat feels raw, and bleeds upon attempting to hawk up secretion, which appears to completely fill the cavity.

β. "I could take no more of the drug, from a loathing which would almost produce vomiting to look at it; and although a month has elapsed since I took any of the drug the simplest taste, or even the sight of it, will produce nausea. I took in 10 d. 222 gr. of the salt. My partner took 52 gr. in 3 d. Pain, heat and dryness of throat, with constant desire to swallow, although deglutition was painful, were the principal symptoms manifested. My students did not take so much, but in each case the throat was primarily affected." (*Amer. Mem. Observer*, iii, 105.)

KALI NITRICUM.

Potassic nitrate, KNO_3 . Nitre, saltpetre.

I. *Proving*s.—1. HAHNEMANN, *Chronic Diseases*, part iv. of original, vol. of translation. Contains 588 symptoms from self and 3 others, and 122 from authors.

2. α. I applied a thermometer to the pit of my stomach, and found that the highest degree to which the thermometer would rise was 98° . I then took ʒj of N. dissolved in ʒj of water; 2 m. after this my pulsations were reduced from 72 to 64; 4 m. after they were as low as 62, and from that time they began gradually to increase, till at the end of 10 m. they were at 70, and soon after at 72, the exact number at which they were before I took the draught. About 20 m. after I had taken the N., on looking at the thermometer, the mercury had risen from 98° to $99\frac{1}{2}^{\circ}$, and in 20 m. more it was fallen again to 98° , and my pulse still continued to beat 72; this was exactly, in every respect, the state in which I was before I took it. As the rising and falling of the mercury in all the subsequent trials was extremely regular, I shall leave out of my narrative of the following experiments the observations I made on it, and lay it down as a postulaturn that whatever power N. may have of cooling the body, it does not exert it in any perceptible manner on its external parts.

β. About an h. after I had taken the first draught I took a second. My pulse beat 70 before I took it, but in 1 m. after no more than 60, though it soon became quicker, so as at the end of 10 m. to beat 68, and in a few m. more 70. As soon as I had taken it I felt a chilliness all over my body, but more particularly at my stomach, which continued for about 20 m. to give me a good deal of uneasiness. It then began to decrease, and in little more than $\frac{1}{2}$ h. was entirely gone off.

γ. The next d. I repeated the same experiment. Before I took the dose my pulse beat 64; the 2nd m. after the strokes were reduced to 60; the 5th m. after they were 63, and soon came to 64, as before I took it.

δ. The d. following I took a drachm dissolved in 2 oz. of water. Before I took it my pulse beat 73; the 2nd m. after it fell to 66; the 4th m. after it rose to 69; and from that time became still more

frequent, till at the end of 9 m. it had recovered its usual strength, and was at 73.

e. Twenty m. after this dose I took ʒss of N. dissolved in 3 oz. of water. After 2 m. my pulse was weak, fluttering, and unequal, and beat about 70 in a m.; soon after I felt a painful sensation at the upper orifice of my stomach, and on arising from my chair, it was with some difficulty that I walked through the room; I then returned to the chair and felt my pulse again; it was now become so quick, fluttering, and irregular, and my head was so giddy, that I could not exactly number the strokes it beat, though, as near as I could judge, they were between 90 and 100; in about an h. every one of these disagreeable symptoms began to abate, and continued slowly decreasing all that d.; the next m. when I got out of bed they were entirely gone off.

f. I dissolved ʒiss in 3 oz. of water, which I left 12 h. exposed to the air, and then swallowed; immediately before I took it my pulse beat 64; the 2nd m. after it beat the same; the 4th m. after it beat 59, and from that time began to increase as in the former experiments till it came to the standard at which it had been before I took the N.

g. I dissolved ʒvj in a quart of water, which I began to drink early in the m., and by taking small draughts of it as often as I had convenience, I finished the whole at 8 that n. without feeling any uneasiness from it, or being sensible of its having operated any other way than by urine.

h. Two d. after I dissolved 1 oz. of N. in the same quantity of water, and drank it in the same time; it gave me no uneasiness, nor had any sensible effects.

i. Some d. after this I dissolved ʒi oz. of N. in 3 lbs. of water, and took a draught of it every h., except in bed; the whole was drunk in 24 h.; after 4 or 5 draughts I felt a slight chilliness at my stomach every time I took it; but this generally went off before the time of taking the next draught, and on that account gave me but little pain.

j. I now resolved to try what would be the effect of the same quantity of N. when every different dose was taken immediately on its being dissolved. For this purpose I divided 1 oz. into 8 equal parts, and took one of these parts, dissolved in 4 oz. of water, every 90 m. The weather at this time was very warm, and therefore the first 3 or 4 doses cooled and refreshed me; the fifth and sixth, however, gave me a chilliness and pain in my stomach; the seventh and eighth increased these sharp stinging pains, not only in my stomach, but through my whole body, which were so violent that for 15 m. after each dose I could not breathe without feeling a very acute pain on every inspiration.

k. As I had been able to take ʒi oz. of N. with very little inconvenience when it had been long dissolved, I resolved to make one more effort to try if I could manage the same quantity, when every dose was taken immediately after being dissolved. I therefore prepared 8 powders of ʒiss each, with a design to take one of them every 90 m., as in the last experiment; the second dose gave me a chilliness at the

stomach; the third gave me some of the above-mentioned pains, and the fourth increased them to such a violent degree that I was obliged to desist from taking any more. (ALEXANDER, *Exp. Essays*, 1770.)

3. RUMMEL proved 1st trit. June 7th, 1837, took, p.m., 6 gr. Soon after, great heat of face and of upper lip; hands hotter than usual, without acceleration of pulse. Roughness in nasal fossæ, as if catarrh was impending. Slight dull hissing in ears. Slight afflux of water into mouth. 8th.—A large painless pimple on inside of lower lip, which lasted for several d., but disappeared without suppurating. Drawing in tibia. At 5 p.m. took 10 gr. Dull pressive pain in r. chest over false ribs, later going towards pit of stomach, and remaining there some time, with much eructation and noisy emission of flatus. Some chilliness and yawning soon after dose; pain as after a blow in ham; transient tearing drawing in middle finger of l. hand; pressure on stomach changes to sensation of hunger. 9th.—On waking, eyes a little inflamed, as in catarrh, with pressure, especially in l. Frequent attacks of tearing-drawing in parietal and frontal bones, with confusion in head. Stool delayed. Oppression of chest. 10th.—Oppression continues, especially in m., with pressure at stomach; pricking shoots in glans penis; some soft stools; towards e. head confused again, with drawing in sides and front. 11th.—Pressure at stomach and oppression of chest continue, obliging him frequently to draw deep breaths; confusion and drawing again in head. 12th.—Stomach somewhat painful in m. and head confused in e. (*Archiv*, xvii, 2, 123.)

4. SCHAUROFF, after having long observed a homœopathic diet and satisfied himself as to his perfect health, took, June 20th, in m., as much N, as would lie on point of penknife, repeating dose at 9 and 10 a.m. Murmuring in ears, as of running water; borborygmus; pinchings in transverse colon. 21st.—At 6.15 a.m., a teaspoonful in warm water. Nausea in stomach, slight burning and pressure, eructations; scanty soft stool; shootings in l. sacral region on sitting. At 8, repeated dose. In e., strong tinnitus in l. ear; pressure of flatus and feeling as if diarrhœa would set in, a few drops of thin fluid escaping with wind. 22nd.—At 6.30 a.m., a heaped teaspoonful. Disgust and shudderings some time after ingestion; nausea in stomach, burning and pressure recurring and lasting nearly all d., slighter towards e.; pulse frequent, hard; breathing quickened, with sense of febrile weakness in whole body. At 8.30, a second dose. Pressure in forehead above root of nose, and sense of tension of skin there. Starting in muscles of r. arm. At 10 and 11, repeated dose. Soon after last teaspoonful pinchings in stomach. Painful swelling of l. epididymis behind and below testicle, to size of hazel-nut; testicles sensitive and retracted, with pressive feeling within them; pain in pubic region on touching it; smarting in urethra during micturition, on finishing act burning pain,—urine reddish; pressure towards both ears and temples. 23rd.—In m., pulse quick and hard, breathing accelerated, with febrile weakness and tremor; p.m., shootings in r. chest between 5th and 6th ribs. In e., pressure and tension in forehead as yesterday (quite un wonted with him). 24th.—Pressure in stomach, relieved by eructations, m.; tearings in metacarpal bone of r. index and in wrist.

Disagreeable hypochondriacal state of mind; he is discontented with himself and everybody, sad, irritable, and averse to all mental exertion. (*Ibid.*)

5. LIZA, June 18th, at 7 a.m., fasting, took 5 gr. of N. Nothing occurred save eructation, borborygmi, and unusual flatulence,—first extending to following d. 20th.—At same h., repeated dose, with same result; also much thirst. 8 p.m., pressure and darting pain, transient, in r. chest. Omission of usual c. stool. Sound sleep till midnight; after that frequent dreaming, and waking from dryness of tongue and mouth, with thirst. 21st.—On rising, he is still sleepy and weary; later, he feels better. At 3 p.m., hard stool, with violent straining. 22nd.—At 8 a.m., 15 gr. Eructations and flatulence as before. Anorexia and much thirst; towards noon, sensation as if œsophageal mucous membrane was covered with thick viscid mucus; towards e., vomiting after drinking some Bavarian beer. No stool. Sleep restless, disturbed by anxious dreams. In m., dryness of tongue and mouth. 23rd.—During whole m. pressure under sternum; p.m., frequent shoots, of brief duration, in l. chest; frequent pressure in rectum, with hard stool at 6 p.m. Sleep good. (*Ibid.*)

6. S. FINZELBERGER, æt. 26, June 7th at 6 a.m. took 6 gr. of 1st trit. Immediately, eructations, sense of heat in stomach. Pressive headache, especially in frontal region; general relaxation; distaste for work; and somnolence,—all coming on 3—4 h. after dose, and in e. Lancinating pain, lasting some m., in knees, elbows, and shoulders, lasting longest in l. elbow and increased by movement; it is worse in afternoon than in m. Lancinations in r. chest, returning 3 times at about $\frac{1}{4}$ h. intervals (6 h. after); later, sense of fulness under sternum, increased by deep breathing, and causing short, dry, hollow cough. No appetite, much thirst; tongue white and coated; pressure in region of stomach. Flaring heats in face, which is red and burning; then, in e., chilliness, with hard and frequent pulse—a febrile state. In urinating, burning in urethra towards meatus; urine clearer than usual, no sediment (as there had been before), and quantity diminished. Skin dry and hot, no perspiration even towards m. Sleep interrupted sometimes by dryness of mouth and thirst. 8th.—In m., pulse softer, but still too quick. Frequent paroxysms of cough, generally accompanied by expectoration of a solid bronchial mucus, sinking in water and not dissolving on shaking; during cough, pressive pain behind sternum, followed by soreness. Distension of epigastric region; tasteless eructations, once with gush of water into mouth; thirst, anorexia, tongue white coated. Towards e., fever; tonsils and uvula red; swallowing saliva painful; repugnance for pipe, general depression. 9th.—During n., sleep frequently interrupted by cough and expectoration; towards m., moderate sweat. Sore pain in throat. Same sensation behind sternum on coughing, and rattling there. The phlegm seems to come from the depths of the chest. Tongue coated, no appetite, fulness of stomach. (Three doses of ipecacuanha ʒ, at 4 h. intervals, checked cough, which was annoying.) 10th.—Sleep good; two attacks of cough and expectoration towards m.; slight pain in throat and in r. frontal sinus; dry coryza. Sense of fulness in

stomach, little appetite, tongue clear. Urine very cloudy, soon depositing a thick yellow sediment. Hard stool. Symptoms of chest and stomach continuing some d. yet, he took more ipecacuanha, and they all disappeared by the 15th.

6. On 13th, at 6 a.m., he took 4 gr. of N. Soon after, burning in stomach, then pressure there; cructations all d. No appetite for breakfast, but he was thirsty. An h. later, cough lasting $\frac{1}{2}$ h., with red face, and at last some mucous expectoration; this returned several times. Pressive pain under sternum all d.; appetite bad, tongue white-coated. Frequent sensation as if he would have a liquid stool, but none came till next d. and then it was very hard. In urinating, burning at urethral orifice, and frequently sensation of itching in the glands. Lancinating pain in r. shoulder, then in knees; several times pressive pain in frontal sinus; work is distasteful. Towards e., pulse is hard and somewhat quick. He drank wine in e.; n. was quiet, and next d. he had no further symptom. (*Ibid.*)

7. a. Nicot. took from Jan. 1st—8th, 1 gr. of N. each e. in water. Up to 8th health was perfect; but towards midnight of that d. he had somewhat violent pain in l. parietal region of head, which lessened when he put on a cap. Thinking that other symptoms would follow, he left off medicine; but nothing further occurred, save that on 15th he found a dull green spot on l. side of thigh, where he had had no contusion. From 23rd to 25th he took each e. 5 gr. 24th.—Weakness and pain in r. shoulder, most in front, only while arm was at rest, with cracking on movement as if in tendon of biceps; similar pain in first joint of r. ring-finger, but only during flexion and extension. 25th.—Felt nothing during d.; but soon after e. dose had in l. knee-pan same pain as in shoulder, &c., yesterday. After some h. sleep, awoke contrary to his wont, and experienced slight dull shoots of pain in front and lower part of l. chest. Next d. he was well and remained so but for a coryza.

b. March 13th—21st, took 10 gr. of $\frac{1}{2}$ trit. every e. 15th.—At 6 p.m., sudden desire to cough, caused by tickling to r. of throat-pat, as if in r. bronchus, eased by slow, deep breathing; it lasted about 1 h. 16th and 17th.—Very well but for the coryza, which had remarkably increased; and this continued, with hoarseness and cough, till first week in April. From 19th to 22nd, frequent emission of clear urine, and occasional rheumatic pain in r. shoulder. From 24th to 27th he woke 2—3 h. sooner than usual, and his head ached in a warm room. On 27th, there came on suddenly in m. and lasted till e. severe pain as if bruised in scalp, and painful beating in occiput and temples,—former relieved by pressing head strongly. At noon, for about an h., pain in bend of r. thigh whenever he went upstairs.

c. April 24th, his health being perfect, took 3ss of N. 27th.—Had continued well, save for slight painful sensation at inner side of r. knee, only felt in walking. 29th.—Took 100 gr. Slight sore-throat in e., which was worse next m. after exposure to cold. May 2nd.—Health being again perfect, took 100 gr. Previous pain in shoulder-joint now returned, especially in throwing arm forward. In m. 2 soft stools (unusual). From May 19th to June 2nd took daily, fasting,

$\frac{1}{30}$ gr. 20th.—Soon after rising, slight epistaxis; p.m., headache. 21st.—While in bed, acute headache in r. vertex, as if head would burst; soon after rising, bleeding from l. nostril, whereupon headache disappeared. June 1st.—Slight inflammatory swelling on r. side of palate. With exception of this, and of slight and transient pains in head, he experienced nothing. From 5th to 17th each d. 3 gr., taken fasting. Soon after 1st dose, dull pains in forehead and vertex, most to l.; they were stronger and more continuous than before. They disappeared towards 10 a.m., but returned after dinner, and lasted far into e. From thence till 10th he felt well, and had hardly any headache to speak of. That afternoon fresh pains in r. hip and ankle, like that of shoulder, but transient. Next d. these pains were worse, and were felt also in l. shoulder and ankle, especially on walking; later there was tensive pain in sterno-mastoid and slight headache on turning head. 12th.—Joint pains gone, save in l. shoulder on raising arm, especially if it is also thrown backward. Sterno-mastoid pain worse. Slight angina and languor. 13th.—Shoulder same; angina and languor less. Fell asleep at 8 p.m., during which twitching in facial muscles. On 14th, felt nothing, but on 15th r. shoulder pained at nearly every movement of arm. This lasted next d., but slighter. On 16th and 17th he also felt occasionally pressive pain in l. side of stomach in walking. On 18th, and from 23rd to 27th, he took 6 gr. daily in m., fasting. 18th.—In $\frac{1}{2}$ h. after dose, pain in vertex, increasing gradually in violence, disappearing in the open air. 19th.—Rheumatic stiffness, somewhat painful all over, worse in cold, relieved by warmth; gradually passing off by 21st. On 23rd he felt quite well, but on 24th, being exposed to a slight current of air, he was seized with violent pain in vertex, which ceased on getting out of draught. 25th.—Soon after dose, return of stomach pain in walking. 26th.—Immediately after dose, slight flying pains in r. vertex; 2 h. later, transient pressive pain in r. eye, and in $\frac{1}{2}$ h. more a peculiar pulsating noise in r. ear. 27th and 28th.—P.m., while studying, slight pains in r. vertex. Former was relieved by application of hand, but lasted 2—3 h., and left heat for some time after at affected spot. 29th.—Health perfect. (*Ibid.*)

8. TRAUB took for 9 m. during May 8 gr. of 1st trit. On 2nd d. occasional dislocative pain in r. hip on walking. 6 p.m., tensive drawing between scapulae. 10 p.m., lassitude in legs, especially about ankles, as after a long tramp. Frequent sneezing during d. 3rd.—Dislocative pain in r. wrist for 10 m., and similar pain in l. ankle. E., transient shoots under l. scapula; paralysed feeling in sacral region. 5th.—In e., while sitting quietly, need to breathe deeply, and at each inspiration shooting in l. chest arresting it,—5 times repeated. No further symptoms; but a slight falling of the hair so increased during the proving that he was obliged to discontinue it. (*Ibid.*)

9. C. MUEHLERBERG, of "psoric" habit, subject to palpitation, and altogether in uncertain health, proved 1st trit. in 1836, and again in 1837. On former occasion he was already feeling unwell, and his symptoms are hardly pure. June 14th, 1837, at 11 p.m., took 5 gr. On rising next m. pressive pain in forehead; great languor in whole body, especially in legs, and sleepiness, so that he would fain have lain

down again. This state gradually went off towards 10 a.m. but for slight pressure in forehead and under r. eye. After dinner, pressure in stomach; and in e. pains in head were replaced by oppression of chest. All d. pulse 10 beats above normal. 16th.—Still some headache. At 10.30 p.m., 10 gr. 17th.—7 a.m., pressive headache, extending to occiput; lassitude and weakness of legs. In e., more heat in head; agitation; pulse fuller, 80; hoarseness. 18th.—Pressure throughout frontal region, and occasional dull shoots through it. Great prostration; shattered feeling all over; hoarseness. 19th.—Repeated dose. Same symptoms, with heat in face and head. 20th.—Beatings synchronous with pulse in l. ear; drawings in extremities; urine cloudy-yellow; burning at edge of prepuce and smarting on micturition. Till e. violent headache and drawings in limbs. 21st.—Headache still all d.; burning on urinating; tearing and drawing in legs. E., hoarseness, dryness of nose. Headache increased towards e. of next d., and on 23rd inflammatory redness and swelling of r. eyelid, for which he inhaled aconite. He was better next d., and a fresh dose of 15 gr. in e. of 25th caused no recrudescence of symptoms, which therefore were probably non-medicinal. On 27th, some oppression of chest and stomach, and drawings in legs. At 11 p.m., 10 gr. 28th.—M., great prostration; legs very weak; same headache as before, and drawings in extremities, with tickling at orifice of urethra. 29th.—Repeated dose, with head symptoms only. Sense of cold in occiput accompanied headache throughout. (*Ibid.*)

10. FRANKÉ, May 27th, 1837, took 5 gr. of N. at 9 a.m. Sumb after dose, shivering, renewed at noon. Fulness of abdomen, no appetite, still he ate with pleasure; after stool fulness went off. 28th.—In m., fasting, same dose. In 1 h., 2 somewhat fluid stools in rapid succession. Between 11 and 12, great somnolence, lasting till 3 h. after dinner, when he felt obliged to lie on sofa. Sleep then was disturbed by frightful dreams, and was difficult to shake off. Before it he felt pain in l. eyeball as if compressed from both sides. 31st.—Repeated dose. During n., frequently wakened by shoots through middle joint of second toe of r. foot, as if from corns (which do not exist). April 1st.—Same dose. Similar shoots frequently during d. in l. foot, which is equally free from corns. 2nd—4th.—Same dose each d., with no other symptoms. 5th.—Sopor as on 28th, and shooting in 2 outer toes of r. foot. 7th.—9 gr. Fulness of stomach, and repugnance to food, lasting till 5 p.m., when it went off after a moderate fluid stool. 8th.—Unusual sexual excitement. 10th.—At noon, 9 gr. P.m., drawing pains in elbow on flexing arm. 21st.—At 10 a.m. and 3 p.m. took 3ss of N. Immediately after dose, tickling at various spots, as if feather of pen were passed over them. 22nd.—At 8 a.m. and 1.30 p.m., 3ss. Nothing but some slight recurrence of old drawings and itchings. On 23rd and 24th, took 2 doses of 3ss and 12 gr. respectively, without effect; but stools lately have been of straw yellow colour. 25th.—Repeated last dose twice. As on 22nd. 26th.—Same, with flatulent colic and diarrhoea; sleep agitated, full of dreams with frequent waking. 27th.—As yesterday; tongue white-coated down to tip. 28th.—Same state; head confused, face pale; much prostration; tearings in divers

muscles. 29th.—No change; feels sad. 30th.—Better, save that head is still weak and confused. (*Ibid.*)

11. MUEHLENBEIN, æt. 72, took, July 17th, 1835, in m., fasting, 6 gr. of 1st cric. Some h. after, sense of heat in face, without alteration of pulse; much yawning, lassitude, and inertia; disposition to crossness; slight headache, or rather confusion of head (strange to him). Symptoms went off by e., and sleep was not disturbed. On 19th, repeated dose with same results. (*Ibid.*)

12. KRATZENSTEIN took 3 times in 24 h. or 53 grm. of N. without experiencing anything save pressure in stomach, followed, an h. later, by a soft stool. (*Ibid.*)

13. ENGLER, Feb. 27th, 1822, took 1 gr. without effect. March 20d.—3 gr. Some h. after, copious emission of deep red urine, which after standing becomes flocculent. 4th.—4 gr. Besides increased urination, frequent urging to stool, but without result. Same effects from 5 and 6 gr. respectively on 5th and 6th. 7th.—7 gr. at 9 a.m. Frequent emission during d. of pale and cloudy urine, with some rectal tenesmus. On 8th symptoms gradually subsided; and on 9th two 8 gr. doses reproduced them only to less degree. 11th.—10 gr. at 9 a.m. and 5 p.m. Urine redder and more cloudy, without increase in quantity; rectal tenesmus as before. 12th.—Two doses of 11 gr. without other effect. 15th.—15 gr. twice. Copious emission of clear urine, with same but slighter rectal symptoms. (JORG'S PROVINGS, *Materia Medica* &c.)

14. HACKER took from Feb. 28th to March 6th doses increasing from 1 to 6 gr. without effect. 7th.—7 gr. twice. In n. unwaisted perspiration, somewhat copious. 9th and 10th.—8 gr. twice. Frequent desire to micturate, and emission of much foetid flatus. On n. of both recurrence of perspiration. On 11th, 10 gr.; on 12th, 3ss; and on 13th, ʒj, twice, without effect. (*Ibid.*)

15. HEISTZBERGK took increasing doses as in No. 14 till March 6th without effect. 7th.—7 gr. twice. An h. after 1st dose for a short time slight cutting in small intestines. From 8th to 12th took 2 doses daily, increasing by 1 gr. On 10th, at 6 p.m., disagreeable drawing for some m. in small intestines; stool more fluid than usual. 11th.—Same stool but no colic. On 13th, took 14 gr.; on 14th, 20 gr.; and on 15th 40 gr., twice, without effect save that pulse was smaller and softer. (*Ibid.*)

16. KNÄSCHKE began as last two provers. On 11th he took 10 gr. twice; 3 semi-fluid stools with some general colic during last. 12th.—12 gr. twice. Urine more copious, clear, and watery. 13th.—13 gr. Three liquid stools, colic all d., urine as yesterday. (*Ibid.*)

17. KUMMER'S proving, up to March 4th, was as those preceding his. On 5th he took 5 gr. at 6 a.m. At 10, slight colic; tongue covered with white mucus without alteration of taste or appetite; urine rather copious. 6th.—6 gr. at 8 a.m. At 10, colic, lasting only a short time, but recurring frequently up to e. Urine copious, and depositing a red sediment. 7th.—7 gr. twice. In 2 h. after first dose return of colic, with urging to stool, persisting even after 2 liquid evacuations. 8th.—A diarrhetic stool. 9th.—8 gr. Soon sense of fulness in stomach; p.m., 2 rather fluid stools. 10th.—9 gr. at

9 a.m. Immediately after, feeling of coldness from mouth to stomach for some m.; and from 10 a.m. to 3 p.m. nausea and inclination to vomit. On 12th, 10 gr., and on 13th, 12 gr. An h. after each dose, nausea. On further increase of dose, urine augmented in quantity, and formed regularly a reddish cloud. Tongue continued coated to the last; but taste and appetite underwent no change. (*Ibid.*)

18. RICHTER, after usual ineffective opening, took on March 5th, 5 gr. During and after ordinary stool pressing and urging at anus. 6th.—6 gr. Same tenesmus, but for 2 h. after stool. N. agitated and full of dreams. 7th.—7 gr. twice. Soon after m. dose acid taste and increased saliva, lasting till dinner time. Appetite diminished; abdomen was distended, later relieved by much flatus passing; rectal tenesmus as before. In e. symptoms of digestive canal ceased, but there was frequent desire to micturate. 8th.—8 gr. twice. Same history as yesterday. 9th.—Nothing but frequent urging to micturate. After pause till 14th, took 20 gr. twice; but experienced only the urinary irritation, and this more slightly than from the weaker doses. (*Ibid.*)

19. STRANHAAR took, April 12th—24th, gr. iij—x without effect. 16th.—11 gr. in m. Increased secretion of urine, and somewhat intense drawing pain in lumbar region, aggravated by movement of body, lasting from noon till e.; increased thirst, and pulse somewhat quickened. 18th.—12 gr. Same effect; urine more copious and depositing slight mucous sediment. 19th.—13 gr. Frequent urging to micturate, dull pain in renal region, thirst greater, and pulse (p.m.) accelerated. In n. violent griping, and next m. 3 diarrhetic stools, followed by constipation till e. of May 1st. May 4th.—13 gr. in m. During whole d. thirst greater and micturition more frequent than ordinarily. In n. loud borborygmi, but without colic or stool. 5th.—14 gr. at 8 a.m. Same symptoms as yesterday, with 2 loose stools p.m. (*Ibid.*)

20. JÖRG took 2, 4, and 6 gr. without effect. April 21st.—7 gr. at 9 a.m. In m. several paroxysms of violent hunger, slight colic of brief duration; perspired more than usual, and towards e. had a somewhat fluid stool. 22nd.—8 gr. with same effects, which by next d. had quite ceased. May 4th.—9 gr. Local cooling effect very marked; pulse rose 3 beats, but soon fell again. 10—11 a.m., the bulimia recurred, lasting $\frac{1}{2}$ h. at a time, and alternating with slight curving about umbilicus. Before and after dinner mouth remarkably dry, which obliged him to drink repeatedly. Towards e. 2 rather liquid stools, after (according to his wont) having had 2 natural evacuations in m. Perspiration again unusually free. 5th.—At 9 a.m., 10 gr., with nearly same effect, but also more frequent and copious emission of brownish-yellow urine. 6th.—12 gr. Increased diuresis. 7th.—14 gr. After initial coldness of mouth had subsided, great dryness there. Slight umbilical colic, with sense as though stool would follow. Urine and perspiration as before. After stronger doses, pulse rose 3—4 beats for as many m. (*Ibid.*)

21. A. ASSMANN, after having taken from 10 to 20 gr. without effect, began June 19th, 1823, with ʒj in ʒj of water at 8 a.m.,

* Jörg had experimented with N. two years previously, with almost identical results.

having previously eaten only a little dry bread. After 3 m. slight pressive burning pain in region of stomach, which gradually increased, and at last became a dull boring there. Soon after 8.30, moderate cutting pain in bowels, passing gradually along their length. At same time emission of much flatus and desire for stool, heartburn, and slight heat all over body. Towards 9, natural stool; therewith began more frequent urging to micturate (as often as every 10 m.) with little passing at a time, yet total quantity being in considerable excess. These symptoms still continued when, at midday, he took another \mathfrak{zj} . There were then added eructations, nausea, yawnings, sadness, weight in head and bruised pain over whole body. All this lasted till e., and n. was agitated, sleep heavy and broken. During all next d. hunger, with disgust for food, pressure and burning in stomach, with some violent shootings in epigastric region; then weight and fulness at pit of stomach and lassitude all over body. Urinary and alvine secretions became normal, but thirst continued. On 29th, at 9 a.m., A— took \mathfrak{zj} in \mathfrak{zj} of water. Scarcely was the N. in the stomach when there occurred frequent eructations and nausea, without (however) actual vomiting. Later, slight colic, increasing for $\frac{1}{2}$ h.; at same time somewhat violent urging to stool, which a normal evacuation about 10 did not remove, and it continued nearly all d.; with it were frequent and copious emissions of urine. Thirst was violent and constant, appetite absent. N. restless and sleepless. 30th.—Salivary, especially submaxillary, glands swollen, hard, and painful, and secretion of saliva more abundant; weight and pain over whole head (he was not subject to headache), with lassitude of body generally. There appeared this d. on face and other parts of surface small vesicles, which filled with pus; pulse was full, hard, and quick. It was not till 3rd d. after dose that he felt himself again.

4. A— having made the foregoing experiments by himself, I wished him to perform others under my (Jörg's) eyes. May 15th, 1824, at 9.15 a.m., he took \mathfrak{zj} in \mathfrak{zj} of water. Immediately strong eructation. Hardly any coldness was experienced locally. In about 8 m. sensation in stomach like the distant beating of an artery. In 20 m. increased heat in trunk and determination of blood to head; renewed eructation, slight vertigo and confusion of head. Whole forehead and cheeks seemed hotter than usual, hands were much colder. In 25 m. began twistings in belly; at 40 m. pressure in stomach continued and urging to micturate had begun. Internal heat had diminished, but heat and congestion of head continued. Towards 11, heartburn, and hunger without appetite but with keen thirst. A few m. after taking medicine, pulse fell from 66 to 62, but returned to former rate after $\frac{1}{2}$ h. After a moderate meal slight aching across eyebrows; general lassitude and torpor in lower extremities. Between 10 and 12 a.m. 3 emissions of urine, amounting to \mathfrak{zj} in all, though prover had abstained from drinking. At 3 p.m. he repeated dose. Some time after, face hot and hands cold; sensitive pain across chest; some shootings on l. side under ribs and slight pains in head; violent thirst, also pressure at stomach and colic without stool. These symptoms continued till 7 p.m.; and frequent emissions of a yellowish,

transparent urine, forming a cloud, continued even into the n., which was restless, till towards m. a slight perspiration broke out. Next d. he was quite well. (*Ibid.*)

11. *Poisonings.*—1. A woman swallowed a handful of N. in hot water by mistake for Glauber's salts. Soon after, violent pain came on in stomach, followed by nausea, and finally vomiting. From moment of taking dose she began to swell up, and this went on increasing so fast that in a few m. she had to unlace herself in haste in order to breathe. Her kerchief had also to be removed, so swollen was her neck; and the same at length with her dress and garters. A—arrived within 10 m. of her taking dose, and found this state of things. Provoking free vomiting, he found pain and swelling diminish; so that after 5 or 6 evacuations of stomach they had nearly ceased. In $\frac{1}{2}$ h. she expelled a fetus of 2 mo., and therewith blood, not from vagina only, but also from rectum, with liquid stools and some colic. Next d. these had lessened, but on 3rd d. they recommenced with violence, stools seeming to consist of lining membrane of rectum mixed with blood. Under opiates and emollients they subsided in 2 d. more. Besides the swelling and pain in stomach, she now felt also violent pains in all parts of body, but chiefly in lower half of spinal cord. These almost ceased by next d., but recurred slightly at times. At the same time she had tinnitus aurium, trembling of whole body, and extraordinary shiverings, which no hot drinks or coverings would remove; headache, and such vertigo that she could hardly get safely to a seat. The vertigo and tinnitus lasted 24 h.; the trembling nearly 3 d. The mucous membrane from throat to stomach continued very sensitive for some d. (ALEXANDER, *op. cit.*)

2. Mad. V—, æt. 58, took \mathfrak{z} (by mistake for Seidlitz salts) at 6 a.m. In $\frac{1}{2}$ h. she complained of her stomach, had nausea, vomiting after considerable straining, alvine evacuations, then a convulsion in which her mouth was drawn. Emerging therefrom, she said in a low voice that she felt very ill, and wished the doctor summoned. Another convulsion ensued, and a great debility, in which I found her, with very feeble pulse and cold extremities. In spite of hot and cordial drinks, the condition of syncope deepened, pulse ceasing at wrists, and laborious respiration being the only sign of life, save that in an almost inaudible voice she complained of a consuming fire in her stomach and cruel pains in the abdomen, and said she was dying. She actually expired at 9 o'clock. P.M., stomach was found highly inflamed, mucous membrane here and there detached, and peritoneal coat of dark red hue, with here and there some brown spots. (LAWLIZK, *Journ. de Méd.*, June, 1787, p. 401.)

3. A servant, æt. 36, swallowed at two doses, $\frac{1}{2}$ h. apart, a solution of \mathfrak{ss} of N. by mistake. Vomiting and copious purging followed, and violent pains in bowels. The physician called on account of the latter gave demulcents by mouth and anus, followed by opium; but without effect. Patient complained of a consuming fire in chest and stomach; extremities were cold, pulse hardly to be felt; and she died 60 h. after taking poison. P.M. (2 h.), stomach was found reddened internally, and dotted over with black spots of size of lentil. At its

bas. fond was a specially large spot, in whose centre a small perforation existed. Intestinal canal was reddish within. (SOUVILLE, *Ann. Journ. de Méd., Chir., Pharm., &c.*, Oct., 1787, p. 19.)

4. Mrs. E—swallowed, March 17th, 1815, ℥ij of N. in solution, in m. fasting. Soon after vomiting set in, at first of contents of stomach, then of blood. This had gone on for an h. before physician saw her. Seeing that corrosion had occurred (solution was imperfect) he plied her with diluent and emollient drinks, all of which were soon rejected, but ultimately the blood disappeared from the ejecta, and at length the vomiting ceased. Patient became almost faint from gnawing and burning pains at *scrob. cordis*. Her pulse sank in strength and frequency, and a cold clammy sweat broke out, accompanied by shiverings. Next m. (vomiting having ceased since previous e.) patient much suok from violent pains in stomach, which have recurred paroxysmally during n. 19th.—Heater, but had rigors and very burning pains at intervals all over abdomen. Gradual improvement went on, but abdomen was still painful up to 24th, and throughout these d. and for 2 or 3 more blood was occasionally seen in stools. Although 2 mo. advanced in pregnancy she had not miscarried. On April 1st physician was again summoned on account of involuntary startings in extremities which had been noticed for some d. They were very general and constant, and precisely resembled those of chorea; l. arm and leg were especially affected. They lasted 2 mo. Patient, naturally of placid disposition, became easily annoyed, and complained of constant pain in spine; pulse was small, 90. After 2 mo. gradual improvement set in, but patient was not well till after her accouchement in October. Child was healthy, and mother made a good recovery. (BUTLER, *Ed. Med. and Surg. Journ.*, xiv, 34.)

5. A young girl, having swallowed in error 15 grm. of N., experienced, besides the usual irritant effects, some of a narcotic character, as transient blindness, persistent deafness and loss of speech, spinal paralysis, and tetanus (?). On 2nd d. her symptoms—coldness of extremities, small and intermitting pulse, drawn features—were such that death was expected each instant. A critical sweat charged with N. caused improvement to set in. After 8 d. patient began to hear and speak, but it was a month ere she could walk. (GEISELER, *Hufst. Journ.*, [vii, i, 124.]

6. The late Dr. Alston in his lectures used to relate the case of a gentleman who was twice affected with a paralysis of the arm after taking N. for headache. This disappeared when he omitted the medicine, but recurred after a fresh dose. (D. MONRO, *Mat. Med.*, i, 208.)

7. MARIA L—, æt. 28, put (for rheumatism) ℥ij of N. into a quartern of gin, and took one third at n. and a similar dose next m. After latter was instantly attacked with severe burning pain in stomach, and in a few m. vomited and fainted away. She was conveyed to bed, cold and bedewed with perspiration. She was not seen by physician till 5 p.m., when vital powers were greatly depressed, and pain in stomach unmitigated. He ordered an ipecacuanba emetic, which caused retching all n. Next m. she was much worse, was getting

delirious, pain continued, extremities cold but bathed in perspiration, and she was unable to pass any urine. At 6 p.m. she was found suffering under most excruciating agony in stomach; was kept in bed with difficulty, tossed about and raved like a madwoman. Extremities were deadly cold, countenance pale and anxious, pulse scarcely perceptible. Under emollients and opium by 10—11 reaction had come on; she was hot and feverish, countenance tinged with an erysipelatous flush, pulse 96 and full. She was bled, and next m. was better, but had passed no water since first m.; there was, however, no distension of bladder. After an enema bowels acted, and therewith a small quantity of urine passed. Scarlet rash over face and neck still more intense. Food continued to give pain and vomiting up to 6th d., when Dr. Letheby saw her. He found her covered with rash; pulse and temp. natural; bowels and kidneys inactive; still great pain in stomach, extending along œsophagus. Throat was inflamed, and pressure increased pain in stomach. She gradually convalesced, but for some time complained of coldness and occasional pains and cramps in limbs. (LETHEBY, *Pharm. Journ.*, v, 357, 1845-6.)

KALMIA.

Kalmia latifolia, L. Mountain laurel. Nat. Ord. Ericaceæ.

1. *Prostrata*.—r. BENTLEY proved drug on 6 persons besides himself. They are undescribed, but *a* and *c* were women.

a reports, from 10th, headache, dizziness, and nausea; shock towards occiput from back of neck, with heat; pain in forehead (*r.*), also over eyes, seeming to move backwards and down neck, externally on both sides, then ceasing, and followed by pain in l. shoulder; slight itching in forehead, sometimes shooting down to eye-teeth, now now in one place, now in the other; frontal headache every d., extending to root of a *r.* upper molar; on getting out of bed rending in head, followed by same in hips and legs, even to feet; tearing in nape; stinging in maxillary bones; itching at face at n.; stitches in lower chest; uterine pain (such as she had 3—4 years before); sense of weakness in abdomen, rising up into throat, relieved by eructation, but when sense soon returning; sense as of running along spine with weakness in legs; pricking in *r.* side; rending in shoulders; recurring stitches in hands; stitch from *r.* side into hip (*r.*); stitches in knee externally (*r.*) and in soles; slight pain in l. hand and fingers, also in l. leg down to heel, where there was twitching.

b. From same,—pain within head, with sensation when turning of something low diagonally across vertex; pulsating pain in forehead.

c. From same,—for several d. together frontal headache on waking, sometimes followed by rending in bones of *r.* or l. face or on vertex; pain over eyes; rending in *r.* forehead passing downwards; stitches in upper maxilla and zygoma; itches, on 2d d. of proving, came 3 d. too early, next time 14 d. too late; scratching in throat, causing cough, *r.* and *d.* (also in *a* and *d.*, in turner with mucous expectoration in *r.*), stitches in toes; pain in *r.* arm and rending in l. leg, while at rest, going off on standing up, extending in less degree along whole l. side and arm, rending in *r.* shoulder, l. arm, *r.* lower maxillary bone, and flesh of whole l. leg.

d. From 1st, taken 3 times a d.,—vertigo, on stooping and looking down; rending across forehead.

e. From 10th,—tearing in l. forehead, extending to temple.

f. From same,—frontal headache on rising in m., increasing afterwards; rending from l. elbow down arm to index, which is flexed in a jerking manner, and from knuckle of *r.* little finger up to elbow; pains in *r.* hand; pain in bones of *r.* middle foot.

g. From same,—zawness and scraping in throat, with pain on swallowing, and throbbing in l. temple.

A, B—himself reports, from 1st,—glimmering before eyes when looking downwards, with belching of wind and some nausea all d.; fine stitches, and at n. itching in l. side of throat. (HARRIS, Amer. Drugg.)

2. CLARK proved and dil. on a young woman, who took 2 dr each z. for 6 d. After some d. more she repeated proving, with similar results. Aversion to movement or exercise; restlessness and frequent turning in bed, unpleasant dreams, talking and even getting up and walking in sleep; coldness and shivering on two d. in succession; pressure pains in whole back of head, with frequent sharp darting pain in its r. side; pain in head on waking in m., and in e.; pain at top of head as if tightly bound with cord; strong pain in temples and forehead; itching of eyes, which sting when rubbed; pain in eyes, which makes it painful to turn them; sense of stiffness in muscles around eyes and in lids; tongue white and dry; lips swollen, dry, and stiff, in m.; thirst, with dryness of throat causing dysphagia; occasional pain across abdomen; pain in l. hepatic region; menses late, and accompanied with pains in loins, back, and front of thighs; sensation in chest, as if strained by lifting; sharp pain in three upper dorsal vertebrae, extending through shoulder-blade; constant pain in spine, sometimes worst in lumbar region, with great heat and burning; pain in shoulder-blades; great weariness in e., particularly in extremities, so that it is nearly impossible to go upstairs; numbness of limbs as if asleep. (*Ibid.*)

3. FARRAR proved drug on man named Kummer, otherwise undescribed.

a. From 1st dil., a few globules every and d. for 10 d.—dullness in head (1st d.); heaviness in r. head for short time but severe; towards e. same sensation on l. side; strong pressure in r. temple (3rd d.); severe headache at noon of 2nd d., worse on L.; cloudiness before eyes (3rd d.); sharp stitches in eyes, towards e. of and d., and in r. eye in m.,—on 3rd d. same with violent pressing; eyes feeling dim and weak; itching in eyes; severe stitches in r. ear (a. of and d.); short pains in r. teeth (e. of 3rd d.); violent pressure in l. neck and at same time in l. foot; sticking pain deep under l. shoulder-blade (3rd m.); drawing pain of short duration at inner side of l. arm (3rd d.); pain in whole r. arm, lasting for weeks; pain in l. wrist, so that hand seems pained; pain in all fingers of l. hand at same time (3rd d.); pain in l. foot 1st d., again, violent, on 2nd d.; pain in l. arm above elbow, and soon afterwards between elbow and hand, frequently alternating between two places for 1 h., and followed by pain in both legs below knees, which extends to feet; pain in bend of l. knee, which is immediately followed by very severe but brief pain in l. index, and later in r. foot, pressing pain in l. shin, and in muscles of l. arm, with same in r. foot. These pains in limbs, continually changing from one place to another, lasted all the time medicine was being taken, and 3 weeks later.

b. From 20th taken every 4th d.,—vertigo, with some nausea, attended with pains in head and limbs; severe pressing in temples and on both sides of neck; pain and throbbing in whole l. head, with stitches in l. ear and behind r.; glimmering before eyes, exactly in line of vision, so that it is impossible to distinguish words while reading,—it seems as if small points were continually moving before eyes, for ½ h. at 3 p.m. of and d., followed by nausea, and then some dulness and aching in head; pressing in eyes, attended by pains in arms and hands, in lower extremities down to feet, and sometimes in r. abdomen; stitches under l. eye; severe stitches in ears at 4 p.m., followed by pain in arms; pain behind r. ear, and in r. neck and leg; pain in upper teeth; stitches in tongue; pressing in throat and nausea, with stitches in eyes; pain in r. abdomen, followed by pain in r. naris (after 6th dose); oppression of chest,—later with dyspnoea, dulness of head, nausea, and various pains (after 5th dose); stitches under l. arm; pains in l. hand, particularly in palms close to wrist, and sensation as of paralysis in r. hand (after 6th dose); pain in l. knee and foot, and also in r. foot (3rd d.); peculiar pains along outside of l. leg, frequently repeated; pain in l. foot (after 5th dose); transient pains in l. elbow, arm, and knee in m., and in both arms p.m.,—while lying not felt (3rd d.); pain in r. shoulder, l. arm (particularly elbow), and both legs (especially knees); pressing in l. shin, latter in l. shoulder and arm, followed by same on r. side; sticking pain in r. index, &c., soon

* The other symptoms were felt more or less every day.

† Kummer's symptoms of head and eyes were worse towards e., and in open air.

followed by severe pain in hollow of r. knee and in calf, attended with dyspnoea (after 6th dose); frequent pains in muscles of extremities, with dulness of head, vertigo, and some nausea; sprain-like pain at times in feet and hands; pressing pains in whole body (2½ h. after 3rd dose). K—'s pains were most severe while moving, disappearing on lying down. (*Ibid.*)

4. HARRISON proved 30th, manner not specified. Fantastic dreams; fluent coryza with frequent sneezing and perceptibly increased sense of smell; tingling in salivary glands, immediately after eating, attended with sense of fermentation in oesophagus and copious salivation; dry skin and cracked lips; continued ringing of slippery mucus in mouth, with tickling in larynx; pressing in scrob. cordis, relieved by sitting erect, but aggravated by sitting bent, with feeling under scrob. as if something would be squeezed out; easy soft stool, with pressing in rectum; frequent emission of yellow urine, in increased quantity; cough, with easy expectoration of grey, smooth, mucous matter, which has a putrid saltish taste; oppression and shortness of breath, which obliges him involuntarily to breathe quickly; sensation as if spinal column would break from within outwards. (*Ibid.*)

5. RICHARDS proved 3rd dil., manner unknown. Irritable disposition towards e., continuing next m.; oppression in head in e., continuing to some extent next m.; heat in head (m. of 5th d.); about 10 p.m. in bed momentary shivering without coldness from vertebra to neck, without headache, under sea-p. attended with cracking noise, and with sense of alarm, but without palpitation,—as if body were uncharged with electricity (repeated 4 times in ½ h., and ending with sound as of a horn before ear); pressing pain in forehead, especially r. (1st d.); sense of pressure above r. eye (3rd d.); on 5th d. burning and pressing pain about eyes, especially l., which also itches, and next m. is inflamed, with burning jerking pain lasting till noon, and then subsiding; loud tinnitus aurium (4th d.); continued pressing in ridge of nose, with frequent sneezing (2nd d.); pressing pain in r. face, between eye and nose, p.m.; severe pressing in molar teeth after 10 p.m., continuing some h.; dull pain in incisor and eye-teeth; equine for 8hr 4 d.; on 3rd m. a scanty stool and at noon a soft one; on 4th a soft stool early, 2 h. later a diarrhetic, then again a soft stool, all a.m., and during time frequent ineffective urging; on 5th two soft stools, with much flatus; on another occasion, after repeated doses, had on 3rd d. while riding momentary nausea on shifting of flatus, followed by stool with cutting pains in bowels; strong desire to urinate (9th d.); drawing and sticking in whole l. neck, p.m., for 2 h.; pressing below l. shoulder, in e.; paralytic pain in sacrum at 10 p.m. in bed, with long-lasting confusion and pain in head (2nd d.), lameness in sacrum, e. in bed (3rd d.); frequent strong cracking in joints and elbows, p.m.; itching in bend of r. knee (4th d.), paralytic feeling on shin-bone, p.m.; on 6th d. red spot, size of pea, on outer aspect of l. leg, a little below knee, itching excessively, and afterwards burning, succeeded by a second near it, and next m. a third on r. knee. (*Ibid.*)

6. Dr. WILLIAMSON proved and dil. Acute pain in l. temple, much increased by going upstairs; itching across loins, worse in e. (*Ibid.*)

7. *æ.* On April 30th, 1834, I made an infusion of recent unbruised leaves, ℞ij to 3 pint of boiling water. At 3 p.m. I took ℞ss, then 2 doses of ℞j at intervals of ½ h., after ½ h. ℞ij, and at 4.30 ℞vj. At the beginning of the experiment the pulse was 64, 6 or 8 beats quicker than usual, probably due to a full meal. No decided effect was noticed at first beyond slight general pricking sensation (as from heat in spring) and increased tendency to sweating. *5.*, sleepiness and sensation of warmth through epigastrium, both of which gradually increased. Went to bed and slept for 2 h., awaking dizzy, but took tea as usual. The pricking is worse; it is more conspicuous in the scalp; it is a sensation of coolness with pricking by innumerable minute points at the same time, comparable to the effect of peppermint on the mouth. Sensation of great fatigue in all the muscles, especially when exerted, first noticed in muscles of mastication, which are excessively fatigued by very moderate exertion. The dizziness increased and also the fatigue. Soon there began a sensation of gradual contraction of the stomach, forcing its contents up into the oesophagus, and a feeling as of a ball rising in the throat, but without nausea. *7.*, vomiting without nausea set in (with an action like rumination), recurring every 3 or 5 m. for 2 h., and accompanied with dimness of sight. Much bile thrown up towards the close. Muscular prostration was such that I could barely walk across the room. The affection of vision amounted almost to complete blindness when in an erect position. The action of the drug

exactly resembled that produced by *veratrum viride* both on the skin, muscles, and stomach. The pulse was not examined again until after the vomiting; it was then 40 per m., and extremely weak and creeping, the artery seeming slowly to contract and dilate. I was at this time sitting in a chair, and the skin was moist and cool. Secretion of saliva more free than from an ordinary emetic, but not so profuse as from *veratrum viride*. Sensation as if the bowels would act, which did not happen. The vomiting ceased at 8, but the cool skin, weak slow pulse, dizziness, and muscular weakness continued unabated until after 9. I then took some good wine, and in $\frac{1}{2}$ h. was as well as ever I am. During the experiment there was a slight pain in the forehead, which in another person might have been severe, but I never get a severe headache from any cause.

b. April 22nd I prepared an infusion of the same strength of the bruised leaves, 6.30 a.m., took $\frac{1}{2}$. At 10, slight vertigo and fugitive glow in different parts of the surface, with increase of sweating. I thought there was some increase of urine both in this and in the first experiment. These symptoms, with itching of skin, increased. At 11.15 glow in epigastrium; fatigue of muscles, legs would hardly bear my weight on going upstairs; sleepiness. At 11.35, while lying down, the pulse was 35 per m., but not so weak as last a. Midday, some feeling of contraction of stomach, not followed by vomiting. Ate dinner at 1.30. Sleepiness continued till 4, and the slowness of pulse until after dinner.*

c. July 4th.—Began experiment with tinct. ($\frac{1}{2}$ of recently cut leaves to Oj of alcohol). At 2 and 4 p.m. took $\frac{1}{2}$. In about $\frac{1}{2}$ h. after and dose glow in epigastrium with vertigo and pricking in skin, and some excess of sweating. Vertigo gradually increased. At 3.15, $\frac{1}{2}$. At 6 pulse 48, strength not altered. At 6.15 took $\frac{1}{2}$; at 6.30 considerable somnolency. At 7.45 all symptoms worse, skin cool, pulse 38, weak and irregular. Uneasiness at stomach, not nausea nor yet exactly same sensation as produced by the infusion. Somnolency worse, and excessive fatigue of muscles on slight exertion. Vision affected, darkness coming before eyes every 3 or 5 m., and often if in erect posture. Could only take three steps, owing to vertigo and exhaustion. Slight pain in forehead. At 9 p.m. vomited, with the retching sensation mentioned before; then fell asleep. Woke at 5 and 7 a.m., felt well in m., except some frontal uneasiness. Whole quantity of tincture taken, $\frac{3}{4}$.

d. Jan. 15th, 3 a.m., took 20 gr. of coarsely powdered leaf. At 24, 18 gr. more. All the symptoms resembled those produced in the other trials, but the pricking of the skin was less pronounced. At 3.30 took 40 gr. of laudanum, which rapidly relieved all the symptoms. Feb. 17th, took 20 gr. finely powdered; the effects were just about equal to those produced by 38 gr. of the coarse powder. March 2nd.—Began with 20 gr., intending to continue the dose every 6 h. for some d., but the effect in 1 or 3 h. was as great as that from 20 gr. before. I therefore took 5 gr. 5 times a d. for 3 d. Some diaphoresis, improvement of digestion, and itching of skin. No other secretion affected. Similar effects were again produced by preparation slightly differently made. It should be noticed that with *Kalmia* the feeling of fatigue precedes the vomiting. ("W." in *Boston Med. and Surg. Journ.*, 2, 213.)

II. *Poisoning*.—1. Two cases of poisoning resulted from eating a pheasant, in the crop of which leaves of *K.* were found.

a. In one, $\frac{1}{2}$ h. after meal, nausea with entire loss of sight; continued retching, and violent pain in crown of head, extending down cervical vertebrae; coldness of extremities; pulse imperceptible, and when returning, beating only 40 in m.

b. In second case, peculiar noise on breathing, as from spasm of glottis; pallor; excessive nausea, with dimness of sight; violent pain down back; coldness of extremities; pulse feeble, and only 40 in m. (SHORMAKER, *Med. Med. of Amer. Praxige*, p. 153.)†

* Professor Tully, of Albany, observed the following effects from *K.*, administered for subacute rheumatism (dose not stated), viz.: pricking sensation in skin generally, moderate sweating, warmth in the stomach, relief of pain, and watchfulness, then, perhaps, some somnolency, vertigo, and imperfection of vision. As the doses, though frequent, were not large, vomiting was not produced. Tully considers this drug analogous to *Rhododendron chrysanth.*

† For Dr. Faust's proving of *K.* see Appendix to this volume.

KREOSOTUM.

A product of distillation of wood tar. Exact composition unknown.

1. *Proving*.—1. Dr. HARTUNG, æt. 40, took, 8 a.m., ʒ dr. rubbed up with ʒj sugar. Eructation for ½ h. Increased peristaltic action with discharge of flatus. After ¼ h., cough with expectoration of gelatinous mucus. After 1 h., restlessness of whole body, all limbs vibrated. After 2 h., vertigo, all goes round with him. Gnawing feeling of hunger. Prickling pain in bowels. After 5 h., slight pain in forehead. After 24 h., rheumatic stiffness of nape. (*A. h. Z.*, xii, 33.)

2. IMMISCH, medical student, æt. 18, took, 8 a.m., 1 dr. All d. as if stupefied. Dull pain in r. side of head. Shooting pains in abdomen. (*Ibid.*)

3. LANGS, chemist's assistant, æt. 22, took 8 a.m. 1 dr., and 2 d. later 2 dr. at 8 and 10 a.m. Chilliness all afternoon. Slow pulse, 47, for 2 d. Beating in head. Tearing pains in crown, in afternoon. Dull pressure in eyes. Shooting pain in l. eye for ½ h. Pale face. Taste of cubebs and cold feeling on tongue. Violent drawing in l. forearm. Soon, violent eructation. After 5 m., whirling vertigo in crown lasting 5 m. After 1 h., hammering pain in crown. After 8 h., violent throbbing constrictive pain in r. side of chest, lasting till he went to sleep. After 24 h., blue rings round eyes. After 36 h. exhaustion and weakness. (*Ibid.*)

4. KOCH, chemist's assistant, æt. 17, took, 8 a.m. and 9 p.m., 1 dr. and 2 d. later, 10 a.m., 2 dr. Slow pulse, fell from 81 to 63. Immediately, pressure over r. eye for 1 h. Soon vertigo. ¼ h. after e. dose, pressure over both eyes, lasting ½ h. After 12 h., blue rings round eyes. Restless sleep. Repeated epistaxis. (*Ibid.*)

5. HEINEMANN, shoemaker, æt. 33, took for caries of superior maxilla, Kreos. grt. iv, Sp. vin., ʒj, Aq. distil. ʒiij, m. and e. 1ʒ dr. He also drew into nostril a portion of a lotion made with Kreos. gtt. xx, Sp. vin. ʒss, Aq. distil. ʒxij. Pale bloated face, white furred tongue, constipation for 5 d. Scanty and painful discharge of urine. After 3 d., dizziness so that he could not walk or stand long. Blue rings round eyes. Anorexia, distension of abdomen. After 4 d., large, painful, protruded piles. After 5 d., general weakness and faintness. After 6 d., oedematous swelling of feet. (*Ibid.*)

6. SUNDSTEDT, ropemaker, æt. 55, had recently been castrated for scirrhus of testicles, took m. and e. 1 dr. Drawing in whole body, stupefaction, vertigo; pressure over root of nose for 10 h. Epistaxis. (*Ibid.*)

7. Dr. SYRBIOS, æt. 38, took, 8 and 10 a.m., 1 dr. Slow pulse all d., 60. Pressive pains in eyeballs, especially r., felt all afternoon as if he must tear out eyes, changing in e. to throbbing pain in r. eye. Taste of cubebs with cold feeling on tongue. Dull throbbing pain in 3rd upper molar, which is becoming carious. Dryness in fauces, it feels stuck together, all afternoon. Burning in œsophagus, great appetite. Desire for tobacco at unusual time. Pressure in rectum, causing urging to stool, when only flatus was discharged. Dull pain in chest for 1 h. at noon. Rheumatic stiffness of nape all afternoon. Dull

pain behind l. scapula for 1 h. Pressive pain 2 inches below r. scapula. Pain of r. shoulder when moving it, all d. Dull, almost gnawing pain, in r. humerus, with lame heaviness of upper arm. Painful drawing in l. forearm along ulna. Immediately (after 2nd dose) shooting tearing pain in l. eye lasting $\frac{1}{2}$ h., recurring after 1 $\frac{1}{4}$ h., but going off soon and alternating with transient tearing pain in r. eye. After 2 m. whirling vertigo lasting $\frac{1}{2}$ h., weight in chest with flying stitches. After $\frac{1}{2}$ h., backache, tearing pain in l. temple. Slight pain deep in forehead, all d. Pressure over both eyes, worst over r. for 5 h. Eructation of air (after 2nd dose). Whirling vertigo. After $\frac{1}{2}$ h., throbbing pain in a small spot, behind pectorales minores. After 1 h., obtuse pain behind r. scapula, with feeling of a peg sticking in there, sometimes throbbing, lasting all d. After 3 h., fullness and tightness of chest, causing him to breathe deeply, lasting several h. After 4 h. (2nd dose), phlegm in larynx making him cough. After 6 h., chilliness, earache (also after 10 and 24 h.). Pain in l. tonsil when swallowing. Dull pain in l. iliac region, lasting $\frac{1}{2}$ h., recurring 4 h. later. After 10 h., obtuse gnawing pains in outer side of l. thigh and leg, worse when sitting. (*Ibid.*)

8. Dr. EICHENOX took Kr. from February 15th to April 20th, with few interruptions. He began with 3x, then 2x, which produced hardly any effect, then he took 1x, 5 to 50 dr. pro dosi, once or several times a d. The primary symptoms were: nausea, inclination to vomit, flow of water into mouth, slight retching, pressure in gastric region, empty eructation, pressure over hypogastrium, pinching, discharge of flatus with relief. The following symptoms occurred frequently: pressive pains in one or both temples, sometimes pretty severe, pressure and tension in forehead up to crown, confusion of head with slight vertigo, frequently out-pressing or dull shooting and also ringing in ears. All these symptoms lasted but a short time, from some m. to $\frac{1}{2}$ h., most of them disappeared at once in open air. When he had taken the drug 3 weeks, the following symptoms in addition were observed. Though usually constipated, a stool every 2 to 4 d., after the 3 weeks' proving became quite the opposite, had a copious, soft, sometimes pappy stool once or twice a d. At same time had uneasiness, creeping and urging in rectum, which was only relieved by stool. Also suffered more from flatus, which came away with stool and was very ill-smelling. After a few weeks became distinctly thinner and the hair grew much greyer. On March 19th, i. e. 5 weeks after commencement of proving, observed a pimple the size of a pea on r. spina scapularis, painful from pressure of clothes; in 3 d. it had changed to a scab which soon fell off.—20th. Observed on r. lower eyelid a reddened tender spot, which next d. was swollen and formed towards inner cauthus a projection the size of a hemp seed on a whitish surface; the surrounding conj. palpebralis was highly reddened, the lid externally bluish red and swollen; in e. there were shooting pains in the affected part.—22nd. Herpetic vesicles commence to form under nose, without previous catarrh. A small pustule appears in the fold of the r. ala nasi. The pimple on the eyelid continues unaltered till the beginning of April, when, on account of catarrh, the proving was interrupted for 8 d., by which time the redness had disappeared. (*Zeitsch. d. Ver. d. hom. Aerz. Osterr.*, ii, 24. 1857.)

9. WALKER proved drug on 3 healthy girls, 2 married women, and a man. None of the provers took more than 2 dr. of Kr. 5 to 20 dr. of 2d dil. caused noteworthy symptoms. Some experiments were made with the 2nd and 3rd dils., which also caused symptoms. In the schema the provers are not distinguished, and the doses are not given.

a. Without indication of time:—Whirling in head; if she turns quickly, she is like to fall. Thoughts leave her easily, they fly away. Weakness of memory, her thoughts leave her. Headache, as if she had drunk too much the previous day,—like a board before forehead,—with weak memory. Headache, as if she had been intoxicated, 2d d. Mental emotions cause her to have headache. Head confused, throbbing at crown. Slight throbbing under crown anteriorly. Painful pressing in head. Out-pressure pain in centre of head. Very painful pressing under crown. Painful out-pressure under l. parietal bone. Twitching and jerking pains in upper part of r. hemisphere of brain, occurring at intervals. Confusion of l. side of head, with prickling in it, which later involves upper molars. Headache with drowsiness. Teasing in head and drawing in eyes. Tensive pain in head, aggravated by stooping. All occiput as if too full, heavy, with feeling as if she should fall backward. Headache, with heat of forehead. In middle of forehead a continual throbbing and beating, for several d. Teasing in whole head, on l. side it goes through temples down into cheek, but on r. side it extends only to superior maxilla. Teasing in head, with great heat of face and tearing in l. upper molar; the headache commences when she awakes in m. and lasts 24 h., the toothache intermits, but always returns, and lasts so long she cannot sleep all n., with heat all over body, great exhaustion, coryza and lachrymose humour and irascibility over every trifle. In sinciput weight as if something would come out. Drawing shooting pains at head, going through temples into superior maxilla, with whirling feeling in head. Wakes at 5.30 a.m. with throbbing pain in forehead, heat of face, weariness of legs, with formation in thighs and feet, bitter taste, even food tastes bitter. On stooping, rush of blood to forehead, and she feels as if she should fall forward. An ulcerative pain under occipital bone, l. side. In centre of forehead an outward pressing pain. A twitching pulsating pain over l. mastoid process. Under centre of temporal bone an out-pressure pain. In l. temple a teasing drawing as if some parts would be squeezed out, basing several h. Beating pain in forehead. On stooping all rushes to forehead, as if everything will be forced out there. Shooting pains in r. temporal bone. Drawing pains in l. temporal bone, which involve whole head, she feels dazed in head. In l. temporal bone beating and throbbing as in a gathering finger, extending up to crown and downward to middle of lower jaw, also quivering and contraction in eyelids, with feeling as if they had grown smaller. Under l. temporal bone outwards-pressure pain, c. On r. side of sinciput an ulcerative pain. The whole forehead is full of military papules, which cause shooting pain; they are persistent and never fill with fluid. The hair falls out very much. She feels increased heat of face with sensation as if perspiration would break out, but face keeps dry. Great heat of face during noon rests, with throbbing in cheeks and forehead, the whole face is brownish red; after resting some time the heat of face goes off, but the head pains remain and only go off after a cup of coffee or nut tonic 30, at same time frequent call to make water till next noon. Constant heat of face, in the warm room she has dyspnoea, she must go into open air to avoid fainting. Teasing in r. side of face, commencing at angle of lower jaw and extending up to temple, c. Quivering of eyelids. On eyelids and round mouth itching and smarting, aggravated by rubbing, it then becomes red; after 2 d. the parts desquamated, the whole lasts 24 d. Eyelids are red and swollen. Heat in eyes, on looking at bright light the eyes water. Pressure, burning, and flashing in eyes, with heat and smarting, with feeling as if something were in them; after these pains had lasted 3 h. she lay down, slept ½ h., and on waking the eyelids were stuck together. Eyes always wet, swimming in tears. Itching in eyes, she must rub them; after rubbing smarting in eyes and the white of eyes is quite inflamed, with pressure as if sand were in them. After rubbing eyes they water, the tears are quite hot, and cause smarting of cheeks as from salt water. Lachrymation; when she rubs eyes they become dry, look inflamed, and smart and burn. The tears are as acrid as brine. Eyes look as if she had been crying. On waking, m., the eyes weep, tears are hot and acrid. Watering of r. eye and smarting of it, whilst she lids of l. eye quiver and twitch, afternoon, lasting ½ h. Dim, dull

eyes, like a veil before them. All the outer ear is inflamed, glowing hot, bright red, considerably swollen, with sensitive burning pain. In l. concha superiorly a pimple, from which the whole auricle becomes inflamed, swells, is hot to the feel, with burning pain; the whole l. side of neck is stiff, with sensitive pain, he cannot easily turn his head towards the l., but can to the r., slight pain through shoulder and down to middle of arm, at same time inward shooting through all limbs, heat in forehead and pressure over eyes, as though they would be partly closed. Single pricks as with a needle in interior of l. ear. Shoos in r. ear. Itching in ears and also in soles. Cramp pain in l. ear. A bubbling, pricking-asunder pain in r. ear. Bubbling and pinching in r. ear, frequently recurring. Humming in both ears, worse in l., with hardness of hearing; sometimes the humming ceases for instants, and then she has tingling and biting in head. Indescribable bad smell before nose, with anorexia. Nose always moist, she must often blow it. Epistaxis of thin, bright-red blood, m. Epistaxis of thick black blood. Dryness of lips, upper lip desquamates, is always hot and tense. Upper lip pains as if sore, and is chapped. Dryness of lips as if they were very hot internally, no thirst. Round r. angle of mouth contractive tension and burning, with feeling as if r. half of lower lip were drawn towards corner of mouth, r. On chin and r. cheek pustules, on which yellow, honey-like scabs form. At n. searing in ramus of r. lower jaw, which wakes him up, it extends to the ear, and causes shooting there. In skin under chin formation, the must rub the place, but this does not remove it. Drawing pains in gums of l. upper jaw, the gums look inflamed. Jerking pains in a l. carious lower molar, with frequent yawning. Wakes up at 5 a.m. with drawing tearing in teeth of l. upper jaw, which later involves facial muscles and temples of same side, and lasts till noon, the teeth feel raised up and too long. Drawing pains in all incisors, all d. Drawing pain, beginning in l. lower molar, then extending to upper molars; when these pains cease there, they come into upper incisors. Drawing pain in teeth extends over temporal region. Slimy in mouth, must always spit much, r. Dry feeling in œsophagus, with scraping, laucing some h. Scrapy in throat. Scrapy and rough in throat. Pressure in r. side of throat when she swallows. Rough, hoarse voice, with scrapy feeling in throat. On l. side of throat, when swallowing, a sore pain, with feeling as if something were hanging there which hinders him in swallowing. A choking, painful feeling deep in œsophagus extends through chest to vertebra. Loss of taste. Eruption of air after dinner, followed by spitting of frothy saliva and scraping and raw feeling in throat for $\frac{1}{2}$ h. Sour eructation. She feels sick, with spitting of saliva and chilly feeling all through body, not followed by heat or thirst. On rising, m., belching of restless water and mucus, with dryness of nose, heat in fore part of head, as if it would come out at forehead, cold hands and feet, with thirst. Complete anorexia. When she goes without breakfast she has a gnawing, followed by retching, which goes off after eating. She must dress quite loosely on account of tightness over stomach and scrob. cordis. Violent stitches in heart, causing him to cry out, they often leave off for 3, 4, or 8 d., and then recur by d., as well as by n. Pain in abdomen, such as often attacks her after eating sour things, it is a small pain round the navel. Ulcerative pain in abdomen on drawing a deep breath. Painful cold feeling in abdomen, with scanty urine. Pain intermingled with shooting round navel, as though she had eaten fruit and then drunk. Distension of abdomen, as if she had eaten too much. Wakes up between 2 and 3 a.m. on account of contractive sensation in abdomen, she feels as if a lump lay in umbilical region and was twisted tightly. Drawing pain in abdomen during menstruation. A still obscure pain in abdomen, which she cannot describe. Her whole abdomen is distended and tight. Distension of abdomen after menses. Stitches from abdomen down to vagina, like electric shocks, recurring after some h. Cutting round navel as though she should have diarrhoea, she must double herself up, it left off for awhile and then recurred periodically. In umbilical region she feels a painful lump, which seems to be twisted together. In umbilical region a pain as from a chill, and as if diarrhoea would come on. Painless drawing in upper part of abdomen, extending to sacrum, these causing labour-like pains, with pressure down towards lumbar vertebrae, at same time flushes of heat to face, palpitation of heart, quick pulse, ineffectual urging to urinate, the urine comes at last after much pressing, but is hot and scanty; after the attack chilliness, cannot get warm, no thirst, these attacks came on every $\frac{1}{2}$ or $\frac{1}{3}$ h. for 24 h.; they are in connection with the lachrymation and disorders of vision in this

way, that the eye-symptoms cease when the labour-like pains come on; when the pressing ceases, milk-like leucorrhœa drops from vagina. When she rises early and sits down immediately, she gets apressive pain in region of spleen which exhausts her, but if she walks about when she rises in m. the pain does not come; the slightest pressure there is painful. Pressive pains in hepatic region and gnawing under l. short ribs as if a worm were gnawing there. The upper anterior lobe of liver (?) pains as if from a blow, and causes feeling of fullness, so that she must constantly ranc up her clothes there. Spasmodic pains in muscles of l. renal region. Tensive pain in both inguinal regions when walking. Several oppressive stitches in testum during menses, which dart upwards to l. iliac region and stay there some time, during which she must remain standing. She must go to stool twice daily, contrary to custom, stools quite normal, as usually constipated. Two or 3 stools daily, not loose. Hard, dry lumpy stool, with much pressing, only every 3 or 4 d. scanty urine, she passes scarcely half the usual quantity, though she drinks more than usual. Urine in a feeble stream. Very scanty urine. Frequent urging to urinate, but little is passed, and that is clear. Along with the diminished quantity of urine tenderness of abdomen. At n. must rise to urinate, but passes little. Frequent micturition, but only a tablespoonful of urine passed at a time. Urging to urinate towards e., and must frequently rise to urinate at n. Cheenut, brown urine. Ill smelling, colourless urine. Hoc urine, it smokes, smells acrid, and has a reddish sediment. Reddish urine, with sediment. Urine often has much white sediment. Frequent micturition at n. Frequent discharge of hot urine. Must pass water every h., and each time much clear urine passes. Frequent calls to urinate, and each time before doing so she has a discharge of leucorrhœa, which stains her linen yellow. Urine very hot, and scalds her between labia. When urinating burning in vulva. Urinates six or seven times daily, she has urgent calls, and much urine passes. Spasmodic pains in external genitals, lasting several h. Smarting itching between labia and in vagina, she must rub, after which there is burning and swelling of labia, then itching ceases every $\frac{1}{2}$ to $\frac{1}{4}$ h., and lasted 4 d. Swollen between labia, and smarting pain. Ecoria-tion between thighs and labia, with burning and smarting pain. Violent itching and smarting between labia, she cannot refrain from rubbing. Voluptuous itching deep in vagina. Electric stitches in vagina, which seem to come from abdomen, making her start, all d. In the m., between sleeping and waking, a desire for coitus, which she has not had for years. During coitus an irascible pain at neck of uterus, where there is a hard bump posteriorly, less pain in these parts e. than m. During coitus both man and wife felt burning pains in genital, and the man became impotent, the next d. he had swelling of the penis and his wife had her menses, the discharge was copious and dark coloured; after they had continued 4 d. she had leucorrhœa, which stained the linen grey, and swelling of external genital, with itching, eroding, burning pains. Prolapus vagina. A d. or two before menses eructation of tasteless white froth, if she has put this she has vomiting of mucus. Three d. before menses, bearing dull. Before menses great distension of abdomen. One d. before menses a scraping and digging pain round navel, relieved by stooping forward; when the pain subsides there is white leucorrhœa. Some d. before menses excited and restless. Menses 4 d. too soon, very profuse for 3 d., then ceased 1 d., and next d. came on very profuse. Menses 9 d. too soon. Menses from 8 to 10 d. too soon, discharge dark, profuse, and lasting 3 d. Menses every 3 weeks, come on slightly, continue 4 or 5 d., and are very profuse, then for 2 to 4 d. there is bloody ichor, which smells acrid and causes itching and smarting of genital. During menses, flatus smells of rotten eggs. During menses the stool and flatus remain longer in rectum than usual, she feels their pressure with discharge of flatus, then her menstrual flow is very profuse and in clots. During menses dull of hearing. During menses, humming and buzzing in head, with ear-pressing pain, much aggravated by stooping. During menses, much chilliness. The menses came on with pain in left side of chest inferiorly and aching pain above navel. The menstrual discharge is in clots, and very profuse. On the 3rd d. of menses she got Kr. 6 at 3 a.m., by 4 p.m. the discharge ceased without any discomfort, and reappeared at the regular time. The menses, which had ceased 48 h., return with violent pains in abdomen, the discharge is then bright red, lasts 24 h., and then goes off quietly. The menses, which usually are 9 d. too early and combined with much sacral pain, were very profuse, and lasted 8 d., were now scarcer, lasted hardly 3 d., and were without sacral pain. Menses not nearly so

profuse as usual. Menses cease for 60 h., and then come on in the forenoon without pain, after having flowed normally for 5½ d. In the 5th d. of the menses she sweats profusely, but only on back and chest. Three or 4 d. after menses violent spasms in abdomen, especially iliac regions. Some d. after menses forcing and pressing downwards, as though they would return. Leucorrhœa of a yellowish colour, with great weakness of limbs. A woman who had never had leucorrhœa got, after a dose of Ks. 6, a painless white discharge from vagina, which lasted several d. In addition to menses, periodical leucorrhœa. White painless discharge from vagina. Leucorrhœa makes whitish-yellow spots on linen the size of a sixpence, is also acrid, and causes itching and erosion on external genitals. Leucorrhœa stains the linen like serum, and has a putrid smell. The leucorrhœal discharge is often quite white, and smells of fresh ears of corn. Leucorrhœa goes on 4 d. uninterruptedly without sensation. Sneezing. Sneezing 20 m. Frequent sneezing, with moisture of nose. In m., hoarseness, which goes off after sneezing. In m., frequent sneezing without coryza. Fluent coryza, when the air is drawn in by nose it feels too irritating in the choana. Stuffy coryza, which becomes fluent after 12 h., with a scraping, rough feeling under sternum. Cough, with difficult expectoration. Dry cough, with scraping in throat and soreness of chest. Cough caused by a feeling as if mucus were seeking in the middle of the chest, which cannot be got rid of. Under larynx a crawling which makes her cough. During cough scraping in throat, with a lump of thick expectoration, &c. Constant cough, with great drowsiness, 2 h. of rigor, then dry heat, during which the child continues to sleep. Cough, with white, easily expectorated mucus and a scrappy feeling in throat. Whooping cough. In the centre of chest crawling and tickling, causing dry spasmodic cough, which lasts until retching comes on, m. Whistling dry cough. Constant easily expectorated mucus in throat causes an uninterrupted hallow and rough-sounding cough. Cough with retching, but only saliva comes. Cough, with discharge of urine. When the single coughs come, the urine spurts away from her. On an asthmatic person going upstairs the asthmatic breathing resolves itself into an easy expectoration, m. Dyspnoea, she cannot bring up her breath, it is as if it were held fast in the chest below. In the lower part of chest a feeling of weight, so that she cannot make a proper expiration. Quickly recurring oppression of chest, with some transient stitches in the middle of l. side of chest. On inspiration a transient pain in middle of chest, with dyspnoea. On account of heavy feeling in middle of chest she cannot take a full breath. He must often breathe deeply. Anxious and difficult breathing. On inspiration the chest feels internally bruised, on account of which she must breathe less deeply. On inspiring deeply a contractive pain in chest. Frequent sharp stitches in centre of chest, aggravated by inspiration, thence the stitches spread over r. shoulder and go with a burning sensation to elbow-joint; on raising arm the pains are worst in shoulder. Raw pains in lower parts of chest. On pressing on sternum it is painful in the middle, as though pressed by something hard, felt on inspiration and then spreading to clavicle and muscles of nape. A painful feeling in sternum, as though it was very much pressed, felt more during expiration. When taking a breath she felt a sharp stitch in l. side of chest, which soon went off and came into r. side of chest. In the external parts of l. side of chest a shooting, which has no effect on respiration, when at rest. In interior of r. side of chest severe stitches, which take away her breath. At 3 p.m. she had some stitches in r. side of chest and under r. scapula, which took away her breath and she thought she must fall. In l. side of chest shooting, most observable on turning in bed. In various parts between ribs periodically recurring shooting pain. Painful shooting across middle of chest, recurring on rising in m., and ceasing about noon. Violent stitches in lower part of r. side of chest, lasting several h. Knife-thrusts in r. side of chest, which go off and return by d. and n., he cannot sleep all n. they are so violent, causing him to break out in loud groans, they are somewhat relieved by firm pressure on the part with the hand, but when he removes the hand they recur as violently (in a hemiplegic). Feeling as if milk came into breasts, which are quite soft, just as when nursing. Shooting in heart for ¼ h. Sacral pains, which go from below upwards, with heat of palms and soles. Sacral pains worse when at rest, better when moving. Sacral pain as if after scooping much, aggravated by movements and stooping. Sacral pains as if her sacrum were broken, which extend to between shoulders; it feels like a band between shoulders, so that she cannot move arms

without pain, and can hardly stoop, all d. Violent pains in lumbar vertebrae as if ulcerated, with pressing down in rectum, as if flatus wanted to pass, but none does, during menses; better in times the pains in back were relieved by movement. One of the upper lumbar vertebrae pains as if ulcerated, or as if the flesh were torn away there, and when she stands up she feels as if something would fall out there. Spasmodic drawing from lumbar vertebrae, going forwards and down thighs, just like true labour pains, with great restlessness through whole body. In lumbar vertebrae pain such as she usually has before menses. Drawing tension between shoulders. Single stitches between scapulae, rapidly going and returning. Pains in shoulders as though she had lain with them uncovered at n. Pains in both shoulders as if they had been pressed against sharp corners. In back parts of shoulder painful drawing. Punching pains on inner side of l. upper arm. On lower part of r. forearm in the muscles of ulna a painful drawing down to fingers, and out there, so that she cannot grasp things properly with this hand, and there is a paralyzed feeling in it; it hurts every half or whole h. Periodical pains in both elbow-joints as if the ligaments were drawn together and were too short. In lower part of l. ulna a spasmodic pain extending into fingers. Drawing pains in l. forearm extending to fingers. Dequamation of skin of hands, which are quite stiff and scaly. Very agreeable warmth in palms, followed by warm sweat there in bed in m., and recurring several times during d. The whole r. hand is covered with papules which itch violently, the itching is worse in e., and in bed. The l. thumb pains as if stiff and sprained. Sprain-pain in second joint of l. thumb. Drawing pains in l. fingertips, which feel as if swollen. Drawing pains in r. ring-finger. In ball of l. index a pain as if he had got something sticking in it which is going to suppurate. In l. index a paralytic pain, commencing when at rest, removed by movement. Dying away of first phalanx of all fingers; they look quite white, and she has no feeling in them. In l. hip-joint a pain as if the parts were pushed out; when he stood on r. foot the l. leg felt as if it were too long. In region of crista the stitches which traverse the body. Painfulness of both crurae in and of lumbar muscles as though she had run a great distance; this painfulness or burning feeling extends into thighs and down to calves, when it ends like lightning, but leaves a stiffness or want of freedom in lumbar vertebrae, m. The crurae illi are painful when pressed on, as though she had carried something heavy or hard on them. Drawing pains from head of r. femur to knee-joint, so that she can hardly go upstairs, better when at rest, lasting some d. Painful drawing mixed with shooting from thigh through leg and soles, worst in r., aggravated by movement. The posterior parts of thighs are the seat of tense pains as though she had walked a long distance, most felt when walking and stooping. Blue spots on thighs that look like bruises. Three inches above l. knee in the fleshy parts a twinging pain when at rest. From middle of l. thigh to middle of leg the parts are painful, as though he had tearing in them and they were stiff on moving. Painful tension in fascia lata of l. thigh. Three inches above l. thigh in muscles a pain as if they were too short, worst on stooping and walking. In l. knee-joint a dislocative pain so that he cannot stand on this leg alone, and always has a feeling as if it would buckle under him. Tearing, boring, and shooting pains in l. patella, coming on e. with a chill, and lasting all n. till m., when they go off. Under r. patella an acute pressure pain. Drawing, tearing, and shooting pains, now in r. calf, now in region of hip-joint, lasting 4 m., then ceasing for a long time, and again recurring: the pain always comes on with great violence, making her sear, at same time itching and erosion in eyes making her rub them; afterwards the eyes burn, and much greasy mucus comes into their inner canthi, requiring frequent cleaning. In boughs red scaly skin like letter. On legs and knees down to toes a throbbing like a boil, worst in soles. From knees to ankles, especially in calves, painful tension when moving; not when at rest. Chilliness from dorsum of foot to above knee. Painless jerk through l. leg; the foot was twitched up. Paralytic drawing through l. lower limb. A twinging-out pain on r. outer ankle when at rest. A spasm-like pain in l. tendo Achillis. In l. heel, when moving, a violent shoe, making her sear and stand still. Weakness of l. leg, no steadiness in it. Legs swollen from calf to front of toes, l. most; the swelling is oedematous, white, hue always cold and heavy, so that it requires an effort to get along. He has twinging and punching pains in all joints. Tearing-drawing and shooting pains from heels, through soles, out at toes in e. On waking near m. the soles felt like balls when she trod on them,

this goes off a.m. Pinching pains here and there. Cold feet. Sweaty feet occasionally. L. foot somewhat swollen. Heaviness in legs from knees to ankles when moving. m. Weight in all her limbs with drowsiness. All her limbs ache as if bruised. All her limbs ache as though she had caught a severe cold. All limbs feel bruised as though she had run a great distance. A working in soles as though she had walked a long way, with great exhaustion, l. worst. Goes-to-sleep feeling in lower limbs. Feeling as if all parts of the body moved when at rest. Blows all through body, making her start, when asleep at n. Great excitement of whole body. Burning-itching in soles. Towards e. the itching becomes so violent as almost to drive her mad. The whole body covered with large pustules like smallpox. Nettle-rash-like wheals break out, last 2 or 3 d., then disappear, during which time fresh ones always appear. A vesicular eruption (like bug-bites) appears all over body, only the calves, chest and face were free from them, the itching is worst between 5 and 7 p.m. and at n. Itching all over body, she cannot help scratching, on the body the itching goes off after scratching without leaving any sensation, but on legs and arms it is followed by violent burning. She cannot sleep at n. for heat, itching and burning all over body. After midnight she wakes, the bed seems too warm, but if she puts her foot out of bed she is chilled. Wears and weak in lower limbs as if she had walked a long way. If she has to get up $\frac{1}{2}$ h. sooner than usual she has a fit of faintness that lasts a whole h. Stretching and yawning as before an ague fit. Frequent yawning as though she had not slept at all, e. Frequent yawning with chilliness. All d. yawning with watering of eyes. Very frequent yawning with watering of eyes. Frequent yawning with pressive pains in forehead and unsteady. Very drowsy, she would like to be always sleeping. She is very tired, and yet cannot sleep, she tosses about in bed all n. till 4 a.m., when the menses come on at regular time, then she slept 1 h. Cannot get to sleep on account of restlessness through whole body. Wakes suddenly at 3 a.m. as if she were called, she was wide awake and had got her menses. Though she wakes often at n. she feels quite rested in the m. and is quite cheerful. She wakes up 3 or 4 times at n. without reason, after turning about a little she falls asleep again. Bad sleep, she cannot find an easy position, the eyes are sealed up in m. She can seldom get to sleep before midnight, has a feeling as if too tired to sleep, with pains in all limbs. After 3 a.m. she cannot rest, tosses about. Starts up in affright from sleep. She dreams that something has happened to her children, which makes her weep and feel very anxious; on waking she was wet with sweat. Hardly asleep she has anxious dreams. After midnight she laughs in her dream, she knows not why on waking; she lay without clothes and was cold, but did not feel chilly. A choking feeling in throat during a dream at n. She dreams that she fell from a height. She dreams that snow was falling, that she was in the open air, had her baby with her, and was therefore anxious. Anxious dreams, she is followed by big men who want to ravish her. She dreams that she had taken poison, and is much emaciated thereby. Anxious dreams, she sees a small object before her which grows always larger. All n. anxious dreams. Dreams of fire which burns brightly, which made her very anxious and woke her up. Dreams of erections and urging to urinate, and that on trying to do so the glans penis broke off. She dreams of nasty dirty linen. Feverish all through his body. Shuddering all through skin. She is easily chilled. She is always chilly, but chiefly so during menses. As soon as she rests she has chilliness all through body. Chilliness for 3 successive d. Chilliness between shoulders and along back, cannot warm herself at the fire, during menses. Chilliness beginning between shoulders and going to middle of sternum, then sacral pains so that she can neither sit nor lie, but must always walk about, whereby the sacral pains are relieved, but now pains occur in hips, which go into middle of thighs and prevent her lying quietly in bed; they are only relieved by external warmth, exposure to external air increases the hip pains. Alternate chill and heat with much thirst, uneasiness in all limbs, continuous cough, sometimes dry, sometimes loose, but very exhausting and painful, it is excited by irritation in lower parts of chest with formation from censure of chest up to throat: the region of stomach is much shaken by the cough; at same time a pressive pain on the middle of the top cervical vertebra, which is aggravated by touch. After the rigor, thirst. Internal rigor with red cheeks in the warm room. Periodic flushes of heat, the cheeks become bright red, the redness is sharply circumscribed. Dry fever-heat (the cheeks look as if painted) all over body, without thirst, and then comes on warm

sweat; as soon as this is passed the most violent drawing and shooting neural pains come on, which allow no sleep at n. and render turning in bed difficult. Small and suppressed pulse. All d. stronger pulsation all through body, with a feeling as if whole body waggled when at rest. Pulse normal, but when he is at rest he feels it in every part. When sitting and walking a restlessness and chilliness through all limbs, so that she would like frequently to breathe deeply, but cannot do so. In m. she is very cross. At music or anything that excites emotion, she feels a tightness about heart, and cannot help weeping. She is always excited, cross, and listless. Towards e. her spirits are quite depressed, and she despairs of ever again becoming well. She is sick, ardently desires death.

5. Immediately nausea as though she would vomit, with buzzing in mouth. Hunger, which was previously present, goes off for several h. After 10 m., on back of tongue sour taste. After $\frac{1}{2}$ h., painful pressure over r. frontal protuberance. Over r. eyebrow an obtuse pressure as with a peg, which extends to occiput. Vomiting of sweetish water, m., before food. Twitching tearing in r. knee, when at rest. Weakness as though she had not slept enough, with warm feeling in eyes. After $\frac{1}{2}$ h., on the street she had vertigo, causing staggering, she was as if tipsy, and had to return home; the vertigo went off in the room. Nitching such as she used to have in the first month of pregnancy, m. Sneezes $\frac{1}{2}$ or 6 times in succession. Feeling as if mucus stuck in throat, making her constantly hawk, after a while she expectorates sweet-tasting white mucus. In the centre of chest feeling of weight, with dyspnoea, so that she must often involuntarily take a deep breath. Breathing difficult, as though chest were compressed, causing her to breathe deeply. From centre of chest up to throat a burning as though brandy had been drunk, such the tongue is painful, as though it had been scalded, with heat, redness and tension of face. In the middle of r. side of chest, 1 inch on external side of nipple, a very painful and obtuse shooting pressure, which goes through the chest and as low as apex of scapula. While writing a feeling of cramp in points of r. elbow, nearly preventing him writing. After 1 h., stupid and empty in head; her thoughts leave her for instants, so that she knows nothing, this occurs repeatedly during d. In r. iliac region a frequently recurring pain, which radiates upwards and downwards and extends into r. femur. She has a feeling of coryza as though the nasal m.m. would swell. A prickling pain on back of l. hand between thumb and forefinger. After some h., abdomen very much distended but soft, with dyspnoea all d. After 1 h., pain in chest as if sternum were pressed in. She is chilly, her hands are icy cold. Chill all over body, the skin is as if dead, and she feels all through body as if she had been up all n. and had not slept. Rigor, with flushes of heat in face, drawing and shooting pains in both temporal bones anteriorly, pressure in eyeballs and a veil before eyes, dimming vision and making her rub her eyes, hemorrhoid scalding and acid tears flow, and the white of the eye looks inflamed. After 3 h., in r. temple intensely tearing and shooting, involving upper and lower molars. Painful feeling in sinetiput as if several hairs were seized and pulled out, felt even next d. After 4 h., in sinetiput beating as if with a hammer, and in temples shootings, which occasionally cease, but always recur; on stooping, feeling as if all would be forced out at forehead (for 3 d.). On r. side of abdomen, between pavel and crista ili, some violent stitches, which take away her breath so that she must cry out, when at work. Urge turbid. In r. palm, between thumb and forefinger, an agreeable itching, lasting 1 h., not quite removed by rubbing. Chill all over body, so that she shivers, with great heat of face, bright red cheeks, icy cold feet, feeling of weight from shoulders to elbows, so that she could not raise arms to head, only felt when moving, with great crowsness, lasting from 10 a.m. till 10 p.m.; sleeps well, and was all right next m. A rigor of 5 h. duration, then heat of face and hands and cold feet, mingled with chillsiness, from 2 to 11 p.m. After 5 h., all objects appear dim, like a veil before eyes, lasting several h. Hot, red ears, which burn, as when one comes from the cold into a warm room, with cold feet. At 3 p.m. pain in trochlear cordis, as if a thread were drawn through or a small muscular fibre were torn out, which goes through all limbs, when at rest. After 6 h., stupid in head, she looks straight before her, she does not know why, and hears and sees nothing and is quite without thought. Digging in sacrum as though something would come out. After 7 h., towards e., crawling in upper bronchial tubes, causing cough. After 8 h., when she wants to do something and has walked about 4 dozen steps, she stops and knows

not what she wanted to do. A spasmodic throbbing pain on inner and lower part of l. elbow-joint, which occurs in single fits, p.m. From s. ruber ischii down to middle of thigh on its outer side, drawing pain as if in bone, with chilliness. In the middle of l. thigh a penetrating, twitching pain, when at rest. After 9 h., spasmodic drawing from lumbar vertebrae to genitals. After 12 h., drawing tearing, beginning in middle of squamous suture, going through temple and l. side of face, including upper and lower teeth of that side, lasting several h. Bitter taste in throat, e., takes away relish for food. On moving, the whole abdomen is painful as if ulcerated, going off by rest; these pains last 20 h., and hinder her from sleeping well at n., so that she must turn about frequently, she then sleeps for a little while and soon wakes again. Must rise every h., at n. to urinate, and each time much clear urine passes. Violent urging to urinate, she cannot get out of bed quickly enough to do it, with contractive pain in vagina. Violent itching in vagina, she must rub herself, afterwards soreness, the external genitals swell, become hot and hard, and on urinating the vagina feels sore, e. Sleep at n. disturbed by pressure and burning in eyes, lies awake till m., then goes to sleep for a little while and wakes with eyes sealed up. After 16 h., she sleeps all n. without consciousness, not usual with her, is quite well in m. After 18 h., from the gastric region all through the upper part of the body a working and heaving in all blood-vessels, worse on moving. After 20 h., on waking, m., a foetid smell before nose. On rising, m., rigor with bright red epistaxis. After 21 h., as if downy feathers hung over eyes, making her wipe them constantly. After 22 h., 2 d. after menses, a contractive pain in vagina, making her start, whereupon a white discharge took place from vagina. After 24 h., drawing pain in head, so that the eyes are closed. Pressive pain in sinciput as if all would come out there. On r. side of head pressive pain, which seems to come from cervical muscles. On looking for a little while at an object, the eyes become moist, which interferes with vision. A jerking shooting in r. antitragus, which is somewhat swollen and stiff, and has shooting pain when touched. Tongue clean but pale and as if withered, with thin saliva in mouth, no appetite, but much thirst; throat always dry, so that she must drink much. Bitter taste, m. She has appetite but no relish for food, at same time feeling of fullness, as though she had already eaten largely. Tightness and distension of belly, without pain. Pain in abdomen, deep down in abdomen the pain is like an ulcer, mixed with electric shocks in the internal sexual organs, which cause pinching, spasmodic pains in external labia, making her start every time the pain occurs, with a periodical pressing proceeding from sacrum forwards, with frequent call to pass urine, but only little clear urine comes; ineffectual urging to stool and anxious uneasiness through whole body, so that the sweat of anxiety breaks out on her, with ill humour, so that she feels inclined to quarrel with and bear someone; when these attacks take place while she is seated she must rise up and walk about, when the pains go off, this state lasts a d. Above and round navel a slight pain, which she cannot describe accurately, or such as follows drinking water after sour food, with ill humour, lasting 36 h. Drawing, tearing, and shooting in rectum, with frequent ineffectual urging to stool; after 36 h., with much pressing a hard stool is evacuated, when all the pains cease. When she presses at stool there occur spasmodic pains from lumbar vertebrae to r. inguinal region, they extend to r. hip-joint, and are a great hindrance to walking. She must often breathe deeply on account of heavy feeling in chest. The whole external chest pains as if pressed in. Drawing sacral pains down along coccyx to rectum and vagina, where they cause spasmodic contractive pains mixed with shooting, pains diminished by rising up, but return in fits (like labour pains), after such attack leucorrhœa like whey gushes from her. A paralytic pain starts like lightning to l. hand, so that in a moment she lets fall what she was holding. In middle of l. femoral muscles a pain as though she had received there a hard blow, worst when seated. She is very cross, and must frequently weep without cause. After 39 h., in lower parts of ear pain composed of several stitches proceeding from top of r. shoulder. After 30 h., at back of shoulder-joint, stitches which dart through whole arm down to fingers; in the latter they cause a sensation as if gone to sleep, with insensibility and powerlessness, so that she cannot hold anything firmly in the hand, if she has no stitches she has jerking in hands, with creeping and heat of them. After 35 h., the scapulae are painful, as if they had been beaten. After 36 h., pressive pain in head, all seemed to be forcing out at forehead, with pressure in eyes, extending up to crown. A digging and griping pain round

navel, which goes up into throat and causes her to feel sick and inclined to vomit. On 2, side under false ribs in hepatic region a constant shooting pain for 6 h. Frequent sneezing, some not stopped up, and yet feels as if she could not breathe freely through it. Nocturnal back pains, so that she can hardly lie, they extend over l. hip, settle in flank, and involve l. inguinal region, so that she can hardly raise herself up, the back pains worse when at rest than when moving. Several successive stitches in s. ankle-joint, which radiate out to toes and involve the whole foot. When walking, heaviness of feet. At 9 p.m., chill, first in feet, then in back, head, and arm when she is chilly up to fingers, with feeling as if those parts were cold, which is not the case, lasts 1 m. After 12 h., spasmodic pains in rectum, which extend upwards to iliac region, so that she must walk bent double and must sit down carefully. After 48 h., obscure pains in whole abdomen, not increased by touch. Under l. mamma several successive cuts, as with an awl, which radiate upwards and over r. mamma, and severe shootings under r. scapula, hindering breathing and lasting 3 m. After this pain under l. mamma has lasted $\frac{1}{2}$ h., it darts thence like a sharp knife-thrust across scrobiculus cordis towards r. side of chest, r. side of abdomen through thigh and leg, and ends in ankle, all like an electric shock, p.m. On lower part of upper arm on its inside pain as if she had had a blow, only felt on being touched. A quarter of 12 h. after rising in m., the first 3 phalanges of all fingers go to sleep, there is torpidation in them like ants, and they are quite white like dead hands, no feeling in r. index. Weakness in knee-joints, as though they would knuckle under him, when moving, for 1 h. In r. ankle shooting, worse on moving. From 9 p.m. till 2 a.m. she lies awake in bed with sacral pains, internal chilliness, and strong pulsation in head, and comes about. She is sad, and weeps constantly to weep. After 51 h., burning in soles from 3 p.m. till 7 a.m., these pains recur for 4 successive d. at same time. After 56 h., drawing shooting on r. side near sternum, between and under 3rd ribs. After 60 h., drawing pain in the upper posterior s. side of ribs spreads forward and causes shooting in mamma of same side. Teasing in legs from ankles up to knees, causing tension in calf. After 72 h., on rising, m., mucus raised with blood is discharged from vagina. A scrappy, rough feeling under sternum compels her to cough, and after several coughs she expectorated some grey, castileo mucus, whereupon the cough ceased. After some d., when combing hair the scalp is very painful, especially when she combs over temples, with falling out of hair. Violent, constant, and very painful stitches in r. side of chest, lasting several d., and much aggravated by in- and expiration. On waking, m., she felt sacral pains, worse after rising, extending forwards to abdomen, and these cause a pressing like labour pains, they go down into legs, cause anxiety and trembling through whole body, with lateral rigour (like irregular labour pains), intermingled with shootings in external genitals, better when lying, worse when sitting and walking. During first days she never felt as if she had slept enough in m., all her limbs feel paralysed. After 3 d., she has always much heat and watering of eyes. She wakes in m. with desire for coitus. Periodical drawing in mammae, going from outer side to nipple. Just above knees and for 3 inches up tensile pain in muscles, the parts are painful when pressed on by the hand, as though the flesh were torn, not felt when at rest, r. worse. After 3 d., drawing pains in head from r. frontal sinus to middle of r. jaw, lasting several h., beginning in m., ceasing at noon, again becoming bad at 3 p.m., and lasting till e. On 7, side of tricipitis violent stabs as with an awl, so that she does not know what she is doing, her thinking power is completely gone, she goes with this pain to bed, soon falls asleep, and dreams all n. of indifferent things; in m. all pain is gone; it commences in afternoon. After the pains in arms and legs have lasted 60 h. they cease all at once, but immediately afterwards she has great distension of abdomen, as though she was pregnant, with exhaustion, nevertheless she is cheerful; she went to bed at n. with the distension, and in the m. was quite well. A rapid shooting round navel, lightning-like stitches dart sometimes upwards, sometimes downwards, sometimes across, then a rapid shoot goes to l. mamma, where it ends, lasting $\frac{1}{2}$ h. In l. iliac region, opposite crista ili, persistent shooting, which darts down into l. thigh. Arn. pressure and forcing on neck of bladder, such as she usually has before confinement, causing a feeling all through her as though she should be confined; this makes her rise 3 times to urinate; each time much hot, light-coloured urine is passed. After the leucorrhoea has lasted 14 h. it ceases, and she feels exhausted. At 4 p.m. she had stitches in r. shoulder, $\frac{1}{2}$ h. later she had

several stitches in l. side of chest, and at 4 p.m. she had a very severe drawing pain in r. foot. For 9 n. never gets to sleep before 1 or 2 a.m., then she sleeps with many dreams, and on waking at 7 a.m. both arms were asleep up to elbows. After 4 d., urine hot and has a disgusting smell, like boiled juniper wood. Just above the heart violent stitches in chest, which prevent her breathing freely, the pains are relieved by pressure with the hand, last 1 h. afternoon. Drawing shooting under l. short ribs when moving and when at rest, &c. Labour-like sacral pains cause fruitless urging to stool, with distension of abdomen. Burning drawing and shooting, beginning round ankles and going through soles and toes, the pains are worst in soles, from 2 a.m. till p.m. Soles of feet as if gathering. After 5 d., drawing shooting in lower part of l. ear, spreading all over auricle. From 4 a.m. till noon must urinate every ½ h., and half a pint is passed each time. After sacral pains and heat of face has white discharge from genitals as profuse as menses. Contractive pain like cramp in r. calf down to ankles. After 6 d., drowsy, much yawning, with putrid taste and little appetite. Bad sleep, tosses about in bed all n., changes from side to side, and can assign no reason for her sleeplessness, and on rising m. her whole body was weaty, on the slightest corporeal exertion warm sweat breaks out all over body, she must frequently sit down to rest herself, when she stands up she collapses, lasting 12 h. After 7 d., the skin of crown and sinciput is painful when combed and when touched with fingers, as if ulcerated; when the skin is not touched the pain is drawing, worst on crown, lasting 24 h. After 10 d., the 1st d. of menses, at 5 a.m. a puffing and crackling in abdomen, like dull shots, then very urgent call to stool, with painless diarrhoea; during d. 7 more diarrhoeic stools, without pain. (*Archiv.*, xvi, 2, 117.)

II. *Poisonings*.—1. *σ*. On Aug. 29th, 1853, being called to a young woman, æt. 24, I found her insensible, with a pale face and frothing at the mouth; the pupils widely dilated, pulse regular, full, 80 per m.; every few m. violent retching, only saliva being brought up. The stomach had been previously emptied by vomiting. She had apparently severe paroxysms of pain on the r. side of her face, to which she violently applied her hand, then again became prostrate. Her breath smelt strongly of creosote. A large molar tooth on r. side, lower jaw, had a large cavity in it. I removed the tooth, and she scarcely seemed to feel the operation; after administering a mixture of sesquicarbonate of soda and finding her improving, I left her. In the m. she was better, but pale and weak, the pupils were still much dilated and the vision imperfect; this lasted several d.

β. The patient's own account is as follows:—"Whilst putting a piece of lint saturated with creosote into my tooth, I accidentally swallowed it. In less than ½ h. I felt myself 'going very low,' my eyesight went from me, giddiness came on, and everything looked dark blue, even the candles, my husband and everything. I felt a dreadful burning at the chest, and wanted water to quench it. I vomited and brought up the piece of lint and some food. I had great pain in the front of my head, and felt numbed all over. The pain at the chest continued 3 or 4 d. I did not know that my tooth had been taken out." (*J. D. JEFFREY, Assoc. Med. Journ.*, 1853, p. 929.)

2. While experimenting with creosote on patients suffering from phthisis, &c., I found that if the first dose exceeded 2 or 3 drops, nausea, vomiting, vertigo, headache and heat of head were generally the consequence. One patient who began with the small dose gradually increased to 40 dr.; any addition to this dose caused extreme giddiness, insensibility, and vomiting, followed by headache for several d. (*ELLIOTSON, Med.-Chir. Trans.* xix, 217.)

3. A child, *æt.* 2, swallowed from 20 to 30 drops of creasote. It soon lost consciousness, was unable to swallow, and its breathing was much obstructed and stertorous, it vomited, and passed urine of a brown colour, and frothed at the mouth. Evidently in great agony, constantly crying out, finally convulsions ensued, and death in 17 h. At the autopsy 51 h. after death, the body gave out a strong odour of creasote; the lips were discoloured, dry, and parchment-like; the mucous membrane of the tongue, palate, and œsophagus was of a dirty white colour. The brain and the lungs were engorged with blood, and the ventricles of the heart full of clots. (E. LABBÉ, *Dict. Encyclopéd. des Sciences Méd.*, 1re Série, xxiii, 103.)

4. LABBÉ summarises its action as follows:—From a small dose there is noticed only a stimulant effect on the digestive tract. From a large dose there will first arise gastro-enteritis, with its accompanying pain, vomiting, diarrhoea, &c.; then will follow vertigo, muscular feebleness, and circulatory and respiratory difficulties, due to absorption of the poison rather than to sympathy with the gastric irritation. Next there ensue effects due apparently to the elimination of the drug, viz. bronchial irritation, diuresis, dysuria, and even strangury, with black colour of urine. After a massive dose, in addition to the above, serious disturbances of the neuro-muscular apparatus arise, such as muscular weakness, profound disturbance of the sensorium and mind, general trembling, spasms, convulsions and coma. The circulation and respiration are profoundly affected, the heart's action being slowed, dyspnoea and suffocation coming on, terminating in asphyxia from excessive bronchial secretion, and arrest of the heart's action. (*Ibid.*)

5. Mrs. M. D.—, *æt.* 67, took by mistake 2 drachms of creasote in a draught at bedtime. She complained of feeling "all on fire" after taking it. She lingered in great torment from Monday night until the following Wednesday, at 4 a.m. (*Times* (London), June 17th, 1839.)

6. *s.* STRAMPE speaks of a woman of 60 who took "a considerable quantity" of Kr. by mistake. She was immediately attacked by severe colicky pains, and within 3 h. had upwards of 40 very painful and bloody stools. She recovered under the use of oil, milk, and opium.

7. When large doses have been continued for some time, they are apt to occasion dulness, giddiness, fainting, and some excitement of the circulation, with difficulty of breathing, nausea or retching, muscular lassitude, yawning, and constipation. The urine is generally augmented in quantity. Sometimes it occasions difficult micturition, and even strangury. The vapour, when inhaled, is said to occasion stupor. Corneliani relates the case of a woman who was attacked with faintness, trembling, efforts at vomiting, palpitation, &c., in consequence of the continued application of Kr. water to a large ulcer of the leg. (STILLÉ, *op. cit.*)

8. Dr. TESTE was consulted, in July, 1845, about an infant of 6 months, which was cutting its teeth badly. Kreasote 6 was given with great effect for a week; and a phial of the tincture was left in the parents' hands to use in case of need. Two months later, the child was brought to him in extreme debility; pulse small and frequent; countenance sadly changed; eyes red and projecting; breath foetid as in

mercurial stomatitis; entire anorexia, and vomiting; and scanty serous diarrhoea. The skin was covered with an eruption, prurigo-like on the forehead, pustular elsewhere; and the chest, hypogastrium, and upper thighs with round red spots, on some of which phlyctenulae appeared. There were also several ulcers with greyish base on gums and at commissures of lips, and a notable enlargement of the parotid and sub-maxillary glands. Inquiry as to possible syphilitic inheritance yielded decidedly negative results; but it came out that, a week previously, the child (though pretty well) seemed a little troubled with his teeth, and had been given the kreosote 6 times a d., since which he had fallen into the condition above described. The medicine was immediately stopped, and without further treatment the child speedily recovered its health. (*Yourn. de la Soc. Gall.*, i, 75.)

III. *Experiments on animals.*—1. MIGNET gave daily to a dog 2 mos. old 8 dr. of diluted Kc. Its depressing effects were visible in the slow and painful gait of the animal, and the occurrence of frequent nausea, with tremulousness and emaciation. Cormack found that when given to dogs in doses of 30 dr. it produced salivation, vertigo, muscular twitching, and insensibility. The same dose, administered to a rabbit, occasioned violent convulsions and speedy death. In Mignet's experiments, a dose of ʒij, administered to a young dog, gave rise to signs of distress, a fixed look, vertigo, dulness, and indifference. The respiration was laboured, whining, and irregular; a secretion of mucus appeared to obstruct the air-tubes and hung from the mouth; eructation and violent retching ensued. At the expiration of 2 h. the breathing became extremely laborious and interrupted by long intervals, the limbs were tremulous and jerking, and death speedily ensued. The principal lesion discovered was universal vascular injection of the gastro-intestinal mucous membrane. The lungs were gorged with blood, and in the heart and great vessels this fluid was more firmly coagulated than usual. (*Stiid.*)

LACHEISIS.

Venom of (probably) *Lachesis mura*, curucacu (see *Bris. How. Pharm.*, sub voce).

I. *Proving.*—1. G. HERING. Effects of 1st and 2nd trita. and symptoms felt during trituration:—A kind of ecstasy, as after sublime impressions or excessive joy, throughout d., he constantly wishes to talk and do much, and even more seems to be at his command (3rd d.),—next d. great exhaustion of mind and body; it seems to him during d. that he had dreamed everything that happens, only somewhat different; great sensibility, soothing poetry moved him to immoderate weeping, was obliged to cry for joy (for a great many d.),—after much crying, pain above eyes; in e., with physical laxity, sleepiness with inability to sleep, without sitting up he talks a great deal, wishes to tell stories, constantly goes from one thing to another, during this, however, he recollects himself and soon knows when he has mixed and distorted anything, he then corrects himself, but repeats same mistakes,—thus he is tormented half the e. (1st d.); great inclination to be com-

municative, extraordinarily vivid imagination, therewith extremely impatient at tedious and dry things; the more cause for fretfulness, the greater inclination for humour, jest, satire, and humorous fancies; so great apprehension while riding in open air that it seemed to him some evil was impending, it torments him for more than an h. (after 3 to 4 h.); mistrustful and thinking evil; towards e. very unusual almost crazy jealousy, as foolish as it was irresistible (after 6 h.); violent scornful mood, without being vexed (1st d.); very remarkable and persistent indifference and forgetfulness; increased power of originality in all mental work, increased activity of fancy, scenes and occurrences throng to him in an unusual amount; no sooner does one idea occur to him than a number of others follow in quick succession while he is writing it down, so that he is unable to finish the record. Vertigo while sitting after walking (2nd d.); rush of blood to head and vertigo after a satisfactory pasty stool (3rd d.); much rush of blood to head (3rd to 7th d.). Beating roaring, m. after waking, in r. ear, in very frequent attacks, it disappears on shaking finger in ear, but soon returns, especially in e. (5th d.). Sudden fluent catarrh in e., with much crawling in tip of nose, lachrymation, and pressure in inner canthi, of short duration (1st d.). Itching in nose when eating (3rd and following d.). Very peculiar scraping-burning feeling posteriorly on palate, immediately on breathing the dust while triturating; salivation while thinking about the sensation in throat; the mouth is watery, sometimes more, sometimes less, as if it came from stomach (1st and 2nd d.). Pinching pain deep in throat, in small spot on r. side of pharynx, not aggravated by swallowing, worse on pressure (after 1 h.), returning from time to time (1st d.), but worse in e., when it also affects larynx; constant pain on empty swallowing, not on swallowing food, for a month; throat is very sensitive to external pressure (immediately and later, even for a month); throat and neck are so sensitive to the slightest external pressure that everything about throat is distressing, no position is comfortable. Little appetite (1st d.), lasting a week; all appetite in m. has disappeared (7th and following d.); the usual hunger in m. fails, otherwise very well (4th d.); remarkably little desire for smoking immediately, and 1st d.; all inclination to smoke disappeared in a great smoker, though without aversion to it, for a week; thirst for beer, with complete loss of appetite, in e. (1st d.); increased desire for wine (but the wine produced less effect than usual, in one accustomed to it) (1st week); heartburn in e. after smoking; nausea with eructations; sudden nausea, hiccough, gulping, and eructations, at last so severe as even to amount to vomiting of air, this increased to an excessive degree, and lasted for $\frac{1}{2}$ h., then relieved (after drinking tea in afternoon of 4th d.); pain in pit of stomach when pressing upon it, for over a week, with diminished appetite. In m., large quantities of loud flatus, through d. frequent small quantities (4th and following d.); a fasting sensation, as if hollow, in abdomen at meal time, without appetite (1st d.). Anus feels closed; spasmodic pains in anus internally, a short time before and after stool (6th d.); long-continuing smarting and burning, after usual stool (13th d.). Diarrhoea every e. for a week, preceded by transient

pain in rectum, followed by beating as with a little hammer in anus; sudden diarrhoea, with great urging, about midnight, thin, pasty, excessively offensive, ammoniacal (1st d.); pasty diarrhoea in m. (2nd d.); scanty, smooth, clay-like stool; blood is discharged while pressing after a very copious evacuation (11th and 12th d.); stool delayed from m. till e., after pressing there was only a scanty, unsatisfactory evacuation (1st d.); the stool constantly close to anus, but only flatus passes (3rd d.); no stool (1st d.),—delayed, occurring only after smoking, scanty and pasty (2nd d.). Frequent and increased urging and micturition, urine dark and frothy (3rd d.), afterwards same, only lighter coloured; dribbling micturition, a few m. after he was again obliged to pass small quantity, with much pressure (for a week). Very strong erections in forenoon (2nd d.); very much increased sexual desire, without amorousness,—when controlled, it caused great inclination for mental labour (2nd week); amorousness in m. on waking, with pain in loins and much bruised feeling (6th d.); amorousness after midday nap (4th d.); emission at n. (very unusual), with extraordinary voluptuousness. Secretion of mucus in larynx is diminished, while in nose and fauces it is increased (2nd and following days); larynx painful to touch (1st d.); after midday nap trachea seems narrowed, no mucus can be loosened as usual (1st d.); increased hoarseness while speaking, voice will not come because something in larynx prevents it, which cannot be hawked loose, though mucus is brought up,—lasting a long time, from 5th d.; constantly obliged to take deep breath from time to time for several d., especially while sitting (3rd and following days); acts somewhat upon larynx, so that it is not only very sensitive, but it seems as though it would suffocate him, it also increased the pain in back of throat, in e. (1st d.). For several d. much impediment to deep breathing from time to time, especially while sitting (3rd and following d.). Pains in loins after midday nap. Acute tearing in bones of wrist, at intervals, on side of r. little finger (2nd d.); the hands, which were bent by contraction of the tendons, began to pain if she attempted to sew; constant stitches, deep internally, as if in the bones and cartilages of wrist and metacarpus, also feeling as if something were crawling in them, renewed by paroxysms (3rd and following days). Thighs and knees feel bruised in e.; swelling of feet following redness of them, with fever. Great exhaustion and weariness in e., sleepiness, with inability to fall asleep (1st d.); restlessness drives him into open air, he desires to accomplish much, and begins many things; very great inclination to lie down, sitting is almost intolerable (6th d.); feeling of weariness drives him to sleep early; feeling of faintness; feels bruised in m. after waking, also after midday nap; feels very much bruised, with pains in his loins, between shoulders, and in spine, after sleep (6th d.); feels beaten whole d. (1st d.). Small red points here and there on fingers, which itch very much (4th d.); a warty elevation on back of l. middle finger, after some d., following itching vesicles, it afterwards disappeared, leaving a scar; a small group of flat warts appeared on outer side of l. thumb (9th d.), remaining for a year; many itching vesicles on outer margin of r. hand, with voluptuous burning after scratching (during 2nd week); itching in several

places between fingers, where, after scratching, hard, shiny elevations appear, followed by small vesicles, with burning and tension, often lasting a week; small itch-vesicles here and there on fingers (4th and following days); small ulcers on elbow; itching, especially on thighs (3rd d.); pain as if a pimple would form between outer canthus and temple, on 5th d., disappearing 6th d.; itching in face about eyes and on cheeks, relieved after scratching, from m. till e.; violent itching, as though an insect had pierced the flesh, in a very small point on instep. While obliged to wait for dinner he was attacked by spasmodic yawning, became pale and faint, had to sit down quietly and eat something, when he felt better; sleepiness without being able to sleep; very sleepy in forenoon, after walking in open air, sleeps for some h., during which he dreams constantly, it seemed as though the dreams had consisted solely of very important things, though everything was forgotten on waking,—he woke refreshed (2nd d.); one e. does not think of sleep, the next e. overpowering sleepiness; very wide awake before midnight (1st d.); after going to bed sleepy he is unable to fall asleep, becomes wide awake (1st d.); goes to bed early on account of weariness, legs and knees seem bruised, yet is quite unable to fall asleep because he cannot get into right position, everything seems to cause pressure in neck and throat (1st d.); wakes very early in m. after falling asleep late the previous e. (1st d.); constant dreaming at n., frequent waking, and again dozing and dreaming, but he feels well in m. (3rd and other days); many dreams, though he woke very early (5th d.); very unusually joyous, humorous dreams, or poetic dreams full of inventions, during midday nap; dreams every n. with reflection, only somewhat diminished after two weeks (7th d.); during d. he for the first time remembers his dreams, it seems to him as though he had dreamed of everything that happened to him, and more also which for the time was forgotten (7th and following days); amorous dreams; lascivious, disgusting dreams whole n. (6 d.). She was obliged to lie down whole d. on account of feverish coldness without thirst, heat, or sweat, in e. some small pustules on elbow which had previously existed had matured (2nd d., repeated 3rd d.); shivering over back (1st d.); an agreeable feeling of warmth in e., neither internal heat nor only in the skin, but a feeling as after a cold bath, or as after coition (1st d.); palms of hands, soles of feet and abdomen are very hot whole e., with sleepiness without being able to sleep, fanciful imaginings, sensitiveness of throat, cannot endure bed-covers or night-shirt (1st d.).

♂. On another occasion,—excited mood whole m. (2nd d.); in e. very wide awake and talkative, only somewhat checked by a very troublesome and persistent pressive-shooting pain near point of r. scapula, towards spine, deep in back, as if something were sticking in it, worse by paroxysms, obliging bending backward and also taking deep breath, not affected by breathing (this continued for a week, recurring specially after long sitting); pain in small spot in throat at side of larynx, but somewhat posteriorly; increased appetite, but after eating he was obliged to lie down; sneezing and fluent catarrh late in e. (2nd d.); stool paarty, every d. somewhat later, so that, occurring at first in m., it after a while occurred in e., and then again in m., and so

on (5th and following days for a week); great sexual desire and amorousness (1st d.); dreams constant and fatiguing, with frequent waking all through n., yet he awakes early, and rises refreshed (1st d.).

c. From 30th.—Depression of spirits, with chilliness; depressed and anxious, with shortness of breath; becomes easily peevish and mistrustful, believes himself intentionally injured by all about him, and attaches the most hateful significance to the most innocent occurrences; he sits up late at n. at mental work, with great activity; he is impelled to productive work in e., although he had been much fatigued during d. he sits up all n., without slightest sleepiness or exhaustion, writes with greatest freedom and increased vigour about everything that he knows, new things constantly throng on his mind,—also next d., after very little sleep, he is just as excited, it only gradually diminishes without subsequent reaction of mind (recurring in repeated proving); constantly obliged to pay attention to his spelling, in a language in which he is usually fluent; forgetful and indifferent. Confusion of head; vertigo after rising; vertigo as soon as he goes into street; vertigo so that he must hold on to something, especially after stooping; tense pain in head, as if a string were drawn from nape of neck above ear internally to eyes, on coughing; rush of blood to head, with flickering before eyes; rush of blood to head, with beating-roaring in ear; headache extending into root of nose; headache, with vertigo in e.; deep internal headache; headache in l. frontal eminence, deep internally, as if connected with ear, it is also painful externally on pressure, as if bruised, in m.; transient drawing from l. temple to forehead; stitches in l. temple and side of head; very painful drawing from one spot above r. ear to vertex, recurring 5 times with intervals of some seconds, an h. after eating; sticking in vertex and temples, as with knives and forks, extending through whole head, with catarrh and stiffness of nape; headache on vertex as if beaten internally, worse on external pressure; l. scalp painful to touch. Blue rings under eyes, in m.; pain in both inner canthi. Pain in small spot, when touched, in petrous bone behind ear; during toothache ear is cold, and whole head feels so to him, though it is warm,—external heat is pleasant; contractive pain deep within l. ear, on inserting ear-spoon it is painful as if swollen; tearing extending from zygoma into ear; itching in ears; can bear no wind in ear. Sneezing, together with mucus in throat; thin water from nose, in m.; nasal catarrh comes on in afternoon and is fully developed by e., with much sneezing; many symptoms end with coryza; coryza with soreness of edges and tip of nostrils, which latter continues some time; short-lasting, fluent catarrh (in one who had not had one for years), at first for only few m. in m., then in e. lasting longer, whereby all the headache, lachrymation, and stoppage of ears disappeared, and he felt free from trouble; inability to have a real catarrh (yet has a constant or very frequent incomplete catarrh); bleeding of nose (in man of 45, for first time in his life); some drops of blood from nose; a few drops of blood from l. nostril, after boring in with finger; blowing of blood from nose, and bloody streaks in mucus; in m. nose is very much stopped (disappearing after blowing out membranous pieces, but afterwards returning violently), in e. stoppage was

less; itching in nose on sitting down to eat. Accumulation of water in mouth; water runs from mouth during violent cough; most dreadful taste in mouth, quite intolerable, which makes her think of acrid poison, though she had never taken poison, somewhat coppery, makes teeth dull, causes nausea, more in forepart of tongue, which there seems thicker and worse during eructations (in hysterical woman); salty taste of mucus hawked up. Tenacious mucus in throat that he could scarcely raise; hawking of mucus only in e. after tea, instead of in m., and so much that it seems as though abscess had broken; hawking of mucus, and extremely disagreeable taste, almost like saltpetre; dryness in throat without thirst,—at n. on waking sticking as with a thousand needles, that threatens to suffocate her; dryness in throat that impedes swallowing; pain in r. side of throat, always extending to ear; pain in l. side of throat, extending to root of tongue, jaw, hyoid bone, and into ear, so violent in m. after breakfast, that he was beside himself, therewith tongue was sore on l. side, with sticking here and there, gum was inflamed, all teeth painful, l. side of face and lower jaw swollen and sensitive to touch, pricking and sticking at small spots in thighs and legs, disagreeable taste, loss of appetite, and bad sleep; throat and larynx are painful, even on bending head backward; burning in l. side of throat and pit of throat; throat seems somewhat swollen, as if two lumps as large as the fists came together, only on empty swallowing, not on eating, which latter, on account of this sensation, seemed to do good; soreness of throat, and also somewhat in pit of throat; soreness internally on both sides of throat in m.; sensitiveness of throat as if sore, as often after taking cold, with pain in l. side, worse in e.; feeling of great rawness in throat after exerting it; eating relieved pain in throat, causing an agreeable tickling; huddling in throat, above r. clavicle, also in r. foot, near great toe; difficulty of swallowing saliva, not of food; swallowing prevented by dryness of throat; if in e., on lying down, anything touches throat or larynx, it seems as though he would suffocate, and the pain is much worse. Feeling as when obliged to wait very long for food, without real hunger; longing for something, he knows not what, he took at last a swallow of water; though he has very good relish for food, yet takes very little, it seems as though he did not need more; longing for neither food, wine, nor tobacco for a week, he was accustomed to wine and tobacco daily; at times very good appetite, at times none; eructations and rising of food after eating, such eructations after dinner that he almost suffocated, they occurred as often as 50 times, followed by great relief; nausea in m.; nausea by paroxysms, for 5 or 10 m., in forenoon and afternoon; nausea after dinner; feeling in stomach as if obliged to wait long time for food; burning in stomach and hepatic region, stomach distended, with itching in epigastric region, abdomen distended, hard as if from eating much, while walking was obliged to stand still, feeling as though a stone were in upper abdomen and in pit of stomach, which drew downward as if it would break away, so that he was obliged to step carefully,—feet became swollen while sitting, and were cold though burning, therewith offensive odour from mouth, which he did not notice himself; pressure as of great load in stomach

after eating, relieved by eructations and emission of flatus, but the pressure continues; pain, slight, but very disagreeable, when pressing upon pit of stomach. Painfulness in l. side, near pit of stomach; clothes around hypochondria are very annoying; much rumbling in abdomen, colic and emission of flatus, after eating, in e.; very much flatulence; much flatus with loud noise, therewith anus seemed closed, so that she was obliged to press it out; eviscerated feeling in abdomen; pain in abdomen in afternoon; burning and cutting in abdomen, with pressure to urinate; fulness in abdomen, after eating; contraction in abdomen. Protrusion of rectum after stool; protrusion of rectum, which is thick and proportionately swollen, without great pains,—after it is, with difficulty, reduced, the anus is spasmodically contracted; determination of blood to anus, with hæmorrhoids, diarrhœa-like stool, and increased itching in anus; burning discharge from anus, 4 times a d., preceded by cutting colic and urging to stool; he constantly feels flatus at anus, though he presses out only small, short emissions from time to time; burning in anus during a stool, also after stool; spasmodic pains in anus and rectum internally, followed by natural stool; urging to stool with the fever. Acids, even fruit, after Lachesis easily cause diarrhœa; stools more frequent than usual (in one inclined to constipation); pasty stool every forenoon; no stool, only a somewhat thin, watery evacuation (2nd d.); some mucus, so acid that it is painfully discharged from rectum, with voluntary pressure; intolerable odour to the stool, which, as usual, was somewhat hard, the odour was scarcely endurable, like asafœtida, but much worse (like putrefying snakes); the first dose caused constipation, the second an evacuation; stool delayed every d.; scanty, pasty stool, in m., then omitting 1 d.; no stool for several d., with very good appetite, on account of which abdomen became hard and distended; no stool for 3 d. (immediately). Much and frequent micturition, urine frothy. Unusual erections during d.; want of sexual desire and inability for coition, or very late emission of semen, erections too feeble, for several weeks; emission during the midday nap; difficult emission of semen; semen possesses a penetrating odour. Diminished secretion of mucus in larynx; it seems as though something should be hawked up, which cannot be loosened; larynx and whole throat tender to touch; a feeling as if something were swollen in pit of throat and would suffocate him, it cannot be swallowed, with soreness in throat; something hinders speech, is hoarse, must hawk constantly; cough while drinking, or after drinking; cough worse after every sleep (in patient with mucus phthisis); pressure on larynx caused cough; short hacking cough; dry hacking cough caused by touching throat, also occurring in m. after n. sleep, and from smoking with a stopped catarrh, with blowing of nose and sneezing without relief; a kind of rattling seemed to be low down in larynx at n. during sleep, in only few paroxysms, followed again by ordinary breathing, in turn followed by similar paroxysms, so loud that it awoke his wife, who aroused him whenever it was repeated; shortness of breath and great prostration; respiration constricted, after eating a little. It seems as though wind

* Occurring in very many cases when given in various diseases.

rose up into chest, and became fixed there, relieved by eructations; burning in chest at n., with pains in sternum; pressure upon chest, as if it were full of wind; heavy dull pressure in whole of chest; oppression of chest during sleep; whole chest seems sore, as in violent catarrh, extending to between shoulders, especially after eating; pains in l. side beneath breast. Palpitation. Tensive sensation as if tendons in l. arm were too short on stretching it out straight, extending through whole arm to middle finger, in which it is most perceptible; stiches externally beneath r. axilla; jerking in l. hand and leg in afternoon while sitting; visible pulsation in large portion of ball of l. thumb, very disagreeable, afterwards with slight jerking in whole thumb, frequently recurring and lasting a long time, and continuing to recur for a long time; violent cramp in the calves at n. towards m., so that it woke him; sensitiveness of balls of feet on stepping upon them; painful surging back and forth in toes; crawling and heat in toes of one side. Sudden jerking together of whole body, starting from below, while sitting; always after sleep, so stiff that he could scarcely stir or move, rubbing and stroking by another person did him good, and soon entirely removed feeling; indolence and heaviness after eating; weary, sick, dejected, with fullness after eating; great weariness on going out in e., the accustomed walk seems endless; at meal-time, while walking in street, so weary that he could scarcely proceed, yet he ate but little; weakness after supper; suddenly, towards e., deathly weak, with insatiable thirst, dry mouth, became pale and distressed as if about to be attacked by a violent fever; physical, not mental exhaustion; physical exhaustion and weariness, with mental excitement; great physical and mental exhaustion, especially in m.; transient faintness, with nausea, vertigo even to falling down, and vanishing of sight for 2 or 3 m. during breakfast, during d. frequent attacks as if it would return, great inclination to lie down, especially after eating; became very sick after drinking wine, also after strong beer; faint-like sensation of trembling; feet bruised all d.; always after sleep, m. or n., bruised or stiff; weary, bruised feeling, with catarrh, cough, sore-throat, m. nausea, rumbling in upper abdomen, &c., as often in warm spring weather; great longing to go into open air. Sore spots became fungoid, dark red to brownish, with whitish spots, burning on wiping; red burning spot on thumb, followed by a large hard vesicle; itching on lower legs, obliging him to scratch, red wheals appear; after incessant itching there appears a round, red, very hard lump on back of middle finger, lasting long time without vesicles and without suppuration, there slowly forms a small deep point of pus, of which very little exudes, only on allowing hand to hang down there is a sticking pain—6 weeks later, after a blow on the lump (which had almost entirely disappeared), it bled unusually profusely; a large number of small flat warts suddenly appear on hands (of one who already had several large ones), which do not disappear; small pimples on face; small pimple on outer portion of r. thigh, around which for some distance it is extremely painful, eruption like nettle-rash over whole face (26th d.), it disappeared and returned; itching hives on legs; erysipelatoid eruption beneath l. eye, which first itched at n., when she was awakened with fright about

trifles, in m. the skin began to redden and swell, and became worse after mid-day nap, next m. very thick and red, with incessant itching scarcely to be endured, whole lower lid was swollen, red, and itching, preceded and followed by beating headache on stooping (thus relieved); itching-burning and vesicles on hands and fingers; small clear vesicles on r. fourth finger; violent itching on r. heel, afterwards on both heels, then on r. hand and fingers, on top of foot, and toes, always worse and burning after scratching, followed by small, hard, white, deeply seated vesicles; small itching vesicles on backs of both feet; groups of deep hard itch vesicles on r. hand; a large boil on heel, with violent shaking chill on formation of matter, caused by very slight rubbing of shoe, in one who had never before had anything like it (after 8 weeks); ulceration of a nail after a bruise; a slightly brownish-red areola about an ulcer became blackish blue; old ulcer scars reopened, after a blow the epidermis easily loosened and would not again heal, suppurated, then vesicles formed and epidermis loosened all about, the open spots were dark red, looking like a flat sponge, here and there whitish, burning after wiping; bleeding of ulcers which then became cleaner; pain in and about a scar remaining from a fistula on the thigh healed the year previous; burning in ulcers at n., so that he was obliged to rise and wash them with cold water; itching in face and hands. Spasmodic yawning in m.; sleepy in e., immediately after supper, with much weariness; so sleepy after dinner that he could scarcely keep up in spite of pressing business, contrary to his habit he slept for 1 h., afterwards the troubles in abdomen were worse; she could sleep while walking and standing; she lies constantly slumbering, as if stupefied, after pains have passed off; difficult falling asleep for a week; partial sleep full of dreams; wakes very early in m. feeling well; dreams with reflection and thought, and of the many occurrences of the d.; in his dreams he possesses an intriguing character (which while awake was in no wise the case); troubles increased after each sleep. Chilly, indolent, and prostrated, was obliged to lie down flat on the ground near fireplace, which made him feel better; shivering during the heat; single paroxysms of shivering; it seems too hot at n., sleep very restless; first much thirst, then after some shivering, lingering heat without thirst, during which he desires to be covered, several such attacks in m. and during d., especially in e., at times transient perspiration (after several weeks china relieved); every e. feverish, hot palms and hotter nape, during which the rubbing of other people is extremely beneficial; feeling of glowing warmth in skin of chest; sweats too easily; sweat too easy and too profuse. (*Wirkungen des Schlangengiftes*, 1837.)

3. STAFF, from 30th dit. Lively without any cause; lively, social, and unusually communicative, even with disagreeable feeling of fullness; very easily frightened, with sensitiveness of brain, extremely irritable; at times can only think of some fancied worry; preoccupied (transient); breaks into a rage about trifles; need of being very busy, without the slightest perseverance; gladly sits in meditation; longing for amusement without, however, experiencing ennui, with lively fancies about which he himself laughs; ennui with trembling of whole body; aversion to work; must force himself to attend to business (later action); inability for abstract thoughts, not the least persistence; very distracted, while reading, without interesting trains of thought; weakness of memory, so that it was difficult to pay attention to

what was said to him; it became extremely difficult to listen to others, though his hearing was not impaired the words just spoken seemed obliterated; complete loss of consciousness at times, with cold feet, it returned as soon as feet became warm. Drowsy, jerking, tense sensation in bones of skull and cheeks, also in lower jaw; rub of head to head, with painful pressure under whole skull, he was conscious of every diseased tooth, though they were not painful, blowing of bright red blood from nose, with drawing sensation in nose and frontal sinuses and under whole skull as if water had been injected into it; deep internal headache, pressure sensation beneath skull as from taking cold after going out, associated with nausea, it comes and goes, very much aggravated by stooping, the pain alternates with heat; heavy spot in middle of head, that goes back and forth as he moves head; pressure striking pain on side of head, heaviness like lead in occiput, ear scarcely raise it from pillow in m. after waking, with vertigo; numbness and crawling on l. side of head, as in whole of l. side, — and next m.; round painful spot in centre of head. Feeling of numbness in concha with good hearing, without roaring, and on pressure it is the felt in inner part, afterwards followed by habitual painful pressure and heat; extremely sensitive to noises; roaring in ears, usually associated with cold feet, very often. Drawing sensation in nose and frontal sinuses and beneath whole skull. He has extremely suffering look, face swollen, and as if he had been up nights, till fourth week. Itching drawing in some teeth of l. side; transient stitches in front teeth; burning on tongue from ordinary water as precursor of hoarseness and raucous in throat. Slight swelling of throat, soon disappearing (later); hawking of mucus with pressure on throat after nap in daytime; pressing feeling low down in throat which causes salivation if he thinks of it; throat raw as if sore, in trachea by sternum there seems to be inflamed painful lump, this feeling disappearing after violent hawking of mucus. Food is relished without real hunger, it is hastily swallowed; a certain aversion to food with hunger; longing for wine without feeling of exhaustion; stomach almost always digests well, but meat fried in butter causes acid and bitter sour; painful pressure in stomach, immediately afterwards clawing in anus extends it inward; flatulence first 24 d., not afterwards; pain in abdomen coming from small of back; fulness in abdomen, especially during first 24 d.; fulness in abdomen in m. or waking; painful hemorrhoidal drawings from anus to umbilicus; painful constriction of anus; painful transient drawings, now in one, now in other side of anal; pressure in anus both painful and painless. Apparent necessity for stool, without result, during first period; stool soft, pasty, never slimy. Burning urine, with small stool (later action); red sediment in urine, it is never burning and never very turbid. Red spots on glans penis, margin is congested in two places; red pimples with itching beneath margin of glans penis (4th d.); profuse secretion beneath prepuce; frequent transient amorous thoughts, without slightest physical excitement; emission at n. (4th, 5th, and 6th d.) with vivid and somewhat disagreeable dreams, but without any unnatural admixture of imagery, with complete waking, and weakness following only after some h. Hoarseness and rough throat, preceded by burning on tongue; tickling rough, tickling as at one time in larynx, at another in chest, at another apparently in cardiac orifice of stomach, mucus as at one time rosy and grey, at another sanguinous and yellow, at another watery, almost never at n., always associated with secretion of mucus from nose, cannot get rid of it for 3 weeks, every contact with open air causes violent tickling cough accompanied by expectoration of mucus, it lasts from 3 m. to 1 h. (later action). Oppression of chest, suddenly disappearing; oppression of chest in e. during sleep, alternating with clawing at anus, with cold feet. After stooping he could with difficulty breathe erect. Stretching of all limbs; weary pain in all limbs, commencing in knees and thighs; painful drawing in knee and elbow, extending downward; fixed pain as from spica in l. knee and elbow which does not disappear; pain in elbow as if bruised; hands feel dead on rubbing them (on dorsa), from 6th d., while washing them rapidly after eating, it goes off during 3rd week, but again shows itself a few times in 5th; pain in all joints of l. hand, as after violent exertion, on waking; extremely painful tearing like a forcible extension of muscles of r. hand, it relieves its tension on attempting to hold anything; fingers are white, without stiffness, all d.; numbness of tips of all fingers, first of r. then of l. hand, also in 5th week, without remission, especially violent in m.; stiffness of joints, cannot bend them except very slowly, afterwards movements are frequently rapid and active, often uncertain and

clumsy; creaking in l. knee; cramp in knees on waking; intolerable drawing in legs lasting a long time; drawing in l. ankle from leg; numbness and crawling in r. toes; pain in few toes, as after walking all d., with heat of them, preceded by cold feet. Muscular laxity, exhausted by motion and the most moderate exertion; motion is very exhausting throughout proving; he is obliged to do everything very rapidly, bolts his food, and afterwards is unable to remain sitting; aversion to motion; decided sensation of weakness in m. in sleep, on awaking general sick feeling, vertigo, feeling of lead in occiput, can scarcely raise head from pillow, all the joints seem strained, pressure in small of back and fullness in abdomen, after 4 h. everything disappeared, afterwards repeated in less degree; feeling as if paralyzed, cannot bend feet or close hands, at times only on l. side; slight touch is intolerable, almost puts him into a rage. Crawling in fingers and calves; crawling in r. shoulder, upper arm, and beneath shoulder; crawling and pricking in l. hand and toes, especially violent in latter, at times in whole l. side from vertex to toes. Overpowering sleepiness before and after eating; frequent inclination to sleep at midday (after first week), during first week, sleep in forenoon; necessity of sleeping before dinner, at times quite irresistible, this sleep did him good (during first 3 weeks); sleep sound and refreshing, even if he wakes with bad feelings; was several times unable to fall asleep, during 3rd week; restless sleep, heavy m. sleep, gets up unwillingly; dreams that a person very dear to him had died, he awoke weeping, looked about him with conviction that he would see his ghost, without experiencing fear. Cold calves and knees, at times only on l. side; coldness of feet every d., at times painfully cold, after which heat sometimes follows; crawling in l. calf, with cold feet and icy cold ankles; febrile heat, fullness of head, drawing in some teeth and in bones of face, eyes glistening, indicating exhaustion, with pain in knees as if sprained, next d. febrile heat with same symptoms, and in addition irritability, extremely restless and uncomfortable symptoms as in a kind of grippe (influenza), during the attack expectoration consisted of tenacious grey mucus, the d. following some catarrh with fever; orgasm of blood, restlessness, anxiety, pressure upon chest, violent, quarrelsome, morose, for several d. he involuntarily speaks louder and more distinctly than usual, thinks clearly and expresses himself well, but has no memory, does not bear or understand what others say to him (later action); disagreeable news causes the most violent orgasm of blood, still he is at last master of it; heat in ears; perspiration on feet; immoderate sweat of feet, toes are quite wet in m. in bed; sweat of feet very much diminished, feet are warm, but not unpleasantly so (later action). (*Ibid.*)

3. *Burr*, from tooth ail. Dilatory, he cannot accomplish his business as usual; cannot perform anything in an orderly manner; unusual confusion as to time, dated everything the 26th, when it was only the 6th, and on Wednesday he asked whether it was Saturday; makes more mistakes than usual in writing. Vertigo in e.; vertigo, with feeling and attacks of loss of consciousness, as if he would be attacked by apoplexy, 3 e. in succession; pressive headache with nausea, and with sleepiness; pressive heavy sensation in forehead, with nauseous vertigo, after drinking wine; violent throbbing above l. eye. Eyes feel stiff; feeling as though dust had got into eyes; inability to open eyes, with heaviness in forehead. L. nostril is interally somewhat swollen and painful, worse on repeating dose, at last a scab on painful spot; catarrh, with unusually great stoppage of nose; bleeding of nose, thick, dark red blood. Feeling as if gums were swollen; salivation, with burning in throat. Unusual longing for system, and they agree well, for several e.; eructations of air (roon); violent pressure in stomach after eating, with feeling of weakness in knees. Pains in hepatic region; much flatulence. Two stools in m., after the stools weakness, with continued desire for another stool, without result (1st d.). Pressure in bladder and penis, with frequent need to urinate; constant pressure in region of bladder and in urethra; constant sticking cutting in forepart of urethra; sticking in urethra; sticking pains shoot from place to place, from small of back to liver (perhaps also to kidneys), and thence downward to urethra; sore pain in urethra, in forepart of penis, in 3 persons. During the heat as of orgasm of blood, he is obliged to loosen the clothes about the neck, there is a sensation as though they hindered the circulation of the blood, with kind of suffocative feeling. Cramplike pain in precordial region, causing palpitation, with anxiety; palpitation causing anxiety (soon after a dose). Sticking in upper back; constant pressive pain between scapulae and in chest; sticking between scapulae; constant urpic pain in caecum and coccyx.

Stretching of all limbs; painfulness of all limbs, feeling as if beaten on motion; gnawing pain in all limbs. Pains in hip and thigh, lasting into n., with pressure heaviness of forehead, so that he is unable to open eyes; pain in muscles of l. thigh, as after a blow or bruise, after drinking wine, and also renewed thereby; feeling of weakness in loins after eating, with pressure in stomach; stitches in knees when walking. Weakness after breakfast; feeling as though body were overwhelmed by a disintegrating tendency, with sinking of all the forces; he is in a suffering, emaciated condition, very weak and prostrate, and constantly inclined to rest; tremulous sensation over whole body as from anxiety, without real anxiety. Sleep prevented by itching; sleeps after breakfast; unusual sleepiness in m. after breakfast, with great prostration, urtching, and much spitting of saliva. General sensation of coldness, with actual coldness and longing for fire. (*ibid.*)

4. Dose, from 30th dil. Dilatory, disinclined for any mental work. Confusion of head (after a d.), with heat and violent congestion (after a h.), lasting till afternoon; wings, with reclining towards l. side, in m. immediately after rising; vertigo with pressure in eyes; rush of blood to head with confusion; rush of blood, with heat in head; headache, first over whole forehead, afterwards becoming more concentrated towards l. frontal sinus; headache over eyes, extending to root of nose (after a h.), and lasting nearly all d.; headache in l. frontal sinus, as if sore; pulsating pain in r. temple, that extends into r. orbit; two transient stitches in r. side of head, as if starting from a scar on that side (immediately); sensitive pain in r. occiput, afterwards extending to orbits and down into nasal bones; tension and then drawing pain in an old scar above r. ear, at n., as though it were painful on sudden and sharp changes in the weather; painfulness of whole l. head; painful sensitiveness in l. temple from eyes down, and in l. half of face, when touched, or on moving the muscles, as, for example, laughing, chewing, &c., a sensation as if skin had been burnt by great heat of the sun, which was not the case, lasting 3 d., gradually disappearing. Eyes seem to be darker (swollen!) than usual, even to other people, they look as though one had been weeping, &c.; pressure in eyes, aggravated on moving them, as though orbits were too small; pressure in and above eyes, also skin of forehead is painful externally to touch; itching in and about eyes, with heat in them, in afternoon and e., was obliged to rub them a great deal; violent itching in l., with pressure in both eyes and dimness, disappearing after coffee. Violent sneezing for about a m. (after 3rd dose), frequently (immediately after 4th dose); catarrh, dry in e., which next to no waking had disappeared, with burning in upper lip,—in n. towards m., again some catarrh, which on waking disappeared; some drops of blood from nose on blowing it in e.; a spot just above L. ala nasi painful to touch without anything being visible; itching in nose, in e. Koc lips. Drawing in second upper r. back tooth, which was sound; gum of two lower back teeth is painful; gum is painful from warmth in mouth; very transient prickling feeling on tongue immediately; transient pain on certain of the palate, while yawning; accumulation of water in mouth. Slight pressure in throat at times. Diminished appetite; no relish for smoking; eructations of air; feeling as though hemorrhage would occur (after a few m.); pressure in stomach at n., and in m.; so that he was obliged to rise up and at last stand up, relieved by profuse emission of flatus, 3 m. in succession. Stitches in l. hypochondrium; transient stitches in hypochondria from r. to l. side. Jerkings in anus in quick succession. Urine of strong odour, with perspiration in axilla. Some jerkings in penis; testicles seem quite hard, with relaxed vas deferens; increased irritability of sexual desire. Larynx feels obstructed by a foreign substance; pressure in larynx. While riding in a carriage, pain in chest and itching in larynx, provoking hacking cough; bubbling sensation in chest, some jerks in chest. Painfulness of l. scapula, as from a dull pressure. Heaviness of limbs. Sudden stitches in tips of fingers. Some tearing in l. thigh, from above downward; jerking at times in l. thigh, after 3 h., with painful drawing in l. leg, from above downward; pain as from sprain in r. knee; gouty drawing pain in l. knee while sitting. Drawing in lower legs from above downwards. Inclination to lie down; feeling of weariness. Eruption on l. upper lip; small pustules filled with matter on r. brow and face; biting in various parts of skin, as from ants; sticking, itching in various parts of body; itching as from burning needles on l. thumb and index-finger, followed by formation of two pimples, as from insect bites (though there had been no insect), with violent burning after scratching, lasting 3 d. Sleeps over

usual time; restless sleep and many dreams, with anxiety; many dreams of his home, with an anxious feeling as though some evil had happened to him; sleep restless. Disagreeable feeling of warmth over whole body without perspiration, in e.;* strong-smelling perspiration in axilla, smelling like garlic. (16hr.)

5. **REURCAT**, from 30th d. Vertigo while sitting (1st d.); headache extending into nose; fine and deep-sticking headache; headache in forehead, at times (5th d.); writhing in forehead above r. eye (1st d.); sudden shooting in forehead (followed by throbbing headache that she has often had formerly); tearing-sticking in forehead, across, above eyebrows; tearing in forehead above eyebrows, also as if in the bones, in m. (5th d.); tearing extending upwards from ears to temples. Stitches in eyes, also hot burning stitches; something shoots from brow down into the lashes (3rd d.); sticking in r. lid from above down to the lashes (1st d.); hot stitches about internally from brows down to lashes, first in l., then in r. side (4th d.); flickering before eyes, as from threads, or rays of sun. Throbbing in bones behind ear; ringing in ears, and some whirling as from insects, and tearing; roaring in l. ear (1st d.); whistling, as from insects in ears (and d.), it seems to extend back into head (5th d.), and continues to 7th d. Tensive burrowing beneath r. nostril, followed by itching across under nose (1st d.); tearing from upper part of r. forehead to nose (7th d.). Feeling of stiffness in malar bone coming from cervical glands; feeling as though something were tearing and burrowing in r. zygoma, also in left (4th d.); tearing in zygoma extending into ear (5th d.); burrowing beneath l. ear near jaw and in sterno-mastoid, as in erysipelas, followed by same sensation on other side, e. (4th d.). Fine constriction on l. side of root of tongue (5th d.), burning and dryness on palate, with thirst (after taking acids); pressure in palate as if it came from stomach (5th d.). Dryness in throat, with thirst and nausea; feeling as if tendons were drawing throat up to palate, with pressure as after swallowing astringent pearls (3rd d.); pressure in throat, as though a plug were in it (after acids); pressure in throat as from something astringent; pressure in l. cervical muscles, especially sterno-mastoid, extending upward and round head, like a headache; throbbing in front, in cervical glands, afterwards extending up into malar bones, which feel stiff. Burning eruptions of dry sif; nausea with vomiting and thirst; burrowing as from a worm in stomach; sensation as though something were drawn up into a ball in stomach and intestines, almost every d.; pressure in epigastric region, extending towards heart; pressure in pit of stomach while lying down, but especially on moving; stitching extending from stomach to chest; feeling as though something were gnawing in stomach, though without pain, followed by gnawing in both sides, extending across under ribs deep in abdomen (3rd d.); jumping throbbing in pit of stomach, and extending up under ribs, followed by sensation as though something pressed from pit of stomach towards heart (3rd d.). Sticking in the sides beneath ribs (and d.), gnawing on both sides beneath ribs, deep in abdomen; tearing in r. of abdomen (5th d.); tearing from both sides of abdomen towards middle, deeply seated (3rd d.); stitch near r. ilium extending internally through abdomen and chest into l. shoulder, the same also on other side, from the l. below to the r. above (6th d.), gnawing pain in lower portion of inguinal region, near bone, disappears and returns through whole d. (and d.). Pressure in anus as for stool, followed by a somewhat soft stool (after vinegar); throbbing in anus and small of back. Tickling-itching extending from thighs into genitals, which became swollen, with a voluptuous sensation, sexual desire, and tickling, then a cramplike contraction in uterus, extending into r. side of abdomen, thence into breast (in a circular direction), with heat and apprehensiveness,—together with these sensations there is a tickling in anus, which extends into region of kidneys, and thence up to between the shoulders, as if between the skin and flesh.† Twisting or turning about in pit of throat (4th—6th d.). Pain extending inward in lower portion of ribs; pressing pain extending from chest to stomach; stitches through chest from abdomen to shoulder; soreness of chest; stitches in lower portion of forepart of chest, extending inward (1st d.); burrowing like a worm in forepart of r. side of chest, extending towards l. side, and seeming to be in stomach, afterwards a stitch as if extending from stomach internally upward between the flesh and bones in middle of

* In a cold climate, and at a cold time of the year.

† She had a similar sensation several years before, which now reappeared after taking Lachesis.

close to vicinity of breasts; feeling as though labour pains extended up into the breasts, about every d. (causticum relieved), pressure beneath breast, and drawing extending upward (4th d.). Feeling of constriction about heart. Sticking in back from below upwards (3rd d.); tearing in scapular, more in r., also in shoulders (4th d.); tearing between shoulders and in cervical vertebrae (4th d.); pain in small of the back, with yawning and stretching of the arms and legs, as in fever (after acids); burning, apparently between the skin and flesh, seeming as though it came from small of back (after acids); sticking-burning in small of back, extending upward; itching in small of back and anus, with drawing in all the limbs. Stretching of limbs and feeling about heart as if it were constricted (after acids); frequent tearing pains in both arms and legs, with cramp; twitching in arms and legs, and at same time creeping from l. shoulder to head. Arms so weak that she is unable to raise them, they fall down again; pains in arms as if internally in bones (after acid), sudden tearing downward through arms (4th d.); turning about in the convulsive margins of axilla, more towards r. side, as in erysipelas (3rd. d.); tearing through r. arm, less in l. (5th d.); stitches from abdomen to shoulder, tearing in both of upper arm, and outward through flesh (after acids); tearing in forearm (3rd d.); aching in joints of wrists, extending to elbow (6th d.); cramp between metacarpal bones of 4th and 5th fingers (3rd d.); gnawing and crawling in bones and both of r. 3rd and 4th fingers, also under nails, as though something were boring and burrowing from backs of fingers through and through and upward, but without pain. Drawing extending up legs; frequent tearing in thighs, extending to the knees, as if in bones; she was obliged to move feet up and down, otherwise legs would jerk up and cause uneasiness in whole body, together with tearing extending up leg (4th d.); sticking in legs with changes of wind and weather; tearing extending up the leg, with uneasiness in the knees; feeling in the r. calf as if asleep, afterwards in whole leg (5th d.); she was obliged to move feet, otherwise legs jerked upward involuntarily, followed by fine drawing extending up leg like a crawling; tension in veins beginning at heel (before a snow-storm); cramp in forepart of foot; cramp-like feeling in toes, which draws up toes (4th d.); feeling as though something were digging beneath r. toe-nails and pushing them up; drawing extending from toes upward; stitches as with needles in toes, extending upward (5th d.). Stretching of the whole body, commencing in the toes and going to the fingers; tearing, now in one place, now in another, on several d. Red pimples here and there on body, with an itches tickling in them, scratching causes pain, licking is worse in bed, she is unable to sleep on account of the biting-itching, is frequently wide awake (3rd. d.); desquamation of skin of forehead, with biting-itching; biting in the lobule of the ear, afterwards pimples on it; several small pimples on forehead and cheeks (some d. after dose); burning in skin (after taking acids), sticking-burning everywhere in skin, especially starting in small of back; sticking in skin commencing rather deep in flesh, and striking outward through skin; very fine stitches deep in skin, extending outward through it. Yawning (3rd d.); yawning with stretching; yawning with nausea, and dryness of throat, as if thirsty. Chilliness in back, commencing in small of back, cold feeling on r. ankle (7th d.); creeping from l. shoulder to the head; a kind of fever commencing at 3 a.m.,—drawing from the toes upward and urging to stand, with frequent soft stool during the whole time, then drawing in r. side and in the anus, extending up into chest and r. region of kidneys, with some sensation of warmth, together with pressure on the chest and sighing (and a pressure about the heart lasting a few d.), followed by chilliness and stretching, with some thirst, shaking chill on open air, afterwards a creeping from anus up into the head, with dullness, rings, roaring in ears, dazzling before eyes, weakness of the arms, crawling about and twitching in flesh, even in bones, together with yellow colour of face,—frequently recurring, always after taking vinegar; a feverish condition always after eating all things. (*Ibid.*)

1. DEWILLER, from 30th dil. Gidilypressive headache; headache in forehead; violent itching on scalp and over whole body. Violent pain in r. eye in a person who had been blind more than ten years, though without pain; fog before eyes, in e. a bluish-grey ring, about 6 inches in diameter, around the sight, a beautiful bright blue ring about the light, filled with fiery rays (2nd d.), fiery ring with fiery rays (3rd and 4th d.). Swelling of face with much heat and redness; burning pains in face; swelling of cheeks and redness of whole face, repeated after

2nd dose. Gums bluish red, swollen, and very painful; swelling of gum of upper front teeth, with throbbing pain in it, e., next d., it was worse, with burning and throbbing; violent painful swelling of gum of anterior lower incisors, 3rd d., disappearing on 5th d.; gum is painful, with toothache; aphthous and decuded spots on mucous membrane of buccal cavity, preceded by burning pain and rawness (3rd d., relieved 5th d.); burning and throbbing pain in mouth (3rd d. after and dose); violent burning in mouth and swelling of lips and gum (3rd d.); violent burning pains in mouth and face; rawness in mouth and throat; disgusting bad taste in mouth (3rd d.). Burning in throat; rawness in throat, without hawking of mucus; difficult swallowing of food and drink, as from hindrance in region of cardiac orifice, small quantities only can get into stomach after long intervals. Violent pain in region of spleen while driving, obliging him to stretch out straight, which afforded a little relief, lasting a d., but only while so travelling; stitches in l. side extending into chest, so that breathing was very difficult; distension and tearing in abdomen for 2 h., with chilliness; intolerable pains in abdomen with burning and dryness. Disagreeable, dry, scraping feeling at epiglottic and vicinity (1st to 4th d.); hoarseness with burning in throat; respiration difficult on account of stitches in chest. Stitches in nape of neck and in whole back for 3 d.; sticking in r. arm, with feeling as if it were asleep, with violent itching in both arms, hips, and lower limbs, disappearing gradually in 20 d. after and dose. Feeling as though arms had fallen asleep, with sticking in them; violent tearing in l. shoulder, extending through arm to tips of fingers in m. (immediately after and dose, and again on 3rd d.); tearing in joints of r. hand (4th d.). Swelling of l. leg and foot. Boils $\frac{1}{2}$ inch in diameter near spine, with violent burning, throbbing pain, disappearing without suppuration; itching near l. eye; violent itching on l. arm; violent itching on hips and lower limbs. Very violent general chill, with tearing and distension of abdomen; a febrile chill with thirst and pain in forehead, in e. (final).

3. GROSS, from 30th dil. A kind of loss of ideas. Headache with vomiting of food; violent headache, with flickering before eyes, as if nasal exanth would break out; prurive headache for 2 d., on 3rd d. congestion to head, with flickering before eyes in wonderful angular jagged figures, followed by headache and difficult hearing; tearing in head; boring and sticking on vertex. Eyes become weak, at a distance he still sees well, but near very indistinctly, especially in e.,—on reading flickering before eyes, and letters become indistinct. Cracking in front of ears. Catarrh and cough with easily loosened expectoration, with moderate heat of head and hands, dim eyes, violent palpitation of heart, together with rash over whole body, having appearance of small spots without being elevated, as large as points of a pin, sleep at n. restless, with moderate perspiration; frequent attacks of exanth, which, however, did not fully develop; blowing of blood from nose, with troubles in trachea. Very bad colour of face, and general discomfort; pain in face, tearing above orbit, with vomiting of food.* Toothache extending through jaw (tear) raging, jerking, tearing, dull sticking in roots of lower teeth, often extending through upper jaw to ear, periodic, always after waking from sleep, soon after eating, also from warm and cold drinks. Crawling in throat at n., causing a short, incessant, hacking cough, during d. sore-throat was still worse. Pain in throat on taking hold of it, extending even to nape of neck, with sicking always on swallowing, and scraping on swallowing bread, as if everything were raw, together with dryness of throat, without actual dryness of tongue. She loses all appetite, especially for bread and rolls, the usual milk causes nausea, yet everything has a natural taste; no appetite for breakfast; smoking always causes nausea, for 16 d. (in one accustomed to it); nausea and pain in stomach. Vomiting; vomiting of food; forcible vomiting of all food, with pain in head and abdomen; vomiting of blood; much pain in pit of stomach, constant nausea, with qualmsiness and diarrhoea; she was attacked with the most frightful cramps and pains in stomach every e. at 5 o'clock, with violent eructations, retching, and vomiting, though only some mucus was raised, also at other times nausea, with coated tongue and pain in stomach; pressure in stomach, more or less severe, extending from pit of stomach into chest, as if one would be taken with colic, or as if from incarceration of flatus. Abdomen distended as if internal parts were greatly dilated; abdomen frequently

* In a girl at puberty who was pale, with loss of appetite.

much distended, with disagreeable sensation as if loose parts or ligaments from
 stomach were very much stretched.—on this account she was obliged to wear the
 girdle, especially about the stomach, very loose, otherwise it was very distressing,
 and when it bed she was obliged to loosen and pull up the night-dress to avoid
 pressure the darts not lay across abdomen on account of pressure; a certain
 brown and floridness in abdomen prevents her from walking far; violent cramps in
 abdomen during menstruation, it seems as though a knife were thrust through
 abdomen; colic with vomiting of all food; attacks of colic after confinement with
 return of other previous symptoms; pain in intestines caused by shock of cough.
 Discharge of blood from anus. Natural evacuation, followed again by diarrhoea;
 clammy-like stools 3 or 6 times daily. A few d. before and after menses urine at
 first clear, after standing awhile deposited thick sediment like a beaten egg,—there,
 with peculiar sensation in bladder, not exactly painful, but very disagreeable, and
 associated with a certain desire to urinate. Emissions 3 e. in succession, which never
 happened before, followed by decided weakness and even headache; emission several
 times at n. and profuse sweat; menses returned after 7 weeks (they usually returned
 every 2 d.). Feeling as though a plug were fixed in larynx, which moved up and
 down, with a short cough, is unable to lie down, blows bloody and purulent matter
 from nose; if lungs are irritated in any manner, as, for example, by tobacco smoke,
 a violent irritation frequently causes uninterrupted cough for a m., so that chest is
 very violently racked, and all the blood driven to the head and face; spitting of
 blood; unable to get breath, must sit up, then rattling of mucus with alternations of
 chilliness and heat in pit of stomach, and general chilliness and flushes of heat, risings
 into oesophagus with efforts to vomit, whereby only mucus is raised, which collects
 in the mouth in large quantities (after 24 h.); the chest feels swollen, with violent
 pain in it, dares not touch it at n.; pains in l. side beneath breast, &c. A former
 paralytic and sprain-like pain in small of back became far more acute; dull aches
 (joints) in small of back on every motion, so painful that they distorted the features,
 limbs stiffly outstretched, head bent back, eyes distorted, for 4 m. A kind of par-
 alysis of l. shoulder in m. on rising, as from lying in an uncomfortable position, it
 however continues and afterwards returns, but especially in m. when dressing and on
 bending arm backward; tearing in l. hand, extending into upper arm. A former
 tearing in l. hip returns; posterior portion of thigh, especially towards knee, becomes
 painful as if swollen, knee is swollen with insupportable pain, especially in hollow,
 chiefly on touch; knee is thick, painful on standing, he can scarcely walk, and only
 after walking awhile is it endurable; tension in knee, stretching it out was very
 difficult; frequent violent tearing in feet, especially in e., with heat in them. Con-
 stant and fatiguing labour does not agree with him, he soon becomes weary; weak-
 ness, especially of arms,—of legs; great weakness now and then during d.; great
 weakness in m. after rising, she constantly desired to sink down again, on the
 slightest exertion the arms sank down exhausted, therewith she felt her heart beat,
 often also in e. she was very weak, so that she could not remain up long; he would
 constantly sink down from weakness. Constantly very sick for 20 d. before the
 menses, constant beating in temples, headache, and cutting in abdomen, so that she
 feared the occurrence of the menses every moment; after confinement all her former
 troubles (pain in l. side beneath breast, tearing in s. foot, violent headache, and
 attacks of colic) became again more violent, though only transient. Papular
 eruption on n. forearms, afterwards over whole body; pustules, especially on thighs, as
 large as head of a pin, surrounded by a red areola, some of them as large as corns;
 a red spot as large as hand appears on l. shoulder and exudes moisture, small vesicles
 appear and break; itching between fingers and on knees. Great sleepiness after
 supper, he can scarcely keep awake, and in m. he awakes late; sleeps over the usual
 time but n.: he is unable to sleep on account of internal restlessness; abdomen and
 oesophagus swollen, violent pains in chest so that he dares not have anything raw on
 the chest; sleep at n. restless, with moderate sweat, catarrh, cough, &c.; sleep very
 restless, on rising in m. weakness over whole body, especially in arms and feet, after
 bed very the rise less exhausted than after good one; he awoke at n. about 1 or
 2 o'clock, sleep was so light that he heard everything, and from then till m. he was
 unable to sleep again, therewith he easily became peevish and misanthropic, with no
 appetite for bread. Soon after dose feeling of coldness in stomach, as if an inter-
 mittent fever which he had formerly had would suddenly return; violent fever every

c., with loss of appetite and headache, internal chill with external heat, in e. great febrile heat which lasted all n.; moderate heat in head and hands, with nasal catarrh; frequently very hot hands and feet with frequent violent bearing in latter, especially in e., she does not know where she shall put her feet in order to find a cool spot; slight transient orgasms in chest; perspiration at n. with catarrh and cough; profuse sweat at times at n. (*Ibid.*)

8. KUSAWEK. from 1000 dil. Vertigo while standing, going off on sitting, in m.; dull sensation in head, with nausea, p.m.; feeling of heaviness in head, at 11 a.m.; feeling of fullness in head all d., some headache next d.; pressure in forehead, headache in both temples. Some aching burning of eyes; aching of eyes, especially l.; pressure in l. eye, afterwards in r.; pressure on r. eye and r. side of forehead, soon afterwards in l. temple, a similar pain on r. side of face, as if it is a tooth of upper jaw, afterwards in l. leg and foot in e.; pressure on l. eye and r. shoulder, immediately, in m.; itching in eyes. Sneezing and very violent catarrh (3rd d. after 3rd dose), lasting several d., at one time nose was quite stopped, at another only one side, and then again open and fluent. Pressure in side of face, upper jaw, and head; dry lips. Crawling in a tooth of r. upper jaw; dryness in mouth and constriction; unpleasant taste in mouth, like meal or paste; nauseous taste in mouth, as from stale fat, without having eaten fat. A pain on r. side of throat; head pressure on both sides of throat; throat feels closed, as though something were sticking in pharynx, can scarcely swallow saliva, after supper, lasting all n. and next d., food and drink cause no difficulty, but saliva can scarcely be swallowed; difficult swallowing at times; pressure in r. side of throat, as from external pressure. Nausea and unpleasant feeling as if poisoned, whole afternoon. Acute pain in abdomen, as if on short ribs, worse on inspiration; peculiar feeling in l. side of abdomen, like a violent tension. Hoarseness, with cough; alternations of headache, hoarseness, and tickling in throat in e. on lying down, and violent cough, together with frequent pains in limbs and other parts; difficult respiration almost all d. Pain in short ribs, first in e., then in l., then in l. elbow, then extending to hand; pains beneath short ribs on breathing; decided pain in l. side; stitches in l. side of chest; needle-like stitches in l. side and l. hand. Pain in ichia. Pain in limbs, after profuse catarrh; drawings in l. leg from hip to knee, then in r. arm from shoulder to elbow; pains as if pressed from without, sometimes very violent, though always transient, in arms, hands, legs, feet, lasting a whole week, together with itching in eyes, and on 6th d. violent catarrh; jerking in hands and lower extremities. Paroxysmal pains in r. arm like pressing in bones; pain in elbow, extending to hand; pain in elbow, as if ulnar nerve were pressed hard (as if nerve were bruised); pain in ball of r. thumb; stitches in tips of fingers. Feeling of weakness in legs; short, transient,pressive pains in l. leg, just above knee, afterwards below it, extending to foot, afterwards in r. arm and r. ear, in e. while sitting; stitches in r. knee, in l. leg; pains in l. leg below knee, still more in ankle, at same time in l. arm; pressure in l. leg and foot after headache; pain in fore part of l. foot, as if it were pressed between boards; occasional pain in all the toes, sometimes of r. foot, sometimes of l.; stitches in l. great toe. Pains here and there when coughing; rheumatic pain, first in l. side, then in r., and frequently alternating, at times from r. to l. and back again, but always in different places, in the shoulder, arm, wrist, hand, lower extremities, knee, calf, foot, and teeth; some needle-like stitches, often very violent, in various parts of the body. Heat of the face; hands disagreeably dry. (*Ibid.*)

9. RZUCKHAWE, from 30th dil. Indifferent and disinclined to work in forenoon. Confusion in head in m., with heaviness and blowing of blood from nose, with headache in forenoon and congestion of head, especially on stooping and walking, in afternoon; confusion of head in m., with inability to think correctly, does not disappear after sleep, but remains, with weakness in all the limbs, till e. (4th d.); slight momentary vertigo, at times, on closing eyes, at 11 a.m. (after 1 h.); heaviness of head in m., followed by pain in vicinity of r. eye (and d.); rush of blood to head, in forenoon, on stooping, together with headache on r. side, extending towards occiput (3rd d.); rush of blood to head for a few h. in forenoon, especially on stooping, preceded by headache above r. eye (5th d.); rush of blood to head in afternoon, immediately on stooping, very violent (7th d.); constriction of head above ears, and pressure in both temples towards ears, not persistent (after 1 h.); violent pressing pain and congestion to head, in m. (8th d.); sudden violently pressing pain about upper portion of head, in e., worst in

both temples, where he feels every step on walking; * headache near r. eye (4th d.); pressure about l. eye in forenoon (15th d.); pressure, quite severe, in l. temple, leaving the forehead; sudden headache on l. side, continuing during forenoon (24th d.). Eyes are painful on reading; painful burning eyes; pressure about eyes; itching pressure about eyes, on r. side, extending towards occiput, with heaviness, confusion, and congestion, especially on stooping (and so 17th d.); inflammation of r. upper lid, as if a sty would form in e.; lids of both eyes inflamed, with burning pain, r. upper lid the most, eyes are painful, especially when reading (2nd d.); itching pain in lids (5th d.), which disappears, but returns as a prurive pain in eyes (15th d.); burning prurive in eyes themselves (18th d.); swelling like an incipient sore (that he had only seldom had; in l. lid, like small pimples, but more prominent and not so deep in skin, acute sticking pressure in r. upper lid, lasting about $\frac{1}{2}$ h.; some burning-aching pains to the lids.† Cutting pain in upper part of l. outer ear, not very perceptible except when touched, in e., most painful during 1st n., lasting over 1 d.; itch-like itching in ears. Yellow mucus from nose and throat, following stopped catarrh d. previous, preceded for a week by hoarseness and mucus in throat. Pressure pain on r. malar bone, more towards eye, also on r. knee towards inner side (24th d.). Much mucus in back part of throat, then in nose, mostly with sweetish taste (26 to 24th d.); can endure nothing right on throat, nausea is at times caused thereby (5th d., and lasting 3 weeks). He awoke at a.m. with general nausea and oppression of the chest, pressure in stomach, and, after an h., violent vomiting, followed by some colic, afterwards again violent spasmodic vomiting, at last vomiting of bile, with transient vertigo, accompanied by profuse sweat,—from 6 to 9, diarrhea & menses, together with burning in urethra on urinating, followed next d. by general weakness and prurive headache; feeling of emptiness in stomach in afternoon, not longer, though he had eaten well at dinner; peculiar feeling of emptiness in stomach at n., although he had eaten a good supper; pressure in pit of stomach (after 1 d.), associated with drawing-prurive sensation downward into abdomen towards umbilicus, painful to touch, lasting about 2 h., with feeling of warmth in chest. Tendr pressure beneath pit of stomach, extending towards umbilicus, on the afternoon, lasting $\frac{1}{2}$ h. Pressure upon bladder to urinate at noon, same repeated next d. in e., with emission of some semen (or prostatic fluid), which looked milky; cutting in urethra; great desire to urinate at n., slight cutting in urethra and prurive sensation in testicles from above downward, as if a hernia would protrude, lasting 4 d. Prurive pain in r. side of scrotum in m., lasting about $\frac{1}{2}$ h. (7th d.); pressing dragging upon testicles, not violent, lasting 2 h. in e. Constant hoarseness (from 2nd to 24th d.), with much mucus in back of throat and a sweetish taste,—on 25th d. some mucus is loosened, and a discharge from nose takes place, especially in m.,—on 26th d. in m. almost a stopped catarrh, afterwards whitish yellow mucus in nose and throat. Tightness of chest (20th d.) following pressing pains in chest the d. previous; pressing pains in chest, lasting whole afternoon, together with pressing pains towards stomach; in e. frequent pulse, and at n. pains in chest (6th d.).—will more on next m., afterwards violent pressing pains. Pulse increased, full and hard, after moderate exertion, with profuse sweat in e. Sensation in l. elbow, when touched, as painful as if a piece of glass were sticking in it, though nothing was to be seen, lasting 2 d. Prurive pain in r. knee, extending inward. Weakness in m. in l. limbs, inclined to sleep, general exhaustion, even to lying down, better after lying down, thence with inactivity, sad, disinclined to work, indifferent or gloomy, as after a night's debauch, physically prostrated and mentally indolent (and so 16th d.); raking sensation over the whole body, loins, face, in e., worse in n., also lasting next d. (after 3 doses). Pimples, especially on hairy portion of genitals (and 2d.); several pimples on body (8th d.), afterwards here and there on genitals, arms, face, &c.; pimples on arms; stinging-burning inflamed center as large as a pea on a toe on r. foot that was somewhat exposed to pressure, the pain lasted $\frac{1}{2}$ h., the spot 3 d.; pimple half as large as a pin's head on face, with pus, afterwards also on upper lip beneath nose, on brows, and on chest, they disappear next d., but return (also on other parts) for a week; itching on body as from ants, especially on loins (23th and 24th d.) (following phosphoric acid as an antidote), the itching was the same as had

* After phosphoric acid, ineffectually taken as an antidote.

† After phosphoric acid.

occurred in a former proving, immediately after Lachesis; sticking-itching over whole body, face, and scalp, as from ants, in afternoon, worse at n., accompanied by burning pain, and lasting till next forenoon, but then without burning. Inclination to sleep, with weakness in all limbs, in forenoon (3rd and 9th d.). A feeling of warmth externally in lower chest, r. side, as from a stove* (1 h. after dose), is extended after ½ h. as high up as axilla, lasting ½ h., with pressure in stomach; perspiration profuse, with increased, full, hard pulse, after moderate exertion, in r.,—on previous and following mornings was physically relaxed. (*Ibid.*)

10. ROKSAR, from 30th dil. Does not remember what has just happened; dulness in head, so that he could remember nothing that had just happened, feet confused in head and distracted. Pressure inwards in forehead, it disappears in open air and on moving about, but returns when sitting still in house (x c.). Bleeding of gum, feeling as of pepper dust on tongue, with accumulation of saliva in mouth, immediately; salivation, with biting on tongue. Nausea an h. after dinner, and in afternoon; nausea at times almost amounting to vomiting, with kind of aversion to food, and with headache, for several d., the nausea is very peculiar, as if it were in a single place in stomach, extremely disagreeable, immediately caused by looking at sugar of milk, even as a globule, and even by thoughts of it. Pain transversely across umbilical region, in m., immediately after eating; sticking from within outward, in l. side of abdomen in r. Great itching in anus, in m. This stool in m. (after a few d.). Urine dark yellow, of colour of new copper coin, staining linen yellow, and depositing cloudy sediment, for several weeks. Want of sexual desire for several weeks. Stitches in l. nipple. Indolent, disinclined for business or study. Pain as if burnt on different places on tibia, at first itching, but after rubbing there appeared rather sensitive spots as large as a shilling, with dark blue-red margins and dry scurf; itching and papulous eruption on elbow-joint; itching over whole body,—in various places, especially lower leg and joints, also on upper arm, in r. Very sleepy in afternoon; falls asleep early in e. (*Ibid.*)

11. WESSELMORETT, from 30th dil. Impatient, desires positive answers when this is not practicable; unusually contentious and obstinate, so that he quarrels with everything about him; so quarrelsome that he disputes with a rooster about the age of her daughters, and accuses the younger to be the elder; writes a letter with numerous mistakes in spelling, without noticing them himself (in one who hardly ever made such mistakes). The throat feels swollen when swallowing; rawness in throat and swelling, painful on swallowing, especially on drinking; liquids cause more difficulty in swallowing than solid food. Stitches low down in fore part of abdomen. Cough in e.; violent, dry cough in e., with pain in trachea and horrible taste to expectoration as after eating salt fish. Itching on sides and short ribs towards umbilicus, in m., where there are red spots like bug-bites, increased in e. while walking, still worse in bed, at same time there are white hives on l. scapula, also involving whole back, on next m. these hives were red (3rd and 4th d.); small pimples, not unlike the vesicles of scabies, on face. (*Ibid.*)

12. KUMZ, from 30th dil. Congestion to head (8th d.). Burning in eyes (after 3th dose); flickering and jerking in r. eye, with violent congestion to head, relieved by moving about in open air. Stopped catarrh and dryness of nose. Frequent eructations of sour water an h. after dinner. Hemorrhoidal troubles, with rush of blood to head (after 3th dose). Constipation (after 8th dose). Frequent desire to urinate, without much discharge, drawing pains in small of back, which extend to hips (after 3th dose). Larynx affected; cough in e.; dry cough in e., and always with first cough a stitch through air-passages. Drawing pains in sacrum; intolerable drawing in sacrum and down into legs, especially noticed in ichia, frequently in e.; drawing extending from sacrum up back; drawing extending from back to hips, with urging to urinate. Drawing pains in shoulder-joint, in e. Jerkings; paralyzed feeling, especially in knee-joints, which gradually goes off while walking. (*Ibid.*)

13. KORN, from 30th dil. Throbbing in both temples, in m. on waking, lasting ½ h. (and d.). Pressure pain in r. orbit on moving lids (5th and 6th d.); he frequently wipes r. eye, thinking there is something on ball, with pricative pains in orbit; dimness of r. eye by candlelight, as if dust were on ball (5th and 6th d.), worse

* In a hot climate, and at a hot time of the year.

after a few dose; light dimness of both eyes, more of r. Thundering in both ears. Throat feels moist always on swallowing, for $\frac{1}{2}$ h., afterwards again pain on swallowing; pressure on throat on swallowing, as if a painful lump were in it; throat feels ulcerated on swallowing. Three watery stools, with burning in anus, in r. (2nd d.). Soreb through trachea, irritation to cough and dry cough. Pains in small of back, as if lame and weak. Vesicular eruption on l. navel. Once in ev. violent c. d. with chattering of teeth, and a feeling as of tetanus. (Ibid.)

16. MATTEA, from 30th dil. Aching or pressure neuralgic deep in forehead and l. temple. Feeling as if a crumb of bread remained sticking in throat, obliging her to swallow, somewhat relieved by hawking; audible beating of carotids, and feeling as though $\frac{1}{2}$ in chest and abdomen. Hunger, cannot wait for food; feeling of great hunger in stomach, as though one had to wait a long time for food. Rumbling and gurgling in abdomen; feeling of emptiness in abdomen. Soft stools of a bright yellow colour (6th d.), a soft but consistent stool (2nd d.). Frequent micturition. Cough seems to be excited by increased secretion of Muc. in larynx. Throbbing in chest and abdomen. Rheumatic pains in posterior portion of thigh. Small red pimples on forehead near root of nose. Sleepiness in forenoon. Burning in palms of hand and soles of feet. (Ibid.)

17. DE YOUNG, from 30th. Tensive pain in head, better from pressure. A burning in it, or fresh hot, much sneezing and fluent catarrh and hard stool (after 9th dose); tensive pain in whole head, better in open air and from pressure, with an intense, hard stool (after the 6th dose); headache, with nasal catarrh, full, hard pulse, and drawings in legs, pain as if swollen on angle in front of sternal process, worse when pressing upon it. L. half of tongue swollen, feeling as though it were r. after of mercury, soon after rheumatic pain. Swallowing difficult, it seems as though something were in throat that obliged swallowing (after 9th dose); swelling of r. cervical muscles, painful when taken hold of (after 4th dose). Larynx swollen, more or less, scraping somewhat also on pressing upon it, at same time is obliged to swallow (after 9th dose), the same on following d. rather increased; larynx seems r. r. swollen, and swallowing is difficult (4 h. after 6th dose); some hoarseness, r. r. swollen, and swallowing is difficult (4 h. after 6th dose); some hoarseness, r. r. swollen, and swallowing is difficult (4 h. after 6th dose); some hoarseness, r. r. swollen, and swallowing is difficult (4 h. after 6th dose). Stitches in chest, stitches through chest, when coughing; stitches in l. cost. on much worse on inspiration and coughing, afterwards some drawing pain in r. scapular, soon disappearing; stiffness and pain on pressure at insertion of r. serratus $\frac{1}{2}$ muscle, stitches in l. side of chest, worse when coughing and breathing together with sticking pains in l. knee, drawing in ilium and down into leg, stitches in r. ankle. Swelling of muscles of forearm, painful when grasping anything, a h. after 1st dose, disappearing during m.; tearing along ulnar side of l. carpus and r. scapular, extending to tips of both outer fingers, it is not so violent on r. side, c. d. more on 2nd d.; sticking pains in both hands, soon disappearing. Paralysed feeling in both sciatic muscles of thigh, which also feel swollen, disappearing overnight; drawing pain, as from swelling, in both knees, a sticking (after $\frac{1}{2}$ h.); crawling pain from r. knee down forepart of tibia to dorsum of foot and toes; drawing pain from both knee-joints; pain in tarsal bones; stitches in r. malleolus. After 7 doses symptoms became violent and constant, especially headache and catarrh, he then used of Lachesis 30th, whereupon everything was speedily relieved, especially the catarrh, and after 3 to 4 d. it disappeared. Small tubercles on r. forearm (3rd d.), soon gradually extend over whole body, except face, chest, and abdomen, very violent itching at n. in bed, afterwards eruption assumed different character, partly larger, like boils, bites, or insect bites, partly, after scratching, becoming like scariarina, or scabies, or prickly heat, and disappeared the 2nd d. (in June). (Ibid.)

18. HETTINGER, from 30th. Dull headache in forehead (after 2nd and 3rd h.). Defiant bearing. Quietness, with feeling as if he were very sick, was awakened thereby from a sound sleep, lasting several m. (4th d.). Pain as from a sprain in r. arm, in l. on exerting it (5th d.). (Ibid.)

19. SCHWABE, from 30th. Sticking drawing pain in r. eye, extending up to brow, in afternoon, lasting several m., eyes sensitive to light. Whole r. side of brow it is a very painful condition, and slightest pressure with finger increases the pain. Quietness and aching in abdomen and epigastric region, as if he would be vomited, a few m. after 4th dose, was obliged to loosen his clothes. Pain in abdomen, in umbilical region, as from diarrhoea, all d. Urging to stool at times without result, after 3 days; absence of stool, followed at last by scanty stool after great pressure,

with pain as if sphincter would be forcibly pressed asunder. Overpowering sleepiness in e., even during very interesting conversation with his friends can hardly keep awake; sleepy in e. earlier than usual; very sleepy in afternoon; dreams the whole n. concerning occurrences and business of d.; dreams of being accused of theft,—of a naughty cat, on whom he is determined to take vengeance, and therefore he has knives lying ready at hand in order to make use of them when the cat comes and shows himself insolent. (*Ibid.*)

18. LITCHER, *Case* 10th. Cararrh, which would not develop for long time, at last came on fluent, with sneezing; a sore spot beneath the nose that bleeds very much. (*Ibid.*)

19. Dr. H. B. FELLOWS took for a cough, being otherwise well, 3 pellets of 30th at 9 a.m. July 26th, 1864. Soon after upon began to feel great heaviness and lassitude all through body, particularly in back and legs; this increased in afternoon, but after supper partially passed off. Retired soon after 9; legs still ached all through, but especially about knees. 26th.—All well till after breakfast, when legs began to ache as on previous d.; they also felt very heavy. Same feelings, though in less degree, in shoulders and arms. General lassitude more marked than yesterday. Felt better after dinner. In e., while walking, pain deep in l. ear, or between ear and throat, worse when putting temporal and masseter muscles in tension; this pain soon subsided, and one came just above l. external malleolus, increasing on stepping, and lasting some time. On 6th and 7th lassitude still persisted, but he otherwise felt well. (*Am. Hom. Rev.*, v, 411.)

20. Dr. METCALF prescribed for a young lady, suffering from chronic headache, a dose of Lachesis 30 every 2, for 6 n. At the end of the time she complained of a new and annoying symptom. After taking 2 or 3 doses she had every evening from about 9 o'clock a little fluttering, nervous cough, apparently excited by tickling in the larynx, unattended by pain, expectoration, or any symptom of a cold. It came at no other time, and ceased on her going to sleep. The Lachesis was discontinued, and the annoyance disappeared. (*N. Am. Journ. of Hom.*, ii, 158.)

II. *Psittacings*.—1. The following are given by HERING as effects of bite of snake. Loss of consciousness, with vomiting and purging; loss of consciousness (2 d. after), with somewhat irregular motions of limbs, covered with cold, clammy sweat, pulse small, slow, almost imperceptible; loss of consciousness with loss of strength and disappearance of the pulse. Vertigo (chronic result); a condition similar to intoxication. Expression of pain in face with emia; face swollen, generally puffy; dryness in mouth and thirst. Constant inclination to vomit, with anxiety and oppression of chest. Neither stool nor urine for 7 d. (secondary effect). Pulse small and rapid, with hot skin. Bitten limbs became inflamed and swollen. Faintness and coldness, so that all the limbs became stiff, and he sank to the earth powerless (after 2½ h. he was found as above, and died in spite of all remedies: from bite of a serpent, "buschmeister," similar to the curucucu, in an Indian who had been bitten above elbow). He falls unconscious to ground, as if struck by lightning, has an involuntary stool and vomits; intolerable pains extending from the hand that is bitten to the chest; the place of the bite became gangrenous, hands and fingers became swollen and insensible, the inflammation extended to arm, swelling to shoulder, here and there gangrenous blisters (arm was amputated). Constant sleeplessness, very much exhausted. Constant fever with dry skin, dry mouth, and constant thirst; dry burning skin, dry coated tongue, constant thirst, small rapid pulse, weak eyes. (*Op. cit.*)

2. While engaged in a hand-to-hand conflict with yellow fever last year, I received a hurried call fifteen miles away to see a case of "snake-bite." My informant was a brother to the victim, and in

response to my questions said: "Hain't bin doin' nuthin. Hain't no whisky on the mountain, and hit's a d—d copperhead, doctor." Now this reptile is deemed by all mountaineers the most vicious and dangerous—striking silently, swiftly, deeply, and often fatally. I had never treated a case of this character, and therefore gladly seized this opportunity of witnessing and learning something new. So, turning my yellow fever patients over to a co-labourer, I rode to the cabin of my new patient on the mountain, and arrived about 7 h. after he had received his wound. When I entered the room the pitiable, trembling victim was lying on a couch before me. He was about 21 years old, heavy built, of sanguine-lymphatic temperament. His r. arm was bandaged, and his hand covered with saturated tobacco. Standing by his side I remarked the following symptoms: Trembling all over, rigors, hurried, laborious breathing; flushed face, eyes bloodshot and suffused with tears, great anxiety, voice tremulous and weak, extremities cold, pulse 110 to 115, small, jerky, wiry. Laying his hand over his heart, he said: "Here, doctor, I suffer the most. Hit's powerful sore. I know I'll die." Heart's action tumultuous, slight nausea, tenderness over the epigastric region, intense headache, photophobia, severe aching in back and limbs, tongue flat, spongy, with red edges, much mucus. When I had stripped off the bandages I discovered two small, penetrating wounds on the dorsal surface of the hand, near the knuckle of the second finger, about three fourths of an inch apart, from which oozed a watery substance, and around which the tissues were of a greenish hue, shading off into yellow from the wound. His hand was considerably swollen, as was also the arm up to the shoulder. I was surprised to see in the totality of the symptoms such a *fac-simile* of the train of terrible symptoms I was combating in the city. The case was a miniature mirror, reflecting, as it were, the condition of my patients in the city. With much confidence thought sped along the track of theory to conclusions; from conclusions rapidly to action, thus: First stage of blood poison; its similar, first stage of yellow fever. Decision: Acon. 1ss, 1 dr. to 5 oz. water; 1 teaspoonful every 30 m. till reaction sets in and perspiration freely follows, then every h. I ordered his hand plunged in as hot water as could be borne; hot bricks around and extra clothing over the patient. Result: Free perspiration in 1 h., with great improvement in his condition. Passed n. comfortably, and at 9 a.m., 24 hours from the time he was poisoned, I found him resting easy. A marked yellow tinge of the entire surface, with eyes and tongue deeply tinged; a general stiffness and soreness, with "tired feeling," took the place of the intense pain of the few hours previous; heart still painful. The next day he was up presenting all the appearance of one who had shaken hands with "Bronze John" upon short acquaintance and could not let go; a deep yellow pervaded the entire surface of his body. A month later I met the patient again. His hand was still puffy, with a general soreness upon pressure. (D. G. CURTIS, M.D., *Amer. Hom.*, Nov., 1879.)

LACTUCA.

Lactuca scariola, L. Strong-scented lettuce. Nat. Ord., *Compositae*.

I. *Proving*.—*r.* Man, robust and healthy, made several experiments.

a. In Feb., &c., he took 30 dr. of tinct. Immediately slight vertigo; in 10 m. hammering burning pain, transient, at a small spot in r. chest; on rising, sensation as if body swam in bed; sleep profound, but full of dreams; m., in bed, flying pinchings in epigastrium; after 8 h. on rising, head empty, with pressure from within outwards, in forehead and orbits; a h. later some dull throbs, and afterwards tension in l. ear; p.m., while sitting, painful vibration in limbs. Without note of time,—weight and pressure in occiput; vision a little troubled, with burning in eyes; after a soft stool, pressure in anus; after moderate exercise slight bubbling and oppression in chest; when he sneezes, whole chest feels sore; sense of heat in some fingers, leaving weakness in them; drawing in arms, especially from elbows.

b. In March took 30 dr. in m. During five hours some dull throbs in temporal region; soon after, slight burning in throat, dull drawing in r. elbow; in 3 h. transient pinching above eyebrows; in 3 h. humming and fullness in head, stool, with feeling of weakness and general lassitude, he would like to sleep, yawns and has flow of saliva into mouth, of acid taste; in 3 h. sense ofpressive weight in abdomen after breakfast; in 2 h. boring pain in inner angle of l. eye; in depth of chest sense of constriction, with weight, oppression, and heat, increasing and diminishing periodically through d.; in 24 h. desire for stool, with feeling of great weakness,—stool is, however, scanty and difficult; in 3 h. nausea and cramp at pit of stomach; on 1st d. transient drawing in anus; after working a short time in his room, felt as poorly and weak as after great fatigue; dull drawing and sense of weakness in r. arm; on 3rd d., great oppression of chest, with periodical constrictive pains at various points. Coryza, which leaves in nose a sore feeling, with dryness.

c. In April took 30 dr. Soon, sneezing with sore pain in chest. In 1/2 h. attack of creeping and tension in face; in 1/2 h. painful pinching in belly after breakfast; spasmodic tense pain in muscles of r. side of neck; in 1/2 h. eating bread and burnt leaves bitter taste in mouth; soon after, on sneezing, violent painful burning in chest, which afterwards changes into pressure; in 1 h. stool with general weakness, yawning, desire for sleep, and watering of mouth; in 2 h. dull throbs in r. chest, which leave these sensation as of convulsive twitchings; on 1st d. frequent eructations, and dull drawing in l. upper arm; on 1st and 2nd d. burning pain in lids, especially of r. eye, with disturbed vision and dilated pupils; frequent eructation.

d. In July took 30 dr. m. Soon after,pressive pain, with sensation of enlargement in globe of r. eye, and weakness of eyes; in 1/2 h. and 1 h. twitching in l. thigh; in 2 h. dull and weighing-down pain in occiput; in 2 h. rearing pain in r. forearm, followed by sense of paralysis in little finger; in 3 h. same in r. temporal region; in 5 h. sudden development of a painful spot near crown, pain aggravated by pressure; from 1st to 4th d. considerable collection of urine in bladder, causing pressure there; on 1st d. sense of fermentation in chest, causing sudden but transient oppression, followed by spasmodic pains externally; on 2nd and 3rd d. slight cuttings and pinchings at different parts of abdomen.

e. In Sept. took 1 gr. of milky juice riturated with milk-sugar. In some m. heat of face, with sense of swelling and tremor of lips; in 1/2 h. constriction and pressure in upper part of chest, with oppression and desire to yawn and stretch; in 20 m. tension in muscles of neck, both sides; in 1/2 h. acrid and sour eructations. Without note of time,—vertigo and heaviness in limbs; compressive pain in occiput; slight and transient heat in eyes; paroxysmal drawing in ears; saliva more copious than usual; dull throbs in lower part of r. chest, going towards back; frequent attacks of oppression of chest, as if weight were upon it, obliging deep breathing (yawning and stretching relieves momentarily); painful twitchings in hands; dull drawing pain and sense of stiffness in r. leg, ascending sometimes to haunch; drawing and stagnant feeling in r. leg, especially in repose.

f. In Dec. took 1 gr. of spirituous extract in water. Soon after, vertigo and

weight in head, especially at back, lasting a long time; some sharp shocks under l. lat ribs; much eructation; in $\frac{1}{2}$ h. same from r. hypochondrium to back, leaving dull pain; in 1 h. sense of fermentation rising from abdomen to chest; whole chest full, painful, as if bruised, and he feels a slight tremor there; while sitting bears forward, frequent desire to breathe deeply; in $\frac{1}{4}$ h. stool, preceded by urging and pinching; in $\frac{1}{2}$ h. slight quivering of lips; on rising from seat, tension in arms and thighs as though they were broken; in 10 h. presrive pain from wrist upwards, continuous in l. temporal region, sometimes extending through whole head, on 1st d. slight burning in eyelids while writing; humming in ears, e. in bed; pressure and fulness at pit of stomach; periodical pinchings above umbilicus, increased by crossing legs (also and and 3rd d.); strong pressure in middle of chest, and at other parts of \mathcal{C} , with constriction (also and d.); dull shocks from l. chest to scapula; pressure and working in chest, compelling rapid breathing; trembling and weakness in legs; on and d. less appetite for dinner; during and after meal, strong pinchings and cutting in epigastrium, forcing him to bend double; insufficient stool; sense of pressure and tension in vesical region; dull drawing at root of penis (also 3rd d.); tickling in throat, compelling cough several times; cold feet (also 3rd d.); but little sleep, without particular agitation; 3rd d., a pinching in bowels caused by flatulence; on the 4th day, collection of viscid mucus in throat and increased secretion of urine; 3rd d., repeated severe stitches through spleen. Without note of time,—some acrid eructations p.m.; oppression of whole chest, convulsive and dully lancinating pain, firing incl. in upper part of l. chest, whence periodically it spreads farther; in walking on open air, strange sense of weight on chest; a convulsive pain periodically traverses back in different directions; lethargic sleep at n., he cannot awake in m.; extreme vertigo at trifling cause.

2. In Jan. took 4 gr. of same. In $\frac{1}{2}$ h. vertigo in a warm room and sensation in head were too full; after some h., in open air, he feels extraordinary lightness; in 1 h. urging to urinate, with periodical drawing in glans, traversing whole body; in $\frac{1}{2}$ h. after slight mental strain, presrive frontal headache, involving eyes; on 1st d., in 10, vertigo on moving briskly upper part of body, and, while at rest, trembling and pulsation of head; all p.m. excessive weight in occiput; night periodically troubled for a moment by a slight veil, which spreads over eyes; whole afternoon presrive weight in occiput; slightest cough shakes head painfully, and for a long time leaves chest murmuring and pressure; some dull shocks in hypochondria, especially r.; on and d. painful erections in m. in bed; wakes with presrive frontal headache.

3. One tablespoonful of fresh juice, with water, taken on different occasions. Soon after dose, uncertain and staggering gait; within $\frac{1}{2}$ h., head as if too large, dulled, with slight vertigo; sense of coldness in region of stomach, not disagreeable; during the hours meal work impossible; sense of tension and pressure in occiput, with heat in forehead and cold hands. 1st d., very painful drawing at a spot on r. frontal bone, hurting when touched; viscid phlegm in throat; frequent disgusting mucus which causes transient cold feeling in oesophagus; dull shocks and shocks in l. hypochondrium, more rarely in l.; soon after food, gurgling in abdomen and sometimes slight pinching; sense of fullness in abdomen, especially r., impeding respiration, relieved by emission of wind either way; stools and urine more copious; sometimes slight burning in urethra, especially at orifice (also and d.); a little roughness and some scratching in throat; respiration oppressed, with need to breathe frequently and deeply (also and d.); drawing and tension in nucha, shoulder, and neck of neck (also and d.); periodical drawings in different parts of body (also and d.), great sleepiness, with frequent yawning; momentary chills run along back and back, face being warm; great oppression of chest wakes him at times during n., he lies up in much anxiety, and in m. is very fatigued. (DEWEY, *Trans. J. Soc. Med.*, ii.)

4. EMMET, *ac.* 34, took 20 dr. of tinct., and observed,—in 2 h., weight in head, with brief shocks in (especially l.) forehead; in $\frac{1}{2}$ h. dull headache. Without note of time,—frequent need of breathing deeply. (*ibid.*)

5. EMMET, *ac.* 36, took 20 dr. In $\frac{1}{2}$ h. violent pressure in region of orifice of stomach; in 1 h. borborygma, especially about navel; in $\frac{1}{4}$ h. violent pressing in orifice of stomach; in 2 h. presrive pain in hepatic region; in 4 h. presrive pain in forehead, increased by heat of room, and dryness in mouth without thirst; anxious full feeling in chest; in 6 h. violent cuttings with painful gurglings in whole belly,

followed by mucous diarrhetic stools; in 11 h. digging pain in hepatic region and oppression of chest, with dull pain under sternum; in 12 h., with frontal pressure there is laceration, as from thrusts with a blunt knife; in 14 h. difficult respiration, withpressive pain in pit of stomach; on 1st d., burning forehead, withpressive and burning pain, e.; belly tense, especially in region of liver, all e.; anxious sensation of fulness in chest, beginning 4 h. after dose, becomes stronger in e.; very sad humour; a. much agitated and full of dreams; next m., in bed, dull drawing pain in chest, increasing when he rises; head confused and heavy; pressure in stomach before taking food; hepatic region swollen, and pressure there causes a tensile pain; little sleep during and on 2nd n. from dyspnoea andpressive pain in chest; on 6th d. disagreeable hot sensation to throat. (*Ibid.*)

4. **TRZICL**, *nr.* 24, took 2 gr. of alcoholic ext. In 1/2 h. headache, slight, transient, drawing, from temple to forehead; in 1/2 h. slight oppression of chest, sides and front, followed by sensation of heat in rest of thoracic walls; soon after, end of tongue painful as if burnt, and pricking under r. arm. On 1st d. slight sensation of burning in gullet, e.; on 1st n. sleep full of dreams, contrary to his wont; on and d. head confused in m.; acute drawing in r. spermatic cord down inside of thigh; a cough with easy expectoration, which existed before the proving, becomes dry, squeaking, and painful; slight pressure under sternum, especially when hand is applied there. Without note of time.—horripilation as under all hairs.

b. Same took 40 dr. of tinct. Soon, tip of tongue painful as if burnt (and and d.). During five hours, in breathing deeply air does not entirely fill chest, without the least pain; on 1st d. peculiar indescribable odour in nose, with similar taste in mouth; slept well, but had bizarre dreams towards m.; on 1st and and d. very frequent emission of urine, clear as water; frequent cough. Without note of time,—pricking pain under skin in nucha, which little by little fixes itself on a small place in r. scapula.

c. Same took 4 gr. of ext. For several d. shouting in r. axilla, as if a small sharp-pointed body were there,—pain increasing on pressure with finger and on lifting arm; on rising in m. great weakness of limbs and disinclination for work; on 1st d. some prickings in anus towards e.; on and d. dizziness on rising; end of tongue painful as if burnt; strong drawing from r. spermatic cord to glans. Without note of time,—deglutition a little painful, with sense of rawness and burning in urethra; sleep profound and without dreams; continual shooting in r. axilla as from a pointed body increased by pressure and raising arm. (*Ibid.*)

5. **PIPAR**, *nr.* 21, took in 6 d. from 16 dr. to 1ss of tinct., and 30 gr. of ext. In 1/2 h. slight horripilation (on 4 occasions); in 1/2 h. pain in l. vertex; pit of stomach is contracted, and there is set up in stomach a slight pain, which pressure increases; in 1 h. confusion in forehead; soon after, sense of heat in stomach, with nausea mounting into throat and spoiled taste at root of tongue, after 1/2 h. changing to icy coldness in throat and stomach; constriction under tongue, as when one has worked ink; on 2nd d., peculiar tearing under pain on end of nose, p.m. Without note of time,—headache p.m. (on 4 occasions); during some m. humming in l. forehead; painful indefinite sensation in occiput and soon in whole head, all the m.; peculiar tearing-asunder pain at end of nose; need to breathe deeply; on 4th coc venation as if there was ulceration under nail, without any external sign of tenderness on pressure; formicating itching on toes of l. foot and fingers of l. hand; desire for open air; frequent yawning; lassitude for 22 h. (*Ibid.*)

6. **HEKKE**, *nr.* 28, took 30 dr. of tinct. About 1/2 h. after dose a severe indisposition began, becoming febrile (with pulmonary symptoms) on 2nd d. and lasting 1/2 d. and more. [As it is far more probable that this illness was of idiopathic origin than that it was excited by a small single dose of a mild medicine like L., we have omitted the symptoms.—Eds.] (*Ibid.*)

7. **a. NETOLITZKY** took 4 gr. of ext. in m. In 1 h. head a little confused; in 1 1/2 h. feeling of fulness in chest under sternum, rather on r. side towards clavicle, obliging deep breathing; in e. sense of weight on chest and of fulness in trachea; heat m., on walking, in upper front thorax sensation as after muscular fatigue, felt internally (especially to l.) as well as outside; unwanted repugnance to work, ill-humour, he cannot remain quiet.

b. Same took 6 gr. In 1/2 h. he seeks a long time without finding object; on moving head quickly sideways while bathing face, dull internal pain above l. temple, felt at every fresh movement for 1 h., less in repose; in 1/2 h. some transient pleuritic

shoot about chest; soon after, urging to cough; in 1 h. several empty eructations; dyes in trachea compelling deep breathing, dull pain in l. chest by middle of sternum, ceasing to deep breathing, which, however, increases it, soon after transient pain of same kind on r. side; in 3 h. some brief attacks of hacking increasing above par; urine more copious for 24 h. (so also in 7. a.); m. and d. pressure on both sides of chest, aggravated by inspiration, m. Without note of time,—sensation of dryness and wringing in larynx and upper chest, latter subsides, but fulness in trachea persists, relieved by bending backwards; dull, transient pain in deltoid and pectoral muscles extending to shoulders. (*Ibid.*)

1. a. HELMIG, æt. 38, took 40 dr. of tinct. In ½ h. a little headache, head as if full and confused; in 3 h. piercing drawing pain from r. submaxillary gland to tongue and ear; in 5 h., on scooping after dinner muscle voluteses before eyes. Without note of time,—smarting in eyes, especially outer canthi; contraction in l. hypochondrium, lasting several h., especially during repose; sudden shoot across l. hypochondrium after a meal; here and there in limbs slight subcutaneous pain, almost like pricking.

2. Same took 70 dr. In ¼ h. tightness in lower part of chest, making him dread to take a deep breath which causes a jerk. In 7 h. on coughing, pain in neck; on 1st and 2d. constrictive pain at lower and back part of arm, hindering movement. Without note of time,—biting in eyes, especially in outer angles, complete rubbing, but exacerbated thereby; sudden pain in lower l. molar as if a tender tooth had been twisted; pain in sole of l. foot as if he had trodden upon a stone; feet at rest, ceasing on walking; penetrating, constrictive, jerking pain in neighbourhood of flexures of body (especially in c. and m., and at rest), but feet those on exterior side; here and there pinching and pricking itching under skin, in sudden attacks, constrictive pains here and there in limbs, embarrassing their movements, of short duration, and changing to other parts.

3. Same took 100 dr. In 3 h. stronglypressive pains in one side of head, as if on bone, tearing pain in middle finger of either hand. Without note of time,—he has to urinate sooner than usual. (*Ibid.*)

4. PEAU, æt. 34, took himself and gave to a young robust woman 5—10 dr. of tinct. In ½ h. afflux of saliva; deglutition difficult, not as from obstruction, but as from refusal of muscles to perform their functions; in ¼ h. sight feeble, eyes as if covered with a cloud, which, however, disappears when gaze is fixed on an object; bloating at point of exit of submaxillary nerve; pressure at pit of stomach, with gurgles and borborygmi, with eructations which relieve only slightly and emissions of flatus which help more, changing soon to a slight anxiety, concentrating itself more under sternum, and alternating continually with sensations of heat and cold; continual craving for air; chest cannot bear any pressure, keeping upright re-veles it; in 1 h. mucus collects in pharynx; shootings in pylorus; roughness in larynx and after reading aloud in throat; dry cough shaking chest and occiput; in 2 h. pressive frontal headache becomes stronger and stronger, and is accompanied with sensation as if whole brain were loose; a small place on vertex is painful, especially externally (clarus, in the female prover); sense of fulness in abdomen; cough becomes stronger, attacks more prolonged, with expectoration of mucus; pain in spinal marrow even to ends equans and streaming along coccyx; in 12 h. voice somewhat increased in volume, after vesitation stupefying frontal headache, violent contraction of throat and disposition to weep; on 2d. d. swelling of lymphatic glands of lips; sense of sinking in abdomen, m.; after an erection in m. swelling of a lymphatic vessel in penis, lasting several d. Without note of time,—clumbliness and vertigo, without confusion of ideas; head confused for 12 h.; roaring in ears; tightening at pit of stomach, causing real precordial anxiety; dyspnoea for 12 h.; thorax as if compressed and drawn in, especially when sitting bent forward; something urges him to keep on his legs. (*Ibid.*)

5. A woman, æt. 16, who had had a child, took 20 dr. of tinct. In ¼ h. head goes round and round (for ½ h.); on 1st d. urticæ of oppression at chest involving heart, p.m.; sense of sinking in chest afternoon and e. Without note of time,—frequent eructations during d.; increase of appetite in m.; at n. deep sleep, but accompanied by distressing dreams, waking with heavy dreams; emissions of urine more frequent and more copious. (*Ibid.*)

6. A girl, æt. 15, took 20 dr. Soon after head empty and giddy, so that she

fears she will fall, as if she had passed a night without sleeping; in a h. shivering in a warm room; in a b. dull headache, especially in forehead; on sat d. in l. parietal bone a fixed dull pain on a small spot, p.m.; repugnance to food at dinner-time, and some nausea; heaviness of legs; on sat and sun d., from time to time a little dry cough; legs frequently numb. (*Ibid.*)

12. A girl, æt. 26, took 2—3 grs. of extr. with quite insignificant results save great lassitude and sensation of sinking in stomach. (*Ibid.*)

13. A girl, æt. 30, took 2 grs. In ¼ h., while working sudden obscuration of sight, her stitches ran together, but after a moment's rest she feels better (several times repeated in course of d.); feeling of cold and creeping in pit of stomach with several eructations; in first hours a shudder runs along back and head; on sat d. dull headache with great intolerance and physical prostration; after dinner gurglings in abdomen, and some dull throbs in precordial region; sense of oppression of chest, she must often breathe deeply and rise up and expand her chest for relief, in open air chest feels freer; she goes to sleep in afternoon while working; at n. sleep profound, but accompanied, contrary to her wont, with vivid dreams. Next period occurred about 6 d. in advance. (*Ibid.*)

14. A young woman, æt. 22, took 2 grs. Immediately and during d. several eructations at a time, recurring frequently, and relieving somewhat oppression of chest when present; in ¼ h. sensation of fulness in abdomen with periodical gurglings and emissions of wind; in 1 h., on each movement of head swaying and swinging in head so strong as to threaten giddiness from it, and must close her eyes to make it cease; on sat d. several dull throbs and sense of weight in r. hypochondrium; two loose stools, contrary to wont; sense of weight as from stagnation of blood in legs while sitting; great weariness and drowsiness all d.; she is sad, the least thing irritates and vexes her; irritation in throat, with sensation of tightness all over chest and compelling frequent cough (also sat d.). Without note of time,—she passes more urine and more frequently, she must even quite unwontedly relieve herself at n. (*Ibid.*)

15. A married woman, æt. 30, took 2 grs. of extr. Soon after, several drawings and twitchings in arms; in ½ h. head empty, with dulness; in first hours leebleness of sight lasting a few h. at a time; on sat d. fixed dull pain at small spot on l. parietal bone, p.m.; two soft stools; drawings in limbs and back; lassitude and somnolence, contrary to her wont; on sat and sun d. periodical cough in short paroxysms, shaking abdomen; anxious oppression of chest with tendency to breathe deeply and to yawn; dreams much at n.; and d., stool delayed 24 h. and hard.

16. Same took 20 dr. of tinct. Soon, slight burning in throat; in ½ b. slight roaring and sense of fulness in head and ears; in 1 b. a little roughness and some scraping in throat; on sat d. she had, as it were, an immense weight on chest, she must loosen her clothes, which seem too tight, breathing is difficult; several drawings from sacrum towards groin, e. slight shiverings during d.; sad humor. Without note of time,—she urinates more abundantly and more frequently, and must even relieve herself (contrary to her wont) at n.; menses 4 d. too soon with cramp in abdomen. (*Ibid.*)

17. After 0.2 grm. *Lactucarium** *austriacum* pulse fell from 75 to 68 in ½ h.; eructation, slight confusion of head, dryness of mouth, hoarseness, drowsiness, diminished temperature of hands; cheerful disposition as after-effect. In doses of 1½ grm. and upwards it causes stupefaction, vertigo, dilated pupils, sopor. (SCHROFF, *Pharmacologie*, 517.)

18. FACHMULLER observed, after doses of 20 to 30 grs., in most cases increased rapidity of pulse and breathing, increase of temperature, diminished secretion of urine; in some cases vertigo, confusion of head; rarely riresome dreams and noise in ears. (*Ibid.*, 518.)

19. WAMER took 4 grm. of extr. After 30 m. slight pressure in frontal region, gradually increasing, and at last becoming intolerable. After ½ b. diminished ability to think and general drowsiness. After 1 b. there still remained some dull headache, which lasted a good while longer. (*Wirk. der Arz. u. Gifte*, iii, 200.)

20. SCHREIBER and his companions proved L., taking ½ to 30 grs. of extr. at a dose. The sole results were—Confusion of head; drawing pain in forehead. Nausea and eructations (soon). Sensitiveness of umbilical region (soon); distension

* The inspissated juice.

of abdomen (wood), diminished peristaltic action of bowels. Stool scanty and dry. (*Zand. & Ges. d. Arztl. u. Wiss.*, 1843.)

10. Doses of gr. iij—v of Lactucarium caused a peculiar indescribable feeling of lightness of the whole body. Gr. vj—viij increased the feeling of lightness, caused dilated pupils, but no narcotic symptoms. Gr. vj, taken immediately after a meal, caused derangement of digestion, pressure in stomach; following d. stony mouth and fetid loq. e. He felt rather disinclined for work, and cross. After a similar dose e. he always slept well and woke much refreshed, but on repeating this dose several successive e. he was felt very exhausted and looked ill for several d. On taking a similar dose every 3 or 4 h. all e. the pulse sank from 73 to 67 and at last to 60; the temperature fell simultaneously about 1½° R. Sleep restless and not refreshing. Gr. x to xx caused nausea, pressure in stomach, and outbreak of cool sweat, oppression of breathing, cool feeling in throat, great exhaustion, vertigo, considerable dilatation of pupils, yawning and twitching of limbs. Next d. sleep long and restless; on waking weariness and great prostration as though he had not slept. Pupils very dilated, tongue with a thick slimy coating, taste flat, no appetite, great discomfort, pressure in stomach, pains in shoulders and peculiar weakness in legs, so that he often staggered when walking. Occasionally diarrhoea, sometimes constipation. Symptoms relieved by a few dr. of acetic acid followed by a glass of huck; coffee had less effect on the symptoms. After 3 there was great dilatation of pupil and imperfect sight, which continued several h. after a sleep of 14 h. On waking, great prostration, pain in limbs, hands and feet cool for several h., anorexia. (*ROTHMULL, Heidel. H. Annot.*, v, 2, 184.)

11. *Fevers.*—1. On March 15th, 1846, a family of 4 sat down to supper at 7, salad consisting of dandelion, chicory, and wild lettuce (*Lactuca scariola*) being served up. They all partook of the salad, except one, the uncle, who rejected the lettuce leaves, eating only the dandelion and chicory. They went to bed at 9, and the uncle slept well and experienced no ill effects. A workman, one of the number, et. 25, and of robust health, was waked up about 11 o'clock with sharp, colicky pains, soon followed by nausea and vomiting, which lasted all n. He fell asleep at 5 a.m., but in a.m. was unrefreshed to find himself unable to distinguish objects clearly. He was unable to read either small or large print. The mother, a woman of lymphatic temperament, had colic all n., but vomiting did not set in until 13 h. after the meal. The residual matter consisted of the supper, including the salad. Her vision was affected like that of the workman. A healthy and intelligent boy of 10 was the other victim. About midnight he became affected with lively delirium, which increased until m.; he jumped about on the bed, sang, and played all sorts of pranks without their being able to quiet him. He had no colic and no vomiting. Dr. Rief was called at 4 a.m., and was struck with the unusual appearance of all three. The pupil of all of them were widely dilated, especially the child's, in whose case only a narrow rim of iris was visible. They were entirely unable to see anything clearly. The child, who was very intelligent, endeavoured to read the letters forming the heading of the newspaper; he mistook M for P and O for V. The effort caused considerable congestion of the eyes. In the delirium he had hallucinations, seeing an Indian a soldier, an inkstand, &c. All 3 had several liquid stools. At midday they were in the same state, but by 5 p.m. were improving. The child was still delirious, however. This lasted till 4 a.m. the following d., when he fell asleep. By 8 a.m. next d. they were well, except the boy, who had some headache; some slight dilatation of the pupils persisted in them all. None of them had any fever or any other abnormal symptoms. (*Bull. Gén. de Thérap.*, 20, 301.)

2. TOTT, in the case of an Italian, whom he was treating for a slight febrile attack, with great sleepiness, observed, after a gr. of lactucarium given at 9 p.m., great weakness, insensibility, general relaxation, pain in limbs, distorted features, pale face, dyspnoea, diarrhoea, trembling of hands, vertigo, staggering gait, nausea, white tongue, inclination to vomit, and sleepiness, but inability to sleep. (*Rand's Mag.*, 246, 143.)

LAPPA.

Arctium Lappa, L.; Lappa major, Gaertner, officinalis, Allioni. Burdock. Naz. Ord., Compositae.

1. *Proving*.—L. A. Dr. JEWES, *et.* 45, took about 17 a.m. 2 or 3 dr. of rad dil. in $\frac{3}{4}$ of water. These followed tickling in rima glottidis, with loose-sounding cough, but no expectoration; pain about l. 6th and 7th ribs; chilliness; pain in lower extremities, as if fatigued; severe tingling, with acute cutting pain under sternum, about insertions of 4th and 5th ribs, and extending across chest; oppression of chest, especially in sternal region, with shortness of breath on exertion.

5. "Wishing to take a drink of water before retiring to bed, I took the tumbler which had contained my foenogon dose, and rinsed it well. I then drew and drank one or two tumblers of water. I had not taken it a m. before I was affected with the chest symptoms already described, with (in addition) aching of throat and violent constrictive feeling; pain in head, extremely rapid pulse, with intermission about every 2nd or 3rd pulsation; pain in region of heart, and at same time in anterior muscles of r. thigh, also in back about 11th dorsal vertebra. The pulse became fuller and slower, but seldom went more than 2 or 3 pulsations without an intermission; bowels were opened 2 or 3 times, as if purged, with some abatement in violence of symptoms; mind much agitated, more from the distressing feelings than from fear of death, which nevertheless is present. Symptoms continued violent and distressing through greater part of n." (*Medic. Monthly*, iv, 51.)

2. A. Dr. R. P. MARCZA, July 2nd, 1860, took 10 dr. of a stroop tinct. in water on rising from bed in m. and before bedtime. During greater part of d. slight uneasiness in abdomen, with rumbling and rolling about in bowels. 3rd.—10 dr. m. and e. as before. During d. slight numbness and tingling in dorsum of l. foot. 4th.—30 dr. m. and e. Same sensation in foot. 5th.—Much dreaming in n. (unusual); woke with dull gnawing pain in l. hand, extending from wrist to ends of fingers, also intermittently in knee-joint. These pains were relieved by motion, but came on again during rest. Took 30 dr. in m. During d. pains in hand and knee continued, involving r. hand; also at times sharp sticking pain in r. elbow and over l. eye, sometimes extending to top of head. 8th.—Woke in m., after a n. of dreaming, with white-coated tongue. Took 30 dr. in m. Pains continue, and affect also both feet and hip-joints; pain in abdomen is still felt shortly after each dose; tearing down in bowels, before stool. 7th.—N. as last. Took 40 dr. No fresh symptoms. 8th.—Discontinued drug, being called away from home, but symptoms continued as before, those of head being somewhat aggravated. At times through d. sharp, shooting, wringing pain, as if struck by a hammer, at base of occiput immediately behind ear. After a few d. pains gradually subsided, lingering longer in hands and lower extremities.

6. On 16th, 20 dr. m. and e. Shortly after first dose usual abdominal uneasiness. Pains in hands, knees, and ankles, which had not entirely left, were slightly aggravated by noon, and again after e. dose. 17th.—10 dr. in m. Pains in hands, and in knees extending to ends of toes, quite annoying; pain in forepart of head, sometimes subsiding, then coming on again with sharp shooting stitches, and gradually settling down into its former dull, heavy ache. In e., 15 dr. 18th.—At 6 a.m. 10 dr. In $\frac{1}{2}$ h. slight pain in abdomen; pain in hands and feet continues; sharp shooting pains in elbow-joints, extending down to hands; darting pain in shoulder; heavy laming pain in r. groin. Sharp shooting pain in base of occipital bone, extending up into head; ear-ache; pain in hypogastric region. At 9 p.m. took 25 dr., and retired for n. Pain worse for a time after going to bed, but subsided after an h. or two, and sleep was good. 19th.—At 6 a.m. 30 dr., and at 12 a.m. 35 dr. Nausea and pain in abdomen after taking food; sharp sticking pain in shoulder, extending along clavicle and sterno-mastoid; sharp constrictive pain in and above elbow. At 9 p.m. 40 dr. Acute colicky pains in abdomen and in region of liver. 20th.—At 5 a.m., and at 2 and 9 p.m., 50 dr. Symptoms as yesterday, with addition of twitching pain at times in muscles of chest. Appetite decreased. 21st.—No medicine. Symptoms

is heretofore. 22nd.—Symptoms considerably relieved, some altogether subsided. Pain in joints still quite perceptible, especially those in hands and feet. There were the intent to leave, continuing still for several d. (*Ibid.*, *eviii*, 247.)

3. Mrs. H., æt. 24, mother of 3 children, now nursing one of a mo., leucopneumatic temperament, mild and good-hearted disposition. Took ʒi. of fine dul. every 4 h., with idea that it might benefit infant's crura lactea. Next d. headache set in, principally over l. eye; she described it as a full, pressing feeling as if eye would be pushed out of head; also pain in whole frontal region, constant, worse on stooping. After taking drug for 4 d., at 10 p.m. chilly sensation as if cold water had been poured over her, with continued thirst; next d. felt chilly all over, particularly in back, abdomen, chest, and head; great thirst, feels as if ague would set in. The following m. sweat over entire body, with exception of head; during sweat feels chilly externally, surface being warm. She now discontinued medicine. Next m. hæmorrhage; and following d. discharge of bright red blood from vagina took place, and lasted all d. Next d. was free from all symptoms; and being assured that medicine was innocuous took all left (about 60 dr.) at a single dose. This was followed immediately by continuous chilliness lasting all d., with great thirst and vertigo in whole region of liver, and severe frontal headache; also great pain in r. shoulder so that it was impossible to lift arm. In e., slight fever and at n. sweat. Next m., still headache and pain in shoulder, and liver so sore she could not lie on r. side. Between 1 and 2 p.m. a regular paroxysm of chills and fever set in, with increase of same symptoms, followed by excessive perspiration; thirst during all stages. In e., pain in r. shoulder being extreme, sanguinaria was given, which relieved; and next d. she was quite well. (*UNLEIGH'S, St. Louis Clinical Review*, v. 170.)

LATHYRUS.

Lathyrus sativus and *L. cicera*, L. Teori, kevari (*Ibid.*), pois de brebis (Fr.).
Nat. Ord., Leguminosæ.

II. *Poisonings*.—1. In 1829–31, the wheat crop failed in a district of India. During these three years the teoree (or kearee), the *Lathyrus sativus* of botanists, remained uninjured, and thrived with great luxuriance. In 1831 the natives reaped a rich crop of it from the blighted wheat-fields, and subsisted upon its grain during that and the following years. In 1833, the younger part of the population, from the age of 30 downwards, began to be deprived of the use of their limbs below the waist by paralytic strokes, in all cases sudden, but in some more severe than in others. No person once attacked has been found to recover the use of the affected limbs. All stated that their pains and infirmities were confined entirely to the parts below the waist. They described the attack as coming on suddenly, often during sleep, and without any warning symptoms whatever; and stated that a greater number of young men were affected than young women. (*SLEEMAN, Rambles, &c., of an Indian Official; from Brit. Journ. of Hom.*, iii, 257.)

2. Three brothers, æt. 28, 20, and 10 respectively, ate daily for several weeks flour of *L.* mixed with Indian corn. The following effects were observed:—The gluteal muscles and those of the lower extremities were obviously emaciated, while the upper limbs retained their natural appearance. While lying in bed, extension and abduction of the legs could be well performed, but flexion and lifting up the limbs were difficult. In the eldest patient, the l. extremity was decidedly

weaker than the r. The youngest could stand and walk; to do either was difficult for the eldest and impossible for the remaining patient, without a firm support. All three when walking threw the chest well forward, the haunches projecting behind, so that they seemed literally to fall from one part to the other. They also misplaced the feet, which by two of them were brought too close to the median line, and sometimes passed beyond it, causing their legs to cross each other and tangle up; the third and worst affected, on the contrary, walked very bow-legged. The whole weight of the body rested on the metatarsophalangeal articulations, the heel never touching the ground. Walking backward was similarly effected, but was still more difficult. When told to stand steady, two of them obeyed with great difficulty, and for a few minutes only, if not firmly supported; they swayed widely forwards and sideways, and seemed in constant danger of falling; they instinctively sought to keep their balance by pressing with the hands upon the hips. Shutting their eyes while standing or walking in no wise modified their attitudes and movements. (CANTANI, *L'Art Medical*, Aug. 1874.)

3. The first symptom of illness in several cases of poisoning by *L. cicera*, as observed by Brunelli of Rome, consisted of debility and tremor in the legs; the patients had the appearance of being drunk, more especially after meals, when the lathyrus bread had been the only food taken. If the use of the bread were then discontinued, the people got quite well again; but in those whom poverty obliged to go on with it for a month at a time, the disease made rapid progress, and after 2 or 3 mos. presented the characteristic aspect of spastic paralysis. There was great stiffness in the legs and impaired power of walking; the steps were short, and the feet dragged on the ground; the legs were approached to one another by rigidity of the adductors of the thighs; the toes were contracted in flexion, and the heels lifted from above the ground by contraction of the gastrocnemii. Muscular nutrition was not impaired; there was no affection of the sensibility or of the special senses, the sphincters or the brain. The tendon-reflexes were exaggerated, more especially as regards the rapidity with which the leg was jerked forwards on percussing the patellar tendon, and less so with regard to the extent of the movement produced. These symptoms are due presumably to sclerosis of the pyramidal strands of the cord. (ALTHAUS, *Brit. Med. Journ.*, 1884, i, 984.)

4. The following are the histories of two cases reported by GIARGISRI of poisoning by bread made with flour of vetch (*L. sat.* and *L. cicera*). The patients were brothers.

a. L. A—, æt. 17, had an excellent personal and family history; for a year past his diet had chiefly consisted of bread made with vetch-flour. At times he had also eaten the vetches green, causing nausea, vomiting, giddiness, ringing in the ears, stupidity, &c. These symptoms gradually increased, and he noticed a tremor of the upper extremities, which became exaggerated on taking up or putting down anything. He gradually lost power in his legs, which felt heavy, with vague pain, formication, and sense of cold. When admitted, he was not able to stand without the support of a stick. On inspection the legs were not

wasted, but the abductors and flexors felt hard and contracted. His gait was uncertain and staggering, the r. leg being rather the stronger; he lifted his feet with difficulty, often dragged them, and put them down suddenly and forcibly as if they were heavy weights. The floor, he said, felt irregular, and he was obliged to keep his eyes fixed on the ground to guide his feet. He rested all his weight on a stick. With his eyes shut his movements were still worse, and he felt as if standing between two abysses. Without his shoes, too, he walked worse. In bed he could not sit up without helping himself up with his arms, nor move his toes, nor flex or extend the foot on the leg, or the leg on the thigh, or that on the pelvis completely. Sitting on a chair he could not extend his legs, nor cross them. The tendon-reflexes were exaggerated, voluntary movement of the abductors and adductors and rotation of the foot were impossible. Tactile, thermic, dolorific and electrical sensibility were perfect. The temperature was normal. Nothing could be seen in the blood at first or after cultivation. The urine was normal, there was a slight increase of urea.

4. In M. L. T—, æt. 11, brother of the above, the symptoms were much the same, but less advanced. In the movement of the lower limbs it seemed that the execution of the will was opposed by the spasm of the muscles antagonistic to those which should perform the movements. The tendon-reflexes were exaggerated in both cases. (*Lond. Med. Record*, 1883, p. 436.)

5. In the *Indian Annals of Medical Science* for July, 1859, Dr. Irving reports some cases of poisoning by L. He had assembled together all the lame people from several villages near Allahabad—about 50 men in all. Without exception, they all stated that they had become paralytic during the rains, in most cases suddenly so; and several stated that it had been during the n. Men who had gone to bed quite well had awoke in the m. feeling their legs stiff and their loins weak, and had never recovered. At first the lameness was trifling, and amounted only to unsteadiness of gait and slight stiffness, chiefly of the knees. After a time the muscles of the thighs commenced to ache and feel weak, and also the loins. All denied having had severe pain; while ascribing their malady to the lathyrus bread, the patients considered the conjunction of rainy weather as necessary to produce it, as they had been exposed to the wet about the time of the disease. They had no symptoms of fever, the spleen was enlarged in only one of the patients, and there was little or no wasting of the muscles of the legs. Males were more frequently affected than females. The upper extremities are said not to be affected. It is to be observed that the ground is swampy in the neighbourhood where the paralysis prevails, and that the water used is highly impregnated with saline ingredients. (*Ranking's Abstract*, vol. ii for 1860, p. 89.)

6. PROUST reports to cases of lathyrism seen by him in Algeria, and remarks upon the great similarity of all the cases both in the symptoms, mode of onset, &c. His *résumé* is as follows:—In all the cases the onset was sudden, often after a cold damp n.; the patients suffered from pains in the loins, often extending to the lower limbs and sometimes to the upper limbs, in which slight trembling occasionally occurred. In

some cases anæsthesia (sometimes complete) of the lower extremities existed, and in all cases more or less motor paralysis; incontinence of urine existed in all the cases and some interference with the generative functions in most. The gait was characteristic and peculiar; the foot was extended and adducted, the heel being raised off the ground; the muscles of the lower limb were contracted, and the deep reflexes exaggerated, both of knee and foot. The anæsthesia and the affection of the urinary and genital organs tend to lessen or disappear, and in some cases the patients have perfectly recovered without any treatment. Some patients are reported to have had vertigo and weakness of the arms; in animals attacks of suffocation and of wheezing ("roaring") are common. The author attributes the condition to a transverse myelitis due to hæmorrhage, and followed by degenerative changes. (*Bull. de l'Acad. de Méd.*, 2^e S., xii, 829.)

III. *Observations in animals.*—1. Cases recorded by Principal McCall, of the Veterinary College, Glasgow.

a. An aged horse died suddenly. Autopsy:—The mucous membrane of pharynx irregularly congested, some parts dark coloured, some red, some apparently healthy. There was considerable serous exudation in the submucous tissue, also irregularly distributed; similar conditions some distance down trachea. At the division of the bronchial tubes the membrane was again congested, and in the small tubes it was completely black. Lungs congested; bronchial tubes contained a fluid mixture of mucus, blood and air. Heart enlarged and pale; near apex, on l. side, was an irregular patch of darker colour; pericardium was dark and contained fluid. The stomach contained a large quantity of food, very dry, and of a disagreeable odour. The mucous membrane was irregularly congested.

b. Another animal was minutely examined during life. At rest it seemed in perfect health. After a slight exertion, it presented following symptoms:—It stood with forelegs forward, neck stretched, elbows out, breathing laboured; could hardly stand. Mouth kept wide open and tongue out. Each respiration was accompanied by a loud sound coming entirely from larynx. Profuse sweat all over; pulse quick, irregular, and intermittent. Impulse of heart increased; venous pulsation; vibration felt over larynx; temp. normal. When at rest these symptoms disappeared as quickly as they had appeared. These animals had been fed on a diet containing *Lathyrus sativus*. Two horses fed similarly for experiment developed similar symptoms to the above.

c. Another horse was fed on as large a proportion of the food as it would take, at first chiefly lathyrus, but subsequently less than half. An eczematous eruption appeared on back and withers. The pulse-rate rose from 52 in health to 70—80 after feeding for 50 d.; the respiration lessened in frequency (after first increasing for a few d.) from 14—9 when at rest. On exertion pulse 154, resp. 28. By the 32nd d. limbs very weak, fell more than once; hair fell off rapidly; no parasite found. Autopsy:—Peritoneum healthy, contained Oas of red-coloured fluid like serum. Stomach nearly empty, food of acetic odour; walls thickened and irregularly congested, in some places nearly black;

mucous membrane was separated from subjacent tissue. Intestines contained undigested food firmly adherent to walls, which were thickened; mucous membrane as in stomach. Pericardium irregularly discoloured, 2½ oz. of same kind of fluid as in peritoneum. Heart large, soft and irregularly marked, valves healthy. Lungs healthy, trachea also; larynx irregularly congested, especially about glottis; liver dark, soft and friable. The absence of marked respiratory symptoms may be accounted for by the fact that the horse had been kept at rest and was killed before the disease had itself produced a fatal result. The blood on microscopical examination showed no micro-organism during life. The ganglionic cells of the motor cornua of the cord were diminished in number and atrophied, especially just under the medulla, where the neuroglia was increased, and some of the cells had undergone pigmentary degeneration, and had lost their processes. Also, thickening of coats of small arteries in the grey matter. The muscular fibres of intrinsic muscles of larynx, though still striated, showed fatty change, between the fibres much fat; muscles of left side were most affected, especially crico-arytenoideus posticus. Heart-muscles similarly affected. (Prof. McCall enters into an elaborate and conclusive argument showing that the poisoning is due to some specific poison of the lathyrus, and neither to diet nor to bacilli administered along with it.) (*Veterinarian*, 1886, pp. 789—801.)

2. *Messrs. LEATHER and SON* report cases very similar to the above. The *post-mortem* examination revealed to the naked eye chiefly the result of asphyxia. Microscopically in one case several of the intrinsic laryngeal muscles of the l. side were fatty degenerated, and the l. recurrent laryngeal nerve was smaller than the r., and fibrous on section. In 3 cases examined, the l., and in 2 of them also the r. recurrent nerves were atrophied and fibrous. The motor cells of the medulla and the vagal and accessory nuclei were noticeably atrophied. The motor cells of the cord were atrophied and degenerated as the above case, and the neuroglia was increased in the grey matter. In one case early descending changes were found in the upper part of the lateral column. In the grey matter especially the arterioles were thickened. (*Veterinary Journal*, April, 1885, p. 233.)

LEDUM.

Ledum palustre, L. Wild rosemary, marsh tea. Nat. Ord., *Ericaceæ*.

1. *Frønings*.—1. *HANNEMANN*, *Mat. Med. Pura*, part 4 of original, vol. ii of translation. Contains 186 symptoms from self, 148 from six others, and 4 from authors.

2. *LEMSKE* took, Aug. 12th, 1848, 7 a.m., 5 dr. tinct. 8 a.m., eructation of air with smell and taste of med. Chilliness in back, repeatedly; head dazed and giddy. 9 a.m., pressure in r. zygoma and r. toes. Drawing in bones of head, r. side, coming and going. Pressive pain in pit of stomach, increased by drawing in abdominal integuments.—13th, 6.30 a.m., 10 dr. Heaviness in sinuiput. Nausea,

eructation of air. Pressive pain in lower part of l. leg, r. knee, lower part of l. upper arm, 1st phalanx of r. middle finger, thoracic wall under r. nipple, worst when walking. Wandering cutting pains in abdomen, increased by drawing in integuments. Nausea long continued. In bones of l. leg, especially their lower part, severe pressive pain, when sitting forenoon, which lasts 2 h. Chilliness in back. Boring in r. inner ankle in bed, &c.—16th, 6.30 a.m., 15 dr. Drawing in lower part of bones of forearm. Shooting in anterior part of l. shoulder-joint, and occasionally in lumbar muscles. Eructations with taste of med. Dazed in head. In l. middle finger feeling as if nail were raised up by pressure from below, prickling in tip of finger; this feeling continues in every position of hand, and varies in severity, lasts some h. Much saliva, constant nausea. Drawing in r. tibia. Nausea, weak feeling, general perspiration, which becomes cool, with cold hands and feet, and horripilation through back from 12 till 1.30 p.m.—18th, 6 a.m., 20 dr. For last 3 d. pains at junction of nasal cartilages with nasal bones, most when touched; in each nostril much thick mucus; breathes with difficulty through l. nostril, as if m.m. were swollen. For some d. on l. temple and cheek some red painless pimples, slightly elevated. 6.45 a.m., tearing in frontal bones and l. toes, and in joint of r. big-toe. Much saliva, nausea, yawning, cold hands, frequent chill through back. Drawing in l. tibia, posterior border of r. scapula, r. deltoid muscle where it is attached to humerus, in muscles along dorsal vertebræ, in r. parietal bone, r. toes, soft parts above l. knee. 8 a.m., pressive feeling in chest; drawing in l. side. Noon, pressure in r. ankle-joint. Painful feeling of weakness in l. leg, and pinching in tendons and dorsum of l. foot. 12.30 p.m., sneezing several times caused by tickling in l. half of nose. Constant nausea. 3 p.m., tearing on dorsum of r. foot. Shooting in ball of l. foot and above l. knee, and above r. wrist on its dorsal aspect.—19th. Frequent sneezing, much nasal mucus, pressure in forehead, occasional drawing in knees. Tearing in frontal bone, l. side, &c. No stool.—23rd, 6.30 a.m., 30 dr. 6.45 a.m., rumbling in belly. 7.15 a.m., confused in sinciput, increased saliva; while sitting persistent pressure on chest and behind 7th and 8th l. costal cartilages, peculiar obtuse pressure on both sides of larynx. 8.15 a.m., pressing in l. elbow, tearing in frontal bone. 9 a.m., frequent call to urinate; eructation of air, anorexia, warm feeling in stomach. Shooting in larynx, bringing tears into eyes. Drawing alternately in l. leg, r. knee, l. hip-bone, l. thoracic wall, l. lower jaw-bone, r. wrist. No stool and less urine to-day.—24th. On rising m. pain in r. knee when moved. 6.45 a.m., 40 dr. 7.15 a.m., prickling at orifice of urethra, dazed and heavy in sinciput, boring in l. lower maxilla, drawing through l. leg; nausea and increased saliva. Tearing from lower part of l. upper arm, through elbow to upper part of forearm, repeatedly, pressure in dorsal muscles r. side, also in great trochanter and os ischii, l. side. Pressure on upper part of chest impeding breathing, tearing in l. tibia; prickling in borders of r. eyelids towards inner canthus; tearing in frontal and parietal bones; shooting and tickling in larynx; pressure in temples, worst in l., prickling in l. eye towards inner canthus. 8.15 a.m., shooting in l.

2nd and 3rd toes. Drawing in r. ankle and muscles about l. shoulder-joint, severe tearing in r. humerus. 9.15 a.m., frequent chill through back with cold hands. 3 p.m., pain in joints and limbs, increased by taking wax. In e. the shooting in l. tibia, and pressure l. temple and l. knee increase. 9.15 p.m., drawing in l. 4th and 5th metacarpal bones. Crine scanty.—25th, m., shooting in l. knee. 10 a.m., tearing in r. metatarsus and in frontal bone. Pressure in bone behind l. ear. Boring in upper border of l. zygoma. Frequent call to urinate all d. 9 p.m., pressure pain in 1st joint of both big toes.—26th, 6.30 a.m., 50 dr. 8 a.m., drawing under scalp from crown and sides to forehead, great chilliness in back, cold extremities. The chilliness first between shoulders, later in lumbar region. Increased saliva. Shooting in colon, drawing in joint of r. big toe, in l. hip-joint, in frontal bone. Call to urinate all d. Much borborygmus. Tearing in l. sole towards its outer border. Pricking in r. big toe. Dull pressure deep in sides of lumbar vertebræ. Shooting in r. shoulder-joint, with pressure in muscles running over it, more when at rest. 10 a.m., voluptuous tickling in orifice of urethra repeatedly. Tearing in upper part of l. ankle-joint. Boring in frontal bone, l. side, and l. temple. Drawing in dorsum of r. foot, boring in l. trochanter and tuber ischii. 4 p.m., several times during d. violent cutting pains in umbilical region, with drawing in of abdominal integuments. All symptoms worst when at rest. Stool firm and scanty. Boring in r. parietal bone. Obtuse knocking pains in and behind sternum.—27th, 8 a.m., knocking boring pains in and behind l. trochanter, drawing in r. forearm. 10 a.m., boring in first joint of r. thumb, with stiff feeling. Frequent call to urinate all d. Small pimples at root of nose. 4 p.m., severe boring in r. maxillary joint. 6.30 p.m., boring in 1st joint of r. big toe. Drawing from l. thigh to knee. Occasionally during d. commencement of nausea, but appetite good. Shooting in l. knee, boring in r. ankle, instep, and toes.—28th, m., boring under l. elbow, in r. ankle while sitting. 3 p.m., repeated boring in l. temple. 4 p.m., pressure in l. side of lumbar vertebræ. 4.45 p.m., drawing from r. axilla to inner side of upper arm. Obtuse pressure in lower part of radius and ulna extending to wrist and metacarpus for a long time. Tearing in r. parietal bone, in bones above l. ankle, with tired feeling in tibia under r. knee, in l. heel. Boring in l. lower maxilla, then in l. tibia. 5 p.m., pricking in top of r. big toe.—29th, 6.30 a.m., 40 dr. 7 a.m., tearing in r. metatarsus, drawing in l. fibula, dull boring through frontal bone, pressure in r. zygoma, in r. external ankle, when sitting. 7.45 a.m., eructation of air repeatedly, much rumbling in abdomen, chilliness in lumbar region, shooting and pressing in 1st joint of r. thumb and ring finger when at rest, shooting in 1st joint of l. big toe; pressing in l. temple. Obtuse pressure in l. of lumbar vertebræ. Pricking in upper and inner aspect of r. upper arm. 8.30 a.m., painful stiff feeling in l. wrist, elbow and knee. Pressure in r. maxillary joint, l. thoracic wall. Feeling of plug in throat making him swallow, repeated at n. on going to bed. 9.30 a.m., pricking at end of urethra, calls to urinate very frequent all d., increased saliva. Tearing in l. parietal bone. Noon, painful weakness above l. elbow and in l. knee, frequently.

Pinching in outer border of foot, spreading to dorsum of foot. Scraping in throat, c. Cutting burning pain in skin above nose-root, in a small spot. Drawing in flexor aspect of r. toes when sitting.—30th, 7 a.m., 20 dr. Yesterday and to-day burning and redness in the fold of skin between *alae nasi* and cheek. 8 a.m., shooting in orifice of urethra, call to urinate, drawing in frontal bone. 8.30 a.m., drawing above l. elbow, l. tibia, dorsal muscles, l. metatarsal bones, shooting in 1st joint of r. big toe. 9 a.m., tearing on inner side of l. ankle-joint, nausea, boring in r. knee on inner side of patella. 9.30 a.m., obtuse pressure in pit of stomach increased by drawing in abdominal integuments, cold feeling in lumbar region, borborygmus. 10 a.m., boring in l. *tuber ischii* and l. tibia above inner ankle, boring in l. parietal protuberance, heat in head, especially *sinciput*, with weight. Pressure deep in l. side of lumbar vertebræ. Abdomen distended by flatulence, eructation of tasteless air. Boring in r. instep under inner ankle, and in l. 1st and 2nd cuneiform bone when walking, painful shattered feeling in muscles at back of l. thigh to knee, when walking and standing, tension in lower part of both calves when walking. Unusual warm feeling in jaw, which is not warm to touch, shooting in skin on lower border of r. nasal bone. Noon, pressure in r. pectoral muscle going into upper arm, stiff feeling in l. knee and ankle-joints when walking, distension of upper part of abdomen, with dull pain for 1 h., severe shooting in l. sole when walking, boring in lower jaw. 2.30 p.m., painful stiffness in l. muscles of nape, relieved by moving neck, drawing from neck to r. shoulder, pressure in r. elbow-joint, shooting in 1st joint of r. big toe repeatedly. In posterior part of l. *crista ilii* dull pressive pain when walking for $\frac{1}{2}$ h., drawing in l. palm, pressure in frontal bone repeatedly. E., pressure in r. finger-joint. The last 2 n. uneasy dreams, urging to urinate all d., not at n., sometimes quantity of urine increased.—31st, 7 a.m., 30 dr. 10 a.m., *sinciput* confused, some unsteadiness when walking, especially on rising from stooping. Much eructation of air, obtuse pressure in pit of stomach, pressure and drawing in shoulder-joints and l. forearm, pressure in r. temple, heat and pressure in *sinciput*, boring pressure from forehead into eyes. Drawing in legs, r. thigh superiorly and externally, when walking and when at rest. Pressure in r. thoracic wall in various places, drawing in lower part of calves very frequent, also when walking. Drawing in l. toes. Obtuse pressure and tearing in l. knee and tibia when in bed, c., boring in l. zygoma, in frontal bone above r. frontal protuberance.—Sept. 1st, 6.30 a.m., 40 dr. 7 a.m., boring in r. tibia below arm. Obtuse pressure on sternum. Pricking in tip of tongue. 1 p.m., much noisy wind in bowels, and discharge of flatus. Pressure in bone and soft parts behind r. ear and above l. elbow-joint. Heaviness and giddiness in *sinciput*, tearing in frontal bone, and parietal bones above ears. Constant nausea, pricking in borders of eyelids towards inner canthi, dull pain in pit of stomach, increased by pressure, tearing along r. tibia. Tickling pricking at orifice of urethra, pricking in rectum, pressure in various points on each side of sternum, continual desire to urinate all d. Boring pressure in first joint of l. big toe. Compression on lower parts of both calves, on sides of *tendo Achillis*, on l. forearm and shoulder-joints,

repeatedly. Violent boring in coronal suture, urine increased, bright yellow. 1 p.m., shooting in thoracic wall under arms, drawing in legs, violent scraping in l. tibia when sitting, boring in l. angle of jaw. 4 p.m., boring in jerks in middle of l. femur when sitting. E., obtuse pressure in r. wrist.—2nd, 2 m., pressure in both femora and behind r. ear. Tearing along l. tibia p.m., later in lower anterior part of both legs. Weight and obtuse pressure in sinciput. Shooting pains in various parts of r. thoracic wall.—3rd, m., pressing and bruised feeling in l. forearm. Tearing in lower front part of l. leg, p.m. Pressure above r. eye, severe pressure on r. shoulder-joint; drawing in l. lower maxilla. 6 p.m., pressing on inner side of l. patella. Boring in l. heel. Drawing in external soft parts of r. thigh. Boring in l. nasal bones. Tearing in anterior aspect of l. forearm. On l. border of sternum, between 3rd and 5th ribs, pressive blows into chest. Boring in 1st joint of l. thumb.—4th, 7 a.m., 50 dr. 8 a.m., giddiness in forehead. Shooting in joint of r. big toe. Weight and pressure in temples and sinciput. Much urging to urinate all d. Severe pressure on front of l. shoulder-joint. Pressive feeling on chest, affecting breathing. Boring in zygomata and l. great trochanter, then tearing down into thigh. Shooting in joint of l. big toe. 9.15, tearing in l. scapula, in anterior surface of r. leg bones and above r. knee. Boring in sacrum. Obtuseness in lumbar region. Pressing on bladder and urging to urinate. Stiffness of r. nape muscles. Tearing in l. tibia, shooting in tuber scii. 4 p.m., pressure in parietal bones and r. shoulder. Obtuse pressure on top of l. toes for 2 h.—5th. On rising, m., shooting in first joint of r. thumb, and violent pain in bones of l. instep, making walking and treading painful, later tearing in l. tibia. 2 p.m., boring in r. lower maxilla. Passive bruised pain in r. elbow extending to forearm, and in l. metacarpus. 5 p.m., drawing in lower part of l. calf and deep in l. sole.—6th, m., pressure in bone of l. instep and lower part of leg. E., boring in r. zygoma and l. lower jaw.—7th. Yesterday and to-day on waking, when lying on r. side severe deep-seated pain between 4th and 6th costal cartilages on r. of sternum, increased by inspiration and pressure. 6 a.m., tearing l. metatarsal bones. 6.30 a.m., boring in l. crista ilii. 7 a.m., 50 dr. Boring in r. thigh above patella, repeatedly. 7.45 a.m., pressure and tearing in upper part of upper arm. Penetrating stitch between l. ribs and crista ilii. Shooting in 1st joint of r. big toe. Pressure in forehead. Drawing in l. side of nose, and above l. temple to forehead. Boring in r. lower jaw and zygoma. Obtuse pressure deep in sides of lumbar vertebrae. 4 p.m., pressing in both temples. Stiffness of l. side of nape. Frequent mixture of straw-coloured urine all d.—8th. Boring in zygoma. Pain in chest as yesterday. E., boring in r. tibia, drawing in under aspect of toes.—9th, 10 a.m., boring in r. big toe. Tearing in bones of l. leg. 6 p.m., in chest, constriction with cutting pain as though the parts in centre of chest were tied together with a thread, making him hold his breath. Shooting in l. lung.—10th. Boring in r. cuneiform bone; m., tearing along r. tibia. E., emissions on 2 successive n.—11th, 6.45 a.m., 80 dr. Soave pressure in stomach. 7.15 a.m., paralytic bruised pain in shoulder-joint. Great urging to urinate. Drawing in

l. metacarpus. Heat and weight in forehead, pressure in r. temple. Shooting in inner canthus of r. eye. Pressure in 1st joint of r. big toe. Dyspnoea and oppression of breathing when sitting. 8.30 a.m., obtuse pressure in stomach and behind sternum. Pressure in lower angle of l. scapula. Boring in l. inner ankle and metatarsus, drawing in r. tibia. Obtuse pressure in dorsum of r. foot, in lumbar vertebræ, between l. scapula and spine. Drawing in lower part of r. calf and on l. upper arm. 6 p.m., drawing in all bones of skull. On waking at n. pressure in l. knee.—12th. Pressive pain deep in belly, increased by pressure all m. All d. urging to urinate, tickling in glans penis. E., boring in l. metacarpus. Drawing in l. upper arm and lower part of l. thigh. 10 p.m., tearing deep in r. thigh.—13th, m., shooting in r. side of thorax when inspiring. 8 a.m., drawing in l. metatarsus into toes.—14th—15th, m., when walking severe pain in joint of l. big toe, making walking painful. Pressure and drawing in l. knee.—16th, m., pressing in l. elbow and obtuse pressive pain in l. metatarsus extending to toes. Pressure in 5th metacarpal bone. 1 p.m., obtuse pressive boring on border of r. orbit.—17th, 6.30 a.m., 80 dr. 7.30 a.m., tearing in r. leg, boring in r. ankle, left zygoma, both sides of l. tendo Achillis. Much eructation of air, urging to urinate. 8 a.m., drawing in r. metatarsus extending to toes, and in middle of r. ulna. 9 a.m., boring in l. tibia and angle of r. lower jaw. Drawing, pressure, boring in frontal bone. Obtuse shoots in rectum. 10 a.m., pressure in middle of l. radius. Shooting in joint of r. big toe. Pressive bruised pain in l. elbow and shoulder-joint, later in r. wrist. 2 p.m., pressure in 1st joint of l. thumb and shooting drawing in r. metatarsal bones. Shooting in lumbar region. 3.30 p.m., bruised pain in r. elbow-joint extending to upper part of forearm. 4 p.m., pressive pain in l. knee extending into posterior and external soft parts of thigh. Pricking in tongue's tip inferiorly. 6 p.m., bruised pain in upper part of l. upper arm. Repeated pricking in orifice of urethra. Drawing in l. side of frontal bone. 7 and 11 p.m., compression in lower part of l. leg. All d. frequent urging to urinate, but urine not increased in quantity.—18th, 8 a.m., boring pain in frontal bone. 9 a.m., pressing in upper part of l. upper arm. Persistent dull pain in stomach increased by pressure. Boring in metacarpal bone of r. thumb and in its joint. 2 p.m., pressure in r. scapula, later in sides of r. elbow. 4 p.m., pressing twisting pain from l. elbow-joint through deep parts of forearm into wrist-joints. Pressure under nail of r. big toe. 4.30 p.m., obtuse pressure on anterior and external side of middle of l. thigh. Pressing in r. wrist-joint, later in 1st joint of r. big toe. Drawing in lower part of l. calf. Drawing with cold feeling in lower incisors. N., emission without dream.—19th, m., tearing in l. side of frontal bone. Occasional shooting in thoracic wall on either side of sternum. 9 a.m., obtuse pressure in lumbar vertebræ. Bruised pain in l. leg, above r. knee, in r. forearm, in r. metatarsal bones, and above r. wrist.—20th, 8 a.m., tearing in r. tibia. Obtuse pressure in lumbar region. Tearing in bone over l. eye. Drawing in lower part of r. fibula, over r. eye. Tearing in l. ankle-joints and metacarpal bone of little finger. Bruised pain in r. knee and in middle of l. forearm. Shooting in first joint of l. big toe and in ball

of r. big toe. Boring in 1st joint of r. thumb. E., pricking in l. thoracic wall.—24th, 7 a.m., 5 dr. Tearing in frontal bone, zygoma, metacarpal bone of thumb. P.m., pressure in the thoracic wall.—25th, m., tearing in frontal bone, r. elbow, lower part of l. calf, r. knee.—26th, 10 p.m., sudden attack of great weakness followed by chilliness for 3 h., skin felt cool, trembling of all muscles, head hot and heavy, pulse quick and small. Frequent waking at n., tossing about, confused dreams, frequent micturition with cutting pain and much pain in limbs, cranial bones, thoracic wall.—27th. Woke early (4 a.m.), extreme weakness all d., much chilliness, painful sensitiveness of skin on touching limbs or scalp. Violent tearing pain in parietal bones, heat in nape and redness of face; shooting in throat, swollen tonsils, pulse quick and small, crossness.—28th. No more chilliness, but the previous symptoms of Ledum remained. Was quite well on 29th. (*A. S. Z.*, xxxix, Nos. 21 and 23.)

3. LEMKE made a second proving of Ledum in 1865.—May 7th, 6.30 a.m., 10 dr. 3 p.m., when sitting, pressive pain in l. knee repeatedly.—8th, 7 a.m., 10 dr. Pressive pain in upper part of l. tibia extending downwards when sitting. 6 p.m., drawing in l. toes, pressure in r. temple.—9th, 9 a.m., 20 dr. When sitting drawing and pressive pains alternately in knees, shoulders, flesh of thighs, legs. 8 p.m., when sitting same pain in r. toes and l. shoulder.—10th, 9 a.m., 20 dr. No symptoms.—11th, 8.30 a.m., 30 dr. Pressive pain on l. tibia and calf. 9 a.m., drawing in r. toes. Heat of back, head, and cheeks, small black spots hover before eyes. Pressure in knees and ankles alternately, suddenly coming and going. Great heat in hands with dilated veins, and in cool open air, pressure in r. thumb-joint, later in r. big toe. 3 p.m., some very sharp stiches through tongue. Pressure in r. big toe joint. 6 p.m., drawing and pressive pain along posterior surface of l. thigh, several times when sitting. Pressure in knees, r. metacarpal bones, upper part of l. side of chest, pressure in ankle-joints. All these symptoms in irregular succession lasting a few seconds and recurring several times. 7.30 p.m., painless feeling of stiffness in r. fingers. Persistent pressing-asunder pain in r. leg, when sitting. Boring pain above l. eyebrow, drawing in teeth of r. side.—12th. Pressure in l. elbow. 4 p.m., drawing in r. tibia. Drawing-asunder pain in r. toes. Towards e. the pains increase in knees, tibiae, ankles, shoulders. 7 p.m., great pressure in knees when walking.—13th, 6 a.m., scraping and tickling in larynx, much dry short cough, after which the tickling continues. Soon afterwards pressure in r. ankle-joint when sitting and in tips of r. toes. 7.30 p.m., pressive pain in l. knee, bruised and heavy feeling in l. arm, especially elbow, worse when at rest. Same feeling in wrist and ankle-joints. Drawing pain in l. side of forehead and l. calf, pricking in l. sole. 9 p.m., all pains gone.—14th, shooting in l. tibia, later boring pain in l. side of forehead.—15th, 10 a.m., when walking in street feeling of vertigo as though the body swayed to one side; this lasted 10 m. Later shooting and burning in tip of tongue. Towards e., when sitting pressive pain in knees and wrists. 8 p.m., pressure on dorsum of r. foot. 9 p.m., drawing in l. metacarpal bones, and feeling of stiffness when moving fingers. Severe pressure in l. outer

ankle, drawing pain in r. toes. Pressure in r. arm above elbow, also on ulnar aspect of l. hand. Painful heaviness on moving r. shoulder-joint.—16th, 8.30 a.m., pressure in l. clavicle. Drawing in l. elbow and a feeling of weight in l. arm, especially elbow. Pressure in l. knee; all these symptoms frequently repeated. 7 p.m., pressing-asunder pain in l. hand, needle pricks in l. toes, pressure in l. ankle-joint, bruised and heavy feeling in knees, r. thigh, l. arm, lasting some m. and changing places. All symptoms when sitting or when the limbs are at rest, thus in arms when walking, not in legs. Pressure in lowest cervical vertebrae increased by bending head forwards. Needle-pricks under nail of r. thumb. Painful weight in r. arm, sometimes more in shoulder or elbow, relieved by moving joint; same in l. knee and leg. These pains also felt in bed at 11 p.m.—17th. Some of previous symptoms, also boring and drawing pain in l. tibia when walking. For some d. two pimples on forehead. Very painful compression in muscles of r. forearm; after some h. same in muscles of r. leg on its outer side and near ankle. Stitches in bend of l. elbow. E., pressive pain in various joints and in metacarpus. Tearing in l. occiput.—18th, 6.30 a.m., 30 dr. After $\frac{1}{2}$ h. persistent drawing, pressing pains, particularly in lower extremities, feeling of weight in knees, shooting in calves when walking. Heavy feeling in arms, especially elbows. Dull pressure on l. side of head, with weight in head. Bruised pain in shoulder-muscles. Pressure on anterior part of l. shoulder-joint. In head wandering dull pressive pains. Repeatedly deep in cardiac region dull pressive pain, pressure in muscles of r. forearm and upper arm. Drawing and shooting in outer border of l. sole, in muscles above r. patella when walking. 9 a.m., compression in l. knee. 10 a.m., attack of vertigo. All d. one or other of the above pains in limbs and head with feeling of heaviness and weariness.—19th, 4.30 a.m., awakened by a noise, felt pressive pain in calves. 7 a.m., on rising same symptoms more persistent, also in wrists and knees. Compression in muscles of l. upper arm and in ankle-joints. The former pain in heart recurs frequently.—19th. Same symptoms, and at 3 p.m. pressive and drawing pains, especially in posterior and outer side of l. thigh and in muscles of l. forearm. Stitches in r. pectoral muscles on drawing a deep breath. 10 p.m., boring in l. temple and l. side of frontal bone when reading. Severe pressure in l. shoulder relieved by moving arm; immediately afterwards in r. ankle and wrist, which changes into heaviness of whole arm, worst when at rest. Though no more Ledum was taken the same symptoms continued more or less to 9th June, when a dose of camphor put an end to them. (*N. Z. f. A. Kl.*, x, 113.)

II. *Poisoning*.—1. Dr. SALZER prescribed a lotion of L., 10—12 drops in 4 oz. of water, to a patient suffering from the worst kind of "prickly heat." The patient applied it on going to bed and felt asleep, awoke, he thought, by the aqueous application. He awoke in 2 or 3 h. with the usual prickling sensation, but did not repeat the application on account of the following symptoms, which he attributed to repelling the eruption. He felt a quite extraordinary dryness of the mouth, a clogging sensation in the throat, and a more

or less heavy breathing. These symptoms strikingly resembled those of the pathogenesis of *L.* (*Calc. Journ. of Med.*, ii, 295.)

LEPTANDRA.

Leptandra virginica, Nutt. Black root, Calver's phytic. Nat. Ord., *Scrophulariaceae*.

I. *Proceedings*.—*s. o.* Dr. BURK, on Jan. 29th, took 1 gr. Leptandrin at 10 a.m. 12 (noon), constant dull frontal headache, worse in temples; constant distress in lower part of epigastric region and umbilicus, by spells there are sharp cutting pains in same parts. Took 2 gr. at 3 p.m. Slight frontal headache, with dull aching sensation in umbilicus. Took 3 gr. 6 p.m. Constant dull frontal headache, very severe, deep in region of causality; constant dull aching distress in umbilicus; at times are very sharp pains in same region. Took 4 gr. 9 p.m. Frontal headache has been very severe; eyes smart and ache very much; same pain in umbilicus; feeling very gloomy. Took 5 gr. 30th.—Feeling very tired; slept middling well, awoke several times, with severe frontal headache. Took 6 gr. 7 a.m. At 10, dull, slight headache, with slight distress in umbilicus. Took 8 gr. at 12 (noon). Constant, dull headache, very much worse in regions of causality; eyes sore and smart severely; constant aching distress in umbilical region. Took 10 gr. at 2 p.m. Had to ride ten miles on horseback, did not notice any symptoms. At 6 p.m. took 15 gr. 9, same effects on head, eyes, and abdomen. Urine slightly acid, no stool to-day. 31st.—Restless n. after 12, pains and distress in bowels preventing sleep; feeling very languid; dull pain lower r. hypochondriac region; tongue coated yellow along centre. Took 20 gr. 8 a.m. Stool, first part hard, black and lumpy, afterwards soft and mushy. At 12 (noon) slight frontal headache, eyes smart very much, frequent dull aching pain in lower r. hypochondriac region near gall-bladder, with dull aching distress in umbilical region, and rumbling in bowels. Took 25 gr. at 2 p.m. Dull aching distress in whole of liver that extends to spine, most in region of gall-bladder; great distress in whole of the bowels, with sharp cutting pains, rumbling and desire for stool, stool soft and mushy, followed by very weak feeling in bowels and rectum. 5, frontal headache; eyes smart a great deal; constant, burning aching distress in region of stomach and liver; dull aching distress in umbilical and hypogastric regions. Took 25 gr. at 9 p.m. Dull frontal headache, which is very deep in cerebrum; eyes smart very much; burning distress in whole of epigastric and hypochondriac regions; constant dull aching distress in umbilical and hypogastric regions, with very sharp pains every few m.; feeling very weak and faint; constant, dull aching pain in r. inguinal region, which passes down to r. testicle, the pain hard to endure; dull aching in lumbar region; urine rather scanty, and does not affect blue litmus paper. Feb. 1st.—Restless n. after 12; skin hot and dry, with frequent pain in bowels; eyelids agglutinated; unpleasant flat taste in mouth, tongue

coated yellow along centre; great rumbling and distress in hypogastric region, with a profuse, black, very fetid, soft, papaceous stool, with slight pain in bowels afterwards; feeling very languid. At 6 a.m. took 30 gr. 11, frequent dull aching distress in umbilical and hypogastric region. Took 40 gr. at 2 p.m. For the last 2 h. has been in awful pain and distress in umbilical and hypogastric regions, which drinking cold water aggravates very much; dull aching burning distress in region of gall-bladder, with frequent chilliness along spine; great distress in hypogastric region with great desire for stool; very profuse black stool, about consistence of cream, with undigested potatoes in it; this gave great relief, but was followed by great distress in region of liver, extending to spine; it is of a hot and aching character, with chilliness along the spine. 5, slight frontal headache with sharp pains in temples; there has been very constant distress, with very sharp pains by spells, in lumbar region. 10, slight frontal headache, with sharp pains in temples; constant distress with pains in whole of abdomen, since 5 p.m., but for last h. the pains in umbilical and hypogastric regions have been awful to endure, with rumbling and great desire for stool; very profuse, black, fetid stool, that streamed from the bowels, and could not be retained a moment, which gave great relief, but did not stop the pain altogether. Urine very red, does not affect blue litmus paper. 2nd.—Slept soundly, feeling very languid, both wrists are lame and ache quite severely, l. aches the most, pain lasting until noon; tongue coated yellow along centre, flat taste in mouth; immediately after getting up very severe aching distress in epigastric region. At 10 a.m., distress in stomach constantly getting worse, cannot sit or stand still, it is so severe; food rises very soon; the painful distress in stomach has been unendurable all forenoon, a hard, aching, burning sensation appearing to be in stomach. 9 p.m., distress in stomach has not been so hard, but has had severe pains in umbilical region all afternoon; urine neutral, no stool to-day. 3rd.—Slept soundly; awoke at 5 a.m., feeling very hungry, with great pain in epigastric region, which continued till after breakfast; frequent pains in epigastric region all d. 4th.—Slept well; great desire for food; stool, first part natural, second part soft and mushy.

5. February 5th.—Awoke 2 a.m., feeling very hungry, has a great appetite. 11 a.m., took 20 drops of fluid extract of *Leptandra*. 12 (noon), dull frontal headache; profuse secretion of tears; dull aching distress in stomach and umbilical region. 3 p.m., slight headache, constant aching distress in umbilicus with sharp pains by spells, sharp cutting pains near gall-bladder. Took 30 dr. at 4 p.m.; dull frontal headache, with sensation as if hair were pulled at; good deal of distress in stomach and bowels, with burning sensation. 6 p.m., dull, aching distress in umbilicus; took 40 dr. 10 p.m., there has been much distress in umbilicus, with great burning distress in back part of liver and in spine; soft mushy stool; took 50 dr. 6th.—Slept well; arose once in n., and immediately felt sick at stomach, with deadly faintness; tongue coated yellow, flat taste in mouth. 7 a.m., took 60 dr.; 10, slight headache; great distress in small intestines and desire for stool; soft stool, very fetid and black; took 70 dr. Noon, dull

aching distress in umbilical region, with very sharp pains by spells; took 80 dr. 3 p.m., slight frontal headache; eyes smart a good deal; constant dull aching pain in cardiac portion of stomach; great distress in umbilicus; took 100 dr. 10, slight frontal headache, with neuralgic pain in r. temple; eyes smarting constantly, with dull pains in eyeballs; very severe pains in stomach and small intestines, with great distress and desire for stool; stool soft, very fetid and mushy; very gloomy and irritable all d.; took 120 dr. 7th.—Up all n. with a patient; had very severe pains in umbilical and hypogastric regions; stool at 3 a.m., which ran as a stream from bowels, followed by very severe cutting pains in intestines. 8 a.m., very severe frontal headache, almost intolerable on walking; great distress in stomach and all the small intestines, with great desire for stool, that could not be retained one moment,—it ran as a stream from bowels, very fetid, containing large quantities of mucus, followed by severe pain in hypogastric region; took 160 dr. 10 a.m., there has been constant and very violent frontal headache; great distress in stomach and small intestines, with frequent pains in umbilicus, causing him to feel very faint and weak; great rumbling in bowels; stool that could not be retained, consisting of water and large quantities of mucus and little yellow matter, followed by very hard pains in umbilicus; very giddy while walking; quite weary and languid, could hardly walk. 12 (noon), severe frontal headache; constant dull burning aching distress in whole of bowels, with frequent pain and rumbling, and great desire for stool; stool of water and mucus, followed by very hard pain in hypogastric and umbilical regions; another very profuse, thin stool, with large quantities of mucus; very weak and languid, compelled to go to bed. 5, slept 2 h., awoke with great distress in whole of bowels, and great desire for stool; profuse watery stool mixed with mucus, that could not be retained; another stool of water and mucus, with part natural faeces, very fetid. 6, another stool containing large quantities of mucus, followed by sharp cutting pains and great distress in umbilical region; feeling very weak and faint. 9, another profuse stool that could not be retained, followed by severe pains in bowels; very severe frontal headache. 8th.—Slept soundly; feeling very languid; tongue coated yellow along centre; dull aching distress in bowels, during the n. had frequent pains in umbilicus, with much rumbling all d.; no stool; great appetite. 9th.—Loss of sleep last n., and feeling bad to-day; frequent pains in bowels all d., with severe headache; no stool. Next d.—Slept well; feeling very well, excepting frequent pains in umbilical region; soft, yellow papaceous stool, preceded by pain in umbilical region. (Hale, *New Remedies*, 2nd ed.)

2. A student of Hahnemann Medical College, Chicago, informed me that in the fall of 1865 he took, while in good health, several doses daily of Leptandrin 1, for about two weeks. During the experiment he had a severe attack of jaundice, accompanied with clay-coloured diarrhoea, headache, and the symptoms usually seen in such cases. He could not remember any further details. (*Ibid.*)

LILIUM TIGRINUM.

L. tigrinum, H. K. Tiger lily. Nat. Ord., *Liliaceae*.

1. *Proving*s.—1. Dr. S. P. GRAVES, *et.*, 37, took—2 h. after eating—5 dr. of 3x dil. of tinct. of flowers. In about 1½ h. felt dull pressive pain in l. side, apparently about heart; coldness of outer l. leg, as though cold wind was blowing upon it; dulness of r. head, increasing to sense of pressure, inclining head over to l. side. These symptoms gradually increased for about 6 h., then gradually abated, when he fell into a sleep which continued about 4 h., from which he was suddenly aroused by pain in l. side, as if heart were violently grasped, interrupting pulsations of heart and breathing. It was relieved by rubbing and pressure, and grasp gradually relaxed. Tingling of legs set in, and continued during 2nd d.; heart-pain was better in m., but worse in afternoon and on lying down at n., aggravated by stooping, leaning forwards, or bowing. After all symptoms had passed away, took second dose, before eating. Same symptoms returned, less marked, but of longer duration. Pain in heart continued for more than two weeks, gradually abating, and at last felt only on bending body forwards. Urine on 2nd d. after each dose was copious and high-coloured. (Dr. W. E. PAYNE's provings, *Trans. of Amer. Inst. of Hom.*, 1867.)

2. Dr. J. W. SAVAGE took, Feb. 20th, 1867, 30 dr. of tinct. on sugar at 3.30 p.m. Pulse was then 76. 6, dull, heavy, or pressive pain in region of heart; sharp pain in both knees, on inside, extending towards front at point of connection of patella with rectus tendon. Pain was confined to a small spot; he never felt anything of the kind before. 7.30, pulse now 88, took 30 dr. more. Both lower limbs below knees feel dull, heavy, and full, with formication and shifting pains; pulsations in both feet; slight nausea; cardiac pain continues; dull and occasional shooting pains across small of back, lasting a short time. Pains all seem to occupy small spots, as if produced by hard pressure with ends of fingers on parts. 9.30, pulse 88, repeated dose. Quick pain in both ring fingers and corresponding toes at same time, passing off in a few seconds. 10, moving of flatus in bowels, with rumbling and feeling of fulness; nausea, with great desire but inability to vomit; bubbling sensation in r. hypochondrium. There was slight pain in bowels all n., with rumbling and violent emission of flatus, also sensation as though diarrhoea was about to occur. Next m. abdomen was tender to pressure. 7.30 a.m., took 30 dr. more. Soon stool, dark and hard, followed by a good deal of heat in rectum and anus, with slight pains in abdomen; weakness and pain in knees when walking, especially on ascending; dull and heavy, with occasional quick, pains in lower limbs below knee; small spot on inside of l. thigh very painful at intervals; dull boring pain on top of l. foot; nausea, with inclination to vomit, and frequent hawking of mucus from throat; great distension of bowels, with much upward and downward escape of flatus (this is a constant effect of drug); heat and pressure in hypogastrium. 11.45, 30 dr. more, pulse 72. Constant heavy feeling in

cardiac region all afternoon, and pain in ankle-joints, worse on moving. 6, sharp pains in inside of l thigh, over femoral artery, about 2 in. below Poupart's ligament. 22d.—No medicine; pain in thigh, flatulence and lameness in ankles gradually diminishing. 23rd.—No symptoms. 7.30 p.m., 30 dr. Flatulent distension of stomach and bowels, with rumbling, returned; also heaviness in cardiac region, and palpitation when lying on l side in bed at n.

5. "The heart symptoms now became so troublesome that I was obliged to discontinue further use of the drug. The symptoms were always much worse at n., giving me, comparatively, but little trouble in the daytime. The heart's action was intermittent, every intermission followed by a violent throb, causing an involuntary catching of the breath; at the same time the blood rushed up through the carotids to the head, producing great heat and a crowded feeling of head and face. These symptoms followed me for more than a month; indeed, so constant were they that I became alarmed, fearing I might have misjudged the case, and, instead of medicinal symptoms, I was really suffering from an organic disease of the heart. But a physical examination of the heart's action, by a brother physician, put my mind at rest on this point." (*Ibid.*)

3. F. G. BAKER, æt. 30, took, May 9th, 1868, at 8 p.m., 6 dr. of tinct.* in water. In about 1 h., having been reading and writing, experienced slightly confused feeling in head, with little pain. This increased after going to bed, and there were slight rushing sounds in both ears. About middle of n. woke suddenly, with coated feeling in mouth and throat, and had to rise and empty bladder (very unusual). Same thing happened again at 5.45., when also he had continued heavy feeling in head; steady, though not severe, pain in lumbar region; and intermittent sharp pain across hypogastrium. Slept again till 8, when bladder had again to be relieved. 10th.—Continued lumbar pain, though sensibly growing lighter; it was occasionally transferred to between shoulders. Sharp, though not severe, pain over l. eye almost continuously during forenoon. 11.45, lumbar and eye pain almost gone, but some still felt between shoulders; took 8 dr. No effect, save slight increase of eye pain. 4.30, repeated dose; eye pain increased, and lumbar pain recurred; urine remarkably clear and pale; drowsy early in e., and could not work. 11th.—Arose late, very much distressed with pain in lumbar region, which lasted through d. and did not cease till e. 12th.—At 5.40 a.m. took 8 dr. again, without effect. 13th.—At 6.30 a.m., 12 dr. In middle of forenoon, intensely sharp pain in r. side, between hip and false ribs, extending to umbilicus, and becoming a sort of colic, so severe as to render a full deep breath intolerable; was almost obliged to stop work (type-setting). Pain lasted till a little past noon, when it stopped suddenly. (*Ibid.*, 1868.)

4. a. Miss —, teacher, æt. 42; had not menstruated for 2 years, but had enjoyed uninterrupted good health. Sept. 3rd, 1867, at 8.30 a.m., took 5 dr. of tinct., and repeated same on two following d. From 6th to 15th took 10 dr. daily. Hitherto no effect. 16th.—At

* The tincture used in this and the following proving was made from stalk, leaves, and flowers.

8.30 a.m. 25 dr. In 2 h. pain commenced in forehead above eyes, severe for more than an h., then gradually abating. 20th.—Took 30 dr. in course of 2 h. Pain in sacrum, with sensation of weight and downward pressure in hypogastrium, which continued with some severity till 26th, worse when standing. 26th.—Took 30 dr. Discharge of bright-red blood from vagina, with dull heavy pain and great weakness in small of back and loins, continuing four following d. Took no more medicine, and does not report again till 15th, when she felt constant nausea, with sensation as of a lump in centre of chest, which could be moved down by empty swallowing, but ascended again when effort was over. Bearing down continues, with severe pressure in rectum and at anus, and constant desire for stool, but with every effort to evacuate the bowels, urine only was discharged. Sensation as if a hard body were pressing backwards and downwards against rectum and anus; standing on feet aggravated, and increased desire to go to stool. (These symptoms were somewhat relieved by walking in air, and riding.) Bowels feel as if distended; trembling sensation in abdomen, with chilliness; cold feet and hands; loss of appetite; aversion to coffee, nauseated on thinking of it, though it was habitual and favourite drink in m.; frequent passing of urine in small quantities; faint in a warm room, and on standing, with cold perspiration on back of hands and on feet; cannot see objects distinctly; depression of spirits, constant inclination to weep, with fearfulness and apprehension of suffering from some terrible internal disease, already established; weakness and trembling of bowels, with loss of strength; very sleepy at other times than usual sleeping hours. 20th.—Above symptoms having still increased, prover submitted to examination *per vaginam*, when uterus was found low down, fundus tilted forwards, and os pressing backwards on rectum, allowing but difficult passage of index between. Helonias gave partial relief in 1 d., complete in 3 d.

b. Dec. 17th and 18th, took 15 dr. of 1, dil. 3 times without effect. 19th.—Took 20 dr. at 10 and 3. In 1 h. after last dose, felt sharp quick pain in l. chest, with fluttering of heart. 6, sharp pain over l. eye, abating after an h., but continuing all e. 21st.—Awoke free from pain. 9 a.m., 25 dr. Frequent attacks of palpitation; dull pain in sacrum; loss of appetite, aversion to bread and coffee. 22nd.—2 p.m., 25 dr. Dull pain in forehead over eyes; low-spirited; aversions continue; dull and constant pain in back, between hips, with pressing downwards at anus, which continued to 26th, not much relieved on lying down. 26th.—11 a.m., 30 dr. Dull pain in forehead, over eyes, commenced at noon, and continued about 2 h.; pain in back and nausea; no appetite; depression of spirits; disposition to weep. 27th.—30 dr. Pain in sacrum all d.; disrelish for food, especially bread, and repugnance to coffee; on going to bed cold feeling in back, as if cold water were poured upon it. 28th.—In m. on awaking l. chest was of bright red colour and hot to touch. 11 a.m., 30 dr. 2 p.m., dull pain over eyes, continuing about 2 h.; same in small of back and sacrum all afternoon and e. No desire for food; special dislike to bread continues; depression of spirits with continual inclination to weep; pressing in rectum and anus; cold chills in back, particularly after going to bed at

n., with hot flushes towards ev. 29th.—2 p.m., 30 dr. Pain in back all c., till after midnight, when it abated somewhat. Symptoms now became so annoying that proving was suspended. Usual appetite for bread and coffee did not return for nearly three weeks. (*Ibid.*)

5. a. Mrs. N. W.—, M.D., being in ordinary good health, began, Oct. 1st, 1869, by taking 3 dr. of 3rd dil.* 3 times daily. First noticed she was more active; things went easily. No other effect for 4 d., unless it was increased sexual instinct; then sweetish nausea, with fulness of abdomen, particularly after eating, even after small quantities. Food does not increase the nausea; no desire to vomit. On 6th d. moral symptoms were developed, did not want to be pleased, no care to talk or read; desire to sleep; slept well, but had unpleasant dreams. Omitted medicine 2 d.; nausea and full feeling subsided. At intervals, skin of abdomen feels stretched and stiff; sore pain in upper chest. On 7th d. took 5 dr., and in a few m. nausea much increased, with same bloated feeling in abdomen, particularly hypogastrium, with some tearing from ovarian regions down both thighs; darting pains in different parts of head. Ate, but without appetite; restless, and desire to be doing something, but no ambition; sense of pressure in vagina, and pain at top of sacrum extending to hips. On 8th d., worse on going to bed; cannot go to sleep; wild feeling in head as though she would go crazy; dreaming all n.; better on rising; constant nausea. On 10th d., pain in r. iliac region, better during motion; head grows wild after keeping quiet a little while. At 2 p.m. took 5 dr., increased depressing weight over pubes, after supper; knees ache.

A. Prover came to Dr. Dunham on 22nd to state her symptoms, her mind being so affected that she could not record them. There came on 20th, and increased up till now, a sensation in pelvis as though everything were coming into the world through the vagina. Last n. sensation was very distressing, and not relieved by change of position. The dragging downwards is felt in stomach, and even in shoulders; not relieved by lying down, but worse when standing up. There is disposition to place hands on hypogastrium and press upwards (also to inhale forcibly) in order to relieve dragging sensation; likewise, aching and pressure across lumbo-sacral region, and some pressure upon rectum; pressure also on top of head, with crazy feeling; she wants somebody to talk to her and entertain her (very unusual); feels nervous, wants to cry from feeling of irritation and of something wrong in pelvis and abdomen; feels hurried and yet incapable, as if she had a good deal to do, and could not do it. She is thirsty, drinking often and much. Her bowels are naturally regular; but now she has alternate loose and solid stools, several during d., and constant feeling as though she must have a stool, resulting from sensation as though something were pressing on anterior walls of rectum at and near anus. She cannot get to sleep at n., but lies with eyes wide open; grumbling pain in r. head and teeth. Her pelvic pains are worse during, but still more after, motion. She is somewhat tender to pressure in ovarian regions, especially r.

c. (Dr. Dunham now continues report.) 23rd.—Aching in pelvis

* The tincture used in the remaining provings was prepared from the pollen only.

as if not in uterus but around it. She feels constantly two spots corresponding in position to ovaries, which ache and feel like coals of fire. Same dragging sensation as before. 25th.—After reporting on 23rd (10 a.m.), desire for stool, and during d. stool every $\frac{1}{2}$ h., lumpy, small, diarrhoeic, with wind; constant tenesmus, she could sit at stool for ever, therewith burning in urethra, with tenesmus there also, and smarting after micturition. Helonias relieved, but she has still to-day the bearing-down—a pulling upwards and forwards from tip of coccyx, downwards and backwards from spines of ilia. Disposition to muse and dream, seems asleep and afar off, mental faculties benumbed so that she is indisposed for work; headache in occiput and over eyes. Increased desire for meat, and has eaten much. 26th.—All yesterday pressure on bladder; aching in r. ovary kept getting worse, feeling as if knife inserted there ripped down groin and front of thigh; pain extended over lumbo-sacral region, and she had to lie and cry herself to sleep; pain extended up to r. hypochondrium and was somewhat relieved by pressure on ovary. This m. no pain, but the sore sensation which follows pain; diarrhoea continues, also irritation of bladder, but she can control this by determining not to micturate; legs ache, causing her to twist and turn. It seems as if the symptoms came on worse as soon as she gave up active control over herself, *e. g.* when she tried to sleep. She thinks effects of medicine are passing off, because first symptoms, such as pain in occiput, are coming back. 28th.—Menses occurred yesterday, as usual, and regularly, and continued normal as long as she kept moving, but as soon as she came to rest the flow ceased. None this m. She cannot think, acts without thought; feels hurried, walks fast instinctively; is forgetful, cannot decide for herself, must depend on others. November 2nd.—She noticed on 29th some heart symptoms, not definite. On 30th, after walking, sudden fluttering sensation there. There is now hurried forcing feeling, with faintness and fluttering as though she could do nothing, but must put by her work and sit still; seat of sensation is apex of heart, and twice she had sharp pain there. Great weakness in legs. She feels as if she must breathe quick, yet she does not. Prover feels that her whole system has been profoundly affected by the medicine; “she is not the same person that she was;” she feels hurried, and yet cannot do much, has no heart or strength to attend to business, which has not heretofore been a burden to her; she feels discouraged, but no longer has ideas of suicide as she had about 8th day of proving. 3rd.—Gets out of breath going upstairs, must stop and rest; appetite tremendous, especially for meat; does not care to be alone (contrary to wont), but does not dread it; sexual instinct, ordinarily dormant, now much excited; wits languid, intuitions dull. Bloating of abdomen continues. Can repress her symptoms and disregard them if she keeps very busy, but as soon as she ceases her occupation they recur with great intensity. 4th.—Much sweating in axilla, especially r. (noticed before); burning itching on swell of both deltoids; heart symptoms passing off, felt now only on fast walking.

d. From 4th to 7th felt quite well, but on 7th bearing-down sensation recurred, and was followed by thin acrid leucorrhœa, leaving

a brown stain,—these symptoms worse from afternoon to midnight; therewith mental depression and emotional irritation as before,—this came upon her like a sudden cloud. On 11th was in same state, with constant burning pain across hypogastrium, sense of irritation in womb, and great irritability of temper. On 12th leucorrhœa had ceased, but sense of irritation remained. Menses recurred on 14th (*i. e.* after only two weeks' interval), scanty, dark, and thick. Mental symptoms continued up to 22nd. From 30th onwards a third series of *Lilium* symptoms came on,—passional excitement and hurried feeling, aching and burning pain in ovaries (distinctly defining these organs in her sensations) with aggravation at n., and diarrhœa in m.; then despondency and mental depression; then hurried feeling and impulse to work without real desire for it. With the ovarian irritation (always worst p.m.), there was pressure on bladder, urine being high-coloured and scanty: she could pass it every $\frac{1}{2}$ h. Dec. 8th.—Constant bursting in back. On introducing finger into vagina she found the os, which usually is so high as to be almost out of reach, now low and tilted back, pressing on rectum, while fundus lies on bladder. She now took platinum as an antidote, and the *Lilium* symptoms gradually passed away. (*Ibid.*, 1870.)

6. Mrs. A. F—, M.D., took, Nov. 20th, 1869, $\frac{3j$ of tinct. at a single dose. Had no symptoms for 2 weeks, but then came on chills creeping down back on going to bed every n. for a month, followed by violent beating of heart and throbbing of carotids, preventing sleep while lying on either side. These, and still more other symptoms ranging from Jan. 12th to April 5th, 1870, are very dubious effects of drug. (*Ibid.*)

7. Mrs. C. le B—, M.D., from Nov. 24th, 1869, took two doses of 3rd dil. daily for 6 d. Dull frontal headache all 1st d. 2nd d., dull headache beginning in forehead and going all through head, worse on l. side; severe pressure in r. eye for 2 h.; chilly feeling all over body. 3rd d., same headache, mostly confined to forehead; yawning and stretching; severe chill towards e., causing great pain in and about heart, going through to under scapula; pain constrictive, heart feeling as though squeezed in a vice; blood seems all to have gone to heart, causing feeling as if she must bend double; can hardly walk upright; therewith nausea. All these feelings removed on getting into a warm room. 4th d., same headache; stupid feeling; nausea, transient, suddenly coming and going; heavy dull feeling in stomach, pains in r. ovarian region, a gnawing dragging sensation, worse on walking, a feeling as if something were shaking loose there whenever r. foot was planted firmly; also gnawing pain in lumbar region, worse in bed and lasting all n.; sight (proved to be hypermetropic) much worse than usual. 5th d., still headache, lumbar and ovarian pains, and nausea; sight worse, eyes very painful, smarting, must close them often; light pains, darkness pleasant. 6th d., eyes still bad, and though, no more medicine being taken, other symptoms gradually subsided, eyes took 4 weeks to return to their normal state. (*Ibid.*)

8. 4. Mrs. B—, student of medicine, took daily from November 1st 5 dr. of tinct. at 6 a.m. Each d. "nervous symptoms" came on

about 3 p.m., getting worse at every recurrence. Trembling of knees was prominent among these; on 3rd same tremor involved abdomen, lower back, and hands. When walking joints seem to lack synovia; she can almost hear the crepitus. On 4th everything in the least exciting causes cold hands; there is paralysis or stiffness of fingers, so that she can hardly hold a pencil firmly enough to write. Menses delayed. After last dose symptoms gradually wore off.

8. Dec. 7th, took, 2 h. before dinner, 12 dr. and at 8 p.m. had to leave company on account of cutting pain in bowels, so severe that she had to take nux, which relieved; extremities cold and clammy; sudden chills not followed by fever, but with fulness of head. Woke next m. tremulous and weak as after an illness. On 9th menses appeared, scanty and of short duration; appetite failed. Dec. 13th—15th.—Fulness of head and pressing from within outwards as if contents would issue from every aperture, also aching of flesh and bones throughout body; latter recurred on 24th and 25th, with great soreness. Effects of last dose did not seem to wear away till after nearly 4 weeks.

9. Mrs. J. F.—, student of medicine, took 5 dr. of 3rd dil. twice on March 22nd, 1870, without effect. 23rd.—8 dr. twice. No physical effects, but an h. after 2nd dose she noticed a nervous tremulousness, and inability to apply mind to any subject steadily; could not think clearly or remember well. 24th.—16 dr., 3 times. No marked change in feelings till afternoon, when she had severe pain in back, much nervousness, inability to apply mind, depression, disposition to weep, headache. On each d. increased secretion of urine. Took no more medicine till April 4th, when, feeling remarkably well, she took 12 dr., which was quickly followed by tremulousness, and peculiar pressive headache. (*Ibid.*)

10. Mrs. L. B. C., M.D. "Oct. 8th, 1869, I took for one week 5 dr. of 3rd dil. n. and m. without effect; then doubled dose for another week. Now for a week have felt utterly incapacitated for mental work or physical exertion; feel like sitting quietly without speaking or being spoken to, or compelled to think; dull heavy feeling in head; everything seems unreal to me: my eyes look wild, and my husband fears I may become insane." After writing above stopped medicine, and within 24 h. all nervous symptoms ceased, but next period was not one fourth as much as usual, and was followed by profuse bright yellow leucorrhœa, so acrid as to excoriate whole perinæum. For some time after continued to have severe attacks of pain in uterus, lasting about 1½ h., during which she could not bear to be touched or moved, even jar against bed was torture, and she could not endure weight of clothes upon pelvic region. On examination womb was found anteverted.* (*Ibid.*)

11. Dr. LILIENTHAL, *op. cit.* 54. "October 30th, 1869.—Lilium seems to be a cumulative medicine; it takes a long time to get any symptoms from it. I have taken in the last few d. nearly 3j of tinct. without great results. Last e. felt irritable, sleep broken by disagreeable dreams; arose earlier than usual, not refreshed by sleep; head feels

* No. 10 also experienced out-pressing headache as in 8.

full, especially over eyes; reel and stagger when walking, with inclination to fall forward; outward pressure in whole forehead; cold chills run over face; feel chillier than in cold weather, with hot congested sensation in chest; usual cigar is nauseous and causes waterbrash; dull pressive aching from l. temple over ear to occiput, in paroxysms, with steady dull frontal headache, especially over l. eye. 31st.—Feel well, except for a little chilliness; in e., burning in forehead, with burning pressing pains, especially over l. eye; grumbling bellvache, with little inclination to stool; not so irritable, but want to be let alone, and not troubled to answer questions. 1st.—Feel pretty well during d., but taciturn and reticent; between 5 and 6 p.m., burning pressing headache returns, more in r. side of forehead, increasing in strength as e. passes on. 3rd.—Took ʒss. During forenoon chilliness over face, followed by fever, congestion to chest, and slight momentary spasmodic twitchings around heart; dull pain in l. temple, extending thence to forehead, with vertigo, especially when walking. Whole afternoon feel as if intoxicated, staggering forwards; dull in head, obtuse, cannot find right word, forget what I want to say; eyes full of water; face, especially forehead, flushed and hot, and pricking sensation in skin of forehead. 4th.—Engaged in fresh air in forenoon, and no symptoms observable; felt bright and clear in mind. E. passed in warm room; old headache returned, with some lachrymation; sensation as if a rubber band were stretched tightly from temple to temple, with old pricking sensation in forehead. 5th.—Was called out in n., and after lying down again was miserable and restless; everything seemed too hot. In m., dulness of head, a kind of dizziness, more in eyes, before which there seems a veil; impossibility of getting a clear idea; oppression and heat of chest—a kind of ebullition; must go into fresh air for relief, when headache becomes worse; steady pain in lumbar spine, spreading both ways to kidneys, continuing all d.; slight stiches occasionally in r. hip-joint; staggering gait, have to exert myself to utmost to walk straight; chilliness from face downwards; burning hot urine, seeming more like oil than water; burning stinging frontal headache, with same feeling as of an elastic band stretched over it; mind so muddled that I feared to lecture,—nevertheless, the more I spoke the better I was able to concentrate my mind on my subject; eyes feel as if full of tears all d.; disinclination to work, and lassitude in lower extremities; oppressive and congestive feeling in chest, increased in e.; irritable, depressed in body and mind, and unfit for work. 5th.—An h. after rising, pressive pains at angle between forehead and l. temple, digging down into orbit, making me wink; pains spread over whole l. hemisphere of brain; congestive chill, continuing whole forenoon, in fresh open air, it commenced in face and extended downwards; lassitude in thighs; compressive sensation in chest, with choked feeling, as if I would suffocate, but would feel relieved if the blood could be discharged, which seems shut up in heart—slight relief by deep sighing; heart feels heavy; pulse small and weak, as if blood did not reach radial artery in usual quantity; low-spirited, and not relieved by work. 7th.—P.m., usual headache; tearing pains in muscles of l. upper arm; frequent urination during d.;

but urine not so hot. 8th.—Same symptoms, with smarting in urethra during micturition; if desire to urinate is not attended to, there is congested feeling in chest; rousing of sexual desire, which has been dormant for years. 12th.—Felt well for last 3 d., save for a trifling headache every e. Awoke this m. irritable; increase of headache, which became severe towards noon, passing from forehead and temples to occipital protuberances, pain dull, pressive, heavy, continuing whole e., and through n., with sense of burning internally and externally; again chills running down from face, and congested feeling of chest. Felt burning hot all m., with queer, half-waking dreams; when awake time seemed much prolonged. 13th.—Woke unrefreshed, with fulness and weight in forehead. During d. make mistakes in speaking; eyes heavy and sight dim; legs weak, as if unable to support body; dull pressive pain under sternum to r., relieved by sighing and pressure; screwing pain in l. occipital protuberance, with drawing in l. nucha, which increased on going to bed to burning sensation, whole neck feeling lame and tired; pain in head shifts about, at last concentrating in l. temple. Frequent urination. 14th.—Restless sleep, full of dreams; emission towards m., extremely rare. Woke with same dull headache. Palpitation and beating of arteries, felt only while lying in bed or during siesta; amelioration of most symptoms in fresh air. During d., momentary twitches in l. temple. From 15th onwards headache continued during d., worse in e., gradually lessened from 22nd, and on Dec. 1st leaving only tenderness in l. forehead and temple. (At this spot since a slight sunstroke some years ago, I have suffered from pain during the hot season, or after excessive mental labour, neither of which causes were in operation now.)" (*Ibid.*)

12. Mrs. M.—, æt. 28, took 2 dr. of $\frac{1}{2}$ dil., April 3rd, 1869, every 2 h. After a few h., sensation as if a hard body were rolling around in stomach, continuing several h., but passing off in n. 4th.—Took 4 dr. every 6 h. Fine pains, sometimes gnawing, in r. chest, with feeling of lameness and soreness of muscles, and desire to stretch parts; lameness extended through to scapula of that side. 5th.—6 dr. every 6 h. Gnawing and fine pains increased, and extended over to l. side. Voice much affected when attempting to sing, could not control it. Chest pains continued through 6th, but by m. of 7th had disappeared. Took 6 dr. Bowels confined since 5th; pain in lower sacrum. Confusion and dimness of sight, with disposition to cover eyes and press upon them. 8th.—10 dr. In 15 m. pains in r. chest returned, with pressure and sense as of weight on chest. Craving appetite; dry hacking cough in e., better in open air; pain in lower part of back, and griping in hypogastrium, followed by 4 loose stools the 1st d., and continuing the 3 subsequent d., with great languor. (*Ibid.*)

11. *Poissonings.*—1. Fanny B.—, æt. 4, passed an anther of the common yellow tiger lily into her r. nostril. There occurred at once profuse discharge of yellow-coloured mucus from the nose, soon followed by vomiting, first of chyme and then of mucus, coloured yellow. The child then wanted to go to sleep. Dr. Warren reached the patient at 6 p.m., August 13th, 1862, about 20 h. after the accident. The child appeared sleepy, but was easily roused, and was intelligent.

Vomiting of mucus tinged yellow occurred while Dr. W— was present. The symptoms did not seem at all alarming. Dr. W— was called again at 10 p.m. Evacuation of the bowels had occurred, at first natural in appearance, then yellow coloured, like the discharge from nose and stomach, and finally bloody. Opium and brandy were prescribed. Patient was seen next m. A dejection, quite bloody, had occurred between 1 and 2 a.m., and after that the discharge was checked. The child seemed languid and sleepy; no vomiting or wandering. Eyes had a dull reddish injection. At 4 p.m., same. θ , condition unchanged; r. nostril nearly closed, mucous membrane of both nostrils very pale, some discharge of thin clear mucus. Next m. (15th), child looked brighter; eyes same; no urine passed during last 24 h.; slightly feverish; no delirium. 7 p.m., still no urine passed; several stools, dark coloured and very offensive. Some fever during d., slight delirium and startings, some nausea. 16th.—Shortly before 1 a.m. she had had a large, dark-coloured, and very offensive discharge, and immediately began to sink. She died a little before 4 a.m., about 59 h. after passing another into nostril. (*Bost. Med. and Surg. Journ.*, lxxvii, 279.)

LITHIUM.

Lithic carbonate, Li_2CO_3 .

I. Proving.—**r. C. L. K.**—effects of triturating drug. Pains in eyes as if little grains of sand were in them, decidedly greater in l. eye; later, stiches in r. (*Hausc's provings, Am. Hom. Rev.*, iii, 215.)

2. a. Huxley took $\frac{1}{4}$ gr. of 3rd rit. Pain in l. side of head and malar bone, sticking-burning sensation from below upwards (6 m.); head painfully confused (10 m.); headache like a stitch in r. vertex, which is sensitive when touched (4 h.); pain in l. parietal bone (3 $\frac{1}{2}$ h.); headache superiorly, r. side (r. of 1st d.). In r. ear tickling cooling sensation (5 m.); pain inwardly above globe, over external canthus (6 m.); burning-sticking sensation over r. eye outwardly and in r. molar tooth (10 m.); twitching drawing pain round r. eye, especially on outer side, and deep in orbit.—sunlight blinds him upon streets, on a dull d. ($\frac{1}{4}$ h.); sore pain in margin of upper r. eyelid, a feeling of dryness (and d.). Pain in bone behind l. ear, extending somewhat towards neck and further (1 $\frac{1}{2}$ h.). Coxyra ($\frac{1}{4}$ d.). Pain in l. lower molar (e. of 1st d.). Sensation in throat as if it would become sore ($\frac{1}{2}$ h.); soreness of throat on r. side when swallowing, for 2 h. (1 $\frac{1}{2}$ h.). Sticking-burning sensation in epigastrium, going from below upwards (10 m.). Violent pain horizontally in hypogastrium (1 $\frac{1}{2}$ h.). Violently painful dull stich in perineum, from within outwards, when walking (1 $\frac{1}{2}$ h.); itching in anus, very sharp, sudden, and short (10 $\frac{1}{2}$). No stool till end d.; diarrhetic stools m. of 4th d., followed by dark reddish-brown urinary sediment. Sensation as if bladder were affected (10 m.); sensitive pain in region of bladder, a sharp pressure, more on r. side, like flatulent colic (2 h.); later visceral tenesmus, to which he is subject, occurred. Genile twitching to and fro in spermatic cords and neural region (2 $\frac{1}{2}$ h.); pain at root and r. side of penis, with throbbing stiches while sitting (and d.). Violently painful dull stich from within outwards, more from above downwards, in sacrum (10 $\frac{1}{2}$ h.), and pressure there internally as with a dull point here and there, most on l. side (e. of 1st d.). Pain near insertion of r. pectoralis major, at margin of muscle ($\frac{1}{4}$ h.); pain in metacarpal bone of l. little finger (e. of 1st d.). Itching-burning pain on small spot, first of knee, then of r. hip, then of thigh, then of little toe, and itching-sticking pain internally on l. thigh.—knees are weak, and pain on going upstairs, and there is also pain in r. calf from above downwards and in r. foot (twitching) from heel

forwards ($\frac{1}{2}$ h.); ankles pain when walking, frequent urging pains, of moderate severity, of sickling character, from within outwards, ending in burning itching in small spot on l. side (e. of 1st d.). Shuddering over body.

6. Same took $\frac{1}{2}$ dr. of 1st dil. of L. causticum. Pain on r. side superiorly, later on l. side (s b.). Now and then toothache on z. side posteriorly ($\frac{1}{2}$ h.). Striking decrease of appetite up to 4th d.; slow belching; eructations before dinner, then pain in l. parietal bone—with eructations, painless but unpleasant passive pressure on small spot towards right of and below epigastrium. No stool 1st d. Passes less urine, though he drinks as much as usual. After 4 d., on lying down, violent dry cough, compelling him to sit up,—sickling comes from small spot low down in throat, cough in short paroxysms, very violent and exhausting, ceases gradually. Paralytic stiffness in all limbs and whole body, also slight pains here and there, sometimes becoming more violent, and lasting for several d together ($\frac{1}{2}$ h.). On e. of 1st d. intense itching on whole inner side of r. thigh, also on small spots on adjacent parts, and in l. middle finger. (*Ibid.*)

7. A young lady took 3st. Headache in l. vertex, a kind of stitch; also fullness at pit of stomach, she could not reduce pressure of clothes upon parts, pressure of hand upon it would have made her vomit; she had never felt so before (2nd m.). (*Ibid.*)

4. Dr. NEUBAUER took a small vial of 1st dil., half in e., half near m. After $\frac{1}{2}$ b. gentle pressing pain in l. forehead and subsequently near eyes, with heaviness of whole forehead and pressure in liver,—pain becomes gradually worse and extends to l. side, with nausea. Unusually easy stool on 2nd m., and offensive flatus and diarrhoea on 2nd n. Pain in sacral region ($\frac{1}{2}$ h.).

5. Same took 3rd dil. in e. Heaviness in antepit., especially in frontal eminence, whole of 2nd d. Urine redder and d., scarier 3rd d. Sudden shock or jerk in heart at times (2nd d.). Lax feeling of whole body, especially in knees and in sacral region, also general heat in whole body (2nd d.). (*Ibid.*)

6. Dr. GIBER took 5th dil. for 3 m. in succession. On 1st d. immediately pressure from without inwards in both temples, same also in middle of chest towards both sides; on 2nd d. same, with confusion of head and painful pressing outwards in l. abdominal ring, on 3rd d. confusion only, with pain in sacrum on standing. Weakness of sacrum when standing writing at a high desk (2nd d.). Pain and weakness of feet (2nd d.) Restless dreams (2nd n.). (*Ibid.*)

7. Dr. P— took 6th dil. for 2 d. Wakened early by pain in abdomen, followed by diarrhoea, repeated about 6 times during d.; gentle pains on two ensuing d.

8. Same took 5th dil. twice daily for 3 d. Pain in l. temple, extending into orbit, began s h. before dinner, with gnawing in stomach, passed away while eating, but came back about 15 m. after, and at same time was felt in r. temple,—fullness remaining in both temples whole afternoon (3rd d.). Pain in r. face from roof of tooth which had been sawn off towards temple, not severe but long-lasting (1st d.); same pain in l. face on 2nd d., going into l. ear and causing catarrh, with slight transient pain in l. temple; some pain in r. ear, with fullness in temple, lasting whole afternoon and e. (3rd d.). On 2nd d. of menses there occurred uncertainty of vision and an entire vanishing of r. half of whatever she looked at,—it was the same with both eyes when tested, therewith pain over eyes and tension as if bound in temples, ceasing while eating, but returning as pressure and lasting till she went to sleep (after proving). Easily nauseated before meals while driving (3rd d.). From 1st to 3rd d. gnawing sensation in stomach before meals, relieved by food, on 1st d. increasing almost to vomiting; sense as if heavy hard body were in stomach, for short time after supper (3rd d.). Pain in abdomen (1st d.). Menses 3—4 d. later, and diminished. In m., after rising she bent forwards over bed, and felt intensely very violent pain in region of heart (3rd d.). On 4th d. pain, or rather feeling of soreness in small spots on r. side of spine below loins, sensitive to touch, continuing all d.; on 5th n. same sensation, changing to dull pain in sacrum, and lasting till she got up. Now and then rheumatic sensations in legs (after proving). But little sleep, without restlessness.

9. Took 7 doses more. Transient pain in l. temple, then in r. brow, during slow driving. Pain now and then in r. brow, also in r. thigh ($\frac{1}{2}$ d. after ceasing to take medicine); pain at outer end of r. brow, gradually extending to temple and about

or (10—12 h.). Restlessness in stomach and pain and weight over brow, towards e., being till she fell asleep. Pain in r. thigh in front and towards outside, in small spot as if at insertion of a muscle; pain through hollow of l. foot, extending horizontally to outside of foot, and thence along leg to a little below knee,—most violent and persistent when walking (14 h. after last dose); rheumatic pain in r. foot, beginning heel, and extending to mid-foot.

4. Took out dose more. Tension in temples and weight in forehead towards e. Red in eyes; eyes pained during and after reading, as if dry, and lids especially were sore. Menses again later and scarcer. Pain in heart. Pain in l. hip to d. Pain in l. foot as in previous evening. (*Ibid.*)

LOBELIA.

Lobelia inflata, L., Indian tobacco; *L. cardinalis*, L., cardinal flower; and *L. siphilitica*, L., great blue lobelia. Nat. Ord., *Lobeliaceae*.

1. *Proving.*—1. Dr. S. R. DAVIS took 10 dr. of concentrated tinct. of *L. cardinalis* in water at 10.10 a.m. Local burning caused by it lasted till n. In 20 m., sticking, like pricking of needles, in l. sole, shooting inwards; for few m. 30 m., same sensation above r. knee. 11.30, dryness of nose, with fulness, followed by sneezing. 12, severe itch in l. chest, compelling him to press with hand to moderate it, as it nearly took his breath, and lasting about 10 m. 12.15, same pain in l. hypochondrium, so sudden and violent as to make him cry out, relieved by pressure, lasted 5 m. 3 p.m., tongue raw and sore, very red, especially at tip, where a blister formed; throat sore and dry, with disposition to swallow, as also to hawk up phlegm; headache, dull and distressing, with fulness in forehead and base of occiput—latter peculiarly painful; pain increased by motion or shaking head. 5, severe pricking pain with itching in l. heel, so great as scarcely to be borne; headache increased; throbbing and weakness in lower extremities, so great as to induce him to lie down; hot sweat on forehead, with throbbing in that part and at base of occiput; stiffness of nape; dull pains in both upper maxillary bones, with aching in molar teeth; whilst lying down, great sleepiness, with difficulty in falling asleep; constant dreaming, with extreme tightness of head; starting in sleep, with jerking of hands. 7.30, unpleasant sticking pain in epigastrium, which lasted 5 m. 9, very little pain in forehead, but pain is still throbbing and almost insupportable in occiput and nucha; soreness in eyes, with smarting and slight watering; great repugnance to light of lamp. 10, oppression of breathing, with dull distressing pain across base of chest, relieved by beating lightly on part with hand; dull heavy pain in and near epigastrium, with sensation of weight or load; languor of whole frame, with weakness as from sprain across kidneys. 11.30, slight shooting pain in forehead, with eruption of small vesicular pimples in its centre and upper part, they feel sore on passing hand over them; pain in occiput now very slight; disposition to sing, which he was continually doing whilst walking up and down room. 12, thirst for cold water, Oss. of which much relieved tongue and fauces, and the chest. Next d. (6 a.m.) head feels light, with dull pain in forehead and occiput. 8, eyes burning and watery, with dread of

light, they feel sore on closing them; mouth and fauces dry, with raw and distressed feeling extending down to epigastrium; some nausea, no appetite for breakfast. Throughout d. great debility of whole frame, especially of lower extremities, which are so much fatigued by any exertion that it is with difficulty they can be dragged along, knees bending under him in walking. On 3rd d., still local effects and weakness of legs; also, oppression of breathing throughout d., with sticking pains on taking a long breath, and pricking pain in l. lung, coming on several times in d. and lasting several m. each time, pricking also in l. calf and heel. Most of above symptoms continued, though with less intensity, for 2 weeks, and it was at least 3 weeks ere stomach recovered its usual tone and good appetite returned. (*Mat. Med. of Amer. Provings.*)

2. Dr. JEANES proved *L. inflata** on self and 3 following persons, manner not stated. Symptoms accredited by self are,—vertigo, with nausea; pain in occiput; dull heavy pain passing round forehead from temple to temple immediately above eyebrows; pain in l. parietal protuberance; severe and frequent itching in angles of lids; aching in l. ear; shooting into l. ear from painful spot in throat about 1 in. to l. of larynx on level of lowest cartilage; soreness of throat; drawing pain in r. throat, extending upwards to ear; flatulent eructation, with sense of heat and acidity in stomach; feeling of weakness in stomach; pain in r. hypochondrium,—in loins,—about 3rd—5th dorsal vertebræ; chills down back, with heat in stomach; prostration of strength; pulse smaller and weaker. (*Ibid.*)

3. GAUST. Dull feeling in occiput; outward pressing in both temples, at same time dull pressing pain in flesh just above l. elbow, and hand feels as if paralysed; chilliness of l. head, with feeling as if hair would rise on end; pressing pain in eyeballs; itching in angles of l. lids; smarting of inside of lids; peculiar drawing feeling from r. side of mouth to r. eye; chilly feeling in l. cheek, extending to ear; drawings in lower jaw; dull pressing pain in l. molar teeth and temple; drawing pain from r. throat upwards to ear; flatulent eructation, with sense of acidity and heat of stomach; some pain in hypogastrium; sticking pain in r. renal region; frequent short dry cough; tightness of chest, with heat in forehead; inclination to sigh, deep inspiration; short inspiration, slow expiration; peculiar feeling between tickling and smarting in larynx, like irritation to cough, which, however, seldom occurred, and then was accompanied by feeling of oppression; pain in chest; burning feeling in chest, passing upwards; slight deep-seated pain in region of heart; pain under mid-sternum; pressing pain at l. of lower sternum; feeling of drawing from l. nipple to axilla; rheumatic pains between scapulæ; slight drawing pain between scapulæ, following slight muscular twitches over l. ribs near spine; pain, only when touched, in muscles of r. arm, in space of width of hand, preceded by slight rheumatic feeling in shoulder; fine crawling stitches within r. deltoid; paralytic feeling in r. arm; pain in r. elbow-joint; pressing pain on outer middle part of thigh, and at same time constrictive feeling in head; pain in l. leg while sitting; feeling about knees of pain and

* The remaining provings, to No. 17, were all made with this species.

stiffness, as from fatigue; cramp-like feeling in l. gastrocnemius and in hollow of l. foot. (*Ibid.*)

4. **LITKE.** Pain in head; flow of clammy saliva; hiccup; sense of oppression at epigastrium, as if stomach were too full, worse on pressure; dull pain in abdomen; oppression of chest; pain under mid-sternum; sleep disturbed by numerous dreams and frequent wakings. (*Ibid.*)

5. **WILLIAMSON.** Vertigo, with nausea,—with pain in head and trembling agitation of whole body; pains through head in sudden shocks; pain and soreness in r. eye; pungent taste in mouth; dryness of mouth and throat; burning in throat; eructation of acid fluid with burning sensation; burning in stomach; sensation in abdomen, as if diarrhea was about to occur; whitish soft stools; scraping sensation as from passage of a rough hard body during stool; discharge of black blood after stool; aching pain in urethra; smarting of prepuce; sense as of lump in throat-pit, impeding respiration and deglutition; severe rheumatic pain in r. elbow-joint; prickling sensation through whole body extending even to fingers and toes. (*Ibid.*)

6. **Z—s**, a physician, took tinct. in teaspoonful doses every 15 m. till nearly 3j had been consumed, without producing vomiting. He had—general tightness of chest, with short and somewhat laborious breathing, and disposition involuntarily to keep mouth open to breathe; with this indescribable feeling about stomach, compounded of nausea, pain, heat, oppression and excessive uneasiness. After 24 h. weakness of stomach and disagreeable taste in mouth, somewhat similar to that of a solution of corrosive sublimate. (*Ibid.*)

7. **N. N. KERMES**, æt. 26, dispenser to the homœopathic pharmacy at Leipzig, and of lymphatico-venous temperament. When a youth, had an obstinate attack of ophthalmia, and 4 years ago had pneumonia. He communicated to me the following account of his proving of lobelia, commenced on the 14th of February, 1839. At 9.30 a.m. took 30 dr. of tinct. in 2 or 3 oz. of water, which was immediately followed by scraping pain in throat, passing off in 3 or 4 m. After 10 m. headache with slight vertigo, occasional transitory stitches in temples, distension of abdomen accompanied with quickened breathing (lasting about 15—20 m.), and increased secretion of urine. The headache lasted until nearly midday. At 4 p.m. took 20 dr. in 3j of water. The scraping in the throat came on at once, but not so severely as last time; after ½ h. distension of abdomen and shortness of breath set in; after 1 h. irritation to cough, soon passing off. An unusual frequency of micturition was noticed during d., and also in n. and next d. (**NOACK's** provings, *Hygiea*, xv, 45.)

8. **DR. ALPHONS NOACK**, of Leipzig, began his proving March 4th, 1839, being in sound health. At 7 a.m. passed 12 "loths" (loth = ½ oz.) urine of moderate acidity and specific gravity. At 7.15 took 1 dr. of tinct. on an empty stomach, pulse being 70. Immediately after, scraping feeling in throat on swallowing, as tongue touched hard palate, passing off in about 6 m. At 11 a.m. pulse 50, 7 "loths" of urine voided, like that passed in early m. Took 20 dr. on sugar, causing immediately burning in throat, which developed into a scraping

and lasted about 12 m. At 12.30 pulse 60. At 3.15 p.m., having noticed nothing striking in his condition, took 50 dr. on sugar, pulse being 63. The scraping in throat came on more severely than before; 5 m. after dose pressure in pit of stomach was felt, like a weight; after 5 m. more scraping seemed as if it would change into nausea, but there was merely a threatening of this; 13 "loths" of urine were passed, a trifle lighter in colour than before. By this time there was a sort of pressure, as from a foreign body passing down length of œsophagus; in places it was more severe, for instance, just below the larynx. From this spot a twisting sensation like peristaltic movement extended down to epigastrium, and pit of stomach and spot below larynx were, throughout, the most sensitive regions. At same time two easy eructations of gas; no distension of stomach or abdomen, but slight rumbling in bowels. Swallowing did not affect thepressive pain in pit of stomach, which gradually decreased, and seemed as if it would end in a sensation as if a plug extended from epigastrium back to spine at same level. This pain disappeared at times, but soon returned with twisting sensation which started from pit of stomach and the spot near spinal column, and proceeded r. and l. through mediastinum, missing œsophagus altogether; deep inspiration gave relief. By 5 there remained only trifling pain in back, hypochondria, and epigastrium, felt on turning trunk; as if central tendon of diaphragm were put on the stretch. This all gradually disappeared. At 3.45, pulse 62, and at 7, 68. No action of bowels; urine was passed four times (one of which was before first dose), making a total of 45 "loths," only 32 of which were voided after proving began, the average for a healthy adult being 60—80 "loths" per diem. On going to bed at 10 no inclination to urinate; the morning's urine, under a temp. of 11° R., had deposited a bright red sediment on the vessel, and by next m. small brown crystals were found. Under a magnifying power of 200 diameters they looked in size and shape like large currants, and resembled a conglomerate gland. 5th.—Nothing remarkable noticed; pulse, 9 a.m. and 5 p.m., 75, usual stool 11 a.m.; urinated six times and passed 70 "loths;" urine as a whole was of paler colour than before (except that of early m.), and it yielded no sediment by next d. 6th.—7 a.m., passed 20 "loths" of urine. 9th, took 80 dr. tinct. without sugar; p. 63; first burning, then scraping in throat, and flow of saliva, due to disagreeable taste of tinct.; also nausea and slight eructations, tasting of medicine (after 5 m.). After 10 m. scraping in throat passed into pressive sensation; p. 63. 9.30 a.m., slight heaviness in occiput, spreading in $\frac{1}{2}$ h. to forehead with same intensity and soon disappearing. 9.45, normal stool, and 8 "loths" of urine. In addition to above symptoms slight pain in abdomen and rumbling set in, with discharge of very offensive gas. Pulse at 9.30, 53; at 10.45, 55; at 1, 63; and 2.15, 61. Midday meal taken with usual appetite. 2, 12 "loths" of urine of high specific gravity, continued discharge of flatus. 3.15, took 102 dr. of tinct., followed by usual burning and scraping, by increased secretion of viscid saliva ($\frac{1}{2}$ h.), and by nausea and eructations, pulse being 58. 5 m. later pressure in œsophagus and epigastrium returned slightly, much less than d. before. Some

oppression, necessitating deep breathing, slight abdominal pain and rumbling, offensive flatus, eructations (sometimes forcible) and nausea, lasting until bedtime, were all that was felt after this dose. P. 58 at 5 p.m., 72 at 8. Urine, 5 p.m., 9 "lots"; 9.30, 10 "lots," of pale yellow; in the 24 h. 69 "lots" passed in five times; it had not deposited a sediment by next m. After next d. condition normal in all respects. (Dr. Noack examined for albumen with perchloride of mercury, and found a precipitate resembling that substance, but it was not confirmed when tested subsequently with other reagents.) (*Ibid.*)

9. A medical student named BIRKNER, æt. 23, of middle height and vivid colour of cheeks, and of a scrofulo-venous constitution. He had suffered from various ailments as a child, including scarlatina followed by dropsy; was long in weak health, and had some deviation of the spine. Two years previously he suffered from hæmorrhoids, which, however, entirely disappeared. He suffers in winter from slight catarrh, and is habitually constipated, not having an action of the bowels oftener than every 2nd d.

a. July 25th, 1839, took 4 dr. at 7 a.m., pulse 56, followed at once by scraping in throat and warmth in stomach. In open air felt pressing pain in occiput lasting until midday. After dinner pulse 68, and in e. 59. Hiccup several times about 6 p.m.; about 8 some return of occipital headache; stool as usual in e. No change in urine either in quantity or quality. 26th.—8 dr. at 7 a.m.; at once dryness in throat and warmth in stomach. Slight headache, especially on going upstairs. Towards e. hiccup. Pulse and urine as usual. 27th.—Took 16 dr. at 7 a.m., followed by dryness in throat. On moving, confusion of head, especially at vertex. Pulse and urine normal, but urine has a thin film, like a mist, upon it. Stool in e. as usual. 28th.—No medicine. Pulse, m., 56; after dinner, 70; e., 64. Urine normal. No symptoms all d., nor the 2 following d.

â. Aug. 24th.—10 dr. at 7 a.m. At once scraping in throat, eructations and sensation of burning rising from stomach; warmth in stomach. After eating great dryness and scraping in throat, not relieved by drinking, and lasting 1 h. Pressure in stomach after a small meal. In e. heat of face and peculiar dull tension in head. Pulse, m., 56; after 1 h. same rapidity but rather small, and in e. 76. Urine normal. Stool in e., although bowels had acted the d. before. Sleep good. 25th.—20 dr. at 8 a.m.; at once heartburn, with flow of water in mouth; burning in throat, soon changing to feeling of dryness and lasting all forenoon. Towards e. heat, and tendency to sweat, especially about face. Distension of abdomen with painful rumblings. Severe pressure in epigastrium. Sensation of fulness in chest, with somewhat short and superficial breathing (24 respirations per m.). Abdominal respiration appeared to be entirely absent. Pulse, m. 55, midday 87, e. 90; feebler than usual. Urine normal. About 9 p.m. bowels acted, stool more pappy than usual. 26th.—No dose. Slight nausea in m., going off after a draught of water. During d. much distension with slight rumbling, tendency to sweat, feeling of languor, and slight pain in chest, aggravated on deep breathing. In e. heat and dull headache towards back of head. Urine normal and stool again in

c. of a natural appearance. Pulse rather more rapid. 27th and 28th. —No dose; no symptoms except on 27th slight tickling below inferior extremity of sternum on deep breathing, and on 28th scarcely noticeable tension in region of lambdoidal suture. No stool either d.

c. Sept. 1st.—40 dr. at 7 a.m. Pulse was 58 before dose; immediately after, scraping and painful soreness in throat with sensation of constriction of œsophagus passing from below upwards. Frequent eructation with flow of water in mouth. Embarrassment of breathing; respiration somewhat quickened, and accompanied with sensation as if insufficient, necessitating occasionally taking a deep breath. The abdominal breathing appeared lessened, and it was more than usually difficult to hold his breath. After 2 h. pulse 74; in afternoon 83, and at 10 p.m. 76; otherwise normal. After food fulness, pressure in region of stomach, rumbling in abdomen and slight confusion of head, which increased in e. to severe pressive headache with considerable heat of face. The difficulty of breathing lasted only 2 h. Bowels acted, urine normal. 2nd.—No dose. Pulse, m., 56; midday, 75; e., 68. Urine normal, no stool. In m. peculiar trembling in abdomen, as of an antiperistaltic movement in stomach, but without nausea. Pressure in occiput, relieved by taking off his hat. Breathing again feels insufficient, otherwise natural and easy. Loss of appetite. Experiment broken off. (*Ibid.*)

10. Isidor Marx, M.D., æt. 29, in robust health; small in stature; dark complexioned with yellow tinge; of melancholy temperament; and tolerably sensitive. Had tertian fever in Italy, but now quite well except for some degree of constipation. Feb. 6th, 1840.—Took 20 dr. in bed soon after waking; immediately felt considerable and penetrating burning scraping in throat from anterior palatal arch to larynx, causing, after $\frac{1}{2}$ h., frequent hawking of an abundance of mucus. After an h. only slight scraping, which appeared to be felt more at r. side of larynx, but was always worse on swallowing. The scraping was perceptible until 11 a.m., gradually getting less, and in afternoon nothing was left of it. 7th.—Painful dreams in night, not, however, interrupting sleep. At 6 a.m. took 20 dr.; same scraping as before, but less burning. Soon after there was a very painful feeling of twisting in præcordial region lasting from 5—8 m.; less mucus in throat than d. before. At 8 a.m. moderate scraping, lasting only until 9. No other symptoms all d. 8th.—20 dr. in bed; some scraping as before, but less severe. 9th.—30 dr. 6 a.m.; besides scraping, frequent yawning for 2 or 3 m. after dose, internal restlessness, copious flow of thin saliva soon filling mouth; severe painful feeling of twisting in præcordium; nausea with cold sweat on head, especially face, and great inclination to vomit, which did not occur. This nausea, &c., lasted 5—8 m. and gradually passed off entirely in $\frac{1}{2}$ h. Quite well after this. 10th.—At 6.30 a.m. 30 dr.; some scraping at once, and 2 m. later yawning, stretching, sweating of face, flow of saliva, slight inclination to vomit, and twisting pain in stomach. These last three symptoms less severe than d. before. 11th.—10 dr. at 9 a.m.; slight transient scraping, as well as a sort of loathing in stomach itself. At 11 a.m. same dose; no

more symptoms, excellent appetite for dinner. At 4 p.m. 10 dr. again, after which sensation of loathing returned, not more strongly but lasting longer. 12th.—Distressing dreams in n. At 8 a.m. 15 dr. Besides the scraping, violent and frequent hiccup came on 3 or 4 m. after dose, occurring about 20 times together, gradually lessening in intensity and disappearing. Frequent hawking on account of collection of mucus in throat. Took 15 dr. more at 4 p.m.; slight scraping only. 13th.—2 doses of 15 dr.; no new symptoms. 14th.—At 9 a.m. 50 dr. in a glass of water. Nausea both before and after dose; $\frac{1}{2}$ h. later yawning and violent scraping in throat; frequent stretching and trembling in stomach, lasting 1 h. Good appetite at noon. Repeated dose at 3.30 p.m.; more burning than scraping for $\frac{1}{2}$ h. Loamy taste left in mouth. 15th.—At 6 a.m. 75 dr. in water; nothing noticed beyond loathing and transient scraping. No stool for $1\frac{1}{2}$ d. At night all sorts of dreams. 16th.—At 9 a.m., 100 dr. in a glass of water. Transient scraping and loathing and shivering lasting till 11 o'clock. Several times belching of wind. Good appetite at dinner. Took 150 dr. at 3 p.m.; scraping, shivering from the loathing feeling, frequent belching, feeling of weakness and trembling of stomach, lasting longer than before, no more symptoms after $2\frac{1}{2}$ h. Subsequently on several d. prover took more frequent doses of tinct., but did not obtain any new symptoms or striking increase of old ones. In consequence of this he brought his experiment to a close. It is especially noticeable that, in this case, small doses affected the throat chiefly, while large doses acted principally on the stomach. This agrees with the experience of American physicians. (*Ibid.*)

11. LAURA KOCK—æt. 21, born of healthy parents, slenderly built, with florid complexion, blue eyes, brown hair, tranquil disposition, and soft voice. Menstruation was regular, and accompanied with spasmodic pain, which had been present every month since she had amenorrhœa some years ago. Never seriously ill, digestion good, sleeps quietly, dreams but little, of regular habits, and in good health. The only noticeable peculiarity is that her hands perspired somewhat. May 15, 1840.—Took 6 dr. overnight, and had scraping in throat at once and slight empty eructations in $\frac{1}{2}$ h.; she passed a restless night, dreaming much. On awaking in m. cutting and drawing pain in abdomen. 2nd.—At 5 a.m. took 6 dr., thereupon scraping, chills all over, pains in joints ($\frac{1}{2}$ h. after dose), soon passing off; appetite good. In afternoon, after a short walk, pains in back and belly, worse than in m.; also pain in chest and burning of eyes. Tiredness in back and heaviness of head all d. Before retiring took 6 dr.; no symptoms beyond scraping and eructations. Slept well. 4th.—No dose; no symptoms since last noct. Took 6 dr. this m. Slight scraping and eructation. After breakfast pain in belly and back, especially the former, and pain in chest also. All symptoms disappeared in 1 h. 5th.—Took no med., but the pain in back and belly came on. 6th.—9 dr. Scraping, with abdominal pain, worse from eating. Took 9 dr. more on going to bed; restless sleep, with anxious dreams. 7th.—9 dr. this m. Same pains as before, with fatigue of limbs. In $\frac{1}{2}$ h. later repeated dose with less effect than before. At 3 p.m. 20 dr.; pain in

belly and severe pain in loins. At 6 p.m. 30 dr., and less result still. After supper some pain in abdomen. Before going to bed, 40 dr., followed by scraping, eructation, restless sleep, and on awaking next m. cramp in calves. 8th.—No dose. Slight pain in belly and loins. Half h. after breakfast burning pain under r. breast, extending to pit of stomach, at first limited to an area about size of nut. When she moved sharply, took a deep breath, or sneezed, it caused a feeling as if something became displaced, and then went painfully back to its place again. Apart from these aggravating circumstances, the pain was only a slight burning. Towards midday the area of pain enlarged, in both directions, and in site of original pain a severe boring sensation developed. After dinner the pain increased, but passed off in about 1 h., returned with increased severity about 4, and extended from before-named spot right through body to back and under r. shoulder. The painful parts felt as if paralysed, she could not move them; the pain and weakness passed off in about 2½ h. Passed restless n. with anxious dreams after having taken another dose of 50 dr. Nothing noticeable to report of next menstrual period. (*Ibid.*)

12. Dr. G. OTTO PIPER, of Dresden, July 13th, 1840, took 2 dr. at 5 a.m. fasting, and at the same time next d. 4 dr. Slight retching followed the scraping, which, with constriction and elevation of pharynx, lasted ½ h. 26th.—6 dr. At midday severe searing in fibula from below up to knee, on both sides. 17th, grt. 7; 18th, grt. 8; 20th, grt. 10; 22nd, grt. 16. In forenoon severe constrictive pain in l. posterior iliac region, scarcely permitting of its being touched or moved. Unusual languor until towards e. Painful heaviness of genital organs. 23rd.—On awaking same condition, lasting till 9 a.m. During forenoon perfectly well. 24th.—20 dr.; the condition of genital organs came on in e. again, but less severely. 25th.—Quite well. Could not continue the experiment on account of the burning and scraping, much more severe than that from Mezereum, Ledum, Polygonum, and Euphorbia; and the nausea arising from the large doses lasted until noon, and prevented the prover from attending to his work. (*Ibid.*)

13. BARRALLIER'S experiments, 1st series; dose, 5 dr. in water at 8 a.m., fasting.

a. A young man, æt. 20, in good health, pulse 72. Nothing noticed on taking the dose except sensation of pricking in the throat, lasting several m. At 10 a.m. headache, gradually increasing in severity. 11 a.m., decided sleepiness, slept until 3, and awoke with headache worse. 3-30, sharp colic, with 3 diarrhetic stools. Headache and colic lasted a great part of the night.

b. Healthy subject, æt. 27, pulse 74. At once piquant flavour in mouth, as from tobacco in powder; at 9 a.m. slight sensation of constriction in thorax; normal condition rest of d.

c. Healthy subject, æt. 20, pulse 58. During 1st h. nothing noticed. At 10 a.m. slight colic, increasing until e., followed by 4 large liquid stools; annoying borborygmi; no appetite all d.; pulse unchanged. Towards e. general malaise, with perspiration and constriction of thorax. These symptoms did not last long.

d. Healthy subject, æt. 29, pulse 74. Piquant feeling in the throat at once. At 1 p.m. slight colic, then heavy sleep for 1 h.; on waking colic became severe, followed by 2 diarrhetic stools, when the pulse fell to 58 per m., but remained full. All symptoms gone by 6 p.m. (*Bull. Gén. de Thérap.*, lxxvi, 76.)

14. Second series. Dose, 10 dr. in water.

a. Subject in robust health, æt. 25, pulse 76. On ingestion disagreeable piquant sensation in mouth, especially at tip of tongue and back of throat, lasting about $\frac{1}{2}$ h. At 10 a.m. slight headache, gradually getting worse; drowsiness, pulse weaker, 60, became small and occasionally intermittent. Painful constriction in region of sternum; pupils slightly dilated. In afternoon all these symptoms disappeared except the drowsiness.

b. Subject, æt. 28, pulse 70. At once similar sensation to previous experimenter. 9 a.m., constriction of thorax, mental inactivity, and inaptitude for work, muscular fatigue. 11, slight colic. Afternoon normal.

c. Subject, æt. 20, pulse 72. Immediately eructations and distressing nausea, lasting 15 m.; headache and thoracic constriction in afternoon, and general weakness in e.

d. Subject in robust health, æt. 20, pulse 70. For an h. or two only felt result of local contact of liquid and some nausea lasting about 1 h. At 10 a.m. slight dilatation of pupil and considerable sense of tightness of thoracic region, as from a tight band round chest. This tightness, which occasioned very obvious embarrassment of breathing, lasted about 20 m.; towards e. intense headache. (*Ibid.*)

15. Third series. Dose 20 dr. in water (2 spoonfuls).

a. Healthy subject of good constitution, æt. 47, pulse 68. Sensation of roughness and dryness in back of throat, eructations and distressing nausea until 9 a.m. A few seconds after eructations left off a very painful constriction of thorax set in, especially at lower part; pulse fell to 56, was small and irregular. Precordial anxiety, action of heart occasionally tumultuous. This very painful condition lasted $\frac{1}{2}$ h., and was accompanied with severe headache and drowsiness. Pupils dilated, anorexia all d. Stool easier than usual.

b. Subject, æt. 27, of good constitution, pulse 72. Nausea on swallowing drug; feeling of weight in epigastrium, eructations, constriction in region of sternum and of larynx; dysphagia. 10 a.m., intense headache, sleepiness, dilated pupils, disturbed vision; pulse irregular, 58; no appetite. (*Ibid.*)

16. Fourth series. Dose 40 dr., fasting, in 2 spoonfuls water.

a. Dr. BAMBALLIER, of good constitution, æt. 47, pulse 66. Very disagreeable piquant sensation on swallowing dose, nausea and inclination to vomit difficult to repress, painful eructations, very distressing general malaise, precordial anxiety, extreme difficulty of breathing caused by severe constriction in centre of chest hindering respiratory movements, dysphagia, hoarseness of voice; at same time vertigo, headache, disturbed vision, pupils dilated, constant nausea, walking difficult, pulse 50 per m., small and irregular. This condition of discomfort was succeeded after about 1 h. by heavy sleep, disturbed, however,

by the least noise; some colic in the afternoon, with dislike for food; during n. unrefreshing sleep, interrupted by hallucinations. (*Ibid.*)

17. Dr. NORTON, on March 22nd, about 1 h. after breakfast, took ʒss of tinct. followed in 20 h. or two by slight nausea. 23rd.—Took ʒj. Slight nausea only. 24th.—Took ʒij after breakfast. Nausea all m.; uneasiness or feeling of lump or weight in stomach for a few moments; about noon burning pain in back as if in posterior wall of stomach; nearly all the symptoms disappeared towards e. 25th.—Took ʒiiss. Eructation immediately after, repeated several times during d. Nausea and sensation of a lump or weight, as if from undigested food. A sensation of warmth or burning all over stomach; rumbling in bowels and passage of flatus downwards. No appetite for dinner; dryness of fauces; spitting at intervals. Amelioration of all symptoms towards e.; enjoyed tea. (*Brit. Journ. of Hom.*, xvii, 464.)

18. Proving of *L. syphilitica*.—Dr. WILLIAMSON took 2nd dil., 10 dr. twice a d. for 3 d. On 1st d., ¼ h. after first dose, pain on l. side of head, over coronal suture; dryness of l. half of palate; sense as of lump in upper part of œsophagus; hiccup; transient pain over l. kidney, and soon afterwards in l. hypochondrium; heavy pain in l. radial muscles; p.m., pain in both mastoid processes, first felt and worst in r.; drawing sensation under r. eye; sense of dropping under l. cheek-bone, pain in r. maxillary joint and in middle of r. lung; after 2nd dose, return of pain over coronal suture and in radial muscles, but of r. arm. On 2nd and 3rd d. acute pain along r. temporo-frontal suture; smarting itching of l. internal canthus; dryness of throat, with sense as if pharynx was open like a funnel; three loose stools; increased quantity of urine, with free discharge. On 4th d., awoke at 3 a.m. with flatulence, but inability to pass it from bowels, and again at 6 with violent pain in stomach, and pain and borborygmus in bowels, followed by copious watery stools, with tenesmus and soreness in anus; had four similar attacks during d., and they became so violent that he took podophyllin twice, which arrested the diarrhœa, and the pain gradually subsided during e., but pain in stomach and distension increased, with hunger and water-brash. On 5th d. felt as when suffering 13 years ago with dyspepsia, temporarily relieved by drinking cold water; jolting of an easy carriage gives pain in stomach and both hypochondria; boring pain in r. orbit, and soreness of eyeballs when turning them; flushed face, with heat, when lying down; bleeding of gums with putrid taste; rheumatic pain along r. clavicle, and over r. inner ankle; stiffness of nape from looking up; sense of coldness with aching in both knees through d. On 6th d., headache after dinner with flushed face, drowsiness and lassitude, and inability to sleep when lying down,—somewhat better on going into open air; drawing pain in r. cheek-bone; morning hoarseness and cough; pain under l. breast; sore pain in joints of l. big toe; at n. restless sleep with frequent wakings, and headache continuing till daylight. (*HARING'S* provings, *Hahn. Monthly*, vi, 520.)

19. Dr. JEANES took 5 dr. of 2nd dil. Immediately pain in region of l. tonsil. During 1st h., in this order, pain about junction of 6th r. rib with sternal cartilage; continued itching in l. ear; constrictive

feeling of mouth and tongue, especially at l. commissure of jaws; pain in region of l. kidney; confused feeling, with slight aching, in head, and frequent mistakes in writing and spelling; very considerable aching of r. shoulder and fingers whilst writing; itching of l. internal canthus; pain in both hips occasionally (also after several h.); coldness of hands and heat of forehead; sinking feeling in stomach, followed by borborygmi; stitching-drawing pain in l. anterior lumbar region; aching in cartilage of sixth l. rib; pain in fleshy part of last phalanx of l. great toe; pain in l. chest near axilla, with aching in l. shoulder and arm; stiff numb feeling in r. palm; stitching pain in l. temple; burning in r. eye; stitching pain in r. renal region; itching in l. external canthus; pain in l. ear; soreness of r. eyelid; great soreness, rawness, pricking, dryness of palate, extending forwards through whole mouth; feeling as of foreign body under r. upper lid, with smarting and burning; itching and smarting in fore part of urethra; stitching pain in l. tibia; flashes of heat in back, shoulders, and face, with burning of ears; slight pain in region of pylorus; pain between shoulders and neck, both sides; stitching pain in r. back, passing from 8th rib downward; pain, acute and sticking, in 8th dorsal vertebra. After 60 m. thick mucous secretion in throat, with diminution of the very unpleasant feeling of constriction, rawness, dryness, and soreness (which, however, had not gone off 12 h. after). In 65 m. pain in lower part of r. tibia and in r. ankle. In 2 h., perfect dryness of lips, and feeling of dryness and sensitiveness of nostrils, so that inhalation of air (at about 60°) creates a painful feeling; pain in l. heel. After 7 h. pain in cardiac region, severe about sunset. After 10 h. pain in inner edge of l. scapula. On 2nd d., painful irritation within nose, which is sensitive to cool air; frequent sneezing, with severe and painful jarring in breast and larynx, latter feeling as if stretched almost to bursting, with copious discharge of thick mucus from both nostrils; renewed secretion of thick mucus in throat, with snuffing and hawking, still further diminishing soreness; borborygmi just below epigastrium for hours, most after dinner; pains in abdomen, most below umbilicus, followed by diarrhetic stools in afternoon and e.; a small quantity of urine, which he is compelled to retain for some time, causes pain in bladder, when evacuated it is of deep amber colour; much tickling about top of larynx, with disposition to hacking cough. (*Ibid.*)

20. I. W. B.—took 1st—5th dil. In 1 h. pain in l. parietal protuberance. In 1½ h. pain just anterior to cartilaginous margin of short ribs. General aching in head. Cutting pains in back under false ribs, forwards and upwards, not noticed after going to bed. (*Ibid.*)

21. Dr. NEIDHARD took 5 dr. of t_2 at 4 p.m. In 5 m. dizziness, particularly in moving about, lasting 3 h., and oppression in forehead above eyes; soon dull aching in forehead over eyes and especially nose, lasting, with slight intermissions, till e.; also slight aching from back of head down nape. On 2nd d. took 10 dr. m. and e. After 1st dose, in 15 m. heaviness over eyes, like a weight, but no pain; in 1½ h. dull pain in forehead over eyes, increased by reading and writing, less severe than on previous d.; also oppression over eyelids and slight drowsiness.

After 2nd dose, in 10 m. slight aching over eyes, especially L., and increased secretion of mucus from throat. (*Ibid.*)

11. *Poisonings*.—1. A lad, suffering from constipation, had had lobelia inflata administered to him. Dose unstated. Symptoms:—Pulse quick, small, easily compressed, tongue white furred, abdomen tympanitic but not painful. Did not appear seriously ill. At 3 p.m., after having been in the country, was seen to be worse, was pale, ghastly, and anxious, as if from a great shock; skin mottled; no pulse at wrist; heart's action very feeble, and its sounds scarcely to be distinguished from each other; breathing extremely laboured; abdomen tympanitic; senses dull, but he answered questions. Vomited matters were olive colour, and "not unlike the coagulated blood deposited from beef-tea." Stools scanty, and contained membranous shreds in large quantity. P.M. (40 h. after death).—Peritoneal surface of intestines completely covered with lymph in large quantity; intestines adherent everywhere, but separable by the finger, and presenting a vascular pinkish and slightly granular appearance; liver of a blackish colour; gall-bladder moderately filled with inspissated black bile, containing numerous minute needle-shaped crystals. Internal surface of stomach greatly inflamed— inflammation especially recent at the cardiac orifice, also marked and recent at pylorus. The large and small intestines more or less inflamed throughout, but very recently in the duodenum and upper part of jejunum, in which was found a large incipient chronic ulcer. Papillæ of tongue enlarged, pharynx and œsophagus congested, several lumbrici found in intestines and œsophagus, feces but slightly coloured with bile. Lymphatic glands and pancreas congested, both kidneys congested and watery. Bladder empty, capillary injection at neck thereof. Old pleuritic adhesion and about a pint of serous fluid in pleural cavity. Entire surface of mucous membrane of respiratory tract shows signs of old and recent inflammation; fibrinous clots found loose in larynx. Brain and membranes greatly congested, no fluid in ventricles. (*Med. Times*, xx, 147.)

2. Child, æt. 2, found dead in bed; had received doses of lobelia from herbalist. Limbs flexible, face scratched as if the child had been suffering severe pain, as the mother said was the case. Penis much discoloured, extremity intensely red. The doses of medicine nearly "strangled" the boy, so that the mother gave only half doses. P.M.—Small quantity of serum in peritoneum; liver pale; gall-bladder distended. Stomach contracted, empty, injected, especially near pylorus, corrugated longitudinally; duodenum slightly injected. Mucous membrane of bladder and urethra injected. Kidneys, spleen, and pancreas healthy. Pericardium held 6 drachms fluid. R. ventricle distended with fluid blood, L. empty. Lungs healthy. Membranes of brain very vascular, veins especially distended, also vessels of cerebral substance; ventricles contained a considerable quantity of serum. Spinal cord and membranes similarly affected. (*Brit. Med. Journ.*, 1860, ii, 799.)

3. *a.* In full medicinal doses, say 20 gr. of powder, L. acts as a powerful nauseating emetic, causing speedy and violent vomiting, attended by distressing and persistent nausea, and sometimes by purging,

copious sweating, and great general relaxation. These symptoms are usually preceded by giddiness, headache, and general rigors.

3. In excessive doses, or in full medicinal doses too frequently repeated, the effects of *L.* are those of a powerful acro-narcotic poison. Extreme prostration is first induced; then great anxiety and distress, followed by convulsions and death. The earliest effects are pain in back of head, with feeling of fulness, tightness, and giddiness; these are followed by general tremor, with prickling sensation throughout body, nausea, and profuse perspiration. Violent emesis, if not already present, soon ensues. The painfulness and giddiness in head generally alternate with the nausea; and on the occurrence of profuse diaphoresis the head symptoms usually subside. Great prostration of strength and relaxation of the entire muscular system now set in, accompanied by heavy despondency and fear of death. There is much thirst; the hands and arms are thrown about, and the sufferer rubs or beats his stomach; the secretion of saliva and of mucus is increased; there is dryness, burning, and rawness in the throat, and frequent and difficult deglutition, with irritation of the œsophagus and oppression of præcordium. Extreme spasmodic difficulty of breathing attends these distressing conditions, and there is great flatulent distension throughout abdomen, especially in neighbourhood of navel, with frequent eructations, and fluent discharges from bowels. At same time urine is very profuse, and causes a smarting sensation along its passage. Most other secretions are likewise increased. Pulse is irregular, quick, and feeble; or regular, slow, and full. Before profuse perspiration sets in, there is generally a feeling of great restlessness, with distension of abdomen, and irregular and spasmodic respiration. The cheeks are usually suffused; the pupils are dilated, and the eyes become more brilliant. The senses are rendered more acute; the brain is generally excited; the mind wanders, sometimes lapsing even to wild and furious delirium, although a calm and placid sensation pervades the system generally. The evacuations are seldom increased in frequency. The patient mostly remains quite still, since to move causes return of the sudden and violent vomiting, with additional prostration. After a time he gets short periods of sleep, or sinks into a semi-somnolent condition, and out of one of these sleeps he awakes quite well. (PHILLIPS, *op. cit.*)

4. From a teaspoonful tinct. *Lobel. inf.* Dr. Cutler, a chronic sufferer from asthma, experienced great relief to breathing; a 2nd and 3rd spoonful occasioned vomiting and a kind of prickly sensation through the whole system, even to the extremities of the fingers and toes. This soon subsided, leaving the patient very well. (BIGGLOW, *Am. Med. Botany*, 1, 183.)

5. Rev. Dr. Manaasch Cutler writes:—"The leaves chewed in the mouth are, at first, insipid but soon become pungent, occasioning a copious discharge of saliva. If they are held in the mouth for some time they produce giddiness and pain in the head, with a trembling agitation of the whole body; at length they bring on extreme nausea and vomiting. The taste resembles that of tartar emetic." (*Memoirs of Amer. Acad. Art and Science*, 1785, 1, 484.)

III. *Experiments on animals.*—1. Experiment made by Mr. Curtis and Dr. Pearson, of Maryport. Six hedgehogs and four cats were experimented upon; sometimes an aqueous solution, and at others a tincture was used. The tincture was much more powerful.

a. June 18th, 1849. Tinct. Lobel. ʒij = gr. xliiss administered to a hedgehog at 2.30 p.m.; collapse rapidly came on, and the respirations increased from 16 to 31 per minute. In 1 h. tremor of the limbs was very evident, and in $\frac{3}{4}$ h. it struggled as if in great pain. Respiration continued languid until 5th d., when after ʒij more the animal died at once. P.M. 24 h. after death. Mucous coat of stomach intensely inflamed and corrugated, small intestines inflamed throughout, especially at upper part; vessels of mesentery enormously distended, external surface of both mesentery and intestines being intensely red; liver of a sooty tinge in places. Gall-bladder empty, urinary bladder intensely inflamed, not much distended (as in some other cases). Heart contained black fluid blood; lungs much engorged, and their pleural surfaces discoloured in patches as if from inflammation. Trachea and bronchi much inflamed; injection of brain and membrane. In one case the rectum was intensely inflamed, and the other intestines much inflamed. An injection (*per rectum*) had been used here. In others it was noticed that the pyloric end of the stomach was especially inflamed. In all the respiration was much increased in frequency and embarrassed.

b. July 2nd, to a cat, small and "thriveless" in appearance, ʒj of infusion = gr. xv was given by mouth at 11 a.m., vomiting followed in 4 m. Respiration increased to 44 per m. After vomiting had ceased, another ʒj was given, causing vomiting and purging. Dose repeated at 1 p.m.; at 2 evident prostration; urine voided with pain and difficulty. At 3, a rocking movement was observed in the antero-posterior direction, in paroxysms of 3 m. duration, with short intervals; 9, less collapse, tremors continued. 2nd d., 11 a.m., ʒij administered and retained. 4 p.m., rigors and rocking in lateral direction, almost incessant. 5.30, lying on side and breathing slowly. Died 34½ h. after 1st dose. Much of the fluid was returned by vomiting. Vomiting occurred also (in another cat) when the drug was inserted under the skin. P.M.—Vessels of mesentery gorged; peritoneum rose red and streaked with vessels; mucous membrane of stomach inflamed, especially along lesser curve and at pylorus; intestines inflamed, especially ileum, which with jejunum contained black blood; colon inflamed, no blood, vessels of rectum large and engorged with blood, rectum contained much mucus. Liver pale here and there, rest much injected, extravasation here and there. Substance of kidneys pale, vessels injected (surface vessels). Bladder nearly empty, inflamed throughout, especially neck; pericardium contained large quantity of fluid; r. heart contained a small quantity of blood; l. empty. Lungs gorged with blood and contained soft nodules; vessels of brain nearly empty, structure natural. (*Lond. Med. Gaz.*, 1850, N. S., xi, 285.)

2. Mr. Procter administered a grain of lobelina (alkaloid of L.) in solution to a cat. In less than 2 m. it occasioned violent emesis and much prostration, from which the animal fully recovered in 3 h.

Again, 1 gr. in $\frac{3j}$ of water was introduced into the stomach of a cat by means of a tube. Immediate and total prostration was the consequence, which in $\frac{3}{4}$ h. rendered the animal almost motionless; its pupils were much dilated. It gradually recovered its strength, but the effects of the poison were evident for 15 h. afterwards. No emetic or cathartic operation was produced. (STILLÉ, *op. cit.*)

3. According to the investigations of Ott, L. in moderate doses but increases the blood-pressure by acting as an excitant on the peripheral vaso-motor nervous system. This primary effect is not of long duration, a fall in the blood-pressure soon occurs, the peripheral circulation is so embarrassed from weakened power of the heart and obstructed pulmonary circulation that oxygenation of the tissues is rapidly impaired, and a marked reduction of temperature takes place. (BARTHOLOW, *Mat. Med. and Ther.*, sub voce.)

LYCOPodium.

Lycopodium clavatum, L. Club moss. Nat. Ord., *Lycopodiaceæ*.

1. *Proving*.—1. HAHNEMANN, *Chronic Diseases*, part iv of original, vol. of translation. Contains 1608 symptoms from self and 7 fellow-observers.

2. A. HUNER, surgeon, æt. 31, of sanguine temperament, who had 2 years previously suffered from colicky pains and rheumatism, but was now perfectly well, took for 8 d. every m. and e. 5 gr. 5th dec. *trit.*—1st d. Head confused as if intoxicated.—2nd d. Occasional slight frontal headache.—3rd d. Painful confusion of forehead m., mouth slimy, throat bitter, scrapy and rough. P.m., when driving in carriage frontal pain and pressure in stomach, the latter soon went off, but recurred at n. when lying on back, with difficulty of breathing, these symptoms went off on lying on side; stomach very sensitive to touch and felt swollen.—4th d. M., head stupid as from intoxication. After dinner exhaustion and drowsiness, with burning in eyes, disinclination for conversation, dimness of vision as through a veil; tongue white, papillæ prominent, frequent attacks of nausea with trembling of limbs and quickened pulse.—5th d. N. very restless. After waking, discharge of fetid flatus, constant pain about navel with diarrhoea of yellowish watery fluid. E., after coitus violent burning in glans and prepuce; when lying he had continual urging to urinate, the urine came away in drops and burnt like fire.—6th d. N. better. M., transient but violent shooting pain in rectum. During d. frequent, sudden, frontal pain with nausea and exhaustion, prostration, drowsiness and pale yellow complexion.—7th d. Sticky dryness in mouth, frequent yawning and constant nausea, accumulation of mucus in throat with inclination to swallow, heaviness in chest when going uphill, great weariness of body, crossness and irascibility. On inside of both thighs, close to scrotum, from inguinal canal backwards to perinæum, several brown spots in skin.—8th d. M., when smoking as usual, heartburn

and such extreme sickness of stomach that he had to lie down again. Walking is very painful because the above-mentioned brown spots on bend of thigh are much inflamed and cause violent burning pain.—9th d. No med. The spots on bend of thigh are fiery red, swollen, and burn painfully, especially when touched and walking. They remained for 2 d. longer, then gradually went off. (*Z. d. Var. d. hom. Artz. Ost.*, 1857, i, 333.)

3. ELIZAB. HUBER, æt. 24, married, delicate constitution, took for 8 d., m. and e., 5 gr. 5th dec. trit.—1st d. No symptoms worthy of notice.—2nd d. Menes came on at regular time preceded by slight abdominal pains.—3rd d. Restless sleep at n. M., pain in frontal region. Nausea, flow of water into mouth, palpitation of heart and quick pulse.—4th d. Slept well but was a long time getting to sleep. M., mouth slimy, almost continued nausea and pain in umbilical region, with pressure on chest.—5th d. Slept well. During d. headache with stupid feeling, flushes of heat, bitter taste, nausea, great general weakness so that she thinks she must sink down.—6th d. Sleep undisturbed. During d. burning heat of body, especially palms and soles, followed by general sweat and exhaustion, at same time dazedness of head, pain in temples, and bitter, slimy, pasty taste.—7th d. Heat rising up from abdomen over chest to head, with burning of l. side of face, great anxiety and cold sweat on face. She must go into open air, at same time is weak and prostrated. (*Ibid.*, 335.)

4. OT. HUBER, æt. 1, suffered soon after birth from emaciation and fetid diarrhoea. He recovered after a few months of hom. treatment and is now a picture of perfect health. For 5 d. he got, m. and e., 2 gr. 5th dec. trit.—1st d. Nothing observed.—2nd and 3rd d. Face looks puffy and is distinctly pale yellow, repeated attacks of heat, when the forehead feels hot to touch, great exhaustion.—4th d. Very restless sleep with hurried breathing. During d. burning heat on forehead, pale yellow complexion, puffy face, dull, dim eyes and white tongue, six yellow watery stools, increased urine, rapid heart- and pulse-beats, very weak, cannot hold up head. Cries and is frightened when put on his feet, trembles, and wants to be carried. The whole muscular system is soft and lax, he is quite out of humour, the slightest opposition causes crying and sobbing.—5th d., n. very restless, he breathes quickly, works with hands in sleep, and starts frequently. During d., in addition to the gastric symptoms there were: Increase of weakness, so that he can no longer sit, but on trying to do so sinks together; he weeps when one feels his thighs, is considerably emaciated, has fluent coryza and coughs frequently. No appetite or thirst; belly tympanically distended and repeated diarrhoea. Passes urine of an ammoniacal odour every instant, moves his limbs about as in St. Vitus's dance. Next n. very restless, sweat all over body, cold cheeks and forehead.—6th d. No med. Symptoms as yesterday, only the r. leg near ankle is considerably bent. The choreic movements continue. During day-sleep, profuse general sweat, very quick pulse with cold face and feet. Abdomen very distended, stools yellow and loose, he weeps often, is cross and is long of going to sleep e. Sleep quiet and perspired profusely.—7th d. M., more cheerful, l. eye stuck together, tongue

cleaner. Wants to drink often, and much foetid flatus is passed. All other symptoms much improved.—8th d. Quiet sleep at n., is cheerful and wants to walk alone. Is still weak and looks ill. All other symptoms went off gradually, so that after 14 d. not even the bending of the leg is perceptible. (*Ibid*, 336.)

5. **THESSA H.**—, nursemaid, *æt.* 15, not yet menstruated, in good health, took for 8 d., m. and e., 5 gr. 5th dec. trit.—1st d. Soon pains from navel to stomach; she often felt as if a worm rose from navel to *scrob. cordis*; umbilical region tender to pressure.—2nd d. Unusually profound sleep at n., she wakes up once with bellyache. M., mouth as if glued up with mucus, had to spit much. During d. complained much of heaviness of head, frontal pain, bellyache, and tickling in l. heel.—3rd d. Stupefied feeling at n. On waking, slimy mouth, tongue adheres to palate and teeth to one another, bitter taste in throat, pain in umbilical region, navel retracted towards spine, so that her under-garments will hardly keep up. The umbilical pain rises occasionally to *scrob. cordis*, where it becomes a pressure; heavy as lead in l. half of forehead. Umbilical pain aggravated by bending body backwards. A liquid stool.—4th d. Besides yesterday's symptoms, stuffed coryza and single stitches in spleen.—5th d. Stupefied sleep at n., sleeps too long in m. During d. leaden weight in l. half of brain, frequent rising up of heat from feet over back to forehead, slimy pappy taste, the whole interior of mouth seems covered with sticky paste, Coryza, with discharge of watery secretion from nose. Pain about navel, with discharge of foetid flatus, rumbling in l. side of belly, extreme weakness and prostration, with heaviness and trembling of limbs, especially hands.—6th d. Talked loud during sleep. On waking and rising m. nausea, with flow of water into mouth and inclination to vomit, so that she must sit down. During d. heaviness and tearing in l. side of head, fluent coryza, redness and lachrymation of eyes, frequent flushes of heat in face and yawning; little appetite. The abdomen, especially *scrob. cordis*, so sensitive to pressure that she cannot fasten her clothes there. Frequent bellyache, with discharge of foetid flatus, she has to crouch together to get relief, afterwards watery diarrhoea. Hands and feet weak, joints painful when moved, sacral pain. The first dorsal and sacral vertebrae painful when touched or moved. The heat in face often alternates with coldness in face.—7th d. Same symptoms as yesterday. Besides pressure in stomach, tympanitic distension of abdomen, shortness of breath, and palpitation when working. Frequent flushes of heat, great exhaustion and heaviness of limbs, with itching smarting on knees. Towards e. vertigo, with anxiety.—8th d. Profound sleep, can hardly be wakened in m., and complains thereafter of dreadful exhaustion of whole body. During d. headache on stooping, flushes of heat and redness of face, pale yellow complexion, weak and emaciated. Nasty taste, for which she often rinsed her mouth with water. Distension of abdomen, constant rumbling with pain in belly, followed by diarrhoea. Stitches in cardiac region, and such an increase of the bodily weakness that she had to go to bed and would take no more *Lyc.*—9th d. Slept quietly and perspired all n.; much foetid flatus passed. M., felt relieved.

The above symptoms continued in diminishing degree for several d., were all gone in 6 d. (*Ibid.*, 337.)

6. MARIA WEBER, housemaid, æt. 23, in good health. Took for 8 d. m. and e. 5 gr. 5th dec. trit.—1st d. Confusion of head, shooting in brain, nausea.—2nd d. Stupefied sleep, from which she can scarcely be awakened. M., nasty taste in, and smell from, mouth, accumulation of mucus in mouth and throat. Pressure in stomach, rising thence through œsophagus to pharynx, where it causes choking sensation; transient stitches in eyebrows. In e. vertigo. In bed at n. pressure in stomach and difficulty of breathing when lying on back, going off when lying on side.—3rd d. Profound sleep. Immediately after rising, m., vertigo, frequent yawning and stretching limbs, eyes sealed up with mucus, lips dry, flow of water into mouth, pains around navel making her crouch together, pressure in scrob. cordis and choking in throat, making her often swallow, the pain around navel aggravated by coughing and taking a deep breath. Afternoon, stupefaction of head, mouth very dry, great thirst, pressure in stomach, and difficulty of breathing, scrob. cordis extremely sensitive to touch, great prostration and weariness of whole body.—4th d. Same symptoms.—5th d. Drowsiness in m.; lips adherent, on swallowing the œsophagus is rough and scrapy, nausea like spasm in stomach, confusion of head. During d. frequent sickness, and complains of pain in navel, stomach and head. Distension of abdomen and rumbling, relieved by discharge of flatus, tearing in muscles of upper arm, icy coldness of fingers.—6th d. M., confusion of head, weakness of memory, l. eyelids swollen, sour pappy taste, frequent rising of heat from belly to head, with burning of cheeks, inclination to vomit, and trembling weakness of body. Great sensitiveness of stomach region, shooting pains above scrob. cordis in scapula and deltoid muscle, tearing in stomach and belly, complete anorexia and adipsia; two watery stools, difficulty of breathing, palpitation, pain in l. hip when walking. During d. constant headache, she is cross, laconic, and inclined to weep, heat in cheeks, and itching in œsophagus compelling her to swallow constantly, constant nausea, with great sensitiveness of scrob. cordis; her belly sinks in, her clothes are too wide; shooting pains and great sensitiveness in r. clavicle, dyspnoea and palpitation when working, great exhaustion of body.—7th d. Same symptoms as yesterday, mouth very pasty, tip of tongue looks covered with little red warts which burn when touched; near tip of tongue a small, oval, flat ulcer 3 to 4 lines long; frequent shooting in head and both upper arms here and there, coldness of fingers; several watery stools with burning in anus; so weak she can hardly speak. E., burning soles.—8th d. Head confused and giddy; whole mouth from lips to throat is bitter, the ulcer on tongue annular; diarrhoea, shooting pain in sacral region, especially on pressure; urine burning hot; stitches in cardiac region that take away her breath; feels so weak she must go to bed.—9th d. Only a trace of the lingual ulcer visible, she looks ill and has got thin. The symptoms subsided gradually, but several d. elapsed before she had completely recovered. (*Ibid.*, 339.)

7. a. EMIL KOLLER, surgeon, æt. 35, in good health, took March 15th m., 20 gr. 6th dec. trit. Immediately, comfortable feeling in

stomach, followed in $\frac{1}{2}$ h. by flow of water into mouth, which gradually increased, and seemed to come from submaxillary glands. After 2 h. tension in these glands, which are sensitive to touch. P.m., feeling of tension under sternum, heat of head (especially forehead) and face, occasional feeling of rigor, which came from head and spread all over body on coming into room after driving for some hours, and then whilst driving. Increased secretion of saliva all d. In e. his neckcloth seemed to press on the sensitive submaxillary glands. In bed, drawing pain on inner surface of upper arm for $\frac{1}{2}$ h. Very restless n. On passing urine at 2 a.m., burning along urethra lasting $\frac{1}{2}$ h.—14th. Same dose, m. Increased saliva still present, tenderness of submaxillary glands increased, so that he cannot bear his ordinary neckcloth, its pressure increases the secretion and causes pressure and tension in the gland. Pain as of dislocation in shoulder-joint, great weakness and weariness of arms, especially r., he can with difficulty hold a book in his hand. Heaviness of hand when writing, feeling of gone to sleep of forearm on resting it on writing table. Whilst reading, a peculiar sensation of burning under lower third of sternum; nausea, feeling of emptiness and inclination to vomit for 3 or 4 m. Noon, feeling of horripilation spreading from crown to chest and arms, with sensation as if all the hairs of the head were gently drawn upwards. Remarkable weakness of feet when walking upstairs. E., very drowsy, so that he could not read as usual in bed.—15th. 30 gr., m. After 1 h. confusion of head, increase of saliva from sublingual gland, feeling of burning along oesophagus to stomach, lasting 2 h. During d. great weakness of arms and legs. E., greatly disposed for mental work. Restless sleep with anxious dreams, frequent waking.—16th. 60 gr., m. After 2 h., whilst walking, burning in stomach which extends to pharynx. Almost simultaneously griping about navel, with increased call to stool. During d. 3 loose, green, very ill-smelling stools. P.m., during a ride of 2 h. violent griping about navel, pressive frontal pain, shooting in l. frontal protuberance lasting $\frac{1}{2}$ h. E., griping continues. N., restless sleep disturbed by anxious dreams, such as tumbling down a height from horseback. 4 a.m., pain in belly, ineffectual urging to stool, a disagreeable pricking sensation along the urethra.—17th, m. Discharge of extremely foetid flatus with relief, 2 greenish loose stools of very bad smell. Weakness of arms, general prostration, griping in belly, increased saliva. 9 a.m., 90 gr. Immediately pain in belly, especially in seat of transverse colon. After 1 h. urging to stool (4 times to-day), which was of the same diarrhetic character. During a walk of 2 h. griping in region of transverse colon lasting till n., dyspnoea, feeling of rawness under sternum, palpitation of heart, frequent flying stitches on l. side of chest in region of fifth rib, feeling as if anterior surface of lung were swollen. 11 a.m., heat in forehead, legs and sacrum as if beaten; on walking rather quickly downhill sudden dislocative pain in l. hip-joint, so that for 5 m. he cannot stand on that leg. Noon, good appetite. After a small piece of roast lamb fulness in stomach, distension of abdomen, sudden satiety, great thirst, disinclination for mental work, apathy. Heaviness of arms, and especially of legs, so that he cannot play the piano. N. quieter but full of dreams. Urine turbid

as if mixed with brickdust. M., violent bellyache, which prevents him taking breakfast.

b. 5th dec. trit.—18th, 9 a.m., 60 gr. After $\frac{1}{2}$ h. nausea, constant yawning, griping in bowels, dazedness in head, crossness, ill humour, drawing-tearing pain on l. supra-orbital ridge, transient shoots over l. knee-joint, disinclination for mental work. 11 a.m., frontal pain, increase of saliva. After dinner flatulent distension, burning pain in stomach, increase of saliva, which has a metallic taste, burning pain in umbilical region, eructation of what has been eaten at dinner, heart-burn, frequent yawning. E., heat and redness of face. N, restless, frequent waking. M., weak, with bellyache.—19th, 9 a.m., same dose. After 1 h. frequent urging to urinate, heat of face, increase of saliva, griping in bowels. After a very moderate meal pressure and feeling of fulness in stomach, eructation of food, pain in belly. During a ride of some h. at 2 p.m. drowsiness, so that he can with difficulty keep awake on his horse. On getting off and walking great weariness and bruised feeling, especially in thighs from sacrum. Frequent urging to urinate, dislocation pain in l. knee-joint whilst walking, the pain in belly lasts all d. and even in bed.—20th, 6 a.m., 90 gr. Immediately rush of saliva into mouth (the tenderness of submaxillary gland has gone the last 2 d.). After $\frac{1}{2}$ h. pain in stomach and region of duodenum, heat in head, griping in bowels, great prostration of arms and legs, pressure under sternum. 9 a.m., after usual breakfast pains in body worse. E., throbbing pain in l. frontal protuberance and supra-orbital ridge, crossness, great irritability.—21st, 6 a.m., same dose. After $\frac{1}{2}$ h. increased saliva, of metallic taste. 9 a.m., burning, extending from stomach to pharynx, eructations, griping in bowels, cheerful humour. 11 a.m., sudden, extremely violent shooting pains in l. big toe in jerks, as though it were torn out, whilst walking in room for 5 m. From 7 to 10 p.m. pains in belly.

c. 4th dec. trit.—22nd, 10 a.m., 90 gr. Between 8 and 9 a.m. pains in belly, rush of water into mouth, rumbling and gurgling in belly, so bad while walking he thought it was someone behind him, lasted $\frac{1}{2}$ h. After dinner burning like fire in stomach up to pharynx, eructation of food, metallic taste, sensitiveness of stomach, pain in belly as after a chill, tense and full feeling in stomach and hypochondria. 7 p.m., whilst eating got such a violent pain in metacarpal bone of r. middle finger that he almost dropped his spoon. After supper increased pain in belly.—23rd, 6 a.m., same dose. After 5 m. drawing pains from l. shoulder to hand, sometimes in jerks like electric shocks. After $\frac{1}{2}$ h. loud rumbling and gurgling in belly, which is distended; confused head; during a walk of 1 $\frac{1}{2}$ h. very painful flatulent colic, painful distension of whole belly, eructations, rare discharge of flatus with relief, no stool (has usually 2 every m.). Transient stitches in l. frontal protuberance, crossness, prostration. During a drive from 10 to 12 a.m. the violent pain in belly goes off, but an extremely tense feeling of fulness and distension remains. After a very moderate meal the griping in bowels, and particularly the pain in stomach, recur with violence, and do not leave him during a drive of 4 h. He feels very ill, with great irritability of temper, every trifling makes him angry.

N., quiet sleep but frequent waking. 4 a.m., pappy, clayey taste, burning of tongue as after smoking strong tobacco (he has not smoked for 3 or 4 d., having lost all taste for it), pressive headache, loathing at all food (has eaten nothing since yesterday).—24th, 10 a.m., same dose. 9 a.m., the first stool for 2 d., it was firm, and was passed with much pressing, and accompanied by burning-like pain from anus up rectum. 10 a.m., violent griping in bowels, lasting all d. N., heavy, anxious dreams. Woke in m. with bad taste, tongue thick, burning as after smoking strong tobacco, no appetite for coffee, great dryness of nose, which is completely stopped up. Confused head, crossness.—25th, 6 a.m., same dose. Soon some nausea. A.m., griping in belly, flatulence, increased saliva. N., bad dreams. M., tongue furred.

d. 3rd dec. trit.—26th, 10 a.m., 90 gr. Noon, sudden shooting-tearing pains in r. supra-orbital ridge for 5 m., urinates 4 times in 2 h. P.m., when walking, violent pain in belly.—27th. Had to go a long journey, so had no med. M., griping in bowels. 7 p.m., tearing in both shoulder-joints for $\frac{1}{2}$ h. N., restless sleep, full of horrible dreams of murder, poisoning, &c. M., tiresome dryness of nose.—28th, 6 a.m., same dose as on 26th. Pain in belly lasts all d., rush of water into mouth. 5 p.m., chilliness all over body, disinclination for mental work, great drowsiness, increased pain in belly. N., very restless, sleep as if stupefied, full of horrible dreams. 6 a.m., awoke with pressive pain in forehead, nasty taste, griping in bowels, distaste for all food, even coffee. After $\frac{1}{2}$ h., urging to stool, purging with gripes. Some pain under sternum, dyspnoea, great prostration, heaviness and weariness of limbs, so that he dreads riding, and prefers doing his business on foot. Feeling as if he had been sitting up all n., crossness, great rush of water into mouth, such dryness of nose that for 10 d. past he has not required a pocket-handkerchief. 8 a.m., whilst walking shudder all over body, skin-spasm, griping in belly, diarrhoea, soreness and pressure under sternum, crossness, ill humour.—29th, 10 a.m., same dose. Increased saliva, griping internally, lasting all d., tense dryness of nose. P.m., sudden violent tearing pain in second joint of big toe, lasting 5 m. After 5 m. more, tearing pain in r. knee-joint. 6 p.m., rigor all over body for $\frac{1}{2}$ h., coldness of feet in warm room, unconscious drowsiness, cannot keep awake; goes to bed at 8.30 p.m., and the sleep is full of anxious dreams.—30th, 9 a.m., same dose. Immediately griping in bowels, lasting all d. Between 6 and 7 p.m., rigor all over body, even in warm room, great thirst. N., restless sleep with anxious dreams. M., great prostration, weariness of feet, compression of head, pressure under sternum.—31st. No med. During d. griping in belly and great weakness of all limbs.—April 1st, 6 a.m., 90 gr. Pains in belly. Noon, suddenly an extremely violent dislocative pain in l. shoulder, so that he could hardly guide his horse; after lasting $\frac{1}{2}$ h. the pain left this part, but came on suddenly in r. shoulder-joint, where it remained for some time. After 1 h. the l. knee-joint became very painful (tearing-drawing). Great weakness and prostration of whole body, especially hands and feet. 3 p.m., throbbing frontal pain, ill humour, mental and bodily prostration; he feels very ill, cannot study or think, with great forgetfulness and

absence of mind. Whilst writing, dislocative pain in r. wrist, so that he must often lay down his pen. Tension under sternum as if all were too tight, with same feeling in chest. Extreme dryness of nose. 4 p.m., such weakness of legs it requires a great effort to keep himself on them, while standing they knuckle under him. The pressure and heaviness on chest increase, and compel him to breathe deeply often, which gives him some relief. Shooting in region of fifth rib close to edge of sternum when at rest. After $\frac{1}{2}$ h. the same shooting in l. side, drawing-tearing pain in 3rd phalanx of l. index lasting 1 to 2 m., cramp in calves, aggravated by walking and extending foot, relieved by rest. 6 p.m., shooting pain in both frontal eminences, alternating with throbbing; for $\frac{1}{2}$ h. increased salivary secretion. 9 p.m., great mental and bodily prostration, excessive ill humour, chilliness all over body. In bed at 9.30 p.m., drawing-tearing pain from hips to feet on both sides exactly in course of sciatic nerve, lasting 15 m. Sudden pain in r. fingers, tearing as if fingers were torn out for 5 m. The shooting in both sides of chest, as also the pressure under sternum, is still there, the latter very painful. The pain in shoulder goes off gradually in bed. N. restless, full of gruesome, anxious dreams.

2. and dec. trit.—2nd, 6 a.m., 90 gr. The shooting chest pains were no longer present in the m., but the pressure under sternum and the feeling of rawness and soreness were. 9 a.m., whilst driving pressive frontal pain with vertigo, stupefaction, heat in head as though he had been passing the n. in drinking. Ill-humour, crossness; for some d. past complete absence of sexual desire. 10 a.m., whilst driving the drawing in r. thigh returns, as also the pain in shoulder, but not so badly as yesterday. Burning in oesophagus when swallowing, slight griping in belly. 5 p.m., when taking a walk has such weariness and prostration that he fears not to be at the appointed place in time, almost at same time dislocative pain of r. big toe, making it difficult for him to tread. 8.30 p.m., pressive frontal pain, especially on l. side; now and then extremely painful stitches and rends in l. elbow-joint increased by extending the arm; similar stitches and rends in l. shoulder-joint; heaviness and burning of l. upper eyelid, heaviness of hands, flying stitches in l. side of chest and l. knee-joint. Sudden pain from l. shoulder-joint along ulna to wrist, it gets to such a height that the affected part becomes extremely sensitive. When walking tensive pain in back of l. thigh for 2 or 3 m. Suddenly in 1st phalanx of middle finger pricks as with a fine needle. 10 p.m., the pain in shoulder- and elbow-joints becomes intolerable and compels him to go to bed. In bed transient stitches in l. ankle-joint, toes, both elbows, nape. N. very restless, full of gruesome, frightful dreams. 4 a.m., woke with bruised and heavy feeling in all limbs, tearing in l. elbow-joint and r. shoulder, pressive frontal headache alternating with shooting, sudden stitches in 3rd phalanx of l. index, griping in bowels, cross humour and disinclination for all employment. 3rd, 6 a.m., same dose. Some pains in belly, which, together with the stitches and rends in l. shoulder and l. elbow-joint and wrist, last all d. 6 p.m., increased pressure under sternum, chilliness all over body, prostration with weariness. N. restless, with frightful, anxious dreams.—4th. Woke with

feeling of weariness and powerlessness. 9 a.m., 90 gr. Pains in belly, frequent yawning, increased secretion from sublingual gland; a soft pappy stool with feeling of tenesmus and forcing in rectum thereafter as in dysentery. Burning in œsophagus with empty eructation. Tension and pressure under sternum compelling frequent deep breathing. 9 a.m., when writing tearing in l. elbow-joint, violent pains in belly. 11 a.m., when walking pressure and heaviness under sternum, transient shooting frontal pain, excessive heaviness and weariness of legs, they can scarcely bear him. A.m., urinated 3 or 4 times copiously. Noon, after eating veal, pressure in stomach and heaviness in belly. From 1 to 5 p.m., when riding pressing headache from crown to l. temple. Sudden exhaustion and prostration, inclination to sleep so that he can hardly keep awake on his horse. On walking down a hill sudden shooting pain in l. knee-joint, lasting 4 or 5 m., which hindered him much in walking. Whilst writing sudden penetrating stitches in l. shoulder-joint and l. elbow-joint, whence the pain spread on the inner surface of the forearm to the fingers. Throbbing frontal pain, with heat and redness of face, sudden stitches in r. wrist, so that he cannot write,—all these pains came suddenly, lasted 4 or 5 m., and went off just as suddenly. Pressure and heaviness as of a weight on chest, making him breathe deeply. During supper violent tearing-shooting pain in second joint of r. thumb, then leaving this part suddenly, in l. shoulder, then the l. elbow-joint, then again in r. thumb-joint, l. knee, l. side of chest in region of 6th rib—all suddenly and all within $\frac{1}{2}$ h. The l. shoulder, l. elbow, and r. hand are painful till 9 p.m. 10 p.m., when going downstairs sudden shooting-tearing pain in second joint of r. big toe. In bed drawing in l. shoulder. N. very restless, full of gruesome dreams. 6 a.m., pain in r. big toe.—5th, 6 a.m., same dose. After 2 h. shooting pains to l. of sternum in region of 4th rib; pressive pain with feeling of tightness under sternum, which soon increases to real dyspœnia. Pain in stomach and bowels, 2 greenish loose stools. 9 a.m., transient drawing pain in both shoulders and l. elbow-joint. Pressive pain in forehead and heat of head. After urinating burning along urethra for 2 m., great heaviness in r. forearm, making writing difficult. 11 a.m., obtuse stitches in l. side near sternum, great oppression of chest, increased by deep inspiration. 2 p.m., whilst walking great weariness and heaviness of feet, dyspœnia. 3 p.m., tearing and drawing in l. ankle-joint, pain in belly, great dryness of nose. 7 p.m., tearing in l. wrist-joint for 2 or 3 m. Extremely painful jerking tearing in second joint of r. thumb; sudden shooting in r. side near edge of sternum. Between 7 and 1 p.m. constant wandering pains (tearing and shooting), alternately in r. and l. shoulder, both elbows and wrists, fingers, l. knee, r. big toe, r. and l. side of chest, always only for a few m. in same place. N. quiet. M., woke with bellyache.—15th, 6 a.m., same dose. Immediately increased pain in belly and great flow of water into mouth. After ordinary stool feeling of shooting along rectum, with urging and tenesmus. Heaviness and pressure in chest; transient stitches, alternately on r. and l. of sternum, great weakness and prostration, difficulty of walking. Pricking and tearing in skin of whole body, sometimes more violent at one

place than at another, must rub himself with his clothes, with heat all over the body, feeling of formication and as if hair of head was gently drawn up, whilst walking in open air, lasting $\frac{1}{2}$ h. 11 a.m., throbbing frontal pain, with heat in head; feels very uncomfortable, appetite diminished. After a scanty meal pressure and fulness in abdomen. The heaviness, pressure, and tightness of chest, as also the dryness of nose, last till n.—7th. Woke from restless sleep with pressive headache and some griping in belly. Took same dose. After 1 h. he had the occasional transient shootings in l. chest, then heaviness and pressure under sternum; to these were added dazedness of head, formication all over body, with burning and itching. 1 p.m., whilst standing speaking violent vertigo, with stupefaction, so that his senses seem to leave him and he is in danger of tumbling forwards. 3 p.m., pain in r. wrist-joint (transient, shooting and tearing). On back of r. thigh cramp, with sensation while walking as if sinews were too short, which makes walking uphill very painful. Great exhaustion during a long walk. N. restless, disturbed by heavy anxious dreams.

f. 1st dec. trit.—8th, at 8 a.m., 90 gr. Soon heat in face, confusion of head, shooting and tearing, now in l., now in r. shoulder, suddenly in r. knee, in r. wrist-joint. 11 a.m., obtuse stitches in l. side of chest, pressure and weight under sternum, dyspnoea, great exhaustion, dryness of nose. Noon, vertigo, thinks he must fall forwards. Great irritability of temper, restless sleep. M., heaviness, heat, and dazedness of head.—9th, 5.30 a.m., same dose. After $\frac{1}{2}$ h. transient stitches near sternum, pressure in chest. 11 a.m., tearing in l. wrist and l. shoulder. P.m., flatulent pain in abdomen, cramp in r. thigh. Dyspnoea all d., great dryness of nose. Restless n., with heavy dreams.—10th, 10 a.m., same dose. Same symptoms in same order as yesterday. To-day it strikes him that for the last 10 d. the inner surface of the nose has been ulcerated and covered with scab, which when removed soon re-forms. Inflammation of prepuce, with redness. (An intolerable itching and smarting of scrotum, with erysipelatous inflammation of the skin, which had tormented him for a month, has disappeared these last 8 d.—it did not reappear.) 8 p.m., very painful pressure on chest, heat in face. N. very restless, full of anxious dreams. M., woke with confusion of head and great pressure on chest, relieved by expectoration of consistent purulent phlegm.—11th, 6 a.m., same dose. Immediately pain in abdomen, pressure under sternum. Sudden dislocative pain in r. big toe, hardly allowing him to tread. Transient stitches for 2 or 3 m. on l. side of chest near sternum. Noon, near inner border of scapula frequent stabs as with a pointed knife, which take away the breath, for 1 h. Drawing pain in l. inguinal region. Tearing in l. knee and r. wrist. 2 p.m., violent painful tearing in r. frontal and supra-orbital protuberances, with heat there in which the eye participates for 2 or 3 m., pain about navel. Drawing in l. thigh, pressure on chest under sternum. E., unusual appetite, saliva much increased. 10 p.m., violent tearing-throbbing pain in r. frontal and supra-orbital protuberances for 3 or 4 m. Tearing in l. upper arm and r. wrist. Traces of a thin yellow discharge from urethra.—12th, m., pressure on chest, expecto-

oration of thick yellow phlegm from lungs. Heaviness of head. (*Ibid.*, 341.)

8. a. JOH. HUBNER, surgeon's assistant, æt. 33, phlegmatic temperament, robust, healthy.—March 6th, 8 a.m., 20 gr. 6th dec. trit. Undulating headache, with glowing heat of face, burning like fire. E., unusual drowsiness and very early falling asleep.—7th, 6 a.m., same dose. Same symptoms as yesterday, only the heat is greater and lasts longer, there is circumscribed redness of cheeks. Great sleepiness, uncommonly profound sleep; also the 2 next d., when he took no med.—10th, m., same dose. Cheerful humour. 1 p.m., burning in face and ears like fire. Constriction of chest in region of false ribs, taking away his breath. Tearing in both upper arms at insertion of deltoid almost all d.—11th, m., same dose. Noon, heat in face, great weariness and weakness of limbs. E., unusual sleeplessness and profound sleep.—12th, m., 33 gr. Same symptoms.

b. 5th dec. trit.—13th, m., 30 gr. Immediately pinching in belly, forehead painfully confused. Great heat and redness of face, with irresistible sleepiness. 11 a.m., vomited 7 or 8 times profusely. Extreme desire for smoking. E., great thirst, with heat in head and sleepiness, so that he cannot remain up after 8 p.m. Woke at 2 a.m. from restless sleep, full of horrible dreams, with griping around navel and feeling of pressing as if diarrhoea would come on, which it did not.—14th, m., same dose. 6 a.m., confusion of head, heaviness in upper arms, laziness, crossness, no appetite, great prostration, drawing-tearing pain on inner aspect of both upper arms. Increased secretion of saliva from submaxillary gland, griping in bowels all d. Noon, the usual heat of face. N., woke frequently from the griping in bowels. M., nausea, inclination to vomit, thick white fur on tongue.—15th, m., same dose. 1 p.m., irresistible sleepiness; frequent ineffectual urging to stool. 7 p.m., tearing frontal headache, with thirst and heat, sensitiveness of submaxillary gland, with increased secretion from it; dryness of mouth and nose; heaviness of legs and arms; ill humour, crossness. N. mostly sleepless, disturbed by anxious dreams.

c. 4th dec. trit.—16th. Wakes at 4.30 a.m. with feeling as if all fingers from their tips to second phalanx were gone to sleep, with inability to grasp any object for $\frac{1}{2}$ h. 7 a.m., great exhaustion of whole body, crossness, laziness, frequent transient stitches at l. edge of sternum, going across chest and back; heaviness, drawing pain in inner aspect of both upper arms, which are painful to touch. 30 gr., griping in bowels, increase of saliva. Noon, heat and redness of face and ears, lasting 2 h. E., cross, very sleepy.—17th, m., same dose. Chill all over body, griping in bowels, with 2 very fetid diarrhoeic stools, nausea, cannot eat breakfast. Drawing pain on inner aspect of both upper arms over elbows, along forearms to wrists. Tongue furred white, heaviness and dazedness of head, pale complexion, features looked pinched, abdominal integuments very tender to touch. A.m., frequent yawning; drawing pain in l. arm to wrist; trembling of both upper eyelids, heaviness in chest and pressure as if catarrh were coming on. E., great exhaustion, sleepiness, dryness of nose.—18th. Restless n. M., 60 gr. Pain in belly and no appetite, white furred

tongue, with feeling as if it were rough and sandy (as after smoking strong tobacco). 11 a.m., dislocative pain in nape. Stitches in l. side of chest in region of fifth rib, extending backwards to edge of scapula; pain in belly, with sensitiveness of its integuments about the inguinal region, as after a long walk. P.m., 4 or 5 diarrhoeic stools of yellowish-white colour, with increased tenderness of abdominal integuments, so that laughing hurts him. E., shooting in l. side of chest, increased by deep breathing. Chilliness all over body, with much yawning, sleepiness; restless n., many dreams.—19th, m., same dose. Pain in bend of both elbows, bruised pain in whole body; $\frac{1}{2}$ h. after dinner empty eructations, dislocative pain in both knees; continued pain in belly, humming in ears, dryness of nose, sleepiness, unusually profound sleep.

4. 3rd dec. trit.—20th, m., 60 gr. Forenoon, while driving, for 4 h. heat and redness of face, and 1 h. after that is over, sleepiness. Pain about navel and hypochondria. Frequently occurring and suddenly disappearing dislocative pain in hip- and knee-joints whilst walking, better when at rest. No appetite, though for 2 d. the tongue has been clean; diarrhoea; drawing pain in both upper arms; feeling as if eyes were forced into their orbits; restless sleep, with frequent waking.—21st, m., same dose. Noon, tearing pain in crown, extending to l. shoulder, very violent till 7 p.m. P.m., 3 diarrhoeic stools, with pain in belly. 6 p.m., violent rigor, commencing at chest and extending thence all over body, lasting 1 h. in spite of sitting close to fire, followed by bruised feeling. N. quieter.—22nd, 5 a.m., same dose. Noon, heat and redness of face; pressive pain in both eyes; coryza, with flow of watery discharge for 3 h., then stopped-up nose. Drawing pain in both elbow-joints. 6 p.m., rigor originating in nape and arms, icy coldness of ears, lasting 2 h. Distaste for food, cannot take supper. Sore-throat, with feeling of constriction in region of submaxillary gland; drawing pain, beginning on posterior aspect of l. upper arm and extending to palm, where it becomes shooting. Bruised pain all over body; great dryness and stoppage of nose; burning of lids on closing them, especially of l. eye. Passed watery urine copiously 10 or 12 times. Slept only till midnight, not afterwards. M., nasty pasty taste, and feeling as if tongue were sandy. Loathing at breakfast.—23rd, 6 a.m., same dose. After 1 h. great flow of water into mouth, 9 a.m., coldness of head with paleness of face, then heat and burning in face till 4 p.m. Frontal headache, crossness, drawing pains in knees and l. arm down to fingers; great prostration, stopped nose. Restless n. M., feeling as if toes were asleep, they are insensible. Extremely painful tearing on l. shoulder, as though wind had blown on the part; nausea, loathing at everything, white furred tongue, which feels rough.—24th, 6 a.m., same dose. Coffee tastes like vinegar. 9 a.m., chilliness all over body, cannot get warm at fire. 11 a.m., general heat of body for 2 h.—25th. No med.; no symptoms.

2. 2nd dec. trit.—26th, 6 a.m., 60 gr. 11 am., contractive pressing pain in both hypochondria taking away his breath; dryness of nose. 5.30 p.m., chilliness beginning at back and spreading over skin in a transient manner. N., sound quiet sleep. M., flow of water into mouth.—27th, 6 a.m., same dose. M., stupefaction as if intoxicated;

cannot hold himself upright, staggering and weakness of legs, vertigo. 11 a.m., great heat of head, which recurs at 3 p.m. 1 p.m., after taking soup griping in bowels. E., great sleepiness. N. quiet, no dreams.—28th, m., same dose. 10 a.m., twitching in cervical muscles with constriction, almost taking away breath. In the space of 3 h. urinated copiously seven times. Griping in bowels as though diarrhoea were about to come on. 6.30 p.m., chilliness beginning in back and spreading all over body for 1 h. N., stupefied, restless sleep, without dreams, but frequent waking.—29th, m., same dose. M., wakes with pain in bowels and urging to stool, till 8 a.m.; 2 diarrhoeic stools with griping in bowels, nausea, inclination to vomit, and loathing of all food. Before rising coryza, after 1 h. stopped-up nose; flow of water into mouth. From noon till 3 p.m. 3 diarrhoeic stools. No appetite, no inclination to smoke the last 8 d. Tinnitus in r. ear, every sound seems to reverberate in its depths. 6.30 p.m., chilliness for 1½ h. followed by extreme sleepiness. M., nausea, occipital headache, as if scalp were inflamed.—30th, m., same dose. Very violent headache; stitches in region of 6th l. rib, increased by deep inspiration, lasting till n. Great dryness of nose. N., twitching headache, which prevents him sleeping. M., stitches in side continue; tongue furred, bad taste.

f. 1st dec. trit.—31st, m., 60 gr. Noon, heat in head, pain in bowels, going to sleep of fingers and toes, great dryness of nose.—April 1st, m., same dose. After 2 h. pain commencing at r. elbow extending to little finger, with feeling as if arm were contused. 10 a.m., previous headache in forehead, increasing for 1 h.; great dryness of nose; heaviness and weariness of legs; ill humour; crossness. 3 p.m., thirst, increased heat of head. E., twitching in r. fingers for ¼ h.—2nd. No med. Ulcerative pain in r. forearm; sensitiveness of arm-muscles to touch; restless short sleep.—3rd, m., 60 gr. 9 a.m., heat of face, tearing pains in r. upper and fore arm, with short intervals all d. 5 p.m., frontal headache, with heat and redness of face. 5.30 p.m., constant yawning, great weakness and prostration, nose stopped.—4th, m. same dose. 9 a.m., bruised pain of thighs, flesh feels as if detached from bone; pinching in stomach. 11 a.m., after vomiting, extremely painful forcing and burning along urethra extending to bladder.—5th, m., same dose. 10 a.m., pain about navel, weariness of feet; pain in l. thigh as if contused; scraping feeling, as from foreign body in l. eye. 3 p.m., stitches in r. side in region of 3rd rib, which go across chest and are increased by deep inspiration for 3 or 4 m. 5 p.m., shooting pain in r. scapular region, corresponding with the stitches anteriorly. 6 p.m., drawing and tearing in fingers of both hands for 4 or 5 m. N., frequent waking on account of griping in bowels.—6th, m., same dose. M., pain in bowels; diarrhoea till noon, 6 stools with violent griping in bowels. 9½ a.m., transient stitches in region of l. 5th rib, increased by deep breathing. Dislocative pain in nape, which is tender to touch. Great heaviness and weakness of legs; pain in forehead with dazedness of head. 10 a.m., whilst walking feeling as if r. toes were dead, with formication lasting 4 h. P.m., 3 diarrhoeic stools with violent griping in bowels. Heaviness and weakness of legs. (*Ibid.*, 355.)

c. 9. Girl, æt. 6. a. 6th dec. trit.—March 15th, 10 a.m., 15 gr. 2 p.m., when at school suddenly attacked with nausea attended with heat of face.—16th, 17th, and 18th. Same dose. On all these days was constantly poorly and cross.

b. 5th dec. trit.—19th. 12 gr., great cheerfulness and good spirits, 3 p.m., complains of shooting pains in ear, frontal headache, and heat of face; all these symptoms gone by e.—20th and 21st. Same dose, no symptoms.

c. 4th dec. trit.—22nd. 20 gr., immediately nausea and pain in stomach which makes her cry. 3 p.m., when at school had suddenly a shooting pain in r. external ankle lasting some m. 7 p.m., chilliness all over, is very tired and wants to go to bed.—23rd. Same dose. After 1 h. headache with heat of face and hands. P.m., shooting pain in distal joint of r. index, then suddenly in l. ankle; transient shootings in l. side.—25th. Same dose. 2 p.m., heat in face and hands for $\frac{1}{2}$ h.; lively, cheerful. 7 p.m., sudden tearing pain in l. index for 5 m., and similar sudden pain in r. knee-joint; occasional chills.—27th. Same dose. After 1 h. great liveliness, increased appetite. 7 p.m., drawing pains in second joint of l. index and middle finger, which after a few m. jump into l. knee-joint; chilliness beginning in back. The next 4 d. could not be persuaded to take any more Lyc. as she feared the pains in the fingers; still, notwithstanding, every e. she had drawing pain in l. hand and fingers, as also in l. knee, lasting a few seconds. Every e. the chilliness appeared.—April 1st. 20 gr., after the griping in bowels with 2 loose stools, pressure on chest, weakness, ill humour, wants to go to bed. 3 p.m., cheerful, only complains of weakness of legs. 7 p.m., chilliness all over body, wants to go to bed, and is soon asleep. N., anxious dreams. Next d. diarrhoea twice in forenoon, preceded by griping in bowels and loss of appetite.

d. 3rd dec. trit.—April 3rd. 20 gr., after 1 h. (12 a.m.) heat of face for $\frac{1}{2}$ h., griping in bowels, 2 loose stools. 6 p.m., sudden shoot in l. big toe; soon thereafter tearing in l. fingers for 5 m. making her cry. 7 p.m., chilliness over back.—4th. No med. During d. some griping in bowels and pressure on chest. E., chilliness.—5th. 20 gr., after 1 h. transient stitches on l. side of chest, increased by deep inspirations, for 1 h. Noon, gripings in bowels, followed by loose stool. Great weakness and weariness of legs, diminished appetite, she wants to go early to bed.—6th and 7th. No med. A.m., constant griping around navel, occasional transient stitches in region of 5th rib. E., cross, sleepy, chilliness over back.—8th. 20 gr., pressure under sternum. Noon, throbbing frontal headache with heat of face, great weakness, crossness. 1 p.m., pressure in stomach after a very small meal. 7 p.m., tearing in first joints of l. index, middle, and little fingers for 5 m.; great desire for bed with frequent yawning.—9th. Same dose. M., great weakness and cramp of legs. Noon, throbbing frontal headache, yawning, griping in bowels. A.m., 2 loose stools. E., chilliness; stitches in l. side of chest for 2 or 3 m. Shootings in r. wrist extending to finger-tips.—10th. No med. Pressure and oppression on chest wall all d. E., chilliness, pain in bowels with one loose stool. N., fitful dreams.

d. 2nd dec. trit.—11th. 20 gr., after 1 h. heat of face, great weakness and weariness of arms and legs. After dinner pressure in stomach for 1½ h.; eructation of air, frequent yawning. E., chilliness.—12th. No med. No symptoms except weakness of legs.—13th. 20 gr. On waking, m., pressive headache, ill humour, great weariness so that she remained in bed. 11 a.m., griping in bowels, no appetite, complains of tenderness of submaxillary gland, which is somewhat swollen. E., chilliness.—14th. No med. Only increased tenderness of submaxillary gland.—15th. No med. E., chilliness.—16th. 20 gr. Noon, heat and redness of face, griping in bowels lasting all d.; whilst walking shooting in l. knee-joint. P.m., great weariness of legs, and sleepiness. Restless sleep.—17th. No med. Griping in bowels, transient stitches in both sides of chest; pressure on chest with great disposition to sigh frequently. E., chilliness.—18th. 20 gr., after waking great weariness of legs, disinclination to get up; griping in bowels all d.—19th. No med. Same symptoms as yesterday.

f. 1st dec. trit.—20th. 20 gr., great sleepiness, can hardly be wakened; weariness and prostration. 11 a.m., griping about navel. Noon, heat of face, stitches in region of l. 5th rib for a few seconds. Crossness. N. disturbed by anxious dreams; woke, feeling very tired.—21st. 20 gr., after 1 h. griping in bowels; heaviness in chest. Chilliness all over, all d. E., drawing-tearing pains in l. finger-joints, very violent but transient.—22nd. No med. Great weariness, confusion of head, difficulty of breathing, diminished appetite; after eating, a little discomfort in stomach, yellow complexion. 8 p.m., chilliness, even in bed. N. very restless, talks much and loudly in sleep.—23rd. 20 gr., complete loss of appetite. Noon, heat of face. E., chilliness, commencing in back. Wants to go to bed at 7 p.m. Symptoms as yesterday.—24th. Same dose. Weakness and weariness of whole body. Noon, hot face; ¼ h. after this transient stitches in region of l. 5th rib. Heaviness and pressure in chest. No appetite. The griping in bowels and loose stools (a very unusual state) lasted 8 d. longer. The chilliness went off on the 4th d., when her good spirits and liveliness, which had quite left her during the proving, returned. (*Ibid.*, 361.)

10. KATH. HERZIG, æt. 16, housemaid, not yet menstruated, healthy. She first took all kinds of preparations of the tinct. from 30th to 1st dil., without any effect, except that she always had immediately after the dose increased heat and redness of face.

a. 6th dec. trit.—March 27th, m., 60 gr. 1 p.m., frontal headache and heat. Giddy as if drunk.—28th, 6 a.m., 20 gr. 1 p.m., frontal headache and heat of face; roaring in ears, giddiness. After ¼ h., rigor from within outwards for ¼ h., soon followed by heat.—29th, 6 a.m., 20 gr. After 1½ h., pressive frontal pain and hot face, constant yawning, drowsiness, weariness of legs.

b. 5th dec. trit.—30th, 6 a.m., 60 gr. 1 p.m., headache, with great heat; transient stitches in r. side of chest. 4 p.m., recurrence of heat all over, followed in ¼ h. by general chilliness, and ending in great weariness and weakness of legs.—31st, 7 a.m., 60 gr. Noon, heat of head, frontal headache, nausea. 1.30 p.m., chilliness all over body for ¾ h., followed by extreme exhaustion. Some burning on

urinating.—April 1st. No med., no symptoms.—2nd, 7 a.m., 60 gr. After 1 h. nausea, no appetite, pain in stomach, headache for 3 h. 1 p.m., chilliness all over for 2 h. Burning in urethra when urinating.—3rd, 7 a.m., 60 gr. 2 p.m., yawning, headache, with hot face. 4 p.m., chilliness all over body, great weakness and weariness.

c. 4th dec. trit.—4th, 60 gr. After 1 h. pains in stomach, nausea, constant yawning, heat of face. 4.30 p.m., chilliness, extremities cold, goose-skin all over. This girl would take no more Lycop., as she feared getting ague. On the 6th, about 4 p.m., a regular paroxysm came on, with following symptoms:—Constant yawning, nausea, inclination to vomit, chilliness, beginning at back and spreading all over body; cold hands and feet, no perspiration, but heat, only observable on face. The chill lasted till 6.30 p.m. and ended with extreme exhaustion and bruised feeling of legs, crossness, slight drawing in wrists and fingers of both hands. On going to bed at 7.30 p.m. she soon went to sleep and woke next d. without any symptoms.—7th, 4 p.m., the paroxysm recurred, but was of greater intensity and lasted longer. The chilliness lasted till 7 p.m. The prostration and the drawing in wrist and finger-joints were greater than yesterday. The sleep at n. was quiet and refreshing, and she felt quite well in m.—8th, 3.30 p.m., a precisely similar paroxysm.—9th, 3 p.m., a 4th paroxysm. The chill was more intense and combined with shivering. There were also nausea and inclination to vomit, with bitter, bilious taste. The tearing pains in ankles and wrists were also more severe; Puls. 4 was given.—10th, 3 p.m., slight chill, all other symptoms much milder.—11th, 3 p.m., a still milder paroxysm.—12th. No trace of pain, no gastric symptoms.—14th. Quite well. (Koller, who contributes this proving, says he is convinced the ague was caused by the Lycop., and it is different from the ague of the district in some essential particulars.) (*Ibid.*, 366.)

II. a. **Theresa Fell**, a pale, cachectic-looking girl of 17, not yet menstruated.—April 3rd, 6 a.m., 60 gr. 6th dec. trit. After 1 h., sensation of scraping in ear. Dislocative pain in r. shoulder-joint.—4th, 6 a.m., 60 gr. Noon, heat followed by pain in head for 1 h. After 2 h., pain in abdomen, rumbling and gurgling in hypogastrium, dryness of mouth. 1 p.m., heat in head and pain in forehead, burning in eyes. Stupefied feeling, constant yawning, great exhaustion, drowsiness. N., frightful dreams.—5th. Same dose. Griping in bowels, purging 3 or 4 times, rumbling in bowels. Weariness and bruised feeling in legs, great dryness of mouth. Sleepiness, stupefied, restless sleep, full of dreams.—6th and 7th. No med. Griping in bowels all d., several loose stools, heat of face, stupefaction. Sensitiveness of sublingual gland, increase of saliva.—8th, 6 a.m., 60 gr. Heat of head, griping in bowels, yawning. Swelling of the gland can readily be seen, no appetite. E., chilliness, unusual sleepiness and frequent yawning.

b. 5th dec. trit.—9th, 6 a.m., 60 gr. Griping in bowels, 3 or 4 loose, greenish stools. Sensitiveness of submaxillary gland, increased saliva. Drawing and tearing in both shoulders alternately. 1 p.m., great heat of face, with circumscribed redness of cheeks. 6 p.m., chilli-

ness commencing in back, with feeling as if it were continually sprinkled with cold water. Great sleepiness, restless sleep.—10th. No med. Gripping in bowels all d. 6 p.m., severe chilliness all over.—11th, 6 a.m., 60 gr. 10 a.m., burning on chest, under sternum; dry nose; transient stitches in l. side of chest. 6 p.m., severe chilliness with stupefied sleepiness; restless sleep disturbed by tiresome dreams.—12th, 6 a.m., 60 gr. 9 a.m., tearing pain in l. ramus of lower jaw, extending to l. temporal region. Noon, great heat of face, dryness of nose, loss of appetite, remarkable bluish hue of gums, constant yawning. 6 p.m., chilliness all over body for 2 h., with stupefied feeling in head, drowsiness, tearing in limbs. N. very restless. M., feels very ill and cannot rise she is so weak.—13th. No med. Weariness, as after a long walk, no appetite, drawing pain in l. temple, extending to forehead, tearing in both shoulders, transient stitches now in r. now in l. elbow-joint, then in r. and then in l. wrist; single stitches in both knees; this lasted in alternation 2 h. 7 p.m., rigor coming from back, cold hands and feet, cannot get warm in bed for 2 h. The tearing pains in above places increase. Nausea, with inclination to vomit. Constant yawning. The paroxysm ends after 2 h. in a stupefied, very restless sleep, from which she wakes, m., with extreme weakness.—14th. No med. 7 p.m., same attack as yesterday, also on 15th and 16th.—17th. A very slight attack, after which she recovered; the weariness of legs and a peculiar distraction—absence of thought—lasted till 24th. (*Ibid.*, 369.)

12. BAUMGAERTNER, surgeon, took, March 16th, 100 dr. 30th dil. Up to April and observed following.—On 2nd d., ill-humoured, little inclination to speak, for some d.—5th d. A small boil on lower jaw, which filled with transparent lymph, burst and dried to a yellow scab, which remained several d., then fell off, and left a copper-coloured spot, which only regained normal colour after 4 months.—7th d. R. middle finger commenced to be hot and painful, then occurred inflammation at root of nail, which suppurated, and after discharge of matter soon healed.—10th d. Felt a loosening of r. lower incisors, and slight bleeding of gums. This lasted 2 d.—April 3rd, 7 a.m., 100 dr. 24th dil. No effect except increased irritability of temper.—8th. Transient smarting pain at anus.—From 9th to 30th no symptoms.—May 1st, 7 a.m., 100 dr. 18th dil. Nothing except some cough and single slight variable stitches on chest.—6th, 100 dr. 18th dil. 11 a.m., some pain in a small spot on r. index, lasting 3 d., and then gradually going off. During afternoon, frequent small pricks in r. knee, especially when walking. In e. transient boring pain in l. frontal region towards roof of nose; from 7 to 8 p.m. difficult breathing, as though he had respired sulphur fumes. After 8 p.m. a liver-brown stool.—7th. Nothing but frequent sensations as if sparks of fire darted out of eyes, especially in open air.—8th, 100 dr. 15th dil. Soon heaviness on chest and impeded respiration, lasting some time, relieved by cough, with expectoration of white, rough mucus, going off by noon.—9th, 100 dr. 15th dil., at 7 a.m. Nose painful on pressing it, especially towards root, the pain seemed to be seated in mucous membrane. Frequent tussiculation and first firm, then liquid stool.—10th. Two liquid

stools, cough continues.—11th, 7 a.m., 100 dr. 12th dil. Slight shivering after swallowing dose; after $\frac{1}{2}$ h. rising of warmth up spine for 1 minute; during d. tearing in limbs; when walking in open air, burning-shooting pain on borders of sternum, and cough. Towards e. when lying unusual pulsation in thoracic cavity, frequent yawning, and sore pain at root of tongue.—12th. Pain as yesterday continued, and lasted till n. Cough rather severe.—13th, 100 dr. 9th dil. Cough frequent during d., fatiguing and often with expectoration of white viscid phlegm, all d. out of humour, and the least thing made him cross.—14th, 7 a.m., 100 dr. 9th dil. Cough and expectoration as yesterday; on hawking, burning in throat; nose stopped up. All d. out of humour, and disinclined to speak. In e. the 3rd sound r. incisor was painful for a short time. Firm costive stool.—15th. Cough and expectoration less, nose still stopped, sneezing, no stool.—16th and 17th, 100 dr. 6th dil.—18th and 19th. No med. Cough continued all through 4th d., but slighter, and only troubled him m. and e. Constipation till 18th, when he had a hard difficult stool. Frequent indications of toothache in same tooth, and occasional tearing in limbs. Nose free.—20th, 100 dr. 3rd dil. At noon, violent stitches in r. elbow-joint; 1 h. after dinner, great pulsation in thoracic cavity and sweet taste, cough severe and dry.—21st, 100 dr. 2nd dil.—22nd, 100 dr. 1st dil. No symptoms except twitching in hairy scalp, occasional slight stitches at anus, and dry fatiguing cough.—23rd, 10 dr. of concentrated tincture. Soon, slight confusion of head, and very frequent fits of coughing, each time followed by transient palpitation of heart, heaviness and roughness in throat.—24th, m., 30 dr. tinct. Soon, nausea, with flow of water into mouth; later, stitches, sometimes in cardiac region, sometimes in l. elbow, sometimes in belly for $\frac{1}{2}$ h. Stomach tender to pressure, abdomen distended; visible pulsation in scrob. cordis, repeated fatiguing cough with vomiting; in afternoon, stitches in rectum.—25th, m. On waking cough with thick mucous expectoration. 7 a.m., 100 dr. tinct. At noon stitches in belly which went through inguinal ring to thigh, soon fit of coughing with scanty mucous expectoration. Transient erections with deficient sexual appetite. Disinclination for work and laziness.—26th. No medicine, same symptoms.—27th, 100 dr. tinct. Nausea immediately. L. eye became painful, especially when moved; when looking at brightly coloured objects they began to tremble. Cough frequent and more severe, always followed by tightness of chest, dyspnoea, palpitation and heat of face, little expectoration. These symptoms lasted till 30th, on which day there was only moderate cough.—31st. During d. $1\frac{1}{2}$ oz. tinct.—June 1st. Flow of water into mouth, constant nausea, distension, 2 hard stools with effort and pain at anus, after passing 2 d. without stool.—2nd. Slight cough, nausea in m., inclination to vomit, flow of saliva; in afternoon, roaring in ears, distension of abdomen, good appetite, no stool.—3rd. Slight roaring in ears, nausea, inclination to vomit, distension of abdomen with good appetite; no stool.—4th. Besides yesterday's symptoms, all d. feeling as if an incisor in l. upper jaw were forced out. In e. a very difficult hard stool, with lacerating pain in rectum; great general exhaustion.—5th. Same symptoms, but

no stool.—9th. Less nausea, increased appetite, tearing in various joints, especially of fingers. Enormous appetite followed by flatulent distension of abdomen. Stool regular for 2 d., afterwards hard and with much pressing, cough almost gone.—From July 10th to August 8th every d., m. and e., ʒ gr. 1st trit.—1st d. Afternoon, coughed up bright red blood, inclination to vomit, without loathing of food, and with good appetite.—2nd d. Fulness of abdomen with hunger, periodical burning feeling on different parts of skin, frequently on sacral region, especially when heated.—3rd d. Severe pain on those parts which had previously been injured; stitches in temple, hard difficult stool.—4th d. Frequent sneezing, slight perspiration and increased secretion of urine; frequent stitches in glans penis in rapid succession; sensation of water running through r. inguinal ring into scrotum; diminished sexual appetite; pains in corns. E., depressed spirits and canine hunger.—5th d. Same symptoms.—6th d. Frequent sneezing and burning in eyes, hot feeling in part of feet and in soles.—7th d. Transient bleeding of gums. E., cutting in iliac region.—8th d. Great inclination to lie down, frontal pain, sensitiveness of eyes to daylight, firm, scanty and difficult stool; great weakness when walking.—9th d. Frequent dry cough, with rough feeling under sternum.—10th d. Pressive pain on l. side of forehead, great prostration; erection without sexual desire, great exhaustion after coitus.—11th d. Great exhaustion, burning and watering of eyes, inclination to vomit, cutting in belly on inspiration, and when lying on back.—12th d. Great weakness, inclination to vomit, here and there tearing in extremities. Many dreams at n.—13th d. On waking frontal headache, pressure in eyes, inclination to vomit and hunger; all d. fulness in abdomen. N. restless, many unconnected dreams.—14th d. No change except undefined pain in r. hip-joint, going off on walking in open air.—15th. During a walk great hunger, burning feeling on skin along spine, very firm stool; head confused, great forgetfulness.—16th to 18th d. No symptoms.—19th d. Itching all over body, must scratch.—20th d. Itching continues, bitter taste, heartburn after smoking, frequent short cough and palpitation on going upstairs, weakness after any exertion.—21st d. Great prostration, wished to lie in bed, increased hunger; excoriation on nates.—22nd. Inclination to vomit, with hunger, some cough, great excoriation and prostration.—23rd d. After waking, irritable disposition, nausea and inclination to vomit after smoking. Hunger, oppression of chest, tickling in throat making him cough almost all d. Sleep disturbed, many dreams.—24th d. Heartburn, heaviness on chest, frequent sneezing with coryza, burning on skin along spine, very little movement causes excoriation.—25th d. Soft painful stool. Excoriation and hunger less.—26th d. Fulness of abdomen; difficulty of swallowing fluids, as if œsophagus at entrance were contracted. Frequent cough.—27th and 28th d. Cough somewhat more severe and tightness of chest.—29th d. Difficulty of swallowing solids, with increased hunger, soft but difficult stool. Afternoon, boring in stomach, inclination to vomit, and eructation of air. E., burning in l. eyeball and roaring in head, cough less. No more medicine was taken, and the symptoms gradually subsided. The difficult stool lasted longest, it was

soft, but could with difficulty be expelled. (*Zeitsch. d. Ver. d. hom. Arz., Oesterr.*, i, 166, 1862.)

13. BLAUFISS, Nov. 21st, 1859, took 1 gr. of powdered lycop. at 8 a.m. About 10 felt mouth fill with saliva, and on spitting it out same thing recurred. At back of tongue and palate sour taste all d. On 22nd, 2 gr., with same result. On 28th, 1 gr. of 1st trit. at same h. In forenoon, itching in groin and scrotum. An h. later, rush of blood to head; painful micturition, last drops with difficulty expelled; urine of deep brown colour, with much mucus in it; frequent erections. In afternoon, same symptoms. At n., emissions with amorous dreams. 29th.—Same symptoms, only apparently more violent; great excitement of whole body. Symptoms lasted all next d., and only disappeared on d. following. (*MARTIN's provings, Hom. Vierteljahrchr.*, x, 52.)

14. GRAEFE, Nov. 22nd, took 1 gr. fasting without effect. 23rd.—At 7 a.m. 2 gr. About 10 remarked that pulse was somewhat quicker (86—88); he was at same time in very good spirits, without any particular reason for being so. About 3 p.m. was seized with violent stitches in chest and oppressed respiration, especially when running. At n. very restless sleep, and great rush of blood to heart. 24th.—At 9 a.m. palpitation, lasting 10 m. until he had drunk a glass of salt and water. At noon, immediately after eating, cramp-like contraction in nape, and in afternoon violent headache. 25th.—Quite well. (*Ibid.*, 53.)

15. GRUNTER, Nov. 27th, at 6 a.m. took 1 gr. of 1st trit. At 4 p.m. slight headache, and some tearing in temporal region, which however, together with the headache, went off about 8. 28th.—At 7 a.m. took same. Again slight headache and (11 a.m.) shooting in temple, with a very peculiar itching, conjoined with shooting diagonally across chest (between 4th and 7th ribs). No appetite, and burning thirst, which had to be assuaged with water all d. long, with sour-bitter expectoration of which he could not get rid. Ate nothing all d. At n., little or no sleep, much perspiration, and terrible itching in all limbs, most severe on scrotum; also constant desire to pass water, which caused great tickling in urethra, urine ran away almost involuntarily, and he could not completely expel it, it was of orange colour and smelt rather strong. 29th.—After taking a third dose same symptoms occurred, only with much greater severity, so that he was unable to work on account of the horrible headache, and could scarcely take a step without getting a kind of vertigo. He also remarked on both wrists, as also on l. thigh, elevated red pustules on which were small points filled with pus; this eruption lasted 5 d. Headache continued all next week, pain in chest till Dec. 3rd, bitter taste and itching in urethra till Dec. 7th; tongue was moderately furred, and nights rather sleepless. (*Ibid.*, 53.)

16. HILBERT, Nov. 21st, at 7 and 11 a.m., took 1 gr. without effect that d., but in afternoon of 2nd d. he had most violent headache, especially to l. of frontal sinus and in l. nasal bone. On 23rd and 25th repeated dose, without effect; but on 27th had on rising violent shooting pain from ensiform cartilage and c. hypochondrium to dorsal vertebræ and scapula, oppressing breathing. This state continued with aggrava-

tions and remissions till noon of 28th. 29th.—At 7 a.m. took 1 gr. of 1st trit. P.m., confusion of head with transient pain in l. temple. 30th.—At 7 a.m. took same. Pulse full and quick; considerable sediment in urine; constant shooting in shoulder, soon going off, in e. great drowsiness. Dec. 1st.—Same dose. P.m., transient spasmodic jerking in thigh; shooting pain in bowels, especially r. side; rumbling in stomach. 2nd.—Same dose. About 11 a.m. constant buzzing in l. ear; in e. very sad disposition with confusion of head. 3rd.—Drawing in limbs, spasmodic jerking in knee; p.m., cramps in forearm and drawing in upper lip; in e., pricking in lip and shooting in r. patella; 9, transient shooting pain in l. sinus, from temple to forehead; all n. long violent discharge of flatus. 4th.—P.m., violent tearing in vasti muscles, extending to patella; pimple on knee. 5th.—One pimple on forehead and two behind l. ear; for some d. past inflamed upper lip, and a vesicle there. (*Ibid.*, 55.)

17. HORS took, Nov. 21st, 1 gr., and 22nd, 2 gr at 6 a.m. On n. of 2nd d. violent spasm at stomach, and for several d. very cheerful disposition and great appetite, yet much drowsiness. 27th.—At 5.45 a.m. gr. ij of 1st trit. At 1 a.m. sinking in stomach, going off after coffee. At 10, attack of spasm in stomach, soon passing off. All d. constant yawning. 28th.—At 6 a.m. 2 gr. of same. Same sinking about 8, not so severe; constant yawning, sometimes tasteless eructation. 29th.—Rose at 5.30 a.m. but did not breakfast till 11 on account of want of appetite. Stool at 4 p.m. instead of in m., very hard. All the time in very cheerful humour. Till Dec. 2nd stools hard and urine very cloudy, complexion changed very often. After this sexual instinct much aroused. (*Ibid.*, 56.)

18. KUNTZMANN took, Nov. 23rd, 1 gr., and same on 24th, in m., fasting. Noticed nothing save that he perspired in bed towards m. On 25th, took same dose, and on 30th and Dec. 1st took 1 gr. of 1st trit., on both occasions labouring under a severe cold when doing so. The first time drug seemed to check cold suddenly; the second, catarrh lasted unusually long. On July 13th, took 4 gr. of crude drug n. and e., without effect save dreamful sleep; and on 14th repeated same, observing only some loose motions (*Ibid.*, 57.)

19. G. MARTIN took, Nov. 21st, in m., fasting, 1 gr., well rubbed up with 4 gr. of milk sugar. In 6 m. violent aching in stomach, and contraction as in sickness, terminating in unusual urging to stool and discharge of flatus. In ½ h. headache in front of head, with disposition to eructate; twitching (quivering) in r. upper eyelid; painful tension in scalp, particularly persistent across forehead; same painful drawing about root of nose; burning rising upward in oesophagus; shooting in r. flank, recurring several times in d.; remarkable confusion of head, but not of mind, and after an h. amelioration by sneezing. Thereafter cutting in l. chest and hypochondrium, especially on stretching; dizzy feeling; then severe aching in posterior mediastinum and scrobiculus cordis, with general exultation and lassitude. About ½ h. after still aching in scrobiculus; much stuffiness (as of a cold) in head; want of steadiness in all limbs as if intoxicated; after going out, toothache (unusual). At 5 p.m., after a walk, during which cold in head seemed

worse, belly-ache like spasm. 23rd.—Took 1 gr. In 5 m. confusion of head; some nausea; urging to stool; slight scraping of throat. After breakfast, tearing pain in l. shoulder, shooting under l. scapula; afterwards, headache as if intoxicated. 26th.—1 gr. In $\frac{1}{4}$ h. pain under r. scapula, continuing like an aching; soon afterwards disturbance in bowels with call to stool; tearing shooting in scalp. As on previous days, frequent quivering (painful twitching) of r. upper eyelid. Much flatus; slight tearing in l. upper arm; great secretion of mucus in fauces; head long confused; taste insipid, and yet great appetite. 27th.—In m. fasting gr. j of 1st trit. Soon after, drawing in l. upper arm, which increases to tearing pain and afterwards extends to shoulder and supra-clavicular fossa, and lasts a long time. Much quivering of r. upper eyelid; unusually early call to stool, and unwonted appetite; painful drawing also in r. shoulder; quivering in several parts of hairy scalp, recurring in e.; violent aching in r. eyeball, so that tears flow. 28th.—Increased hunger; in e., great itching in anus. 29th.—In m., gr. j of 1st trit. In $\frac{1}{4}$ h., tearing in l. arm down into dorsal side of metacarpal bone of thumb; at same time feeling of dryness and heat in arm. About 10, toothache in l. lower jaw. Much itching in anus; quivering of r. upper eyelid. 30th.—Frequent recurrence of quivering of eyelid; early in m. tearing in limbs after an uneasy dreamful n.; in e. toothache. N. very restless. In m. gumboil at seat of toothache (a carious molar); very great appetite. 2nd.—Gumboil painful; much nasal mucus; tearing towards first finger-joints of l. hand. 3rd.—Swelling of r. cheek with pain. 4th.—Very restless n., full of annoying dreams. By day, much rheumatic tearing headache. The gumboil only subsided on the 6th.

b. June 12th, 1836, took 4 gr. Soon afterwards, drawing in face that goes off by sneezing; drawing aching in l. forearm as if in ulna. 13th.—In m. slight pain in urethra as if from a foreign body in it; great flow of mucus from nose; painful itching and burning in anus. These symptoms went off in course of following d. 18th.—At 7 a.m. 4 gr. Great lassitude in afternoon and e. At root of r. canine tooth, between gum and lip, a small ulcer. (*Ibid.*, 59.)

20. s. OEHLEK. Nov. 23rd, at 7 a.m., 1 gr. No symptoms during d., but 7—8 p.m. shooting pains in both temples, and especially behind mastoid processes. 24th.—2 gr. No effect. 25th.—About 8 a.m. shooting pains in l. hypochondrium, and p.m. same in r., lasting till 4 p.m. next d. 26th.—About 9, shooting in l., and on following d. in r., iliac region. From 11 till 1, tensive pain across chest, oppressing respiration. 27th.—At 7 a.m. gr. j 1st trit. 7.30, some shooting under r. scapula, growing always more severe, and extending to head and nape. 9, flying shooting pains over whole body. 10, cough with mucous expectoration, then collection of large quantity of sourish watery saliva in mouth. About 6 p.m. these symptoms abated somewhat, but at 11, as he lay in bed, there was a shooting pain in chest that gave him great uneasiness. 28th.—At 6.45 a.m. same dose. The shooting pains came on immediately on taking the powder, but did not alternate as rapidly. At 3 they went off. Cough and saliva as on 27th. A small tumour on hip. At n., uneasy dreams. 29th.—At 7.15 a.m.,

same dose. Shooting less, but towards noon some headache. Cough and expectoration as before. 30th.—Shooting went off p.m., then occurred coryza; cough still slight, expectoration not increased. Dec. 1st.—Great burning when passing water; frequent call to micturate; urine clear. Painful erections. 2nd.—Throughout d. constant scalding when passing water, which was at first clear, but afterwards mixed with purulent-looking, colourless mucus, p.m. streaked with blood. 3rd.—In m. more coryza, but no cough; alternate rigor and heat; pulse at noon 84. All d. lassitude and burning in feet (latter went off about 4 p.m.). In afternoon again heat and rigor, with at 6.30 some headache. Later in e. violent shooting pain as if in a ring around abdomen, and pain in small of back. Increase during d. of purulent discharge from urethra, with burning pains during micturition; during n., which was quiet, discharge most copious but clear; in m. streaks of blood again appeared. 4th.—From afternoon onwards decline of pain in micturition and urethral discharge. Otherwise as on previous d.; alternate heat and rigor; headache till 7 p.m., with great appetite and increased perspiration. Following n. good, with rapid amelioration of urinary ailment; there still remains some yellow mucous discharge.

5. June 8th.—At 6 a.m. 4 gr. 7, tearing-shooting pain in l. thigh, from hip to knee, causing lameness; at centre of l. patella, in small spot, severe shooting; all d. great drowsiness and lassitude. 9th.—At 5.30 a.m., 8 gr. Great drowsiness (it was thunderous weather); slight aching in r. brain; vertigo and slight stupefaction; respiration somewhat oppressed. 10th.—At 6.30 a.m. 8 gr. 8, drawing between scapulae, not lasting long; lassitude. From 11th to 13th, occasional lassitude and vertigo. 17th.—At 8 a.m. gr. j of 1st trit., which was followed by oppression and eructation. P.m., slight itching in scrotum, and slight burning on micturition; urine of deep yellow colour. In e. great fulness and distension of stomach (after eating some new bread and eggs). 18th.—At 5 a.m. 4 gr. Frequent discharge of flatus; fulness; small quantity of mucus from urethra. 20th.—4 gr. Frequent emission of flatus; mucous discharge from urethra has returned. 21st—24th.—Much flatus; fulness with violent eructations. (*Ibid.*)

21. REICHMANN took, Nov. 27th, 1 gr. In $\frac{1}{2}$ h. great drowsiness. P.m., stitches in sternum. In e., pain in l. eye, and for a short time it appeared to be covered with a veil. Next d. it was swollen, in outer canthus much mucus was found, with aching pains and considerable lachrymation. This lasted till 30th. Dec. 2nd.—At 6 a.m. again 1 gr. In $\frac{1}{2}$ h. tears flowed so copiously that he could not work; this symptom, however, soon declined. At 10, violent aching pain in eye, lasting, though not so severe, till afternoon of next d. (*Ibid.*)

22. v. VULPIUS took, Nov. 21st, at 6.30 a.m., 1 gr. About 9, transient stitches in chest, especially r.; afterwards headache, and sometimes shooting in occiput, but good, almost gay, humour. All p.m. and e. very violent headache, so that he was unable to work; also shooting behind ear into jaw; pulse 85; very bad humour; lassitude in limbs. 24th.—Repeated dose. Besides headache, which lasted till e., no morbid symptom. 25th.—A third dose, without effect. 27th.

—At 6.30 a.m. 1 gr. of 1st trit. Very insipid taste some time after taking it; tongue thickly furred, yellow; shooting in l. temple and in r. occiput. 3 p.m., pain in l. hypochondrium. E., headache. 28th.—Repeated dose. Slight headache; occasional shoots in r. parotid; increased saliva. Towards noon spasmodic vibrating twitching in scrob. cordis and r. thigh, lasting all 29th. 29th.—Took a third dose. Tongue somewhat furred; above vibrating twitching in scrobiculus constant. 11.30, tearing in r. cheek, sometimes extending over crown of head to occiput. During last days more or less violent rheumatic pains both in head (especially jaws and ears) and in extremities. 4th.—Tearing in r. cheek and elbow; twitching in l. scapula. Shortly before dinner transient belly-ache. Two motions. P.m., shooting in r. thumb. 5th.—Vibrating twitching in r. ala nasi; sometimes shooting in r. upper arm down to elbow-joint. 6th.—Very painful little ulcer in nose. 7th.—Itching in rectum, tearing in face, and previous vibrating twitching in scrob. cordis.

b. June 8th.—At 5.30 p.m. 4 gr., without effect. 13th.—At 6 a.m. repeated dose. Soon afterwards, cramp-like twitching in extensor muscles of l. upper arm; then aching in r. hypochondrium, sometimes increased by breathing and then becoming shooting; almost all d. insipid disagreeable taste in mouth. 14th.—At 5 a.m., same dose. Spasmodic trembling in l. upper eyelid, sometimes with slight shooting pain in eye itself. (*Ibid.*)

23. WERTHER took, December 4th, at 6.30 a.m., 1 gr. of 1st trit. In afternoon pains before and after micturition; urine lemon-yellow, coming away in small quantity every 10 m. After a second dose following m. at 6.30, felt pains in forenoon, and more severe. After a third dose for 2 d. pains were yet more violent; then appeared pimples on face and thigh, and also at l. oral commissure. By following c. all these symptoms were gone. (*Ibid.*)

24. Dr. GENZKE, of Bützow, Mecklenburg, *xt.* 40, of choleric temperament and strong constitution, occasionally suffers from catarrhal affections, and 7 years ago had gastric fever. He also has pityriasis versicolor on chest, back, and abdomen, which varies with treatment, but never goes away. At the time of his proving he was well except a slight cough with easy expectoration; he made no change in his diet, which was simple, except that he avoided wine and spirits and drank weak coffee in the afternoon.

a. Dr. G.—began his proving on March 25th, 1846. He took 2 gr. of the 3₂ trit. in m. fasting and at n. on going to bed, adding 1 gr. each d., so that on April 6th he took 14 gr. n. and m.,—208 gr. in all. The first 3 d. no change, unless some improvement of appetite. March 28th.—Slight feeling of tension and heaviness of abdomen, with sensation as if flatulence were imprisoned, followed by restless sleep and horrible dreams, several times repeated, of fighting with wild beasts. 29th (and following days) tension continued, usual normal stool every m. soon after rising. About 11 noticed slight pressive frontal headache (which he had previously occasionally had), coming on while writing, and lasting some h. In e. pain in back as if broken, while at work in garden, perhaps due to his being unaccustomed to the work. 30th and

31st.—Similar symptoms except headache; also feeling of roughness in trachea with somewhat increased expectoration. April 1st.—Slight shivery feeling all over with restlessness; pulse small, weak and quickened, numbering at 10 a.m. 86 while sitting, and 96 while standing (usually is 79 and 86 respectively at this h.) About 4, felt sore pain on inner side of r. knee as if it were abraded; thought it was due to rubbing of the clothing. On examination skin was found normal, although the place was painful to a gentle touch with the hand. This increased during n. and to such a degree that it was impossible to bear contact of other leg when lying on side; restless sleep with dreams of same kind as before described; on one occasion when awaking in a fright, noticed feeling of tension in chest. Pressure in region of stomach and some colicky pain. Towards m. peculiar sensation difficult to describe, as if sweat would break out on skin (which did not happen); pain in r. knee continued and extended downwards to calf. 2nd.—On rising, momentary pricking sensation to soles of feet; in course of d. pain in knee continued, but gradually lessened; except some tension in abdomen nothing else noticed. Drank a little wine in e., slept well without dreaming. 3rd.—General feeling of well-being and of lightness, lasting all d. On 4th, 5th and 6th nothing very noteworthy, the abdominal tension occurred in less degree. In m. of 5th a pricking itching came on suddenly in bend of l. knee, skin being perfectly sound; it lasted some h.; and in e. noticed indications of throbbing headache, extending from occiput to vertex. Good undisturbed sleep in n. 7th.—On rising dull pressing frontal headache, lasting all forenoon, associated with slight feeling of fatigue. Normal stool towards 8 a.m.; an h. later renewed desire for stool, followed by pappy evacuation, mixed with fecal masses and mucus. P.m., dull sticking pain in r. side of back, especially on deep breathing, lasting several h. Perfect health between this date and the following experiment.

2. April 17th, took 20 dr. tinct., m. fasting; followed only by restless sleep next n. 18th.—28 dr. m. fasting. After about 1 h. slight general chilly feeling, with slight frontal headache, in heated room, which came on while writing, and both of which went away later on moving. 19th.—40 dr. No change during d.; during n. somewhat restless sleep with dreams, and towards m., while still in bed, drawing pain along outer side of l. ulna, lasting a short time, and followed by tenderness on pressure without there being anything to be seen. 20th.—54 dr. One h. after slight chilliness all over, lasting all d.; p.m., some abdominal disturbance with discharge of very offensive flatus. The above-mentioned drawing pain along ulna came on, but without the tenderness, a similar pain appeared also on back of l. hand. During n. restless sleep and some peculiar dreams causing feeling of anxiety like nightmare; on waking immediately after, feeling of heat over whole body and violent beating of pulse. 21st.—76 dr. Besides slight abdominal distension, a tearing pain coming on periodically in outer side of r. thigh, just above patella, and at same time sore pain in r. nostril, worse on pressing wing of nose with finger. 22nd and 23rd.—No dose. Pappy evacuation on 22nd, soon followed by renewed desire as if diarrhoea would occur, but only a small evacuation of feces of firmer con-

sistence than before ensued. On both d. soreness of nose as before, and some distension of abdomen. 24th.—100 dr. taken in 2 doses m. and afternoon. Half an h. after first, violent sneezing and secretion of mucus (a not unfrequent occurrence apart from the experiment); somewhat later large, hard, difficult stool. About 10 pressure in abdomen and urging to stool again occurred, with evacuation of soft feces. A thin crust has formed in r. nostril where pain was. 25th and 26th.—130 and 160 dr. respectively on each d. in 2 doses. Nothing noticed beyond slight abdominal distension.

c. On 8th, 9th and 10th June took 300, 400 and 500 dr., each quantity in 4 doses. Except griping pain in abdomen, relieved by soft stool on m. of 9th, no symptoms first 2 d. On 10th, fine pricking pain in anterior (glandular) portion of urethra, lasting only a short time, causing no desire to urinate or pain on doing so; urine normal. Later, drawing pain in r. great toe, coming on during rest, and passing away on moving. After this he noticed no mental or physical change whatever, and the pyriasis alluded to was unaffected by the drug. (*Hyst.*, xxii, 446.)

25. Herr RUSCH, æt. 24, florid complexion, lymphatic temperament, took 3rd trit. from April 3rd to 15th, beginning with 2 gr. and increasing 1 gr. per diem. On 8th and 9th d. he had a pressive frontal headache, and this was the only departure from perfect health that he noticed. On the 20th he took 4 dr. of tinct., and increased 2 dr. a d. for 10 d. without any result. (*Ibid.*)

[Dr. Genzke also experimented on five of his own children, boys and girls varying from 6 to 15 years of age, to whom he administered daily increasing doses of the 15th attenuation. No symptoms attributable to the drug resulted, and the same was the case after a 10 d. course of the 3rd trit. The negative results of these experiments on Herr Rusch and on his children, led him to question whether the symptoms noted in his own case were really attributable to the L.] (*Ibid.*)

26. a. Dr. Fa. SZCZUM, on March 24th and 25th, while in perfect health, took gr. ij of 12th dil. in m. fasting. He experienced only a little pain in abdomen, as from wind, and (instead of the usual single stool) had 2 evacuations of the bowels and an often-recurring dull pressure in the neighbourhood of the temples. On 27th a similar dose. On 28th was obliged to go a 7 h. journey, and took at dinner a little wine, followed by coffee. Soon after dinner, while in earnest conversation, frequent momentary confusion; could not take in accurately what was being said, and (irrelevant) thoughts forced themselves into his mind against his will. For instance, he kept thinking of draughts, his favourite game at that time. He could not succeed in giving undivided attention to the conversation; he pictured the game and all its moves. This lasted all the afternoon and until he went to bed, but he woke up free from it the next m. On 29th, 30th, and 31st took 3 doses of same strength, and on April 1st, 1 dr. of the 10th. On this d. he took some coffee in m., and half a wineglassful of wine. Until 24th he felt an unusual liability to catching cold; had toothache, now on one side and then on the other, at first drawing, then extending to ears and temples, with painful sensitiveness of the scalp over l. ear, worse on touching it. Also on swallowing had stitches extending to r. ear. 24th.—Had some shocks from a voltaic battery. 27th.—No more pain.

b. May 21st, 1835. M., fasting, took 10 gr. 3rd trit. On 20th, having obtained no results, took 10 dr. of 30th dil., and same on 21th. On 22nd 50 dr. Papules on legs, with here and there sharp pricking, which compelled him to scratch. On 23th and 24th same dose; a sore pain in toes, lasting until 24th and hindering walking. Sweat between toes so softened a corn that he was able to remove it by scratching.

A feeling of hunger in m. at 2 a.m., quite unusual with the prover. Increased sexual desire, emissions in n.; he wet the bed, while dreaming that he had got up to use the chamber utensil (this happened to him once before when a student). From 18th to 22d drank daily half a glass of wine and some coffee. Swelling and painfulness at tip of nose, a small red spot as if a pustule would form, with occasional severe itching on edge of 2. upper eyelid. April 4th.—The aforesaid pain in the toes, which had disappeared, returned. Increased sexual desire and nocturnal emissions, followed by marked lessening of desire; the emissions occurred also without previous erection.

r. Nov. 26th, 1844, in good health; 8 a.m., 1 h. after breakfast (chocolate), grt. x of 240 dil. of tinct. 11—12, gripping pain in abdomen, as if diarrhoea would ensue. Frontal headache p.m., a pressing and squeezing pain, to which he is not subject, lasting several h. 21st.—Slept well; between 7 and 8 a.m., while sitting waiting, severe pressing pain in back, now over a large extent, now as if he were pressed with a fist on lower dorsal vertebrae, at same time similar pressure at end of sternum, so that he was obliged to hold his breath. At same time slight toothache, pressure outwards in forehead, with slight drawing sensation through r. side of face, over shoulder, and in arm. Never had a similar pain before, it went off in great part while he was waiting it down, and after $\frac{1}{2}$ h. was only a painful sensation. 29th.—No symptoms since last date; took 20 dr. of tinct. while travelling, and, after drinking 3 oz. of white wine and a little *caffé au lait*, much confusion of head and difficulty in collecting thoughts so as to differentiate between medicines. Without being painful, the feeling of irresolution was very disagreeable. This confusion lasted, though less severely, until 22d. 24th.—Took a small quantity of the only residue of some tinct. which had evaporated; the confusion of head came back at once, with a feeling as if a board lay across the forehead. 29th.—20 dr. of 3rd dil. m. fasting. Until Dec. 6th felt again periodically the confusion of head; at such times thinking and grasping a subject were especially difficult. Rheumatic tearing pain several times in r. ear and temple; also once drawing pain in l. shoulder; these may have been due to the weather—sudden changes between east and south-west wind, between clear and dry, and dull and cloudy weather, but prover considers this sensitiveness to the weather due to the drug. His mental confusion prevented his continuing the experimentation. (*Haged.* 217, 14.)

LYCOPUS.

Lycopus virginicus, Michaux. Bugle wood. Nat. Ord., Labiata.

l. *Proving*.—1. a. Dr. G. E. CHANDLER, æt. 30, in good health, on Dec. 26th, 1865, took 10 dr. of tinct. at 10 p.m. 27th.—At 7 a.m. took 11 dr., and also at 12 m. 12 dr. more; at 5 p.m. a marked pressing pain in supra-orbital region for a few m.; at 5.16 took 13 dr., and also at 10 p.m. 28th.—Took 12 dr. 1 h. before each meal, and also before retiring. 29th.—At 3.30 p.m., dull pain in l. supra-orbital region of several h. duration. Took 13 dr. 4 times, as yesterday. 30th.—Very marked sensation in cardiac region, constrictive, lasting 3 h., accelerated respiration during exercise, worse while ascending stairs. These symptoms were in early part of d.; during d. 2 huskiness (*sic*) in l. patella, dull pain in knee, lasting through d., more intense while in motion. Took 14 dr. as yesterday. 31st.—Took 15 dr. as yesterday. Jan. 1st, 1866.—Peculiar beat of heart, 1st sound displaced by a blowing sound. 6th.—At 5.30 p.m. took 15 dr. immediately before eating. 7th.—Last n. very restless, full of troubled dreams; severe pressure in forehead, particularly l. Eyes full, painful, and pressing outwards. 8 a.m., pulse 48, weak and irregular in force; pressure in forehead. Sp. gr.

of urine 120. 9 a.m., 15 dr.; 2 p.m., l. limb feels $\frac{1}{2}$ in. shorter than other, and foot sounds on side walk as if this was so. 8th.—At 8 a.m. 20 dr.; 12, m., diarrhœic symptoms, tenderness in l. hypochondrium; eyes press out; 12.30 p.m., stitch-like pain in cardia, causing an exclamation; 2, constricting pain and tenderness around heart; pulse 65, weak and irregular in force; 5, increased action of bowels, aggravated diarrhœic symptoms; could have had a passage any time of d., but had perfect control of sphincter ani; pressure in forehead all d.; passed during d. 32 oz. of urine; 11.30, 30 dr. 9th.—At 8 a.m. tenderness in bladder; frontal and vertical portion of head dull and pressing out; took 50 dr.; pulse 56; sp. gr. of urine 1020; 9, slight huskiness of l. patella in motion; 12, pulse 64; 11.45, circumscribed pain and compression in epigastric region; 12, m., pain steady and deep in r. parotid gland, and at angle of r. maxilla; burning of r. ear for 1 h. or more; 3.30 p.m., dull pain in lumbar region, particularly l., and bladder feels much distended when empty. 12th.—At 8 a.m. took 20 dr. of 1st; 9, severe colic pains followed by profuse and forcible diarrhœic evacuation; 4 p.m., heart-beat, much more distinct on r. of sternum than on l.; pulse 68, and full; 7.30, flatulence; 8.45, rumbling of bowels with colic; eyes full and heavy all d.; 12, took 20 dr., soon followed by griping in bowels; pulse regular in force. 13th.—At 8 a.m. tenderness in abdomen; painful pressure in eyeballs; heart-beat peculiar, as noted on 1st. 14th.—Pressing pain in front of head, but not as marked as formerly; pulse 64, irregular in force. 15th.—3 p.m. throbbing pain in cardia; constant pressure in front of head and eyes; pulse 60 and irregular in force. 16th.—No symptoms. 17th.—Same pain in front of head and eyes, but not constant; 9.45 p.m., tugging pain in spleen of several h. duration; flatulence all d. 18th.—Slight pressure in head and eyes in e.; 7.30 p.m., pulse 60, and slightly irregular in force; very sensible pressure in cardiac region, the cardiac viscera pressing outwards, but not painful. ("During this partial proving of the drug I have not changed my mode of living in any particular, my diet plain and varied. I have never been addicted to the use of tobacco in any form, or spirituous drink of any kind; scarcely ever drink coffee, occasionally tea. During the proving I lost more or less control of my mind, it being wandering from one thing to another. The symptoms were more marked on alternate days.")

5. Dr. R. LUDLAM makes the following report, after an examination of prover's heart:—Jan. 15th, 1866, 4.30 p.m. Found on auscultation first sound of heart lacking, sometimes faintly perceptible, displaced by a blowing sound of mitral regurgitation. The second sound is pointed, short, sharp, and more emphatic than natural. Pulse 58, a little irregular; sometimes drags a little and then hurries up; weak. (Dr. J. S. P. Lord confirmed this examination.) 16th.—Pulse 64 and more regular; first sound of heart more distinct, blowing correspondingly less so; second less sharp and emphatic; in short the heart's action more normal in every respect. (Dr. E. M. P. Ludlam attests.) 18th.—First sound a little more distinct; pulse 56; blowing sound more marked than when last examined. 19th.—Same as yesterday, excepting that first sound is a little more distinct, and

blowing sound less so; pulse 56. 22nd.—Same report; normal sound more evident, blowing sound more faint; pulse 62. 24th.—Pulse 60 and more regular; sound distinct at apex; this blowing sound is heard upwards in clavicular region and particularly between scapulae. Feb. 14th.—Same excepting in degree; the blowing is less distinct at intervals, sounds are nearly normal, and then for 6—10 beats blowing displaces first sound. Pulse 70, probably accelerated somewhat by a walk of $\frac{1}{2}$ a mile in violent snowstorm. (Not having examined Mr. C.—prior to his taking the drug I cannot declare positively that this abnormality is wholly due to the Lycopus, but the probabilities are certainly very strong in support of that view.—R. L.) (*HALL, New Remedies*, 2nd ed.)

2. Dr. MORRISON. Health usually good, though not robust; for last 9 years, since residing in England, tendency to rheumatic pains, with slightly depressed cardiac action. The oppression of crowded rooms induces faintness. For about a week a tendency to diarrhoea. Slight attacks of spasm of intercostals have troubled me for about a month, caused by arsenical wall paper. Depression of vital energy from a long strain of work. *Examiner's report*.—"Impulse of heart rather feeble. Percussion shows that heart is of natural size. There is a distinct systolic basic murmur at second interspace, which I have no doubt is hæmic. The first sound at apex is not good, and is rather murmurish. Occasional intermissions in the heart's beats." Pulse 70, sitting; temp. 36.40° C.; resp. 20. Urine clear, bright even after standing whole n.; acid, sp. gr. 1012, free from albumen.

a. Sept. 5th, 1872, 10 p.m., took 10 dr. of tinct. Within 15 m. slight pain in l. frontal eminence, quickly transferred to r., then ceasing and returning in both; succeeded by slight burning r. side back of palate, lasting 10 m. 6th.—10 a.m., 10 dr. No effects. 2 p.m., 10 dr. Within 5 m. oppressed feeling in brain, succeeded by subacute pain an inch below and to outer side of l. nipple, quickly subsiding; 20 m. after taking, dull pain in both frontal eminences, succeeded by slight return of subacute pain at apex of heart. 10 p.m., 15 dr. Within 10 m. distinct sensation of rawness at back of palate, r. side, extending over to l. Pulse 72, sitting; temp. 36.30° C.; urine clear, acid, sp. gr. 1016, free from albumen. 7th.—10 a.m., 20 dr. After 20 m. slight rawness at back and r. side of palate. 2 p.m., 20 dr. Within 5 m. slight burning in palate; slight obtusion of intellect, with dull aching through sinciput. 10, 20 dr. Slight burning r. side of palate, in usual spot. Pulse 76, fairly regular. 8th.—10 a.m., 20 dr. Within 15 m. frontal headache, succeeded by burning in usual spot of palate. 11, sharp pain in usual spot, lasting several m. 2 p.m., 25 dr. During afternoon pressive frontal headache, relieved by current of air, returning on entering house. 7, cardiac oppression lasting 1 h.; pulse 80, standing, with distinct intermissions; tendency to toothache in r. lower molars, sound teeth, succeeded by subacute pain, first in l., then in r. frontal eminence. 4th.—9 a.m., 30 dr. 3 p.m., subacute pain in both frontal eminences, succeeded by frontal headache. 9, marked cardiac oppression; pulse 80, sitting, with distinct intermissions; sighing and yawning; unsteadiness of hands,

rendering writing difficult; strange sensations extending up œsophagus and locating in pharynx. 10, feeling of unsteadiness in walking; continuous subacute aching in frontal eminences, especially l.; tendency to toothache, first in r. lower molars, sound teeth, then transferred l. sound teeth. 10, 30 dr. Within $\frac{1}{2}$ h., subacute pain in l. frontal eminence and pharynx, in latter increased by deglutition; pulse 66, sitting; temp. 35.90° C.; resp. 19; urine, cloudy deposit, acid, sp. gr. 1021, free from albumen. 10th.—Retired 2 a.m. On lying down, cardiac depression, with dull, heaving beating, lasting several m.; sleep in n. dreamy and disturbed, not restless; awoke before 6 a.m.; on rising, continuous dull, frontal headache, not relieved by cold affusion, slightly relieved by strong pressure. 10 a.m., 30 dr. Return of tremulous feeling in hands while writing, lasting several m.; during d., dull, pressive, frontal headache, occasional pains in l. frontal eminence. 10 p.m., 40 dr. Within 2 m. general feeling of oppression, inducing him to sit down; sharp rheumatoid pain from l. knee to ankle, quickly settling in loins, then accompanied by sharp darning pains in l. thumb succeeded by acute pain in nape of neck (cervical muscles); pressive frontal headache, with acute pain in cerebrum from succussion of walking; 11.30, steady subacute pain in cervical muscles, more to l. side; subacute pain in l. frontal eminence; pulse 74, sitting and standing, varying in volume. *Examiner's report.*—“Hæmic murmur lessened, apex murmurishness imperceptible, pulsation stronger, 70 standing or lying. 11th.—Awoke 6.30, had slept better, then intermittent cardiac pulsation at 7th, 8th, 6th, 21st, 9th, 23rd, and 88th beats; a few m. later, intermissions between 6th and 15th beats; later heart beats regularly 70, lying; before rising free from headache, which immediately slightly returned, not relieved by cold affusion. 10 a.m., 40 dr. Pulse at first steadier, then frequent intermissions; increased headache. 11, subacute pain in both temples. 12.15 p.m., pain in temples transferred to cerebellum, like congestion; subacute pain at apex of heart, of short duration; rheumatoid pain in calves of legs, especially l., succeeded by acute rheumatoid loin pain, extending to lower dorsal region; acute pain in 7th cervical vertebra; pain from cerebellum transferred to temples, more acute. 12.45, congestive pain in occiput, without mitigation of aching in temples; constant severe lumbar aching; slight rheumatoid pain in l. supra-scapular muscles; general feeling of weakness and weariness; pulse 76, sitting and standing. 1.30 p.m., flying muscular pains, with persistent aching in loins and occiput, worse by movement, not lessening as formerly after a meal; depression of vital power. 6.30, by 4 o'clock pains had almost left, but after running upstairs returned sharply, first in loins, then l. leg, extending up thigh, afterwards in r. leg, with increased weakness and weariness; flying pains in various parts; eyes feel weak as if the system were much over-fatigued; symptoms not relieved by e. meal; pulse 72, sitting and standing, with occasional intermissions. 10, symptoms severe; pulse 68 sitting, regular, 74 standing, irregular; temp. 36.20° C.; resp. 19; urine, cloudy deposit, acid, sp. gr. 1016, free from albumen, phosphates, lithates, and sugar, microscope shows mucus, epithelial cells, and very minute crystals.

Since commencing proving bowels have acted regularly twice a d., motions papaceous or watery till to-day, now decidedly constipated. 12th.—Retired last n. at 11, slept well till daylight, then awoke (quite unusual) and had light dreamy sleep after. Before rising, quite free from pain; immediately after, rheumatoid aching in r. scapular muscles. 11 a.m., pain in scapular muscles continues, otherwise feels well. Took 50 dr. In 10 m. dull frontal headache; pain in l. lower molars, transferred to r.; during d., rheumatoid pain, commencing in l. calf and finishing in r.; lumbar pain; frontal headache; occipital pain; flying pains; general malaise; all symptoms much less marked than yesterday. At 11 p.m., pulse 72 sitting and standing, 62 to 66 lying, irregular and intermittent, especially when lying, quickened by each inspiration; bowels moved twice to-day, motions loose, light in colour; urine deposits mucus, acid, sp. gr. 1012. 13th.—Did not sleep so soundly as usual; on awaking, slight aching in l. calf, quickly transferred to r.; slight aching down l. forearm; after rising, cardiac distress scarcely amounting to pain, most marked at apex. 10 a.m., 50 dr. (new tinct.). In 20 m. frontal oppression, with trembling weakness of hands; return of rawness at back of palate r. side; during afternoon return of lumbar aching, most on l. side; frontal headache; pains in limbs; general malaise; in e. lumbar aching; occasional pains in legs, especially l.; slight pain in molars passing from r. to l.; pulse 72, lying, sitting, and standing, quickened by inspiration; temp. $36^{\circ}30'$ C.; resp. 19; urine deposits mucus while cooling, acid, sp. gr. on passing 1010, after standing, 1014; motion slimy, of peculiarly shining dark brown colour. *Examiner's report*.—"Pulsation scarcely perceptible to touch, hæmic murmur again indistinct, apex murmurishness again perceptible, pulse 72, sitting and standing; all symptoms increased by movement, in lying down, or standing up." In e. cardiac action regular, pulse 74, not intermittent. 14th.—Awoke 5 a.m. after dreamy, though not restless sleep; pulse 74, intermissions at 7th, 11th, 31st, 10th, and 20th beats; slept again indifferently till 8, then awoke free from pain or ache; pulse 72, not intermittent. At 10 a.m., pulse 74, lying and sitting, 82 standing; general debility. Took 60 dr. Within 10 m. severe lumbar aching; frontal headache; pulse 82 sitting, 86 standing, irregular and intermittent; 5 m. later subacute pain at apex, extending to 3rd l. interspace; later, cessation of frontal headache, succeeded by occipital aching and subacute pain in 5th r. interspace, each quickly abating; succeeded by return of pain in temples; loin pain persists. 11 a.m., pulse 72 sitting, 82 standing, occasional intermissions. 12, noon, loin pain and headache in temples persists; slight pain at apex; rheumatoid pains especially in l. leg and forearm; afternoon, sharp aching in r. leg, not relieved by friction; short aching in various parts, l. side the worst. At n. pulse 74; temp. $36^{\circ}40'$ C.; urine deposits mucus, acid, sp. gr., when fresh, 1012, on cooling 1016, free from albumen. 15th.—On awaking at 6.30 pleurodynia from 3rd to 7th l. interspace, with acute pain at apex of heart; contraction of intercostal muscles, worse lying on r. side, lasting till 10 a.m.; pulse 68, with oppressed cardiac action. 11 a.m., took 80 dr. Within $\frac{1}{2}$ h. sharp pain in r. lower molars, passing to r. temple, then to l. lower

molars, then to l. temple, returning to r. lower molars, then settling in loins, with frontal oppression; later pains at apex of heart, in l. wrist, l. leg, r. leg, nape of neck, and loins, passing off quickly, not relieved by friction; palpitation on slight exertion; general malaise. In e. congestive pain in nape of neck, with severe continuous lumbar and dorsal pain, worse towards l. side. At 10.50 p.m., pulse 60 lying, 66 sitting, 80 standing, regular; urine less clouded, acid, sp. gr., fresh 1012, on cooling, 1018. 16th.—On waking at 6.30, laboured cardiac pulsation, pulse 62. 10 a.m., pulse 72 sitting, 82 standing. Took 100 dr. Within 1 h. dull,pressive, frontal headache, pulse 76 sitting, 80 standing; aching across loins. 12, noon, while sitting strong bearing-down in l. inguinal canal, as if hernia would protrude, with acute pain on walking, relieved by upward pressure on external ring, lasting about 16 m. Afternoon, slight pain in various parts, l. side the worst. E., restless activity, ready for any amount of work; slight aching in l. lower molars, sound teeth. 9.30 p.m., bearing-down in r. inguinal canal, with subacute pain when walking, relieved by upward pressure on external ring, returning when pressure is removed, lasting 2 h., with severe loin pain, worse to r. of spine, lasting till retiring. During d. there has been subacute pain at apex of heart, later in 4th l. interspace; urine less clouded, acid, sp. gr., fresh 1008, on cooling 1012, free from albumen. 17th.—Awoke at daylight free from pain, and slept but indifferently after. On rising, aching returned in both inguinal canals, increased by walking, relieved by upward pressure on external rings; sharp aching in l. lower molars, sound teeth. 10 a.m., took 120 dr. Pulse immediately steadied, soft, regular, 76 sitting, 84 standing. Within $\frac{1}{4}$ h. sharp aching l. lower molars, accompanied by fronto-occipital headache; return of lumbar aching. 1 p.m., subacute superficial pain in 3rd l. interspace, near sternum, becoming acute on moving, lasting 16 m., passing to mid-sternum; continuous aching along inguinal canals, worse on r. side, obliging him to walk cautiously, continuous loin pain; pulse 70 sitting, 77 standing. Afternoon, severe continuous lumbar aching; painful stiffness in l. inframaxillary region, extending to nape of neck, interfering with movement of head; slight tenderness in inguinal canals. E., continued tenderness of inguinal canals; pulse 70, jerking; temp. 36.10° C.; urine less clouded, acid, sp. gr., fresh 1014, on cooling 1017. 18th.—No med. During m. sharp aching down r. tibia, causing lameness, not relieved by friction; aching in various parts, especially l. lower molars and loins; general malaise. Bowels acted this m. only, motion shiny, of peculiar greyish brown, as if mixed with ashes. N., pulse, 58 lying, 70 sitting, 72 standing; temp. 36.10° C.; urine slightly clouded, acid, sp. gr., fresh 1007, on cooling 1010. 19th.—On waking, spasms in r. intercostals; slight aching down r. inguinal canal. 10 a.m., pulse, 70 sitting, 78 standing. Took 3 dr. Within 5 m. sharp aching in nape of neck, l. side, soon transferred to r. frontal eminence; later, pulse very feeble, quickened, 78 sitting, 86 standing, irregular. Acute pain in inner muscles of l. calf, with straining and lameness; acute flying pains to r. middle dorsal region, nape, frontal eminences, l. wrist, l. lower molars (sound teeth), lumbar region, and again in nape. 11 a.m.,

distressed feeling in cerebellum; sharp aching in various parts; acute superficial pain in 3rd and 4th l. interspaces; continuous lumbar pain, not worse by stooping, increased by walking; pulse, 82 sitting, 84 standing, regular. 11.30, while sitting, acute pain down r. inguinal canal, quickly abating, leaving a steady dull aching; cervical and lumbar pains continue. 12, noon. *Examiner's report*.—"Heart-sounds indistinct, systolic running into diastolic, basic murmur very slight, apex murmurishness not perceptible, action very feeble; pulse, 78 sitting, 86 standing, not intermittent." 1.30 p.m., faint nausea, lasting 1 h., not relieved by dinner; marked cardiac depression; shifting pains. 2, aching down flexor muscles of r. thigh, extending to knee and calf, then to l. knee and calf, then returning to r. thigh and knee, with slight lameness. During afternoon acute pains in usual spots, with steady aching in r. thigh and knee-joint; faint perspiration on covered parts, when walking; repeated sharp superficial and deep pains in precordial region. E., great debility, especially on walking; has taken extra stimulant to keep him going. Continuous aching in various parts; cardiac pains; slight lameness; slight return of faint nausea. Pulse 60 lying, regular; 62 sitting, regular; 64 standing, irregular; temp. 36.10° C.; resp. 17. Urine scarcely clouded, acid, sp. gr. fresh, 1008, after cooling 1012. Before retiring, giddiness, with tendency to stagger to r. Motion to-d., dark shining brown, strong odour. 20th.—On awaking, pleurodynia below 5th r. costal cartilage, passing to l., then again to r. side; pulse 70, feeble, regular, lying. On rising, aching down both thighs, with weakness in walking; slight aching, relieved by the electric current, not relieved by the galvanic. 10.30 a.m., aching in l. inferior maxillary articulation, and l. wrist. 1 p.m., subacute pain in l. frontal eminence and precordial region; aching across lumbar region; sensations of faintness, with unsteadiness in walking; trembling in hands; tenderness of r. inguinal canal. Pulse 66 sitting and standing, regular. 5, severe aching in both temples, especially l.; remains of lumbar pain. 6 p.m., acute darting pains at apex of heart. E., shifting pains, most persistent in r. knee; persistent nausea, rising from back of fauces, relieved by eructations, which taste of tea and drug; succeeded by persistent giddiness while sitting, with staggering to r. on walking; acute pain in l. temple passing to r., followed by severe lumbar aching; darting pains at apex of heart; oppression of respiration; constriction of larynx; acute pain in l. frontal eminence, with sensation of compression of brain; aching down r. inguinal canal, while sitting; restless activity notwithstanding nausea, giddiness, and pains, all of which have been very severe. 10.30, pain from front of r. knee transferred to back of l. 10.40, darting pains through r. wrist. On retiring, pulse 60 lying, 62 sitting, 64 standing. Urine deposits mucus, acid, sp. gr. fresh 1014, on cooling 1018, free from albumen. Bowels acted twice to-d., motions slimy, of the peculiar dark shining brown, gushing out.

6. 21st.—Awoke 5 a.m., light dreamy sleep after. On waking, sense of constriction at lower half of thorax, impeding respiration, with subacute pain, increased by lying on r. side; continuous aching in l. lower molars. 10 a.m., took 3ss. Within 1 h. dull frontal headache; vital depression; heavy aching in cervical region; acute pain at apex of

heart, not relieved by pressure, but driven by friction to l. subscapular region, then passing to mid-dorsal region, severe; continuous aching in l. lower molar; return of acute pain at apex, with distress. Pulse regular, feeble, not altered as to rate; later, parched feeling in upper lip; severe aching in occiput, with cessation of cardiac pain; general oppression of brain; acute pain over l. temple; giddiness, with tendency to stagger to the r. 12, noon, persistent lumbar aching; dull oppressive headache. Pulse scarcely perceptible, 76 sitting, regular; 84 standing, irregular. 1 p.m., acute pain down r. inguinal canal, partially relieved by upward pressure on external ring; occipital aching. Later, prickings, as if bitten by insects, in l. forearm, hypogastrium, r. leg, r. forearm, back, and again in l. forearm; slight aching in r. leg, lumbar region, nape of neck and r. inguinal canal. *Examiner's report.*—"Pulse extremely varying both as to time and volume, at first almost imperceptible, 76 to 86, sitting and standing, not intermittent; cardiac pulsation much stronger than pulse indications would lead one to expect; no special murmurs." N., slight aching; pulse 72, lying and sitting, regular; 84 to 88 standing, varying in volume. Urine shows but little trace of mucus, acid, sp. gr. 1010 fresh, 1014 on cooling. For several m. excessive flatulent rumblings on awaking. 22nd.—Awoke during n. with pressive aching down l. inguinal canal, relieved by upward pressure on external ring, lasting several m. Before rising, intercostal pains, worse when lying on r. side, extending to apex of heart. During the d. a double set of pains, from cold, and from the drug. The former chiefly affected upper teeth on l. side, decayed lower teeth, and head; the latter l. lower molars, sound teeth, and lower limbs. The pains from cold were relieved by aconite, port wine, and warmth, increased by cold air. The dental drug pains were not relieved by aconite, mercurius, or direct warmth. E., feverish feeling (from cold), pain went from lower molars to lumbar region, then went rolling up spine like a ball, and settled in mid-dorsal region, chiefly to l. of spine; afterwards returned to l. lower molar; severe general headache, with giddiness. Pulse 72, lying and sitting, regular; 84 standing, regular; feeble; temp. 36.70° C. Urine scarcely clouded, acid, sp. gr. fresh 1015, on cooling 1019. Bowels acted twice, second motion half solid, with straining, half-slimy, gushing out. 23rd.—On awaking severe intercostal pains, both r. and l., with repeated acute darting pains at apex of heart, increased by lying on r. side; severe aching down spine, somewhat relieved by friction, passing off after rising; excessive flatulence. During d., severe and continuous aching in l. lower molar, sound teeth; frontal headache. During d. severe irritation, like urticaria, on various parts. Before retiring, troublesome urticaria, especially affecting l. forearm and r. leg. 24th.—On awaking, subacute pain in lower dorsal region to l. of spine. 2 p.m., acute darting from anterior superior angle of l. parietal to malar bone, succeeded by sensation as if brain were compressed, followed by long-continued irritation of scalp over line of pain. During d. troublesome irritation (urticaria) especially of l. forearm and r. leg. ("I cannot say this irritation is a drug effect, as I have had slight urticaria on previous occasions, but its development follows the rule of preceding symptoms.") *First*

examiner's report, 5 p.m.—“Impulse feeble, heart-sounds very weak, action irregular in force and rhythm, not intermittent, no murmurs. Pulse feeble, very compressible; 76 sitting, 80 standing.” E., urticaria more troublesome, has extended to r. forearm. Before retiring, frontal headache; slight aching to l. of lower dorsal region; irritation persists. Pulse feeble, compressible, 68 lying, 72 sitting, 76 to 82 standing, irregular in force and rhythm, not intermittent. Urine slightly clouded, acid, sp. gr. fresh 1004, on cooling 1006, free from albumen, phosphates, lithates, and sugar; microscope shows scattered mucus and epithelial cells, abundance of spermatozoa, and oxalate of lime crystals. Motion to-d, slimy, of the peculiar shining dark brown, offensive, gushing out. 25th.—On waking, subacute pain in intercostal muscles, below 5th rib on each side, increased by lying on r. side. After rising, severe aching in l. lower molars, sound teeth, spreading to l. upper bicuspsida, sound teeth, lasting several h.; succeeded by frontal headache, on the passing off of which increased mental and physical activity. E., irritation has returned in l. forearm, r. leg, to l. of lower dorsal vertebrae, r. forearm, and l. leg. Pulse 68 sitting. Motion slimy, of a shining yellow colour, offensive. 26th.—Sleep has been dreamy. On waking, laboured cardiac action, excessive flatulence. Pulse 62 lying, feeble, less compressible. During d., urticaria. E., marked cardiac depression, causing slight faintness on quickly ascending a few stairs, lasting $\frac{1}{2}$ h.; returning later, on quietly ascending, with subacute cardiac pain; cardiac action barely perceptible, pulse stronger than heart's action would indicate, less compressible, not intermittent, 72 lying, sitting, and standing. Urine slightly turbid, free from deposit, acid, sp. gr., fresh and on cooling, 1010. Motion partly solid, natural, partly slimy, dark brown, offensive. 27th.—On waking, intercostal pain; urticaria persists. 5 p.m., subacute pain over cardiac region with cardiac distress; slight aching in lower dorsal and lumbar region. Pulse compressible, irritable, varying greatly in force and rhythm, 74 to 76 sitting, 85 to 92 standing, with frequent intermissions. 7 p.m., acute pain in l. axilla, extending down edges of pectoral muscles to thorax, then passing to base of heart, then to apex; faintness with slight nausea when walking in open air; persistent giddiness, commencing when walking in open air, continuing after entering the house, while sitting; subacute pain down muscles of l. calf; sighing respiration; return of acute pain at apex of heart; trembling of hands; return of giddiness while sitting, with constriction; shooting pain through l. frontal eminence; constriction to l. of larynx; cardiac depression; continuous constriction of larynx; aching at superior curved line of occiput, an inch to l. of occipital protuberance, passing to corresponding spot on r. side; pulse less compressible, irregular, and intermittent. Symptoms lasted over 3 h. Pulse, on retiring, 72 sitting, 80 standing, regular, not intermittent. 28th.—Afternoon, severe general headache, lasting several h.; slight pains. 29th.—Severe fronto-occipital headache, from 3 to 7 p.m., succeeded by laboured cardiac action, then by cardiac depression, with faintness, lasting 2 h.; pulse at same time about 76, stronger than cardiac impulse indicates. 10 p.m., sharp darting pains through epididymus of l. testicle, several times repeated,

passing to r. testicle, leaving dull aching, recurring till midnight; aching in l. inguinal canal. Bowels acted twice, motion more natural. 30th.—Before rising, spasms in r. intercostals while lying on r. side. After rising, acute aching in l. testicle with occasional darting pains, changing to r., then again to l. 11.30 a.m., acute, extensive pain from l. kidney to l. inguinal canal, lasting several m. 12 noon, pains in l. testicle cause aching in l. inguinal canal, and extend to r. testicle, at times very severe; aching across lower dorsal region. 1.45 p.m., acute pain in intercostal muscles over base of heart, lasting several m. 3 p.m., slight return of headache. 5 p.m., acute pain down anterior muscles of r. thigh, causing lameness, afterwards in both. E., acute pains in testicles, first l., then r., then both, recurring and lasting whole e., with aching in inguinal canals; cardiac depression, causing faintness; increased mental and physical activity. Oct. 1st.—Slight aching in various parts; general depression. *Examiner's report*.—"Cardiac impulse very feeble, hæmic murmur again distinct, no other murmurs; pulse feeble, extremely compressible, irregular in force and rhythm, not intermittent, 72 to 80 sitting and standing, quickened by movement." Urine clear, acid, sp. gr. 1018, free from albumen. Motions of past 2 d. have been of peculiar shining brown, offensive. 3rd.—1 p.m., aching in l. testicle, l. hand, and r. knee, while sitting; later, slight aching in l. wrist, r. knee, l. tibia anteriorly, lower dorsal region, l. knee, and r. forearm. Pulse 72 sitting, 78 standing, feeble, compressible; temp. 36.95° C.; resp. 30. During past 3 d., frontal headache, extending afterwards through to occiput, commencing about 3 p.m., and continuing 2 or 3 h., similar to that of 29th ult., but much less severe. Before retiring, severe pain in r. side thorax at insertion of pectoral muscles, becoming acute on inspiring deeply. 4th.—On awaking in m., return of pain r. side thorax. E., slight cardiac depression; headache recurred 3 p.m., and continued till 6 p.m. 5th.—Symptoms very slight; bowels acted twice, first part of each motion solid and natural, last part slimy, of the peculiar shining brown, but much less offensive. 6th.—4.30 p.m., recurrence of frontal headache, lasting till 6 p.m.; succeeded by cardiac depression, followed by cardiac oppression, with quickened pulse; giddiness, with strong tendency to stagger to r.; then neuralgic pain in r. supra-orbital region, and in l. testicle, with return of cardiac depression, causing faintness and nausea, with subacute pains at apex and base of heart, passing off before 10 p.m. with eructations and yawnings (while out walking). Pulse 78 sitting, 88 standing, irregular in rhythm, extremely compressible; resp. 23. Urine clear, acid, sp. gr. 1010. 10th.—7.30 p.m., marked cardiac depression; pulse stronger than indicated by cardiac impulse, 66 lying, sitting, and standing, extremely irregular in force and rhythm; resp. oppressed, lasting till 9 p.m. During the past 5 d. feces have been partly solid and natural, partly soft and of the peculiar shining brown, first part being passed with much straining, last part quite freely. 15th.—No special symptoms since last report. The feces are gradually assuming their natural character. Cardiac action still rather depressed. *First examiner's report*.—"Cardiac impulse feeble, hæmic murmur distinct on strong pressure, systolic sound not quite natural at

apex, not amounting to a murmur, probably due to feeble action; pulse regular, very compressible, 76 sitting." 10.30 p.m., pulse 68 sitting, 72 standing, regular, compressible; temp. 36.40; resp. 20. Urine clear, acid, sp. gr. 1014. (*Monthly Ham. Review*, xvi, 737.)

MAGNESIA.

Magnesia carbonica.—Magnesic carbonate ($MgCO_3$), MgO . $5H_2O$.

1. *Proving.*—1. HAHNEMANN, *Chronic Diseases*, part iv of original, vol. of translation. Contains 890 symptoms from self, Nenning, and 2 others.

2. In full doses it acts as a laxative; but it occasions very little serous discharge. (PEREIRA, *op. cit.*)

3. a. It is very rarely that it causes nausea; and the stools it excites are not, in general, accompanied or preceded by more than slight griping. They are feculent, not serous as with the sulphate. They are slow to appear, rarely before 6 h. after ingestion, sometimes delaying 16—36 h., and the laxative effect is often prolonged for some time.

b. If M. be given several d. in succession, it sets up a true inflammatory condition, as proved by the mucous evacuations, sometimes stained with blood, and by the tenesmus which does not fail to follow. (Trousseau and Pidoux, *op. cit.*)

4. Some observers have attributed to M. an alterative action, and Grange, Bouchardar, and others state that its habitual use, as in drinking water, will cause goitre. Some support is given to this idea by the fact that enlargement of the thyroid gland in mice has followed after mixing magnesia with their food (Gubler). (PHILLIPS, *op. cit.*)

Magnesia muratica.—Magnesic chloride, $MgCl_2$.

1. *Proving.*—1. HAHNEMANN, *Chronic Diseases*, part iv of original, vol. of translation. Contains 749 symptoms from self, Nenning, and 3 others.

Magnesia sulphurica.—Magnesic sulphate, $MgSO_4$, $7H_2O$. Epsom salt.

1. *Proving.*—1. NEMERO. [The usual absence of information, but see vol. i, p. 10]. Soon flow of water into mouth, with loathing and nausea; bitter cructation and taste of food eaten previous d. Borborygmus with discharge of flatus. After 5 m. burning in middle of chest.—1st d. Some painful tearings from l. lower jaw up into head, p.m. Obiuse stitches in r. side of head. Tearing in l. temple frequently. Confused pain and fulness in forehead. Pain like knife-thrubs in head, m., worse at 2 p.m.; the pain in temples, forehead, and nape lasts till midnight and goes off towards m. Obiuse shooting deep in l. ear, 10 a.m. Croaking in l. ear like frogs, when sitting, for 2 m. Loud intermittent noise in l. ear. Sometimes singing, sometimes rushing like water in l. ear. Tearing in r. facial bones, 3 p.m. Cructation, with taste of hard-boiled eggs, frequently. Severe stitches in l. hypochondrium for $\frac{1}{2}$ h., after lying down e., relieved by pressure on head. Shooting behind lower l. ribs when sitting. After rumbling in bowels from noon till e. 5 diarrhetic stools. First flatulent distension, discharge of foetid flatus, rumbling in bowels, then purging. Urine increased. Great heaviness of head during menses. Short cough, with

mucous expectoration frequently. Shooting in last r. false ribs. Pressive pain in middle of r. humerus. Tearing in lower surface of l. upper arm. Violent tearing in l. elbow when spinning, it is still tender next d. Formation in 3. finger-tips. Bruised feeling all over body as if a disease were impending. Insupportable drowsiness towards e. Chilliness all d., with thirst p.m.—and d. Cheerful humour, contented with himself and others. Anxious, lachrymose, very gloomy, thinks some misfortune is imminent, especially m. As if not right in her mind; when spinning sees strange people around. Frequent pricking in r. internal canthus for ½ h. Jerking pain in an upper incisor, 8 p.m. Roughness of tongue after dinner till e. Loathing of all food. Frequent empty eructations, with anorexia. After stool at 6 p.m. some pricking and shooting in belly, then pain in both hips for some time. Soft stool, with burning in anus. Urine increased, must rise several times at n. to urinate. Urine greenish, but clear and copious. Menses 3 d. too soon. Burning in middle of chest, p.m. Tearing and shooting in r. hand, with painful drawing in hand and fingers, p.m. Formation in 4 fingers of l. hand. Tearing in all limbs, especially finger tips. Tearing in r. big toe, e. After waking as if beaten all over, especially in back and arms, going off sleep getting up. Itching in an old scab behind r. ear.—3rd d. Cheerfulness. Sad, fearful, as if not right in her mind, sees strange people about. Obuse pressive headache, p.m. till e. Tearing in r. frontal bone, which is painful to touch, from 3 to 4 p.m. Eyes burn by candle-light, e. and m. Tearing in eyes with dim vision, m. Thirst on rising m. Thirst e. during menses. Eructation, with slimy taste. Heat during menses. Burning in chest under sternum. Trembling of hands. Tearing in r. hip. Rigor in bed, m.—4th d. Cheerfulness. As if not right in her mind, sees strange people around. Thirst all d. during menses. Pressure in chest at n., relieved by expectoration of viscid mucus, 3 a.m. Pain in cervical vertebrae like tension, with great tenderness when touched, so that she cannot lie on it, relieved by walking. Shooting in r. and tearing in l. big toe. Sweat, m., after waking.—5th d. Painful feeling in r. tonsils as if it were forcibly twisted, m. Eructations like rotten eggs, m. After supping on milk pinching and commotion in belly as from a purgative. Violent itching on back, after which small papules appear. On waking m. back feels bruised. Left arm is asleep on waking m. Ulcerative pain with shooting in hollow of l. sole. Dreams of weddings, Chilliness and shiver on waking, m.—6th d. Heat and burning in forehead, p.m. till e. Tearing in back between shoulders from midnight onwards, must get up to get relief. Dreams of leavts and balls.—7th d. Stool consists of a few hard lumps exsperled with much forcing, preceded by pricking under navel; after a h. ineffectual urging and straining, followed in ½ h. by copious, firm and then loose stool. Urine increased.—8th d. Pressive pain at both sides of head posteriorly. Throbbing in r. side of head when walking in open air. Ulcerative pain in outer angle of r. nostril. Tearing toothache in head e. Four diarrhetic stools, with thirst. Clear water drops from nose, without coryza. Fluent coryza with loss of smell for 3 d. Bruised and ulcerative pain between shoulders, with feeling of a lump there as big as a fist, on account of which she cannot lie on it, relieved by rubbing, n. Chilly in open air.—9th d. Vertigo and weight in head after dinner. Thirst e. Frequent empty eructation, Nausea and vomiting n. and m. Tension in both iliac regions, worse in r., as when stream of urine is suddenly stopped; on stretching straight out, feeling as if would burst. Frequent sneezing, with feeling of coryza. Dry cough, with hurring from larynx to scrobiculus cordis, all d. Pressure and beating in whole chest from both sides, dyspnoea, when writing.—10th d. Bubbling up of water for 3 h. after eating potatoes. Frequent empty eructations. Violent sacral pain as if bruised and as when she has the menses, also pain in iliac regions when sitting and standing, reduced by walking, when she stands thighs also are painful. Soft stool for several d., preceded by hard stool with pressing. Two liquid stools in rapid succession. Menses, that had ceased only 14 d., returned, the discharge thick, black, more copious than usual. Fluent coryza, with pain in chest and cough, no expectoration. On waking m. very fatiguing dry cough, relieved on getting up. Loose cough, with sore feeling in throat and mouth. Heaviness in sacrum and hip for 2 n.—11th d. Peevish, cross, irritable. Sharp stitches in head, here and there, a.m. On turning head to r. obuse stitch in r. side of head, on rising m. Boring of lips with dryness, e. Thirst. Eruction at a p.m. Hollow base voice for 3 d. As the cough declines, the coryza increases. Sharp shooting in second phalanx of r. thumb, in flex, when writing. Sacral and thigh pains uninterruptedly

for a m. L. foot goes to sleep m. in bed. Sweat several mornings.—12th d. Head as if screwed in, on moving head in bed, e., and on moving eyes. On moving head brain feels loose. Anorexia for 2 d., distatic for meat, feels very ill. Stream of urine stops, then urine comes by drops, with burning at orifice of urethra. When coughing and speaking pain in posterior nares as if air were forced through them. Much mucus in nose. Great soreness in interior of chest when coughing, like burning, feels as if she should cough up a piece of lung. Tearing in bow of r. thigh. Sleeps badly and is restless. Sometimes hot, sometimes shivering, face sometimes red, sometimes pale.—13th d. On waking m., anxiety as if convulsions struck. Dry cough in bed, e. Great weakness of legs. A small red pester on r. upper arm and one on forearm, itching much since 2 d.—14th d. Soft stool, followed by tenesmus. Quivering between l. thumb and index. Throbbing in whole r. index like a whistle, 3 m. Dreams of being injured by a horse and of wandering in a wood.—15th d. Pressure on both sides of root of nose. Stitches from both sides of chest towards one another on coming from open air into room.—16th d. Pain in occiput from carrying a weight on shoulders.—17th d. Photophobia with lachrymation. As if a ball lay on l. eye. Frequent shooting under l. ear. Pressure in chest, with tickling irritation in larynx, a feeling as if lung were too large, in bed m., relieved by getting up. Feels hot when lying.—18th d. Violent shooting in both temples for 2 h. Pressive pain as if a hard ball lay on upper orbital border. Frequent rigor over back, e.—No time given. Unusually cheerful, as if somewhat intoxicated. Extremely sad, lachrymose, thinks something bad is going to happen. Grew disinclined to talk, p.m. Lazy, tired, sleepy, unable to work. Excited, sensitive, discontented. Weariness of legs, malaise, faintness, extremely anxious, thinks she must die, with earthy complexion. Stupor in head, as though her mind was going. Vertigo as though she would fall forwards during and after dinner, for ½ h. Giddy and confused, better in open air. Vertigo e., eyes close but not sleepy. On waking m. weight and dizziness, goes off on rising. Headache, convulsed as if bound or screwed up, with heat and sweat. At every step painful sunbking in head for ¼ h. after dinner. Brain moves when she moves. Frequent beating and hammering as of a clock, first in forehead then in whole head, p.m. and e. Pressive pain in occiput, e., goes off in open air. Pressive pain from both sides of occiput. Boring pain in l. side of head, with internal heat, p.m. Compressive headache from both sides, with heat of head and red face. Heat in crown and pain as if hair was pulled. Boring in r. side of crown, followed by stupid feeling, a.m. Frequent painful tearing on crown. Pricking in both temples, a.m. Tearing in l. temple when spinning, p.m. On rising up from stooping feeling as if something pressed forwards in forehead, like congestion. Great sensitiveness in occiput, and on stooping feeling as if something fell forwards in forehead, worst when lying, coughing shakes him. Weight in forehead with heat in head, and feeling as if all would come out at forehead on rising up from stooping. Shattered pain in forehead, a.m. Tearing in forehead, then in whole head, better in open air. Pressing-tearing in forehead at 6 p.m. Painful burning in above l. eye, in bed, e., for 1 h., then stupid feeling in head. Frequent darts as with an awl above l. orbit. Dimness of eyes with drowsiness. Eyes burn all d. Pricking as with needles in eyes all d. On turning eyes to r. or l. violent pain in r. eye as though it would come out of orbit. Shooting in l. ear when winking. Painful boring in l. ear. Ulcerative pain on r. side of nose when prepared. Pain when touched on r. ala nasi. Repeated epistaxis, also at 2 a.m., with relief to headache. Epistaxis without relief to headache. Tearing in l. zygoria, which remains sensitive for a long time, also at 2 a.m. A pustule with sensitive pain behind l. angle of jaw. Papules on r. side of chin and l. side of nose, which itch when they commence; they disappear after 1 d. A papule under r. angle of mouth, burning when touched. Teeth ache on coming into room from open air for ¼ h., also in e. when lying down, aggravated by warm and cold things, and by contact of food. Slight darting in l. hollow upper molar, e. Throbbing in l. molar, with heat of head. A blister with cutting pain on l. border of tongue. Olfen phlegm in throat which he cannot bring up or down. Frequent hawking of tasteless mucus, m. Sour mucous expectoration, m. and during d. Constant yawning. Dryness and pains in throat. Shooting pain in oesophagus, worst when swallowing, n. Burning and shooting sleep in throat, worse when swallowing. Throat and mouth very dry, but with bitter-sweet taste, m. Bitter taste on waking, m. Bitter taste, anorexia, pressure in stomach, distended abdomen, itching on back. No appetite. Loathing at all food, even when thinking of it, till

e. Water rises from stomach into mouth frequently, with loathing at all food. At n. loathing and nausea, restless tossing about. Vomiting, p.m., first of food, then of mucus. Trembling in stomach, general weakness, then belching of water, with nausea. Cold and sick at stomach, in bed, m. Stomach feels deranged. Pressure in scrobiculus cordis, which is tender externally. Burning stitches externally in epigastrium, m. Shooting in l. hypochondrium, e., going off when lying on back. Pain in belly, scrobiculus cordis, and chest. A kind of shooting in whole belly, a.m. Violent shooting about navel, increased by movement. During dinner pinching in belly with call to stool. Abdomen tense and hard. Fiactulent distention, e., discharge of flatus, m. Forcing in both iliac regions, and pain in sacrum as from flatulence, followed by hard stool. Nipping externally down to iliac region, p.m. and e. Itching in l. groin. Alternately hard and soft stools. Urine scanty. After micturition shooting in orifice of urethra. Erections without usual desire. Frequent shooting in penis when sitting and walking. Menes † d., too soon but scanty. Menes † d., too soon. Menes more copious than usual, especially the 1st d. Bloody discharge from vagina out at menstrual period. Menes last only † d., cease † d. and return for † d. Leucorrhœa of thick consistence, as copious as menstrual flux, with paralysed pain in sacrum and thighs. Acrid leucorrhœa. Boring in l. nostril as in coryza. Severe coryza with stoppage of l. nostril. Stuffed coryza on rising m., gets loose p.m. Fluent coryza with hoarse voice. Cough in m. with little expectoration, but with wire pain as if cut to pieces in chest. Pressure in chest with dyspœia for ¼ h. Pressure on lower part of chest as from a weight, with short breath. Oppression of chest with burning there when walking. Fine shooting from l. axilla to chest, transient. Obtuse shooting under r. breast over scrobiculus cordis, on rising from stooping, a.m. Some fine stitches here and there in chest. Burning and itching on back, as from lice, p.m. and e. As if beaten between shoulders all d. Tension and shooting between shoulders and in nape. Tension in tendons of r. side of nape. Tension in nape and between shoulders on rising, m. Thrice twitching in arms. Tearing in whole r. arm. Frequent tearing in l. shoulder when at rest, p.m. Tearing in posterior aspect of upper arm, in bed, m., relieved by getting up. Papules on inner aspect of forearm after itching. Tearing in tendons of l. forearm, at a.m. Painful tearing on l. wrist-joint from noon till e., then great tenderness of the part. Itching in r. palm. Drawing in l. hand, the fingers drawn inwards. Ulcerative pain in ball of l. thumb when moved and pressed. Pricking in tip of r. thumb after dinner. Tearing in finger-tips of both hands, n. Numb, pain in thigh. Bruised pain in l. nape, worst when walking. Tearing in posterior surface of r. hip, a.m. Tearing in both legs down to foot and weakness in r. thigh. Tearing in l. knee when spinning, it cracks when extended. Tension in r. thigh when walking. Cracking in ligaments over heel. Transient tearing-shooting in ball of l. foot, noon. Itching in r. toes. Pricking in l. big toe after dinner. Tearing in l. toes, which contract, for † m. Extreme prostration, staggers when walking, Trembling all over and weary in legs, and small itching papules all over body. Hard itching pimples as if stung by nettles, which burn after scratching and go off after 24 h. Complains all o. of violent belly-ache, for which she cannot sleep; on rising, m., quite insensable. Starts frequently at n., but does not quite awake. Cannot sleep at n. on account of violent pains in head and abdomen, weariness of feet and tearing in sacrum, on account of which she cannot lie on back. Bruised feeling preventing sleep at o. Long of falling asleep, frequent waking, many dreams, of weddings, country matters, &c. Gray dreams. Dreams that her dead mother appeared. Anxious dreams, that she was pursued and shot at by soldiers; she wakes in a fright, and on falling asleep again dreams that she fell into the water. Dreams of the death of his father. Dreams that she has to go to the theatre, but cannot get dressed in time. Dreams that the next house is in flames. Dreams of danger from horses. Dreams that she found a dead child in a churchyard. Dreams that she saw yellow mice, which disgusted her. In e. chilly, which goes off after lying down; on waking m. bathed in sweat and thirsty. Shivering with watering of eyes, coryza, and heaviness of head. Chilly all o. till 2 a.m., it gets less after 9 a.m., thirst a.m., must go to bed at noon, at 3 p.m. perspiration. Rigor during the heulætic. Rigor at 9 p.m., which goes off on lying down, afterwards thirst. Transient heat in head coming up from chest, with sweat in upper part of body, later again chilly, and so on alternately till e. On rising up in bed heat for a few m., vertigo and sweat on forehead with

red face. Heat all over body for hours, p.m. After midnight wakes frequently with sweat. After midnight sweats and chills, but at same time chilliness. Chilliness with shivering from 7.30 p.m., cannot get warm in bed for 1 h., feet especially cold, then increased heat towards m., sweat, no thirst. Chilly and hot alternately at n., next m. only chilliness. Though she feels hot, feet are cold all d. Heat of head, coldness of rest of body, better p.m. (Better in open air). (*Annal. L. Ann. Klin.*, iv, 466.)

1. Dec. 7th, 7 a.m., Mag. sul. s, 4 gr. Powder tastes bitter.—8th, 3 a.m., 4 gr. No stool. Digestive heavy feeling in hypogastrium and sensitiveness of grains, relieved by discharge of flatus p.m.—9th. Sleep disturbed by cough, caused by tickling in back of throat. Tickling continues in m. from adherent viscid mucus. 3 a.m., 3 gr. Noon, the scraping-tickling irritation in throat gone, no stool, 5 p.m., till 11 p.m., tense heavy feeling in hypogastrium with confusion of head, which wear off after a difficult loose stool with great straining, but the confusion of head then increased to pressure headache in l. super frontale. There came on a feeling of malaise, prostration of strength, with dry heat of skin, and drawing pains in l. riba and l. shoulder.—10th. Sleep disturbed by frequent waking. Confusion of head on rising, lasting 1 h. 3 a.m., 2 gr. Noon, a soft unsatisfactory stool followed by liquid feces. From noon till 4 liquid copious stools in rapid succession, after the last stool at 11 p.m. slight pain in umbilical region.—11th. A.m., a liquid painless stools, some coryza, and sore pain in upper lip below nose. P.m., much audible tumbling in belly as though diarrhoea would come on. Towards e. more nasal secretion, hoarse voice, irritation causing short cough, sometimes with expectoration of viscid mucus, which seems to come from posterior nares into pharynx, 9 p.m., feeling of dry heat, confusion of head, slight drawing in limbs, prostration, disinclination for work, weariness.—12th. No sleep till after midnight, after that disturbed sleep, frequent waking. Noon, no stool. E., upper lip under nose red and tense, viscid mucus from nose.—13th. Slept well. Noon, no stool. P.m., confusion of head with pressure frontal pain, flatulent distension of abdomen, heat of face, 3 p.m., general malaise, rigor with cold hands and feet, must go to bed. After 9 p.m. the chill gradually went off, then came on fluent coryza and dry heat with great thirst. Could not sleep on account of internal uneasiness, though he was very tired and prostrated. After midnight, perspiration with relief to other symptoms. Towards m. fell into restless sleep, disturbed by many dreams.—14th. In forenoon felt ill, but had only a little cough caused by irritation in fauces. Had an unsatisfactory soft stool. Appetite diminished, tongue slightly furred. Dislikes tobacco.—15th. Slept well though he dreams much. Noon, no stool, tongue furred, little appetite, no desire to smoke. Better in open air, 3 p.m., some confusion of head, full feeling in abdomen, frequent irritation to cough. 7 p.m., rigor very severe, had to go to bed. After 2 h. heat with cold feet for a considerable time, great thirst, confusion of head, frequent irritation to cough and fluent coryza. The heat lasted till midnight with great prostration but inability to sleep, then sweat came on, during which he fell asleep.—16th. All d. confusion of head, furred tongue, little appetite, dislikes tobacco, full feeling in abdomen, no stool, copious red sediment in urine, coryza, cough shaking chest and head, bruised pains in all limbs, disinclination for all work, drowsiness. Took nux v. 3.—17th. Slept well. 3 p.m., a moderate rigor lasting $\frac{1}{2}$ h., followed by heat lasting several h. and ending in profuse sweat. Took during heat another dose of nux v. 3.—18th. Sleep with confused dreams. Copious discharge of urine, m., the urine was bright yellow, soon became turbid, and had a copious red sediment. During d. frequent urging to stool, but nothing came. Furred tongue, had appetite, dislike to tobacco, abdomen distended but soft and painless. Coryza and cough troublesome, disinclination for work.—19th. Slept quietly. A m., an insufficient soft stool passed with straining, followed p.m. by a copious evacuation. Tongue cleaner, appetite still poor, dislike to tobacco.—20th. Slept well and perspired a little. Normal stool, m. Had to go a journey during which he was very hungry, and ate well. (*Hæcker, N. Archiv.*, vii, 153.)

II. Poisoning.—1. A boy, æt. 10, took $\frac{3j}$ partly dissolved, partly mixed in a teacupful of water, and had hardly swallowed it before he was observed to stagger and become unwell. When the surgeon saw him, $\frac{1}{2}$ h. after, the pulse was imperceptible, the breathing slow and difficult, the whole frame in a state of extreme debility, and in 10 m. more the child died without any other symptoms of note, and

in particular without any vomiting. On the most careful inspection of the body, no morbid appearance whatsoever could be found in any part of it. (CHRISTISON, *op. cit.*)

2. An old man drank several pints of beer, which, it was afterwards proved, had been drugged with magn. sulph. He was seized with violent purging, and died within 48 h. On P.M. examination the lining membrane of the alimentary canal was found to be inflamed. (TAYLOR, *op. cit.*)

3. Giacomini saw ʒij taken at a single dose without producing any evacuation, but chilliness instead with paleness, inability to move, trembling of the limbs, and repeated syncope. In another case the dose was ʒiiss, but the same general symptoms occurred, and vomiting likewise. (STILLÉ, *op. cit.*)

III. *Experiments on animals.*—1. Moreau's experiments (*Arch. Gén. de Méd.*, 1870, August, p. 214) were made by opening the abdomen of an animal, and tying four ligatures tightly round the small intestine a few inches apart from each other, so as to isolate three portions of intestine. Magn. sulph. was then injected by means of a hypodermic syringe into the middle part, and the intestine being then returned into the abdominal cavity the wound in the abdominal parietes was sewn up. A few h. afterwards the animal was killed, and on examination the middle portion was found full of fluid, while the portion on each side was completely empty. These experiments have been confirmed by Vulpian (*Bull. Gén. de Théor.*, lxxxiv, 512). The fluid contained in the intestine appears to be a secretion, and not a transudation, for it does not contain as much albumen as a transudate would do. (BRUNTON, *Pract.*, xii, 145—150.)

MANGANUM.

Including *M. aceticum*, manganous acetate, $Mn(C_2H_3O_2)_2 \cdot 4H_2O$; *M. carbonicum*, manganous carbonate, $MnCO_3$; *M. muraticum*, manganic chloride, and *M. nigratum*, native black manganous oxide.—See also *Kali manganicum*.

I. *Proving.*—1. HAHNEMANN, *Mat. Med. Pura*, part vi of original, vol. ii of translation. Contains 89 symptoms from self, and 242 from 10 fellow-observers; obtained from acetate.

2. *IBID.*, *Chronic Diseases*, part iv of original, vol. of translation. Contains the above, with addition of 124 symptoms from Nenning (preparation unknown).

3. LEMKE proved *M. muraticum*. Nov. 9th, 7 a.m., took ʒ dr. of a solution of gr. v of Mang. mur. in ʒij distilled water. Soon eructation of air, rumbling in belly several times. 7.30 a.m., dull pressure in stomach. 8.30 a.m., pressive pain in r. maxillary joint; pressure in r. knee, extending down to leg and settling in ankle-joint, with bruised feeling. Later same pain in l. ankle-joint. 9.30 a.m., drawing, pressing pain in r. hand.—11th, 7 a.m., same dose. Immediately eructation of air and rumbling in belly, pressure in l. foot. 7.45 a.m., pressure in stomach, increased by pressing on it, for ½ h. 9 a.m., pain in l. thumb-joint. Severe drawing pain on inner side of r. knee. 9.30 a.m., pressure in l. ankle-joint, twitching feeling there.—14th, 7 a.m., ʒ dr. 8 a.m., tearing in occipital bone, r. side. Noon, repeated tearing in bones of l. foot.—15th, 2 a.m., a violent pain on anterior aspect of l. shoulder-joint, increased by pressing on it, rolling humerus on its axis, and all movements of upper arm, lasting all d. 4 p.m., squeezing in l. foot-bones and ankle-joints.—16th, m., same pain in l. shoulder-joint, it had gone off by e.—17th, 7 a.m., ʒ dr. No sym-

ptoms.—22nd, 7 a.m., 10 dr. 8 a.m., pressure on t. of head.—26th, 7.30 a.m., 20 dr. At 9 a.m. slight pressure on stomach.—Dec. 3rd, 7 a.m., 20 dr. Pressing and drawing in ankle-joints and bones of feet, repeatedly also on Dec. 4th.—7th, 7 a.m., 20 dr. 8 a.m., severe pressive pains on inner side of r. knee when sitting. Tension in r. ankle-joint and bones of foot repeatedly, a.m.—8th, 10 a.m., pain on inner side of r. knee.—16th, 7 a.m., 20 dr. 8 a.m., pressing in l. foot. Noon, pressure on outer side of r. ankle-joint when walking, later the former pain on inner side of l. ankle-joint between inner ankle and heel. Towards e. drawing and pressing in r. knee, extending down leg when sitting.—10th, 7 a.m., 30 dr. Drawing and pressing in lower part of r. calf down to foot-bones, with a feeling as if they were forced asunder; the same in l. leg, but not so severe, when sitting. 10 a.m., pressive pain in r. knee, boring in skull, r. side; drawing pain with weak feeling in r. thigh when sitting.—20th, 7 a.m., 40 dr. No symptoms.—31st, 7 a.m., 15 dr. No symptoms. (*N. L. f. Hom. Kl.*, li, 28.)

4. Same proved black oxide.—Sept. 10th, 7.30 a.m., took 4 gr. 9 a.m., prickling in l. hand. 10 a.m., several times cutting in stomach, pressure and heat in forehead. 9 a.m., scanty, hard, and retarded stool.—12th, 7 a.m., 4 gr. 8 a.m., urine straw-coloured, neutral (before proving it was very acid), later it became acid. 4 p.m., violent cutting in abdomen, extending up to chest.—12th, 7 a.m., 8 gr. Urine increased somewhat. 3.30 p.m., feeling of weight and pressure in l. lumbar region, increased by bending to l. for some m.—13th, 7 a.m., 8 gr. 10 a.m., severe cutting about navel.—15th, 3.30 p.m., 20 gr. Thinks that since commencing proving mang. he gets tired and is more ready to be overcome with heat and perspiration than before, forehead also feels confused. Before the dose boring in r. tibia, after taking it a curious pressure under sternum.—16th, 7.30 a.m., 25 gr. 10 a.m., pressure in forehead with vertigo; pressure deep in l. ear. 11 a.m., twitching burning, and heat in skin of forehead, for 1 h. 2 p.m., boring in tibia below r. knee. Since commencing the proving the stools, though regular, had a reddish-brown colour.—17th, 7.30 a.m., 30 gr. Noon, nausea; pressure and boring in some bones.—18th, 8 a.m., 30 gr. Forehead hot and heavy, much internal heat and less sensation of cold air than usual.—19th, 7 a.m., 30 gr. 8.30 a.m., violent cutting upwards in umbilical region. Stool hard. 11 p.m., very severe squeezing pain in r. ankle-joint, making it painful to stand or move, for a few m.—20th. Stool liquid and bright coloured. 3 p.m., stitches in l. hypochondrium, increased by inspiration and pressure.—21st, 9.30 a.m., violent cutting in bowels and bright loose stool, after which the pain persists in umbilical region; it is worse on pressure. After ½ h. another similar stool, and again e. During d. very exhausted after slight exertion.—22nd, m., liquid, bright stool, followed by cutting in umbilical region.—26th, 7.30 a.m., 6 gr. 9 a.m., cutting in umbilical region. 1 p.m., pain in l. tibia when walking. All d. very exhausted after slight exertion; weight and pressure in forehead, heat of whole body, pale face.—27th, 7.30 a.m., 6 gr. 2 p.m., tearing in side of head and face. Shooting and tickling in larynx, dry cough (is subject

to this symptom).—28th, 7.30 a.m., 6 gr. Occasional pressure in stomach. 1 p.m., severe burning sensation under eyes for some m.—29th, 7.30, 6 gr. No symptoms.—30th, 6 gr. Only slight pain in stomach. This and next d. scraping and tickling in larynx, followed by dry cough. (*Ibid.*, iii, 4.)

II. *Poisonings*.—1. *a.* In the chemical works of Tennant and Co. a considerable number of men are employed in grinding the black oxide of manganese. The surface of their bodies is constantly covered with the M.; the air they breathe is loaded with it in form of fine powder, and they swallow portions of it with their food. In 1821 a previously healthy young man engaged at the work exhibited symptoms of paraplegia. The loss of power in the lower limbs was at first so slight that it was scarcely observed, and he never complained of it, but it slowly increased, and at the end of some months he had to quit the work. He removed to a distant part of the country, but at the end of a year he had made little or no progress towards recovery.

b. In 1829 a workman engaged in grinding M., and previously healthy, was similarly affected. He continued at the work for many months. The paralysis increased, and the M. was suspected as the cause. He removed to another department of the works without further increase of symptoms. But after seven years there was very slight amendment. The loss of power is most apparent in lower extremities, causing him to stagger and be inclined to run forward when he attempts to walk. The arms were also affected, but in a less degree. He complains that in speaking he cannot make himself heard by persons at a moderate distance; there is no difficulty of articulation, but weakness of voice. No deficiency of sensibility anywhere, intellect and external senses unimpaired, but there is an expression of vacancy in countenance, apparently from paralysed state of facial muscles. The saliva is apt to escape from mouth, especially when speaking.

c. Since the above cases, 3 other workmen engaged in grinding M. have been similarly affected. As soon as staggering was observed their employment was changed, and they gradually recovered. (*Cowper, British Annals of Medicine, Pharmacy, Vital Statistics, and General Science*, vol. i, p. 41, 1837.)

III. *Experiments on animals*.—1. *a.* In frogs M. causes general paralysis, amounting to complete prostration, and at same time causes stoppage of heart.

b. $\frac{1}{2}$ grm. M. injected into vein of rabbit causes immediately tetanic convulsions, dilated pupils, and sometimes exophthalmos, followed by death. The same effects have been observed in dogs from injection of 1 grm. in veins. After death the heart does not react to electricity, so they die of paralysis of heart.

c. When repeated small doses are injected into veins of a dog, to the extent of more than 1 grm., the animal becomes very weak, and dies after 3 or 4 d. *P.M.* shows fatty degeneration of liver. This change in liver is observed especially after the muriate and sulphate. The heart's power is distinctly weakened by M. Its beats become rarer. It contracts with less power, and at last it stops, its cavities full of blood. It increases the quantity of nitrogenous substances in the

urine and diminishes them in the feces. (LASCHKEWITSCH, *Centralbl. f. d. med. Wissensch.*, May 26th, 1886, No. 24.)

2. HÜNEFELD gave to a rabbit nearly ʒij of manganic acid in 3 d., in doses of 10—15 gr. The only obvious effect was increased secretion of urine. The animal being killed, the peritoneum and external coat of the colon were found green, the muscles were readily lacerated and pale, the liver was inflamed, the bile increased. (WIMMER, *op. cit.*)

3. *a.* A rabbit had ʒj mang. sulph. in 1½ oz. water introduced into stomach. Immediately it ate, but soon lost appetite. Heart's beat at first weak, latterly could scarcely be felt, there ensued paralysis at first of posterior then of anterior extremities. After a few deep inspirations it died. *P.M.*—Stomach slightly inflamed. *M.m.* on inflamed spots easily detached.

b. A dog got ʒ gr. crystallized mang. sulph. injected into jugular vein. In 2 m. violent vomiting and at same time normal stool. After 1 m. the vomiting recurred, drank a good deal. In 15 m. was quite well.

c. A poodle had 12 gr. mang. sulph. dissolved in ʒij water injected into jugular. Immediately lay like dead and breathed deeply. After 1 m. wanted to get up, but fell down again as if intoxicated. Extremities as if paralysed, the anterior first recovered, then the posterior. After ½ h. could walk, but was very melancholy. After 45 m. vomited, which recurred after 4 h. Died in *n.* between 4th and 5th d. *P.M.*—Stomach contained only black mucus, appeared as if mixed with coagulated blood. This mucus was found also in duodenum and a large part of small intestine. The centre of stomach was considerably inflamed, not towards pylorus. Duodenum more inflamed than stomach, the inflammation extended through small intestine, and ceased when the black mucus ceased. Colon only slightly inflamed. Liver covered with inflamed stripes, and the inflammation extended into interior of its substance. In the not inflamed parts the colour was very yellow; this colour was pretty general in intestines and large vessels; the aorta was waxy yellow inside and outside. Gall-bladder contained greenish-yellow bile. Spleen covered with inflamed spots. Both sides of heart contained black, coagulated blood; in *l.* ventricle and round inflamed spot on the partition wall of ventricle several long, inflamed stripes. (GMBELIN, *Verh. über die Wirk. des Baryts, &c.*)

4. In cold-blooded animals there is produced paralysis of sensibility, reflex irritability,* and voluntary movements; the motor nerves and the muscles are unaffected (Harnack). (NOTHNAGEL and ROSSBACH, *op. cit.*)

5. RABUTEAU injected about 1 grm. into a vein of the hind leg of a bitch. At first there were no symptoms, but on the following d. tetanic convulsions set in, and death soon followed. The white substance of the cord was shrunken, the grey matter congested. (PHILLIPS, *op. cit.*)

* "The paralysis of reflex action is due to abolition of the transverse conduction of the spinal cord, longitudinal conduction remaining intact until death (Kober)" (BLUNTON, *op. cit.*).

MELILOTUS.

Melilotus officinalis, L. Yellow melilot, Nat. Ord., Leguminosæ.

1. *Proving*.—1. Dr. C. W. BOWEN, after taking in 1858 some tinct. of dried root, had a violent headache, from which on 2nd and 3rd d. he was almost delirious. On 4th d. blood gushed from his nose, and he lost consciousness. Assistance was obtained, and he recovered. (*U. S. Med. and Surg. Journ.*, 7, 317.)

2. After 15 years he took one d. at 6 p.m. 10 dr. of the 1st cent. dil. All that a. had acrid and burning eructations; slept tolerably well, but felt oppressed, heavy, and tired next m. This afternoon had red face, and felt sleepy and dull. At 9 p.m. after a hard day's work accomplished with effort, had a horrible oppressive headache, and felt dizzy, faint, and nauseated. Before 10 had severe pain, apparently in 2. lung, with occasional pain in 1. hip, and twitching of muscles. Before he got to sleep, abdomen became considerably bloated, with crawling sensation as of worms near anus. On 3rd d. awoke after sleeping badly with much soreness in chest internally, and oppression as from a great weight. Through d. much difficulty in breathing, every inspiration laboured, with constant fulness in chest and head. On 4th d. woke with spasmodic cough, in addition to some dyspnoea, oppression, and fullness of chest. He repeatedly examined his clothes to see if they did not contain him; was extremely nervous, and during this d. the severe, oppressive, heavy and throbbing headache returned, causing feeling as if cerebral blood-vessels would give way. Easiest when perfectly quiet. Was obliged to void water very frequently. On 5th d. cough was horribly distressing; very rarely ceased, with inability to get air enough; head better. Towards m. slight and difficult expectoration, affording a little relief, but was obliged to have somnifacients on chest during n., was delirious part of n., and talked almost constantly. Next d. was unable to attend to work, but recovered in a few d. more. (*U. S. Journ.*, Aug. 15th, 1873, p. 156.)

3. Dr. T. C. DUNCAN chewed portion of plant. After 2 h. headache gradually began, confined to 1. supra-orbital region, aggravated by motion, better on lying down; if he allowed himself to think hard, which there was a disposition to do, it was worse; on talking, it quite left forehead and settled in occiput, returning to forehead when he ceased speaking; it took about 3 m. to travel to and fro, and he could feel the migration; when he walked about whole head was affected, but still worst over 1. eye. This headache lasted about 2 h. (*Med. Journ.*, 1874, p. 519.)

4. *Proving*.—2. Dr. BOWEN placed a lot of the cut plants in a room where his wife expected some company. The odour was so heavy that it gave some of them a terrible oppressive headache. Mrs. B. has found that a few sprigs of the plant in a bouquet will give her this headache. (*U. S. Journ.*, loc. cit.)

5. He gave 1 dr. of tinct., in 4 doses at 3 h. intervals, to a lady afflicted from childhood with sick headaches occurring every 2 or 3 weeks; she had also prolapsus uteri and inguinal hernia. In a week, looking very pale, she reported effect of medicine to have been a terrible headache, from which she found no relief until her nose began to bleed, which it did at intervals for 3 d. Had had no return of headaches for 9 mo. (*Ibid.*)

6. A student, afflicted from childhood with neuralgic pains in limbs and periodical nervous headaches (1—4 weeks), took a few dr. of tinct. Next d. was taken with severe headache, lasting nearly 24 h., then relieved by epistaxis, which came on freely and recurred at intervals for some 48 h. He had had no return of his usual pains for 5 mo. (*Ibid.*)

7. Dr. B. saturated handkerchief of a young lady with 1st dil. After 3 d. he met her, looking pale, and telling what a terrible headache she had suffered from for 3 d., and how oppressed for breath, and what a tickling cough, from which she could get no relief until her nose began to bleed, which it did for 1 d. (*Ibid.*)

MENYANTHES.

Menyanthes trifoliata, L. Buckbean, marsh trefoil. Nat. Ord., Gentianacæ.

1. *Proving*.—1. НАННЕМАНН, *Mat. Med. Puræ*, vol. 7 of original, vol. ii of translation. Contains 28 symptoms from self, and 267 from nine others.

MERCURIUS.

Including *M. vivus* (quicksilver itself in finely divided form, as in homœopathic triturations so named, "blue pill," mercurial ointment, and "grey powder," also as inhaled in mines or lactaries); *M. solubilis* (a preparation of Hahnemann's, for which see "Brit. Hom. Pharmacopœia"); *M. dulcis*, mercurous chloride, HgCl (calomel); and *M. acutus*, mercurous acetate, HgC₂H₃O₂.

1. *Prepings*.—1. HAHNEMANN, *Mat. Med. Pura*, vol. 1 of original, vol. ii of translation. Contains 1264 symptoms from *M. solubilis*, and a few from *M. acutus* and *dulcis*, supplied by self and 8 associates.

2. Dr. MORRISON, 7.45 p.m., Oct. 25th, 1874, opened a stoppered bottle that contained some remnants of a 4x trit. of *M. vivus* prepared in 1868. (It had probably remained unopened for 3—4 years.) Noticing a peculiar odour, he inhaled strongly. Within 20 m. he had frontal headache, with fulness, soon passing to occiput, with vertigo; oppression of breathing upwards from diaphragm; constriction and dryness of fauces; irritation of nasal mucous membrane, as from catarrh; continuous aching beneath r. scapula; periosteal aching down l., then r. forearm, then in r. elbow, then down spine, with varying intensity. Subsequently, continued oppression of breathing; long-continued severe interscapular aching, also in mid-dorsal region to r. of spine; return of periosteal pain in l., then r. forearm. 9.15, continuous aching beneath lower angles of scapulae, severe. 10, interscapular aching continue; aching in flexor muscles of l. forearm, in r. inguinal region, and at apex of heart, extending upward to base; slight aching in a sound tooth. On retiring to bed, quickened pulse. 26th. —On waking, and subsequently, periosteal aching in outer side of l. arm, changing to wrist and forearm, also on l. tibia; aching at heart as before, and above l. temple. 11 a.m., r. subscapular aching, becoming also interscapular, lasting 2 h.; acute aching in l. wrist and dorsum of hand, succeeded by subacute aching over hepatic region. 6 p.m., aching in 2 sound teeth. Later, returns of aching in limbs. 27th.—On waking, r. subscapular aching extending over hepatic region; bursting frontal headache, lasting several m. (*Monthly Hom. Rev.*, xix, 34.)

3. Dr. J. B.—, who was triturating morphia to the r₁ at this time, experienced some similar symptoms, and others also; but as he also felt the somnolent effects of the morphia, the latter are not pure enough to be recorded here. (*Ibid.*)

4. A young woman took ½ dr. of 5th dil. 4 times a d. After 5—6 d. chilliness while at stool, ceasing after the evacuation; discharge of clotted blood mixed with the feces, without any straining; dry sore-throat and wheezing at chest; peculiar sour-smelling sweat; her fingers became all shrivelled, and a cold damp bedewed her feet. (*ROBINSON, Brit. Journ. of Hom.*, xxiv, 517.)

5. In a healthy man who had never had any eruption, after taking 2 gr. of Merc. sol. a tetter, beginning on the forearm and chest, gradually overspread the whole body, only sparing the face and the posterior aspect of the extremities. At first little red, pinhead-sized

spots appeared here and there, and, enlarging at the periphery in a circular manner, gradually coalesced and covered large surfaces. The colour, at first bright red, became subsequently deep red or bluish red, darker at the edge, brighter in the middle. With increasing size the centre showed sound skin, while the border extended in a circle. These places were slightly elevated, rough, and dry, and covered with little white scales, which were continually being rubbed off by the clothing, and reforming, so that after undressing at night the floor seemed as if covered with meal. In the axilla, bend of elbow, groin, and hollow of the knee they were most abundant, constantly burning, and painful; and when the pimples formed there was a little fever, the affected portions of the skin being hot, swollen, red, and extremely sensitive to the touch of the clothing, impeding the use of the arms, and the sleep wanting or very much disturbed. Itching upon taking off the clothes and at the contact of cool air, ceasing in the warmth of the bed. After touching, rubbing, washing, or taking wine they burned excessively. The axillary and inguinal glands swollen and painful. In some places, *e. g.* in the groin, little superficial moist ulcers formed from the tetter, which after some d. became covered with yellowish scabs, and healed up. The tettery eruption lasted from the middle of January to the beginning of April. (КНОККЕ, *A. A. Z.*, xix, 285.)

6. Three persons [no particulars given] got daily doses of a grain or two of *M. solubilis* 3x. All three got red patches covered with vesicles on different parts of body and limbs. These patches itched and burned violently. In one case the eruption, which was on the inner side of the *s.* thigh, assumed the form called by Alibert *herpes squammosa macedans*. (ANDRIEU, *Jour. de la Soc. Goll.*, viii, 143.)

7. Dr. C. WESSELHOEFT made 20 provings on students, male and female, with *M. solubilis* in various potencies. As in several the results were negative, and in the remainder were either incongruous one with another, or were nothing more than appeared when the provers were taking *saccharum lactis* only, Dr. Wesselhoest does not consider that they ought to appear in text-books of *Materia Medica*; and we content ourselves accordingly with simple reference to them here. (*Trans. of Amer. Inst. of Hom.* for 1886 and 1888.)

7. When calomel is given to a healthy man in moderate doses, green liquid stools are produced, which, after larger doses, are replaced by brown passages. Simon analysed the fifth stool after a large dose. The passage was fluid, perfectly green, had no fecal odour, exhibited a mild acid reaction, and showed, under the microscope, a great number of mucous corpuscles and epithelium cells. Ether extracted from the solid residue (obtained by evaporation) a considerable amount of fat, which had an acid reaction, contained cholesterin and was coloured by biliverdin. All the other substances, which were separated from the stool by water and alcohol, were more or less coloured by bile-pigment. Bilin, with bilifellinic acid and biliverdin, were found in large quantity; but no trace of mercury. Michéa examined chemically the fæces under four different conditions. First, the spontaneous dejections of 6 healthy individuals; no bile was detected. Second, green stools of 3 persons suffering from gastro-intestinal derangement; bile-pigment

was found in one case only, and in that could not be detected after persistent vomiting had ceased. Third, calomel having been given to 8 healthy persons, 5 men and 3 women, bile was readily demonstrated in the green passages produced in all of the subjects. Fourth, saline and resinous purgatives were given to 5 persons, but no bile could be detected in the liquid stools. In some persons calomel produces not only purging, but also vomiting of bile, which is scarcely at all altered. From the facts which have just been passed in review, the conclusion seems inevitable that mercurial purgatives given to healthy persons cause the escape of large quantities of bile from the alimentary canal.* (H. C. Wood, *op. cit.*)

8. Radziczewski found, on analysis of the stools after giving calomel, a large proportion of leucin, tyrosin, and indol (pancreatic secretion), which he did not find after other purgatives. (PHILLIPS, *op. cit.*)

II. *Poisonings*.—Nos. 1—5. Effects of single large doses.

„ 6—29. Acute mercurialism.

„ 30—50. Chronic mercurialism.

1. A physician took by way of experiment a dose of calomel such as is used for purging. After 2 h. he showed symptoms of poisoning, then came on dyspnoea, inflammation of lips and tongue, and he died in great agony in 3 h. (HELLWEG, *Obs. phys. med. path. Aug. Vind.* 1680, obs. 157, p. 474—in *Wibmer*.)

2. After 15 gr. a healthy youth had vomiting, anxiety, trembling of hands and feet, restlessness of the body, and anxiety; he died on the 6th d. (VAGNETUS, *Method. med. cur. de mercurio dulci pure.*, Quodl., 1705—in *Wibmer*.)

3. A woman took by mistake 14 drachms of calomel at one dose, and there ensued the most violent pains in abdomen with vomiting and purging; mucilage and oil relieved her. After 2 h. she had copious salivation, and the mouth was covered with ulcers. Well in 3 weeks. (*Pierre's Annal.*, 1827, April—in *Wibmer*.)

4. Mr. W—, æt. 42, had suffered from diarrhoea for 8 d., for which he took opium. He then complained of loss of appetite, debility, and diarrhoea, tongue foul. Three doses of calomel, each of ʒi ʒ grm., were prescribed. These he took in the course of the afternoon; 2 h. after last

* "Mercury, like the metals in general, is excreted by the liver, and manifests a tendency to accumulate in this organ. Like these also it doubtless acts as a stimulant to the hepatic cells, and increases their products. Just as an altered salivary or pancreatic fluid is produced by the action of M., so an altered or pathological bile is the result of the stimulation of the hepatic cells by this metal. That its use increases the physiological and normal product of the liver seems an assumption hardly warranted by the facts which have now been accumulated. That M. (pil. hydrarg., calomel, hydr. c. creta), in purgative doses, increases the flow of bile into the intestines—is a cholagogue—cannot be successfully disputed; but it is a cholagogue in the sense that crocus-oil and the resinous purgatives are: by irritation of the mucous membrane of the duodenum it causes a reflex contraction of the gall-bladder and hepatic ducts, and an outflow of bile is the result. The pressure of alimentary matters in the duodenum suffices to increase the production and discharge of bile; purgatives, for the time being, somewhat more energetically produce the same result. A purgative dose of blue-pill or calomel may therefore cause bilious evacuations, but other purgatives may accomplish the same." (ВАТРИЦКОВ, *op. cit.*)

dose he felt general malaise, dry skin, which commenced to itch ever more and more, eyes sensitive to bright light, mouth and nose dry, voice hoarse. Face, which is commencing to swell, is red, and this redness spreads rapidly all over body. At same time sensation of violent pain, thirst, sleeplessness. On seeing the patient in m. he had the appearance of suffering from severe erythema. Face more swollen, especially eyelids, so that he could hardly open them, skin tense, shining scarlet red all over up to hairy scalp. Conjunctiva greatly injected, nasal m.m. very dry, also lips and buccal m.m., pharynx slightly reddened. Tongue thickly furred except at tip, which was dark purple. The redness of skin extended equally all over body, it was more intense on parts exposed to light. It vanished on pressure but returned immediately. The skin was but little infiltrated, except that of face; was very dry and hot. Temp. in axilla nearly 40° , pulse 120, weak; urine scanty, dark, clear, without a trace of albumen. Voice hoarse and toneless. No appetite, great thirst. Complains of intolerable burning and itching of skin, especially on palms and soles, ears and hairy scalp, dryness of mouth, burning of eyes, great faintness and prostration. Patient had twice suffered in a similar way after taking merc. The pain went off after a few d., the symptoms of skin and m.m. gradually declined, the redness of face lasted longest. On the 4th d. desquamation ensued in several places, especially face and chest, in some parts in the form of large shreds as in scarlatina. Appetite and strength returned slowly. It was 14 d. before he was quite well. (ENGELMANN, *Berl. Klin. Wochens.*, 27th Oct., 1879, p. 647.)

5. Hoffman mentions another case similar to that of Vagnitius; the patient died after suffering from extreme anxiety and black vomiting. Another fatal case has been related by Ledelius, which was caused by gas taken accidentally. Vomiting soon ensued, and a sense of acidity in the throat; then profuse diarrhoea to the extent of 20 evacuations in the d.; next excessive prostration of strength and torpor of the external senses; and death took place in little more than 24 h. (CHRISTSON, *op. cit.*)

6. The true destruction of the venereal miasm depends upon that specific alteration of the body which may not inaptly be termed *mercurial fever*, in which a disagreeable sensation in the mouth is a common but only accidental symptom. The following is a description of this fever:—The patient gets a metallic taste in the mouth, a disagreeable smell in the nose, a painless, audible rumbling in the bowels, an earthy complexion, a pinched nose, blue rings round the eyes, pale leaden-coloured lips, an uninterrupted or frequently recurring shuddering (always getting stronger), that thrills deeply even into the interior of the body. His pulse becomes small, hard, and very rapid; there is an inclination to vomit, or at least nausea at everything, especially at animal food; but chiefly a very violent headache of a tearing and pressive character, which sometimes rages without intermission in the occiput or over the root of the nose. The nose, ears, hands and feet are cold. Thirst is inconsiderable, bowels constipated; great sleeplessness, the short dreams of a terrifying character, accompanied by frequent slight perspirations. The weakness is extreme, as also the restlessness

and anxious oppression, which the patient thinks he never before felt anything like. The eyes become sparkling as if full of water, the nose is as if stuffed with catarrh; the muscles of the neck are somewhat stiff, as from rheumatism; the back of the tongue is whitish. At this period the patient experiences, if all goes on well, some discomfort in swallowing, a shooting pain in the root of the tongue, on both sides of the mouth a looseness or setting on edge of the teeth (the gums recede a little, and become somewhat spongy, red, painful, swollen); there is moderate swelling of the tonsils and submaxillary glands, and a peculiar rancid odour from the mouth, without the occurrence, however, of a notable increase in the secretion of saliva, and without diarrhoea or immoderate perspiration. This picture is taken from an exquisite case of very severe mercurial fever. (HANSMANN, "On Venereal Diseases," *Lesser Writings*, p. 77.)

7. After a more or less prolonged use of M., the gums swell, become a little hot and painful, and are covered with a very thin white pellicle. At the same time, the patients experience a metallic taste, which is very disagreeable, and the breath has a little fœtor. The tongue, without swelling, becomes covered with a thicker mucous coat. The mucous membrane of the fauces and of the velum palati becomes redder and slightly painful. The gum-swelling begins by the lower incisors, and at the intervals between the teeth; if there is a carious tooth, it is there that the tumefaction first shows itself. It then passes on to the gums of the upper incisors, and thence to the whole mouth. Up to this time there is nothing but a sense of dryness in the mouth; sometimes, though rarely, a little hawking ensues; but salivation properly so called does not ordinarily commence until the inflammation of the gums and the buccal mucous membrane has reached a higher degree. (TROUSSEAU et PÉDOUX, *Thérap. et Mat. Méd.*, 9th ed.)

8. The first phenomenon presented by the mercurial stomatitis is often a whitish appearance of the lower gums, probably owing to opacity of the epithelium. Soon afterwards the gums are seen to be somewhat swollen, rising up between the teeth, and reddened at their edges. At the same time they are somewhat tender to the touch, and not unfrequently pain is produced at the roots of the teeth by firmly closing the jaws. A metallic taste, as of copper in the mouth, is also among the first symptoms; and I have repeatedly been able to detect the approach of salivation by the peculiar fœtor of the breath, before any other sign had presented itself. It not unfrequently happens that the above symptoms have existed for some time before any increase of saliva occurs; and occasionally there is at first seen a dryish condition of the tongue. In the second stage the gums, tongue, cheeks, and fauces, one or all, swell and become painful; deglutition is painful; the teeth, if carious, begin to ache; the tongue is somewhat furred, and indented by the teeth at its edges; the saliva is discharged copiously. The salivary glands swell, together with the neighbouring areolar tissue; and the breath is very offensive, having a peculiar fœtor which distinguishes the mercurial sore mouth from all other analogous affections. If the disease runs on it reaches a third stage. The swelling, internal and external, increases; the tongue sometimes pro-

jects from the mouth, in consequence of its greatly increased bulk, and is covered with a very thick, soft, yellowish-white fur, extremely offensive to the smell; the parotid and submaxillary glands become much enlarged and painful; the patient cannot open his jaws, swallows with great difficulty and pain, and is wholly unable to articulate. The saliva streams from the mouth; the odour of the breath is insupportably foetid, and sometimes scents the whole apartment; ulceration of the gums, cheeks, and tongue takes place, with occasionally copious and exhausting hæmorrhages; the teeth loosen and fall out; and even gangrene of the soft parts, and necrosis of the alveolar processes, sometimes occurs. (G. B. WOOD, *Therap. and Pharmacology*, sub voce.)

g. *a.* The presence of teeth seems nearly indispensable to the production of stomatitis. Not only is it very rare in little children, but it fails of appearance likewise in adults who have lost their teeth; this point is very noticeable at Almaden and in Idria. On the other hand, dental caries, gingival disorder, and the evolution of the wisdom teeth must be considered (Ricord says) as causes predisposing to it; to which should be added the influence of damp cold, fatigue, excesses, and a bad state of stomach, as also neglect of the mouth.

♠. It seems well established at the present day that the starting-point of the stomatitis is not the elimination of M. by the saliva; and that the initial phenomenon is generally a lesion of the buccal mucous membrane, or rather of the alveolar periosteum;* for from the outset of the affection one can, by pressure, cause to exude from socket of the teeth behind the gum, which is slightly detached, a true purulent discharge. Salivation is most frequently a secondary occurrence; the inflamed mucous membrane becomes more sensitive, and stimuli provoke more readily the reflex excitation of the salivary glands. It seems, however, that we must also acknowledge a concurrent direct action of the poison upon the glands or their nerves; for salivation may be primordial (Gubler), and manifest itself some h. after the inhalation of mercurial vapour. M. Fournier has several times ascertained, in a positive manner, that salivation may develop without any buccal inflammation; and he has informed us of an instance which is very convincing. In a case of cerebral syphilis, treated by inunction, he has twice observed (at 5 d. interval) a considerable salivary flux, about a litre in the 24 h., and yet the gums, examined m. and e. with the utmost care, presented no sign of inflammation.

c. The buccal mucous membrane soon becomes red and swollen throughout; from the gums the infiltration reaches lips, tongue, cheeks. These surfaces become covered with a whitish or lemon-coloured coating, thickest on gums and tongue; on the latter, and on the inner aspect of the cheeks, the marks of the teeth remain visible. If the stomatitis goes on far, there are seen on the parts affected ulcerations covered with a greyish false membrane. These increase rapidly, but more in extent than in depth, and sometimes run together. The swelling of the parts is now considerable; the tongue lolls out, and its tip dries; the mouth, half open, is continually filled with a

* It begins behind the last molar, on the side on which the patient sleeps (Ricord, Fournier).

glutinous fluid, often mixed with blood, which runs out spontaneously and differs completely from normal saliva in its composition. Its quantity may be excessive, as much as 20—25 litres in the 24 h. At this period the fœtor of the breath is frightful; the loosened teeth are bared, and sometimes end by falling out. The swelling extends to the face and neck; the patients can neither masticate, nor swallow, nor speak, and their breathing is sometimes considerably embarrassed.

d. It is rare now-a-days to see deeper lesions produced, such as gangrene and shredding off of the mucous membrane, suppuration of the parotids or the cervical glands (Gubler), phlegmon of the cheeks and of the base of the mouth, parenchymatous and gangrenous glossitis; and, as consequence of these, when the patients survive, ugly cicatrices. Still, however, one does see cases of this kind, the result of idiosyncratic sensitiveness to the drug. We are not master of mercurial salivation; in certain cases it hurries on with an impetus which no precautions, no suppression of the medication, however immediate, can arrest, and pursues its course with extreme violence. (HALLOPEAU, *De Mercure*, Paris, 1878.)

10. LÖWENHARDT observed after inunction profuse salivation with swelling of cheeks and of submaxillary and parotid glands; drawing, tenderness, and swelling of gums; tongue thickly coated yellow white, the margins bearing impress of teeth; metallic taste and mercurial odour of breath; colic, frequent desire for stool, bilious diarrœa, discharge of yellow-green matter with blood-clots, painful stools of blood and mucus; diuresis, large quantities of clear urine containing much albumen being passed. (HENCK, *Das Quecksilber und seine Präparate*.)

11. A young woman, æt. 28, with sound teeth and gums, got, apparently from cold, an inguinal bubo, to which she applied ointment, keeping her bed for several d. with only nose and forehead uncovered. The 3rd d. high fever, copious sweat; fœtor of breath; parotids swollen and tender; could hardly open mouth, within which were gangrenous ulcers; fœtid red discharge from mouth. (*Ibid.*)

12. a. The next local affection I shall call attention to is the mercurial sore-throat, which has often been mistaken for a syphilitic symptom. Its character is that of an aphthous superficial sore, surrounded with a general blush of inflammation. The tonsils are the usual seats of these ulcerations, and they are sometimes found on the velum pendulum palati. Occasionally there is much stiffness and difficulty of swallowing, without the appearance of any breach of surface at all.

b. M. occasionally produces very severe irritation of the bowels, accompanied with purging; the evacuations are frequent, not very copious, attended with violent tormina and tenesmus, and sometimes mixed with blood.* Some patients are constantly affected with this troublesome symptom, in whatever form or however minute the quantity of M. employed may have been; but of course the internal administration of the remedy is most likely to produce it. (BACOT, *Land. Med. Gaz.*, iii, 312.)

* "The tongue in such cases is said by Traube to show a greenish coating with two longitudinal red stripes." (PHILLIPS, *op. cit.*)

13. *a.* When for some time a patient has been subjected to the action of M., he falls into a state of cachexia. First, his visage grows pale, and the skin of the body generally shares in this discoloration.* The blood drawn from a vein has lost somewhat of its colour, and still more of its consistence; it is diffuent, and forms a very soft clot. If the action of the drug is continued, this dissolution of the blood becomes much more manifest, the eyelids are infiltrated, the face is a little puffy, the legs swell, and the patients soon fall into a general anasarctous condition. Then supervene all the symptoms which ordinarily accompany anæmia,—palpitation, panting, and the various functional troubles consequent on contact with the organs of the body of the altered blood.

b. This action on the blood becomes also evident by certain morbid phenomena already noted by medical writers, of which the chief is a tendency to hæmorrhage. We will cite an instance of this which may speak more eloquently than those hitherto recorded. The Receiver at the bridge of Montereau consulted us for a scrofulous swelling, with caries, of the leg. Our treatment proved of little aid to him, and on his return to Montereau he came under the care of a local practitioner, who began by applying leeches to the knees, and 5 d. later—suspecting a long-standing syphilis—used mercurial frictions with a view to induce salivation. Three d. after their commencement the gums swelled, and next d. tongue and neck were swollen, and the saliva flowed abundantly. At the same time, the wounds made by the leeches 8 d. previously reopened, and gave exit to such a quantity of blood that it had to be arrested like a hæmorrhage, and, indeed, had begun to threaten life before, by the most active and persistent measures, it was repressed.

c. This state of dissolution of the blood induces in women an artificial chlorosis, and may cause the accidents which characterise this state, viz. amenorrhœa or metrorrhagia,—the former most often in the young, the latter in those of more mature age. (TAOUSSEAU et PIERRE, *op. cit.*)

14. Dr. WRIGHT has analysed the blood of patients under mercurial action. It is materially changed. It contains more water, and is more prone to putrefaction than healthy blood. The fibrin, albumen, and red globules are diminished in amount, and a very fetid fatty matter is

* "You will find that persons in whom the mercurial sore mouth has been produced get rapidly thin; their fat disappears; they become emaciated. . . . Patients who are kept under the influence of M. grow pale as well as thin, and Dr. FARR, who has paid great attention to the effects, remedial and injurious, of this drug, holds that it quickly destroys red blood. As an example of this, he was in the habit of relating in his lectures the case of a lady who was attacked with hæmatemesis, and whose gastric system was gorged with blood. 'Her complexion,' said the doctor, 'was compounded of the rose and the violet. Under a course of mercury she was blanched, in six weeks, as white as a lily'" (WATSON, *Lectures*, 4th ed., i. 240.).

"BASTOT reports the case of a mirror silverer in whom the inspired mercurial vapour produced a condition exactly resembling true chlorosis. The face and mucous membranes were quite pale, the nails were a dead white, like those of a corpse; eyes dull, watery; pulse small and quickened; thirst excessive; no appetite. Palpitation, dyspnoea, pains in head and stomach; œdema of lower limbs; general weakness; depression of spirits and bruit in the carotids. No stomatitis or salivation. All these symptoms disappeared in four weeks under a generous diet and the use of ferruginous preparations" (*Casuarini's Jahrb. f.* 1852, in HUBER, *op. cit.*).

present in large quantity. . . . Mr. Smith has observed that the blood coagulates with difficulty. When coagulated, it is buffed and cupped; but it is the buffy coat of anemia, not of inflammatory blood; the clot appears rotten, and is easily broken down. (HEADLAND, *Lancet*, 1858, i, 259.)

15. *a.* Many persons who get venereal employ M. injudiciously, and fall into what has been termed the mercurial cachexy, in which there is a general unhealthy state of the organs. A patient who has fallen into this state very closely resembles a scrofulous person, and is apt to labour under the same emaciation, irritability, feverishness, and the same sort of cutaneous, glandular, and periostitic affections. The chronic mercurial cachexy is very like the scrofulous, and attacks very nearly the same organs and tissues.

b. It cannot be denied that the immoderate use of M. has been productive of liver disease. The late Mr. Hewson pointed this to the attention of those who visited the Lock Hospital while under his care. At this period it was the custom to salivate every patient, and keep him under the full mercurial influence for a month or two; and it frequently happened that, just as the course was finished, the patient got disease and enlargement of the liver. (GRAVES, *Lond. Med. Gaz.*, xix, 451-2.)

16. I gave to a man suffering from rheumatismus facialis calomel and opium [quantity not stated]. On salivation commencing there came on pains over the π . eyebrow, more violent at n. There had been rheumatism on this side, but it was now free. The cornea was dim, the conjunctiva red, the pupil drawn upwards and inwards, and after some days, condylomata appeared on the pupillary edge of the iris. The patient had never had syphilis, so that the disease could only be the effect of the mercury; it was removed without leaving a trace by hepar sulphuris and a blister (MERKELIN, *Vermischte Abhandlungen a. d. Gebiete der Heilk. v. d. Gesell. prakt. Aerzte zu St. Petersburg*, iii Samml., p. 189, 1825.)

17. In the course of treatment of a young man by inunction for hepatitis, "an iritis mercurialis occurred, which from the internal use of opium only disappeared without any exudation." He had also salivation; angina with profuse mucous secretion; horrid taste and burning in mouth; insatiable thirst; painful dysentery for 12 d.; drawing pain and tenderness in tibiae; œdema of feet. (BASEDOW, *Hufeland's Journ.*, lxxvii, 3, 65.)

18. From abuse of calomel I have seen at least one case of inflammation of orbiculus ciliaris; at its climax of intensity it was accompanied by dimness of the anterior chamber. . . . There are certain constitutions in which we observe after 6-12 gr. of calomel a peculiar annular redness of conj. oculi et corneae; this increases if the calomel is continued, but soon ceases after leaving off the drug. It is a pretty sure precursor of pyalism. (v. AMMON, *Russ's Mag.*, xxx, 256.)

19. Albuminuria, with or without hæmaturia, is frequently enough observed in acute mercurialism. M. Gubler does not think that this symptom ought to be referred in every case to a lesion of the renal

parenchyma. He shows that the dyscrasia, characterised by alteration of the albuminoids and destruction of the globules, is of itself a potent cause of albuminuria, since it encumbers the blood with proteid debris, and perhaps alters the dialysable activity of the serum. But for all this most heed should be given to actual renal lesion. M. Ollivier, in a recent work, has shown that mercurial albuminuria ought to be classed with that of lead, and like this depends upon steatorrhoe of the kidneys. M. Bouchard has recorded a case of syphilis where, under the influence of mercurial intoxication, 7 d. after the first friction, 5 d. after the commencement of stomatitis, there was nearly complete suppression of urine—the daily quantity falling at first to 156 c.c., and 2 d. later to 44 c.c.; while that of the urea became 0.6072, then 0.1848, in place of the 25 grms. which represent the normal figure. Death occurred on the 11th d., and must be ascribed to anuria; the more so as analysis of the blood revealed there the presence of a relatively enormous quantity of urea—2 grm. 60 per litre. (HALLOPRAU, *op. cit.*)

20. Eczema mercuriale appears occasionally during the progress of a mercurial course. Some writers have frequently met with it; thus Alley saw 43 cases in 10 years, and of this number 8 terminated fatally. Rayer confesses that in 20 years he never saw but three instances of it. I have seen only two. The disease consists of innumerable minute and pellucid vesicles, which have been mistaken for papulæ. They give the appearance of a diffused redness to the skin, and a sensation of roughness to the touch. Sometimes it is preceded and attended by febrile disorder. In 2 or 3 d. the vesicles attain the size of a pin's head, and the included serum becomes opaque and milky. It soon extends over the body, and is accompanied by tumefaction, tenderness, and itching. It usually terminates by desquamation; but in some cases a copious discharge takes place from the excoriated and tender surface, and when this ceases the epidermis comes off in large flakes; in some instances the hair and nails fall off, and the eyes and eyebrows become entirely denuded. There is usually some affection of the respiratory organs, indicated by dry cough and tightness of the præcordia. (PENZANCE, *op. cit.*)

21. Bazin admits, with Alley, three distinct forms of mercurial eruption,—hydrargyria mitis, h. febrilis, h. maligna.

a. The benign form is only a slight efflorescence, localised at certain spots, especially the inner aspect of the thighs, the scrotum, the groins, the abdomen. On this erythema appear minute vesicles, with itching and smarting. There is no febrile movement.

â. The febrile hydrargyria most frequently succeeds the previous variety. It commences inside the thighs and on the scrotum to extend to the rest of the body, and in the end to invade the face. The redness is more intense, the vesicles, which appear on the 4th d., are larger, become surrounded by a red areola and filled with pus, they then break, and form moist and yellowish crusts. The itching is intolerable. With this frequently coincide stomatitis and angina, and there is some fever.

c. The malignant form is only observed in cases where the M. is continued after the appearance of the first vesicles. Here the skin is

swollen and painful; the face is puffed, and the eyelids closed; the eruption is of a dark red or purple colour. The vesicles are larger than in the other varieties; they even become bullæ, filled with acrid fluid. The patient exhales a most fetid odour, which has been compared to that of stale fish. Desquamation occurs about the 8th or 10th d., and proceeds like that of scarlatina; after it the skin may continue hard and scaly. The general phenomena are serious; the patients, a prey to intense fever, complain of acute pains; they are prostrated, and breathe with difficulty; their nights are sleepless, and in certain cases they succumb in coma, after a delirious stage; in others there is a series of attacks, of which each begins with fresh pains and chills. Sometimes there supervene inflammations of glands, superficial abscesses, boils, and gangrenous ulcerations. (HALLOPEAU, *op. cit.*)

22. ALLEY adds of 21 *b* that the eruption is preceded by languor, restlessness, and rigors, and also, in a case reported by Dr. Spens (*Ed. M. and S. Journ.*, Jan., 1805), by catarrhal symptoms so severe as to interrupt the exhibition of the drug. It somewhat resembles that of measles. He says little of incrustation, but much of desquamation; and also of the occasional occurrence of thick and very fetid sweat at such spots as the axilla, between the nates, &c. Of 21 *c* he goes more fully into the febrile irritation. "The symptom," he writes, "which soonest produces distress is the affection of the lungs. In some instances a great sense of weight and oppression about the præcordia, and difficult respiration, constitute the principal distress of these organs; but in others a hard harassing cough and a fixed pain in the chest are superadded. In one case there was bloody expectoration, and suffocation had nearly ensued from the coagula formed in the trachea. The pulse in such cases discovers very considerable hardness, as in pneumonia, and during the paroxysms of coughing severe headache is experienced. The soreness of throat and fauces is very distressing, and continues in some instances for many d. There is sometimes hoarseness of the voice." There is primary and secondary fever, as in variola; the first being of the inflammatory, the second of the hectic type. With the latter, "rigors, amounting in some instances to severe tremors of the limbs, with a great degree of faintness, are experienced; and frequently a diarrhoea supervenes, and constitutes the most formidable symptom of the disease." (*On the Hydrargyria*, London, 1810.)

23. A young, strong, healthy farmer, with traumatic inflammation of soft parts and synovial membrane of l. knee-joint, and serous exudation, received *ter die gr.* $\frac{1}{4}$ of black oxide of M., and daily applied \mathfrak{ss} of mercurial ointment. After 3 gr. of oxide and nearly \mathfrak{ss} of ointment had been used, a bright red, somewhat elevated eruption broke out on the entire surface of the body. The whole l. leg was covered with a dark erysipelatous eruption; skin swollen and hot; pressure of finger left no white spot. In several places about knee there were noticed, on 2nd and 3rd d., larger and smaller vesicles, filled with yellowish serum, similar to those caused by a vesicatory; they were from the size of a hazel-nut to that of a hen's egg; in several places, for instance on the calf, they were confluent, and formed a single blister as large as the

hand. They nearly all broke; the smaller ones became covered with thick yellow scales; the larger ones left an excoriated, bright red surface, discharging much serum. On the rest of the body, face, throat, chest, abdomen, neck, back, arms, and right leg, the eruption had the appearance of measles; portions of it of nettle-rash; the latter, especially on the chest and inner surface of the upper arms, consisting of red, roundish, somewhat elevated spots. In this place there were also a number of vesicles no larger than the head of a pin, increasing to the size of a pea, all becoming covered by a thin crust. This mercurial exanthem did not itch, but burned and pained, especially at night, so that the patient could not sleep. The pain was aggravated by the touch; therefore, the parts on which he lay were particularly painful; he was worse from turning in bed; even sitting up aggravated the pain. He could stretch neither leg, but kept them bent continually. Ophthalmia; the conjunctiva of the ball and lids is inflamed, the lids are swollen; canthi sore and excoriated, with biting pain in them. The edges of the lids itch and pain; after sleep, particularly in the morning, they are agglutinated, and secrete much thick pus. The patient often cannot open them until he removes the dried and fluid secretion with warm water. Pressing and itching in the eye. Photophobia, lachrymation, catarrhal affection of the nose, with soreness of the nostrils and upper lip, and discharge of thin white mucus. The lips are much swollen, inflamed, and painful; excoriated on the inside. In some places, small ulcers. The tongue swollen and excoriated, ulcerated in some places, and covered with thick yellow mucus towards the root. The patient finds it difficult to open his mouth, which is generally glued together after sleep and in the morning; speech is unintelligible; the lips frequently bleed, and are often covered with blackish crusts of dried blood. At times, when moving the lips and tongue in speaking, clear blood flows or spurts out from the mouth with the saliva, which forms continually. The saliva has a yellowish-reddish appearance; gums swollen; the pharynx swollen, dry, and painful; pain in swallowing; the cheeks somewhat swollen; the parotid and submaxillary glands also enlarged and painful. The eruption decreased, and the skin peeled off with dry, yellowish scales as in scarlatina. The largest pieces came from the left leg and hands; the patient felt neuralgic pains in all the limbs. Not until the third week had all the symptoms completely disappeared. (HUBER, *op. cit.*)

24. In the course of two or three years after my appointment to the Lock Hospital, I observed that in almost every year one and sometimes two instances of sudden death occurred among the patients admitted; that these accidents could not be traced to any evident cause; and that the subjects were commonly men who had nearly, and sometimes entirely, completed their mercurial course. (The surgeons of the hospital could find no morbid appearances to account for death.) After some time I ascertained that these sinister effects were to be ascribed to M. acting as a poison on the system, quite unconnected with its agency as a remedy; and that its deleterious effects were neither in proportion to the inflammation of the mouth nor to the actual quantity absorbed into the body. The morbid condition which

supervenes on these occasions is a state which I have denominated *erethismus*; and is characterised by great depression of strength, sense of anxiety about the *præcordia*, frequent sighing, trembling, partial or universal, small quick pulse, sometimes vomiting, pale contracted countenance, sense of coldness. When these symptoms are present, a sudden and violent exertion will sometimes prove fatal. (PEARSON, *Observations on the Lues V.*, 1800, p. 131.)

25. On March 3rd, 1845, about 7 p.m., an apparently very feeble man, who swept out a mirror factory, burned half of a tub used for holding M. He said there was no M. left in it; but while burning a mercurial vapour was diffused, the odour of which patient compared to that of his saliva. The room was small, with but one window and two beds, and contained at the time 5 persons,—3 girls, the youngest 14 mo. old, and the man and his wife. On 8th appeared swelling of the buccal mucous membrane, small pimples which broke, and salivation. On 10th he entered hospital. Mucous membrane of cheeks swollen and red; and on them, as well as on gums and velum, white patches, which can be removed with the finger without leaving any ulceration beneath. The gums thick, red, and covered on their free border with a dirty whitish-yellow coating, extending into the sockets of the teeth. On removing this, it is perceived that the gum between the teeth is fungous and bleeding, but not ulcerated. The mucous membrane of the lower lip, where it touches the teeth, especially on the l. side, is covered with large yellow-white patches, extending up to the middle of the cheek. These are not removable by the finger, but the surface bleeds easily. Tongue very thick, especially on the l. side, and is moved with difficulty; has a dirty yellow-white coating, and on the edges some grey patches. Submaxillary glands slightly swollen; all these parts painful. Profuse salivation. Breath has a very strong mercurial odour. Mastication impossible; speech difficult; dysphagia. General condition unaltered. On 11th oatmeal and honey. Gargle of 20 grams alum to 1 litre of water. On 14th and 15th the patches extend from the lower lip to the cheeks, and those on the edges of the tongue have a red areola. On the 17th, by removal of the former with a linen rag, the mucous membrane is laid bare, and is found uneven and painful, and a quantity of blood is left on the cloth. The pains produced thereby are very acute. On the 24th grey spots are gone, leaving red spots. On r. cheek, near the commissure, is a large grey-red spot, the size of a 50-centime piece. The red points are elevations, true granulations, sure evidence of ulceration. The grey points are remains of the repeatedly mentioned grey spots. The cure is almost complete, but the man now has a pneumonia already in the third stage, which the author (probably correctly) attributes to the mercurial poisoning, and of which he died on the 27th. (*Archiv. Gén. de Méd.*, t. 68.)

26. The wife of No. 25, æt. 50, the morning after burning the tub, felt a stiffness of all the limbs, with the mucous membrane of the cheeks painfully swollen. Tongue swollen, moving with difficulty; mastication painful, impossible indeed; speech impaired; and by Wednesday, March 5th, salivation set in. Admitted on 13th, in the following condition:—Gums red, swollen, covered with soft patches,

easily removable without leaving ulcers. On l. side under 2nd molar, a red spot covered with a white skin; gum very loose and covered with a dirty, whitish-yellow coating; teeth very loose; mucous membrane of cheeks swollen, especially on the r. side, where was a red spot with a white skin, also some of the skin on the velum. On the mucous membrane of lower lip, which is slightly thickened, white spots with a red border. Tongue very thick, especially on r. side, with grey spots on the edges, showing the impression of the teeth; movements difficult; coating dirty yellow, characteristic of M. Submaxillary glands slightly swollen; all these parts painful; salivation; mercurial tæctor of breath; speech obstructed; dysphagia. (She can only swallow bouillon.) 14th. —In place of the white surface on the lower lip, one consisting of small red prominences, with a faint grey colour of the intervening surface. Granulations plainly protruding above the healthy mucous membrane and bleeding at the slightest touch. On 19th the same condition of the edges of the tongue. On 24th she left the hospital convalescent. The treatment consisted simply of mucilaginous drinks and gargles containing chlorine. (*Ibid.*)

27. A daughter of the two preceding, æt. 21, observed at the same time (March 4th) a stiffness of the limbs, with soreness of the gums and pain in chewing. On the 5th salivation. On the 12th entered the hospital in the following condition:—Gums red, swollen, covered with a delicate white membrane, loosened from the teeth; covered at the free edges with a grey-yellow covering, which extends to the sockets of the teeth. On the mucous membrane of the upper lip, near the r. commissure, a very thick white patch with red areola. On the entire lower lip grey, thickish patches, with a red border; delicate white membrane on the thickened mucous surface of the cheeks, especially the r., and on the velum. The tongue, naturally thick, covered with a thin, dirty-yellow coat, and on its edges some grey spots; tonsils very much swollen, red, without patches; submaxillary glands slightly swollen; all these parts painful; slight salivation; mercurial odour of breath; mastication impossible; deglutition easy; speech natural; general condition good. Powdered alum on the ulcers twice a day; alum gargles. On the 22nd the patient left the hospital entirely well. She was the mother of a 14 months old child, previously mentioned, which, although equally exposed to the mercurial vapour, and nursed by the mother throughout her illness, remained perfectly well. (*Ibid.*)

28. The second daughter, æt. 16, was also taken on the 4th of March with a feeling of stiffness in the limbs, pimples and swelling in the mouth; on the 5th, salivation, and on the 11th she presented the following condition:—Gums red, but without yellow coating on their free borders; teeth perfectly white and unchanged; tongue very greatly swollen, moving with difficulty, very painful, covered with a dirty whitish yellow coat, very red, showing the impress of the teeth, and with large grey patches on the edges. Almost the entire velum covered with a thin false membrane easily removed, and leaving no ulceration beneath. The mucous membrane of the cheeks shows in places thin white spots, except in the middle, where they are thick and not removable with the finger. Tonsils very large, submaxillary

glands, especially the left, much swollen; all these parts very painful. Very profuse (almost the maximum degree of) salivation, with very penetrating mercurial odour. Voice unchanged. Tongue very thick, swollen, painful on motion and troublesome in talking. Dysphagia, anorexia. For the rest, respiration, digestion and general condition unchanged; but a rather frequent pulse, and on previous evening a little fever. Oaten griss, &c., and chlorine gargles. 13th.—The patches in the cheeks surrounded with a red border. 14th.—That on the r. cheek disappeared, leaving a grey-red prominent surface (granulations and the remains of the grey pseudo-membrane). 15th.—Granulations on the l. cheek (where the patches were), and still more plainly on the r. On 23rd the patches on the edge of the tongue began to granulate, and on the 25th the anterior third of the ulcers was cicatrised. 28th.—On the r. cheek a granulating surface, 6 mm. in circumference, surrounded with red mucous membrane. The ulcer on the l. border of the tongue cicatrised in a depressed white line; that on the r. showed a granulating surface only 3 mm. broad, prominent above the surrounding cicatrization, which in places spreads across it, dividing it into islands. In this condition the patient left the hospital, March 29th. (*Ibid.*)

29. A young man with gonorrhoea and a small chancre received at the hands of a surgeon an enormous quantity of calomel, which, besides excessive salivation, caused violent hectic fever, profuse night-sweats, tearing pains in the limbs, trembling, and large pustules all over his body. These were again treated with mercury (for they were considered symptoms of syphilis by the quack) and grew into large and deep ulcers, several of which were 1½ in. in diameter, surrounded by inflamed raised edges, and covered with a lardaceous surface. The worst symptoms were the ulcerations in the pharynx, about the posterior nares, on the tonsils, soft palate, and uvula; one ulcer threatened to devour all the soft parts; from the mouth and nose issued bloody pus; he could not articulate audibly, was emaciated, and exceedingly weak. All remedies tried were without avail, until I administered ʒo gr. of hepar sulph. in 24 h., which wrought an immediate change for the better, so that the other remedies required—sulphuric acid for the putrid suppurative fever, and nitrate of silver in solution for the foul buccal ulcers, did quick service. He was soon able to go into the open air, which gave opportunity to ventilate his room. This course was pursued with advantage for several weeks, and he had almost recovered, when he took a cold from exposure to rough weather, and a fever, which compelled him to remain in the house. Without my knowledge ventilation was discontinued. He rapidly fell back into his old troubles; the ulcers in the fauces and in the rest of the body broke out with renewed violence; even the glans penis became affected in several places (though not in the spot where the previous chancre had been) by phagedenic ulcers. The fever, the night-sweats, the rheumatic pains, and the pyralism were renewed, and increased in severity daily. I prescribed everything that had done good before, but without success; within a few d. he stood on the brink of the grave. He would take nothing, hiccupped frequently, did not know his friends, and could

scarcely move. At this point it came into my mind that the air in the close room, probably laden with mercurial vapours, was penetrating his body and thus renewing the symptoms. I ventured to prescribe 3 gr. of *hepar sulph.* every h., and with such good results that after 12 h. I already noticed some improvement. This, and the other previously named remedies, gradually gave him renewed life and health. I did not, however, omit to keep a solution of *hepar* in the sick room for several weeks, with the intention to neutralize by its exhalations the mercurial vapours. (HANNEMANN, *Lesser Writings*, p. 185.)

30. KUSSMAUL thus describes the constitutional mercurialism of workers in M., from observations in 110 cases :

a. *Stomatitis mercurialis.*—After the workers have had one or more attacks of stomatitis, angina, salivation, gastric affections, diarrhoea, they lose strength and feel exhausted, become pale or grey-coloured, and lose flesh. The head is confused, often amounting to headache, which is sometimes severe, even maddening. There are vertigo, roaring in ears, transient or dull pains in limbs and joints. Often there is a psychical irritability, which makes persons not usually shy confused on being looked at; sometimes very skilful workmen cannot go on with their work when looked at. Ill-humour, easily angered, rapid transition from passionate outbursts to pusillanimity. Slight twitching of muscles of face is an early symptom, especially about corners of mouth, the fingers begin to tremble when spread out, also the tongue when protruded, the letters become tremulous if one looks at him when he is writing. Sleep disturbed, frequent starting up, many dreams, sleep unrefreshing. Appetite falls off, often this is the first symptom; loathing at butcher's meat, the pipe is no longer relished, a nasty metallic taste is experienced, the mouth exhales the well-known mercurial odour, tongue becomes furred, swells somewhat, shows the marks of the teeth at its borders, more saliva than normal is present, and it exudes through the teeth when speaking. Epigastrium often distended, pressure in stomach, eructations, nausea. Then ensue vomiting of food, mucus and bile, pains of various intensity in stomach and bowels, occasional short attacks of diarrhoea (sometimes of green colour), followed by constipation, or there is constipation from the beginning; sometimes there is vomiting along with the diarrhoea. Sometimes the diarrhoea continues for a long time, is the most prominent symptom, and causes great debility, whilst the stomatitis and pyalism are not or only slightly present. In other cases the gastric symptoms are predominant. The increase of saliva often amounts to slight salivation; gums, buccal m.m., soft palate, uvula and tonsils become red and swollen. The gums recede from the teeth and bleed easily. Salivary glands often swell, even when the salivation is not great. Teeth become painful, and tearing pains radiate over face and scalp. Greasy yellow masses collect between teeth and gums. Sometimes the disease goes no further, but sometimes there is more intense inflammation and flow of saliva. During this period there is a feeling of tightness and pressure in chest and stitches, breathing is weak, intermittent. Pulse often slowed, but when examined quick; as every emotion affects heart the velocity changes rapidly. There is sometimes fever with the catarrh. If work is now left off the symptoms disappear

in a few weeks, but if work is continued the disease increases. The higher stages of the disease resemble the effects of calomel, the inunction treatment, &c. The stomatitis may reach all degrees of inflammation up to diphtheritis and phlegmons, with involvement of the submucous tissue, and may go on to ulceration, suppuration, and even to mortification of the soft parts and necrosis of the jaw-bones, and the pyralism may be very profuse. As a rule the inflammation spreads all over buccal cavity or the larger part of it, it is seldom confined to fauces and tonsils. Most frequently superficial ulcers of whitish-grey colour are observed on the m.m. of the cheeks, corresponding to the impressions made by the teeth; they are seen on the border of the tongue, on the lips, the gums, more rarely on the velum palati and tonsils. The ulcers grow rapidly, but more in breadth than depth, sometimes become confluent, have a yellowish, lardaceous appearance, but are readily cured by chlorate of potash. Flat whitish cicatrices remain for a time, Salivation of varying intensity remains, with swollen salivary and lymphatic glands. Slighter forms of diphtheritis of the m.m., tonsillitis, and deep, excavated ulcers with lardaceous surface of moderate extent, which leave permanent cicatrices, are often seen in the workmen. Rarely are seen the severe forms of diphtheritis, very extensive and profound ulceration, periostitis of the maxilla, phlegmon of the cheeks, of the cellular tissue on the floor of the buccal cavity, glossitis parenchymatosa, sphacelus of the soft parts, necrosis of the maxillary bones. The teeth appear to elongate, and become painful and loose, some fall out or are taken out by the patient with his fingers, others begin to discolour and end in caries. Occasionally herpes oris, conjunctivitis, hardness of hearing from catarrh of Eustachian tubes are observed. The higher degrees of stomatitis are attended by constipation. A fever which may be catarrhal, synochial, or putrid, according to the severity of the inflammation, is often seen. As the mercurial erethism advances, the patients feel weaker and their spirits sink, the pallor of the face increases. They complain of weakness of legs, which increases more and more, and renders walking and standing difficult, they can no longer work as before, their hands and legs come into a state of moderate paresis. The psychical irritability and tendency to start increase with the weakness. Their movements become hurried, every little trifle, even being looked at or the dread of being observed, makes them excited and confused, and robs them of the use of their muscles. Most complain of confusion of head or headache; one girl complained of pain in l. side of forehead, aggravated by pressure, another had lumbago. Restless sleep, starting up out of sleep, anxious dreams, sleeplessness, are common symptoms. Some are sleepy without being able to sleep. Frequent symptoms are: fainting, attacks of vertigo with obscuration of sight, vision of sparks and flashes, weakness of sight, tinnitus aurium, forgetfulness, drawing and tearing pains in arms, nape, loins, legs; feeling of "gone to sleep," numbness, formication in hands, not so often of legs, sense of coldness amounting to rigidity through whole body; pressure, tightness, stitches in chest, constriction in pit of stomach. The heart's beats are generally weak, and the pulse often slow. Hands cold and often blue-coloured. When the patients become

excited, which they easily do, they grow pale, they require the greatest effort to keep upright, or they must sit down if they do not sink to the ground. Their face has the expression of the greatest confusion or fright, they seem about to lose their senses. The facial muscles twitch, they are unable to do their work or even to write if others are observing them, the fingers and hands tremble. Their speech becomes trembling, confused, or fails them altogether, like that of a criminal detected in his crime. Then the heart beats quickly, and the respiration is quickened. Every emotion, every muscular effort, brings on trembling, staggering, palpitation, and imperfect speech. The paresis of the arms and legs may become so great as to compel the patient to give up his work. When the organs of nutrition are much affected the erethism seldom attains a great height. In the anemia attending mercurial erethism the ankles may become oedematous. Emaciation is very common, with falling out of hair. The sensation of pressure, tightness, stitches in chest, with weak, intermittent respirations, which attend the beginning of erethism, change with the advance of the disease to cough, either dry or with catarrhal expectoration, the dyspnoea and stitches attain a great intensity. When attended, as this state often is, by night sweats, frequent diarrhoea and emaciation, it bears a striking resemblance to galloping consumption. One case of erethism in a girl, where there were stomatitis and pulmonary catarrh, was accompanied by fever, hallucinations, and delirium somewhat like delirium tremens. Urticaria, furuncles, and slight attacks of eczema are observed in many cases. The menses of women are subject to various disorders. Generally they become scanty or suppressed, sometimes they are very irregular in their occurrence, seldom too copious or too frequent. Pregnant women are liable to miscarriage.

h. Tremor mercurialis.—This sometimes comes on suddenly without any premonitory symptoms, and unattended by any other derangement of health. But as a rule it is preceded by erethism of longer or shorter duration. Those muscles which in health are most subject to the will are those chiefly affected. The muscles react slowly to electricity, but are no longer able to perform intended movements. They certainly obey the impulse of the will by contracting, but these contractions are not such as the patient desires. The muscles begin to tremble and twitch and set other muscles agoing in the same way, and the will loses all power over these muscles. The patients cannot grasp or use small objects, but they can generally use heavy objects. One patient who could hold a heavy thick stick in his hand with considerable trembling, when he took a small stick in his hand, after some violent convulsive movements it flew away out of his hand. It is generally the hands and arms over which the control of the will is lost, and which tremble and twitch at the least exertion or emotion. Sometimes, but rarely, the general trembling is preceded by stammering, which may amount to incomprehensible speech and aphonia. Sometimes the legs are first affected with great weakness, and when an effort is made to walk or even to stand, there comes on staggering and falling down. Trembling and twitching of head usually comes later, and the facial muscles are first affected. The different muscular spheres are some-

times affected in a very unequal manner; one part may be quite lost to the will whilst another remains subject to it. Thus speech may be gone altogether, while arms and legs are only occasionally affected with trembling from emotion; or the whole body trembles and twitches incessantly, while the speech remains intelligible though trembling and interrupted. One side of the body is occasionally more strongly affected than the other. According to the degree and extent of the paresis the patient may be unable to stand, walk, drink, eat, put on or take off his clothes, speak intelligibly, or utter articulate sounds. The gait of those still able to walk is laboured, and the feet wide apart as in people with *tuberculosis dorsalis*. Many cannot drink, because they spill all the liquid in the glass before they can bring it to their mouth. Sometimes the patient is unable to chew. In the convulsive spasm it is sometimes necessary to strap the patient down to prevent him being thrown out of bed by the convulsions. Sometimes the trembling and convulsions are in fits with intervals of quiet, sometimes they are persistent as long as the patient is awake. In aggravated cases the body is turned to and fro, while every group of muscles and every single muscle is in a state of activity. The head waggles constantly from one shoulder to the other, and is usually jerked backwards or sideways; the eyelids go up and down; the eyeballs roll from side to side, the face is distorted by grimaces, the jaws rattle, arms and legs tremble and jerk, as a whole and every muscle for itself. The convulsions may become so violent that several strong men may be required, and may be unable to prevent the patient tossing about. The convulsions rarely continue during sleep, but sometimes the trembling and convulsions rouse the patient from his sleep. The convulsions are always of the clonic form. Along with the general weakness of the voluntary muscles there is generally weakness of heart. Pulse often slow (52—56). Often it is very excitable, 60—70 when at rest, 80—100 when the least excited. Fainting is apparently caused by the lessened heart's power. Respiration is often weak; sometimes there are asthmatic attacks. There are often disturbances of stomach and abdomen, and constipation. Vertigo is very frequent, it comes on very suddenly or with prodromata such as tinnitus aurium, vision of sparks or colours, dimness of sight, nausea and even vomiting. It sometimes prevents the patient getting up at all. Sometimes it is attended by complete unconsciousness, the patient falls down and lies for a short time quite unconscious. The symptoms attending mercurial tremor are chiefly: Headache day and night, generally of a drawing and tearing character, sometimes more in *sinciput*, sometimes more in *occiput*. Sometimes violent tearing in nape. In some the pain is relieved, in others aggravated, in bed. Drawing and tearing pains in arms, shoulders and legs, not affected by movement, generally aggravated by heat of bed. Fumication and numb feeling in hands, and even sometimes in legs. Anæsthesia tactus and analgesia are sometimes observed. Complaints of chilly feeling are frequent. Imperfect vision during the tremor is often observed. Tinnitus aurium is frequent. Sleep is often interfered with, and complete sleeplessness is not uncommon. Anxious frightful dreams and frequent starting up from sleep. As darkness comes on, the patient often has hallucina-

tions of vision, which may last almost all n. He sees people about his bed, they touch him, lie down beside him or upon him like a nightmare; all sorts of known and unknown people move about his room, pass his bed; horrible figures, demons, dead people, monsters come and go. All this occurs while his eyes are open. These things inspire the patient with terror and horror. The patients are often subject to causeless anxiety that makes it impossible for them to be left alone day or night: they scream with terror, weep and lament, try to get out of bed or the room and flee away. Sometimes there is complete delirium and aberration of intellect even persisting during the d. Some patients are affected with loss of memory and weakness of mind. In the last stages there may be attacks of syncope, profuse sweats, diarrhoea of a dysenteric character (dysenteric ulceration has been found, P.M.), hæmorrhage from genitals, decubitus, blennorrhœa, conjunctivitis. (*Untersuchungen üb. d. const. Mercurialismus.*)

31. a. Cases.—H. K.—æ. 47, married; in a mirror factory for 20 years. He frequently suffered from stomatitis and angina mercurialis, with ulceration and profuse salivation. In Nov., 1838, he is entered upon the hospital register with hydrargyrosis; in May, 1840, with pains in head and stomach. Four times tremor attained such an intensity that he had to be fed. During the severe attacks of tremor he was greatly troubled with sleeplessness, restlessness, weakness of memory, and impaired judgment. The weakness of memory remained for a long time afterward. The headache was slight, but there was great roaring in the ears, much vertigo and cloudy vision. Tearing pains in extremities, especially upper; great weakness in lower, so that he had to be led. Extreme emaciation. The hair fell out, but came again. Appetite bad, and he suffered also with diarrhoea and palpitation. As long as he worked at his trade he was frequently troubled with an eruption on the back,—according to his description, an eczema. He had no eruption before or after that time. The eruption came in the form of patches of vesicles, which itched severely and soon exuded moisture. He suffered much from tightness in chest, anxiety, and bad dreams.

b. Sept., 1860.—Chronic copper-coloured angina, with considerable swelling of the faucial mucous membrane, without ulcers or scars. Pain in swallowing with much scratching in the throat. On the mucous membrane of the cheeks, flat scars and thickening of the epithelium. Teeth partly carious, partly gone; many, as he said, having got loose and fallen out, without becoming carious, while he was silvering. (*Ibid.*)

32. a. M. SCH—, æt. 31, unmarried, a silverer from her 14th to her 21st years, then got stomatitis, and after her cure went as a waitress into a madhouse. At the expiration of 3½ years she returned to her trade, and continued at it uninterruptedly for 2 years. Then she suffered severely from stomatitis and salivation. After being cured she silvered again for 2 years, when she was taken with a frightful convulsive tremor. In the summer of 1858 she was in the hospital, and for 16 weeks at home, obliged to be fed, talking unintelligibly, falling if she attempted to walk, and troubled with severe attacks of vertigo.

The tremor affected her head also, and prevented her sleep. Memory and judgment weakened. Aug., 1860.—Almost entirely recovered, not having worked with quicksilver since the summer of 1858; is well nourished, looks and feels well. Only something of the trembling is aroused by emotional excitement. Good growth of hair. Gums bright red at the edges. The alveolar borders of the lower incisors somewhat atrophied; but those teeth, though no longer firm, are otherwise white and good, like all the rest, of which there was not one lost. Slight chronic angina. In Sept., 1860, she returned to silvering in a small factory. In the November following, stomatitis, quickly cured by the use of kali chlor. After some weeks, continuing her work, stomatitis again, cough without expectoration; stitching pains in various parts of the thorax; headache, and slight fever. These all vanished after some days, when she returned to her occupation.

6. Feb. 19th, 1861.—She was obliged to stop again. She had lately become pale, rather grey, emaciated, and felt dull and depressed. The stomatitis had reappeared with tremor. Menstruation, previously regular, became irregular, very scanty, pale, and lasting but a few hours. The appetite was good all the time she was at the quicksilver work; the stool at times thin and frequent. 21st.—The patient, who looked well the previous autumn, is now very much emaciated and greyish white; skin lax, muscles flabby. Many teeth have fallen out, others are carious or grey. Buccal mucous membrane red and swollen, with depressions corresponding to the remaining teeth, and covered with flar, readily bleeding ulcers. No salivation. Bad breath. Pain in mouth, especially in the lower jaw. Roof of mouth and faucial mucous membrane deep red. Glands about the lower jaw slightly swollen. Thorax in every respect well developed; mammae lax. Percussion shows normal heart and lung outlines, and an ample depression of the diaphragm in inspiration. Auscultation shows nothing abnormal. While the mechanism of respiration seems quite natural in quiet breathing, in deep breathing both the inspirations and expirations, instead of being each continuous, seemed to consist of 3 or 4 rapidly successive movements. Abdomen presents nothing noticeable. Microscopic examination of the blood shows no relative excess of white corpuscles. Pulse varies from 76 to 80; temperature of skin normal. When at rest there is no tremor, but it comes with the slightest psychical excitation. A look or word causes the extremities to tremble; she is obliged to sit down, and the pulse is quickened. Subjective symptoms: general lassitude, heaviness of the lower extremities, excessive timidity and ill-humour; no headache, sleep good. Prescription: kali chlor. as a gargle. Tepid bath every other day. 23rd.—Patient complains of much chilliness and cough, with pains in left side and shoulder. Physical investigation negative. No expectoration, no fever, urine scanty, dark yellow, albuminous, sp. gr. 1016. 24th.—Careful examination of tactile sense with the callipers shows decided diminution of sensibility. 26th.—Mouth nearly well. Still complains of cough, especially severe while in the bath. Urine abundant, 800—1000 c.c., pale yellow; sp. gr. 1014, albumen less. March 1st.—She feels stronger, less tremor; visual power undiminished. Tinct. ferri zoc., 20 dr. three times a d.

5300 c.c. of urine collected from Feb. 24th to March 2nd, tested by Schneider's electrolytic method, showed a large quantity of mercury. 4th.—Improvement slow but decided. Albumen reduced to a trace. Urine 1500 c.c., pale yellow, sp. gr. 1019. In 1000 c.c. there are 16.5 grams of urea, and 19 grams sodium chloride. 5th to 7th.—Menstruation as usual. 7th.—1600 c.c. of dark yellow urine, free from albumen, sp. gr. 1018, feebly acid. In 1000 c.c. 17.5 grams urea. 9th.—Menstruation returned, and lasted until the 11th. 11th.—1200 c.c. urine, sp. gr. 1015, containing in 1000 c.c. 23 grams urea. 18th.—Improvement in every respect, colour of skin, nutrition, strength, morale; tremor less frequent and weaker. Discharged convalescent, 1350 c.c. of dark yellow, neutral urine, sp. gr. 1019, with no trace of albumen for 10 or 12 d. In 1000 c.c. 22 grams of urea. Constipation during the entire period. (*Ibid.*)

33. a. A man, æt. 46, came to the hospital in October, 1833. He said he had worked in a mirror factory since his eighth year, principally as a silversmith. In this operation the workman dips his right hand into a vessel of M., while with the left he holds the glass plate upon which the metal has to be rubbed. Usually the mouth and nose are covered with a veil; but this man had never used one, as he thought that those who did derived no benefit from it. For 30 years he had been very healthy, suffering only occasionally with bleeding of the gums; a stinging, nipping pain in various parts of the body; and a more or less decided loss of power in the hands, always removed by the use of strong spirits. He was repeatedly salivated, and, upon admission to the hospital, nearly all his teeth were gone. A short time before he had felt tolerably well, only the r. eye had become weaker, and the memory so affected that he could not remember the names of his nearest acquaintances.

b. It was hard to give a name to the condition of this patient upon his reception. The reporter saw that it was a spasm, not resembling tetanus, hydrophobia, or hysteria, but rather chorea. The head, arms and fingers, especially of the l. side, were in incessant spasmodic motion. The corners of the mouth were retracted; the eyebrows wrinkled; the nostrils dilated. The sterno-mastoid, trapezius, scaleni, diaphragm and abdominal muscles were spasmodically affected. His speech was broken and indistinct, by reason of the hiccough accompanying the spasm of the diaphragm, and the constant tremor of the tongue. At times the spasms would cease; but any part which he attempted to move would immediately become affected. If he attempted to raise his foot, it began to tremble and fell down again. If he wanted to drink, instead of carrying the glass to his mouth, he put it to the ear, nose or forehead; so that his comrades laughingly said he could not find his mouth. If another held the glass, he could drink easily. A cold draught, the touch of a cold hand, and the unexpected entrance of anyone into his room instantly provoked spasms. The muscles of the l. side were more affected than those of the r. Cerebral activity undiminished; the patient being always conscious, and endeavouring as accurately as possible to give the smallest details of his disease. Urine normal. Some pain upon pressure over the fourth and fifth dorsal vertebræ; the

remaining portion of the spine not more sensitive than usual. Skin cold and dry. Pulse quick, soft and small. Constipation, easily relieved by purgatives.

c. Leeches were put over the sensitive place on the spine and a warm bath ordered; subsequently the patient got a purge followed by an opiate. After some days his condition was somewhat improved. On the l. side, to be sure, the spasms continued, but in a less degree; on the r. side the spasms of the voluntary muscles ceased, except of the scalmi, pectorales, intercostals and diaphragm. By narcotic inunctions in the spinal region, especially of ext. bellad., the spasms were entirely subdued and the patient left the hospital entirely cured. (*W. STOKES, Lectures.*)

34. e. L—, a silversmith, æt. 55, well built, well proportioned chest, with a delicate fine skin; sweats easily; was always inclined to gout and has an habitual cough; good digestion with small appetite; takes his wine daily and not infrequently takes too much; is disposed to diarrhoea, and for years has had pains in the head and is inclined to melancholy. For years he had gilded the many silvery articles in his laboratory in the open air in a narrow court surrounded by high buildings which prevented the mercurial vapours from being carried off. In 1823 he got a tremor of the hands and feet, so that he could not write. Flowers of sulphur and liver of sulphur taken continuously, together with baths of hep. sulph. alcal., overcame the condition, as also a relapse which occurred in 1824. In the winter of 1824-25 he frequently complained of pains in the limbs and abdominal muscles, of headache on rising in the morning, and of great depression; was pale, ill-humoured and without appetite; had great lassitude, fever, drawing pains in the r. leg, headache, coated tongue, sweat, very acute pains in the abdominal muscles, and a violent cough, generally loose, attended finally with severe pains in the chest. Venesection seemed necessary, but on account of the existing weakness, leeches were applied. The leech bites continued to bleed for more than 24 h., and the blood was very fluid. After taking sal. ammoniac, aurum sulph., digit., ipec., prussic acid, applying vesicants to the chest, &c., the thoracic symptoms subsided, but violent head pains reappeared, extending down into the cheeks; indifference with respect to his business, extreme weakness of memory, vertigo, eyes very dim with a dull expression; no more sweat or heat but a quickened and rather full pulse, decided weakness and complete anorexia. Four weeks had now elapsed and the disease had become chronic. Gradually occasional wandering of mind appeared; dry skin; no increased warmth of body; much thirst; no appetite at all; very throbbing, full, trembling, frequent pulse; stupid; constant inclination to lie and sleep. Leeches were applied to the temples and behind the ears, ice to the head, inunctions of tart. emet. ointment to the nape, and as no pustules appeared, a vesicatory was applied; internally, prussic acid and subsequently Haller's acid in large doses,—all without result. The emaciation increased, the strength diminished, the gums bled excessively, a persistent comatose condition set in, with entire loss of consciousness, uninterrupted low muttering delirium, bad odour from the mouth and over the whole body. Wine and china

were not tolerated. Camphor, musk, sal succini answered better, but he died in the eighth week with apoplectic symptoms, hemiplegia involving the tongue, and unconscious voiding of the excrements.

4. Autopsy 3 h. after death. On both hemispheres, especially the l. posteriorly, a bloody covering, one-third inch thick, containing white streaks of coagulated lymph, as found in the blood of subinflammatory conditions after standing some time; this extended, following the pia mater, as far as and over the tentorium. Cerebellum healthy. A considerable amount of fluid in the left lateral ventricle. The bloody covering extended over the greater portion of the cerebrum. (*Korr's Denkw. aus der Aerztl. Praxis*, B. 3, p. 336, 1836.)

35. A goldsmith in Münster, gradually poisoned by mercurial vapour, became pale and weak, very thin and daily more cachectic. Aphthæ in mouth and fauces, especially on the edge of the tongue, were at first removed by applications of borax and honey, with tinct. of myrrh.; but returning after awhile were left to themselves. In August, 1811, while, with unusually high atmospheric temperature, 27° R. (92-75° F.), typhoid fever and dysentery were prevalent in Münster, a profuse epistaxis, uncontrolled by external and internal treatment, set in. The mercurial disease, too, did not abate, but there appeared daily new hæmorrhages, from the entire buccal surface, from the eyelids and face, especially the forehead, in drops, constituting a true bloody sweat; also from the urinary tract; the urine being at first reddish, subsequently blackish. Pulse small, feeble, not rapid. More than a pound of blood was lost daily. He had petechiæ before the hæmorrhage, upon the abdomen and lower extremities, small round spots of a dark red to black colour. Under the incessant bleeding, with entire want of appetite, he steadily sank and died on the twelfth day after the first hæmorrhage. (*Hufeland's Journal*, B. 45, 1817.)

36. A barometer maker lived with his family in his workroom. The eldest of his five children was cachectic; the second died at 9 years, the third at 3 mo., of scrofula; the fourth, æt. 3, has strumous ophthalmia and tabes mesenterica; the youngest, 6 mo. old, is very backward in its development, and has already caries of several ribs and the upper dorsal vertebræ. The mother looks cachectic, but is not ill at present. The father has suffered for years from trembling of limbs, amounting at times to spasms; also periodically from nocturnal boring bone-pains. He has likewise periostitis in the middle of the tibia, and a papular eruption on the back. Swelling of the glands about the neck, dark redness of the mucous membrane of the fauces, diseased gums and bad teeth were observed in every member of the family. (*Fluxmann, Nachträge*; from Huber.)

37a. T. Hermann studied the diseases of the labourers in the quick-silver works at Idria.

The labourers are divided into three classes:

1. Those in the mines.
2. Those in the smelting works, and
3. Those employed in the preparation of cinnabar.

Beside these, there is a class of which each member works every year in all three places. In the smelting works, where 59 men are

employed, each one remains only one month, as here the danger is greatest. Of 516 labourers in 1856, there were sick from the action of M.:

1. Of the miners :	2. Of the smelters :
20 with dyspepsia.	15 with neuralgia.
15 " scrofulosis.	12 " anæmia.
10 " anæmia.	10 " mercurial gout.
10 " neuralgia.	4 " tremor mercurialis.
4 " mercurial gout.	
2 " tremor mercurialis.	
2 " caries.	
3. Of the cinnabar makers :	
1 with pytalism.	
2 " neuralgia.	

By anæmia is meant the mercurial cachexia, which consists of general weakness, bad nutrition, earthy complexion and decided emaciation. The mercurial gout is shown by tearing in the limbs, joint pains, and especially by nocturnal bone pains. The local physician, Dr. Gorbeg, observed caries after preceding periostitis and osteitis. Of 516 labourers in 1856, there were 122 sick. The mortality is also very great, in spite of favourable climate and social conditions. Of 4500 an average of 120 die annually; abortion and premature births are frequent.

b. Hermann found among 30 sick, whom he visited during his stay in Idria, two cases of tremor mercurialis; two of caries; one of kyphosis in consequence of softening of the vertebræ; one of periostitis and subsequent necrosis; five cases with osteocopic pains; one with chronic atrophy of the liver, with decided emaciation; one case with a papulous exanthem over the whole body and nocturnal bone pains; one with extensive kidney-shaped ulcers on the foot; one the perfect picture of phthisis laryngea, with visible erosions and ulcers on the posterior wall of the fauces; one with paralysis of l. arm. The remaining cases were those of scrofula of children, an endemic complaint here. It is extremely interesting to note that two children, of one family, born while the parents were working in the Jaly mines, were not scrofulous, while all the others born in Idria were scrofulous. Of 18 affected with hydrargyrosis we find 3 with pytalism, angina and faucial ulcers (a more or less intense redness of the roof of mouth and fauces, with relaxation and swelling of the mucous membrane, was observed in almost all cases); 6 with dyspepsia; 9 with gastralgia; 1 with jaundice; 3 with swelling and suppuration of glands; 1 with vomiting and diarrhoea; 4 with tremors; 2 with neuralgia; 3 with ischialgia; 6 with arthrorheuma (acute rheumatism); 2 with maculæ; 2 with squamous eruption; 1 with papular eruption; 3 with ulcers on the feet; 3 with dolores osteocopi; 1 with periostitis; 4 with caries; 2 with necrosis in elbow-joint; 1 with malacosis vertebralis; 7 with anæmia; 2 with cachexia.

c. All the residents of Idria have more or less hepatic disorder. Intumescence of the liver, with a hyperæmia of carbonized blood and the resulting consequences, are endemic disorders there. Neuralgias are very frequent, under the form of gastralgia, ischialgia,

and neuralgia of the fifth pair. Osteocopic pains, periostitis, osteitis, exostosis, necrosis and caries are frequent. Tophi are seldom seen. Macular, papular, vesicular, and pustular eruptions, as well as chronic kidney-shaped ulcers, are met with. On the mucous membranes we find angina with and without erosions and ulcers. In the glandular system we see swelling, inflammation, suppuration. In the liver, intumescence with all its consequences on the one hand, and on the other, chronic atrophy. (*ibid.*)

38. a. Beside the observations of Hermann we place those of Keller, made in some mirror factories in Bohemia. The mirror silverers are not taken under 16 nor over 40 years of age, and are usually between 16 and 24. Married women are not employed on account of the danger of abortion. Eight h. a d. is the working time, and after 14 d. work they always have to stop from 8 to 14 d. and often longer. They die early, seldom exceeding 50 years. Wounds heal slowly. Syphilis is extremely rare. All the employees are to be considered as more or less sick, according as they have been working a longer or shorter time. Even the children of those operatives who have been employed for a considerable length of time look pale and rachitic, and have the scrofulous characteristics.

b. According to Dr. Klement, the new hands, within the first 14 d., get a thick dirty grey covering on the teeth, coppery redness and swelling of the gums and buccal mucous membrane. Subsequently excoriations appear on the inner surface of lips and gums, with moderate salivation, nasal catarrh with thin discharge, and frequently loss of smell and hoarseness. The excoriated places on the lips and cheeks develop into deep ulcers, with swollen eroded edges, and the tonsils as well as the cervical glands swell. When such labourers return repeatedly to the same work, ulcers entirely similar are developed in the mucous membrane of the fauces, especially on the posterior wall (except the new hands, all the silverers had ulcers in the fauces). There appear tremors of the hands, at times also of the feet, nocturnal drawing pains in the head and extremities. The teeth finally become loose and fall out, especially the front teeth (the oldest hand had only 11 teeth in his mouth). Finally, osseous enlargements occur, frequently on the tibia, less often on the head. These tophi, with swelling and sensitiveness of periosteum, are the cause of violent pains, especially at n., in the warmth of the bed, in cold damp weather, and in a thunder-storm, but particularly at the first snowfall. At times also macular, papular, and even squamous eruptions (the last especially in older people) appear on chest, back, and hairy scalp; but these, except when they come on the head, are but little noticed by the people. Such eruptions often appear suddenly, last only a few weeks, and then disappear, to return after awhile. All these last-mentioned appearances do not come only in those who remain at work or have but recently left it, but are often developed in those who for years have had nothing to do with quick-silver. The serpiginous ulcers on the skin especially come almost wholly on such as have left mirror silvering for from 4 to 10 years. The nodes and tophi occurring under such circumstances do not go away. Falling off of the nails has not yet been observed in these work-

men. Formerly abortions were common among mirror silverers, so that now married women are no longer employed, in this work especially. Even in the children of women formerly employed as silverers the features of anæmia and scrofula have been generally observed, and are not to be ascribed to the poor dwellings and vegetable diet, as the children of the glassworkers, otherwise living under the same conditions, are as a rule tolerably healthy.

c. It has been observed that people who begin the work at an advanced age are much sooner and more affected than those who begin when young; finally, that the more severe forms of hydrargyrosis are found principally in those who, after having been employed in earlier years for a long time in mirror silvering, have chosen some other occupation and have thereby often for many years been withdrawn from the influence of mercury. Those labourers who have for many years (of course with longer or shorter interruptions) been exposed to the action of mercury, and who already suffer from chronic hydrargyrosis, usually feel far better when at work than when away from it; so that they would continue at it uninterruptedly, if not compelled to stop by the recurrence of symptoms of the acute disease (salivation, ulcers of mouth and fauces), or by pains becoming more intense with tremor and sleeplessness.

d. Dr. Klement told Dr. Keller that in the beginning of his practice there he took the symptoms of chronic hydrargyrosis for those of actual syphilis on account of their striking similarity to those ascribed to secondary and tertiary syphilis; that he has accordingly administered Doondi's pills, until convinced that this treatment was in most cases inefficient, in others detrimental; that the same symptoms constantly appeared in those who had never been syphilitic; and that they uniformly developed themselves in all who continued to be occupied for a long time with quicksilver. Dr. Klement finally had the kindness to show Dr. Keller a number of typical cases, exhibiting the various appearances of hydrargyrosis previously described. Among these the most interesting were those of widespread serpiginous ulcers on the arm and leg; deep ulcers in the fauces; extensive papular eruption; and nodes and tophi on the tibia. The morbid picture presented by the other workmen was generally uniform, showing for the most part a commingling of symptoms of acute and chronic hydrargyrosis. (HUBER, *op. cit.*)

39. a. HALPURT says: "The necroscopic investigations upon workers in mercury have yielded no constant result. In the majority of cases the intestinal mucous membrane has been found congested, and with traces of local inflammation. In some cases the liver and spleen were enlarged. In the brain and spinal cord there were, now and then, traces of inflammation and softening. When death was preceded by long-continued paralysis or tremor, there was atrophy of the muscles affected; where patients had succumbed to an attack of asthma, the lungs were found filled with a reddish serum. Laryngitis and phthisis mercurialis presented the usual morbid appearances of these affections.

b. SCHNEIDER describes the morbid anatomy of gilders in the following manner: Indurations of the lungs, liver, pancreas, spleen; gall-

bladder filled with black viscid bile, the portal vein with thick, dark blood; lymphatic glands indurated; the teeth and their alveoli, the jaw-bones, as also other bones, carious. The evidences of inflammation in the intestinal canal, not unfrequently found resulting from the internal use of mercurial preparations, were not observed in gilders. (*Ibid.*)

40. *a.* Mercurial trembling is the name given to a kind of chronic convulsive malady, characterised by a peculiar agitation, caused by M. in workers who employ that metal. Its invasion is sometimes sudden; most often, however, it comes on gradually. At first the patient feels the arms less steady; they oscillate, then they shudder, at last they tremble—more or less according as the patient continues in his work. If he persists in doing so, the tremor becomes general and evidently convulsive. He is then unable to perform satisfactorily the functions which demand muscular force,—as locomotion, mastication, working with hands, &c. Soon yet graver symptoms compel him to give up all work and to think of treatment; these are sudden losses of consciousness, insomnia, delirium.

b. When the patient comes under inspection he has a remarkably brown complexion; he is sometimes animated, sometimes languid; there is but little emaciation if the illness is not of long standing; the skin is generally rather dry, and sometimes a little hot. The appetite fails as the tremor becomes intense; pulse is generally strong and slow.

c. The muscular contractions which constitute the tremor come on with astonishing rapidity, but not always; thus a patient attacked with them, wishing to bend his arm, cannot accomplish this at once,—two or three little jerks will draw back the forearm and cause a tremor. In bad cases the sufferers cannot get a cup of liquid to their mouths without upsetting it, and solid foods can hardly be rightly guided there. Emotion, such as anger, will bring on tremblings, which without them would be absent. (*MARAT, Dict. des Sc. Méd.,* lv, 521.)

41. M. W—, æt. 50, had been ill for a year. He stated that twelve months ago he had a slight itching eruption on the skin, which was treated by a surgeon with M., probably in large doses, because soon after he had profuse salivation; when the eruption disappeared, he found himself unable to walk. He was then admitted to the Manchester Royal Infirmary, but after remaining there three months he came home in the same state. When I saw him first he was totally unable to walk or rise from his chair; his teeth were few and black; he complained of dizziness and dimness of sight. He had violent pains in the lower part of his back, was always trembling, generally constipated, and could not make water freely. He had been impotent the whole twelve mos. He complained further of shooting pains in his legs, could not feel the ground, and had a sensation of his feet being twenty times the size they really were. Before taking the M. he had been quite well and strong. After (homœopathic) treatment he so far improved as to be able to walk with a stick, and lost his pains. (*BLUMBERG, Brit. Journ. of Hom.,* xv, 621.)

42. H. S—, æt. 43, stated that three years ago he had rheumatic pains and stiffness in his r. shoulder. The surgeon whom he consulted gave him much calomel, and after some weeks he was profusely sali-

vated. Some time afterwards he felt very weak, particularly in the legs, and by-and-by he became unable to walk straight. He complains of violent pains in the lower part of his back, an abnormal sensation in his legs, feeling as if bound tightly with an iron belt across the abdomen. He is very weak-sighted, and often sees black spots; very slow reaction of the iris to light; nearly continual discharge of semen; habitual constipation and ischæmia; impotence for three years. This patient also improved much under treatment; the discharge of semen ceased; he walked much steadier, and had much less pain in back and legs. (*Ibid.*)

43. O—, æt. 32, barometer maker for 3 years, came under M. Jean's care in May, 1877. He had been in vigorous health, and had no syphilitic or alcoholic history. Eighteen months ago a bottle of M. had accidentally been left uncovered in his workroom (which was warm), and was found a year later completely empty. During this time he had complained of headache, fornication, numbness and weakness of arms and legs, pain in joints, loss of appetite, emaciation. Eight months ago the creeping became more intense and constant in l. arm and leg, which were also heavier and less obedient to the will. One m., on waking, he found l. arm, l. leg, and tongue partially paralysed; he could scarcely speak; the face was not drawn. He did not feel his arm or leg, but could still walk with a stick. He remained thus for 48 h., when he awoke no longer paralysed, save for a little weakness in l. arm. On entry into hospital the motor troubles were gone, but those of sensation were quite appreciable, viz. very marked analgesia on dorsal aspect of both forearms, also a little on r. chest and both temples, none in legs. No loss of tactile sensibility in any part. (HALLOPEAU, *op. cit.*)

44. B—, mirror maker for 5 years, æt. 44, entered Hôtel Dieu, Nov., 1876. Six weeks ago he had felt creeping in soles, which soon reached legs and thighs, sensibility in these parts becoming very obtuse; he felt as if walking on pasteboard; r. side most affected. At same time, acute pains in all joints of r. arm, followed 3 weeks later by creeping in hands. R. salivary glands very painful, and copious ptyalism. Patient is neither an alcoholic nor is he syphilitic. There has been for 3 mos. much diaphoresis, but exclusively on the r. side. His present state is generally good enough; integuments pale, flesh flabby. If made to walk, he advances uncertainly; it is an effort to lift his feet, but he does not actually drag them. With closed eyes he staggers, and sways to r. side. The arms lack vigour; the hands grasp with difficulty. Muscular force is a little better preserved on the l. side, though the patient is not left-handed. On extension of arms there is manifest tremor, but much more marked on r. side. Sensibility of surface varies in different regions, but is generally diminished, especially on r. side. There is complete anæsthesia on r. side from malleoli to umbilicus, also over r. arm save on its internal border, on inner and posterior aspect of l. leg, and on lower half of anterior surface of l. thigh. There is complete analgesia of r. arm, r. side of abdomen, and both thighs save upper anterior surface of l. To cold both legs are insensible, r. thigh, r. half of trunk, and r. arm. The mucous membrane and organs of sense participate in this r. hemianæ-

thesia. When the tongue is pricked with a pin the patient is scarcely conscious of it. It is the same with the palate and pharynx. A spoon pushed towards the back of the tongue causes no reflex action. Taste is much blunted; a little quinine deposited on the tongue excites no sensation. It is the same with smell; ammonia may be held to the nostrils without inconvenience. In the *r.* eye the conjunctiva is insensible, sight indistinct, pupils dilated. Hearing is unaffected, but patient complains of shooting in *r.* ear. The patient can move his *r.* leg quite well, but has no consciousness that he is doing so; so that electro-muscular sensibility seems absent there. (*Ibid.*)

45. Aug. S—, æt. 22, mirror silverer for 3 years, experienced 2 years ago impossibility of extending *r.* arm; dizziness coming on suddenly, so that he fell to the ground, but soon returned to himself; no epileptiform spasms. He entered the Hôpital Beaujon, and remained there 3 mos. He states that *l.* arm was found insensible and wasted; the hand continued bent, and he could not open it. There was also deadness of *r.* leg. After 5 weeks occurred rigors, pain in *l.* side, and next *d.* hæmoptysis. The pain in side has persisted since. Fever lasted 15 *d.*; two blisters were applied. From that time emaciation set in, diarrhoea, night sweats, loss of appetite, occasional vomiting during attacks of cough. Examination of chest now showed at back of *l.* apex a little wheezing on expiration and some râles after the cough; in front breathing was harsh. Patient has less power in *r.* than in *l.* arm, and grasps less strongly with *r.* hand. There is asymmetric wasting of muscles of both arms; no anesthesia. In lower extremities, painful shootings through length of limbs (not in joints); on *l.* side pressure is painful; patient has a certain stiffness in *l.* leg, and a somewhat sharp pain in *l.* flank. No anesthesia. (*Ibid.*)

46. The author has seen a well-marked case of locomotor ataxia, characterised by pains, ocular disorders, spermatorrhœa, plantar anesthesia, and inco-ordination of muscular acts, result from the inhalation of mercurial fumes. (BARTHOLOW, *op. cit.*)

47. If the "grand mal" has not been observed in chronic mercurialism, certain subjects have experienced symptoms analogous to those of the "petit mal;" especially vertigo, either sudden, or preceded by tinnitus aurium, photopsia, clouding of vision, nausea, and even vomiting. These attacks may oblige the patients to keep their beds, although their limbs have still power to support them; they do not always subside even when the recumbent position is maintained; their subjects compare themselves to men intoxicated. They may, finally, be accompanied by loss of consciousness; the patients then fall suddenly, and remain some time on the ground. (HALLOPEAU, *op. cit.*)

48. My patient was a woman of somewhat advanced years when she first came under my notice, but her malady had (though with long intermissions) existed ever since she was a young girl in service. At that early date she was severely salivated by some energetic but misguided practitioner, for an affection which was called pleurisy, but (according to her description) might well have been only pleurodynia, to which servant girls are so very subject. At any rate the consequences of the medication were most disastrous. Not only did she then and

there lose every tooth in her head, and suffer extensive exfoliations from the maxillæ, but after this process was over she began to suffer frightfully from neuralgic pains in both arms and in both legs. Tonic medicines and a change to sea-air brought about a tardy and temporary cure, but from that time her nervous system never recovered itself. Whenever she took cold, or was over-fatigued, or depressed from any bodily or mental cause, she was certain to experience a recurrence of the pains. At the time of her application to me she was suffering from an attack of more than ordinary severity, and which had lasted a long time without showing any signs of yielding. She apparently could not find words to express the acuteness of her sufferings. All along the course of the sciatic nerve in the thigh, all down the course of the middle cutaneous and long saphenous branches of the anterior crural, in the musculo-spiral, radial and ulnar nerves; and also, in a more generalised way, in the gastrocnemii, in the soles of the feet, and in the palms of the hands, the pains were of a tearing character, which she described as resembling "iron teeth" tearing the flesh. The pains recurred many times daily; her life was a perfect burden to her, and always had been during these attacks. I should mention, as additional proof of the extent to which the mercurial poison had shattered the nervous system of this woman, that she had violent muscular tremors at the time of her first attack, and on several subsequent occasions. A more completely ruined life was never seen. (ANSTIE, *On Neuralgia*, p. 24.)

49. We have observed the bone-pains (*douleurs osseuses*) of M. but once, in a mirror silverer. They occurred in the d., but more particularly at n.; they occupied all the limbs, and were not localised like the syphilitic pains.* (TROUSSEAU ET PIDOUX, *op. cit.*)

50. The disorders of general nutrition which occur in chronic mercurialism present the closest analogy to those of the more acute intoxication. The features grow pale and discoloured; prostration becomes extreme; the paralysed victims can scarcely drag themselves along; œdema of face and extremities sets in; purpuric patches appear on the legs; multiple hæmorrhages are not seldom seen; appetite is *nil*, diarrhœa frequent; and the sufferers end by falling into a state of marasmus like that which characterises the scorbutic cachexia,—it has accordingly been called the mercurial scurvy. (HALLOPEAU, *op. cit.*)

III. *Experiments on animals.*—1. OVERBECK experimented on 6 strong healthy animals, more than 6 mos. old, by inunctions with mercurial ointment on abdomen, thigh, nape, or back, on spots carefully shaved and protected afterwards by a firm bandage, to prevent the animal licking the spot and thus complicating the experiment by symptoms from internal poisoning. The experiments were generally made in the winter; the autopsies immediately after death or during the agony. The quantity of ointment used at each application was, for cats, a scruple; for dogs, a scruple to half a drachm, or more for large dogs.

a. Inunction was made 4 d. on a cat. From the 2nd d. there was loss of appetite, retention of stool and urine, until a few hours before

* GRAVES affirms that perionitis attacks patients who have taken a great deal of M., even if they have never been affected with syphilis, as often as they take cold.—*Edi.*

death on the 5th d. Autopsy: Stomach and duodenum full of dark masses (chiefly altered bile); ileum injected in spots and dark with bile-pigment; in rest of alimentary canal light yellow masses; liver unchanged; gall-bladder full of grass-green bile; no change in bones; blood dark, thick, fluid; globules of $M.$, $\frac{1}{10}^{\text{th}}$, in kidneys and intestines, fewer in liver and blood, none in bones. Chemical analysis revealed the metal in almost all internal organs, also in blood; most in liver, gall-bladder, and heart; none in feces and urine. No mention is made of the bones.

b. Inunction 3 d. on a cat. From 2nd d. loss of appetite; retention of stool and urine; death on the 4th d. Autopsy: Injected places on cheeks and paws; seats of inunction red and inflamed; intestinal canal full of dark, almost blackish masses; inflammatory injection throughout large intestine; blood dark, not otherwise altered; bones normal. Chemical analysis showed presence of metal in almost every organ; most in feces and intestine; but none in kidneys.

c. Inunction performed on a dog of medium size, daily from beginning of September to end of November, with a scruple; at least 22 oz. used in all. The dog showed the mercurial cachexy in a high degree; excessive emaciation, falling out of hair, uncertain gait was observed after 4 weeks; the exhalations of the animal were, at last, intolerable. Autopsy: Hair thin, much having fallen out; erythema of thighs and abdomen, even on spots to which ointment had not been applied; scrotum covered with moist, sore spots; urethral blennorrhœa; cerebral vessels distended with dark blood; lower part of r. lung œdematous; a very large, translucent fibrinous clot in r. thoracic cavity, pleura not adhering; large, solid translucent fibrinous clots in both ventricles as well as auricles of heart, that of r. auricle extending far into vena cava; stomach and intestine full of blackish-green masses; mucous membrane spongy, in ridges, often of slaty grey colour (many canine in small intestine); capillary injection around glands in lower colon and rectum, but no ulceration perceptible; liver large, dark and full of blood, but microscope shows no change in constituents of parenchyma; renal epithelium filled with fat; blood very dark and thick, almost like pitch, easily coagulating and forming a thick buffy coat; arterial blood bright red; mesenteric vessels full of bright blood; osseous system normal; globules of quicksilver found nowhere, except in seats of inunction, not even in blood. Chemical analysis revealed the metal only in the greenish-black fecal masses; neither blood, urine, bones, nor any organ showed a trace.

d. A dog of medium size, treated from Jan. 6th, 1858, died Jan. 19th. About $\frac{3}{4}$ of ointment was used. At first loss of appetite and retention of urine; towards the last, profuse salivation. The exhalations of this, as of the other animals, intolerable. Considerable emaciation. Autopsy 24 h. after death: Brain solid, compact, somewhat œdematous. Mouth: mucous membrane and gums bluish-grey and soft; erosions and dirty grey ulcers on various parts; parotids swollen; fœtor of mouth; fibrinous clots filling r. ventricle and auricle; in lower lobes of both lungs, dark red, serous infiltrated spots, in sharp contrast with bright red grey colour of rest of lung tissue; contents of intestine

dark; mucous membrane of stomach spongy and ridgy with slaty spots; serous and mucous membrane of small intestine hyperæmic; follicles swollen; deep injection of large intestine; dark stripes in rectum probably from mercuric sulphide; liver large, full of blood; gall-bladder distended with grass-green bile; spleen small, not much altered. Kidneys: cortical substance yellowish, epithelium filled with fat in molecules and in large drops; urinary bladder full; blood dark, very thick, partly coagulated, clots in large vessels; osseous system normal; globules of M. most in mucous membrane of mouth, especially in necrosed parts; also in kidneys and their pelves; likewise in feces, mixed with black particles of sulphide; and, scantily, in liver, flesh of heart and brain; no trace of it in bones.

r. A strong dog of medium size treated with 3j daily 34 mos., from March 25th, 1858. Urethral catarrh appeared at once. Loss of appetite; pronounced marasmus; intolerably offensive exhalations; sluggish motions, and at last movement almost impossible; profuse salivation. Urine undiminished, containing much albumen, sometimes bile, and, as in catarrh of the bladder, many mucous corpuscles and crystals of phosphate of ammonia and magnesia. Repeated electrolytic analysis of the urine gave doubtful traces of M. The dog died July 5th, 20 to 22 oz. of ointment having been used. Autopsy, 24 h. after death: Extraordinary emaciation; hair mostly gone from abdomen; extensive erythema of skin of abdomen and inner side of thighs; large necrosed spots, forming ulcers as large as a thaler, with dirty base, on parts of thigh where inunction was made the first six weeks. Eyes: purulent conjunctivitis of both eyes; no trace of iritis. Mouth: mucous membrane pale, around some teeth blackish; a grey, necrosed spot on each side near upper bicuspid, and similar spots on inside of cheeks near angle of lips, as well as on other parts of cheek and gum. L. lung collapsed, anæmic; r. lung behind and below infiltrated with serum, dark red, œdematous; cavities of heart filled with thick, coagulated, black blood, and fibrinous clots hanging from the valves. (Blood of veins and aorta contains also solid coagula.) Abdomen strikingly anæmic; gall-bladder half full of light green bile; microscope shows no change in parenchyma and cells of liver; spleen small, very anæmic; mucous membrane of stomach ridgy, presenting necrosed, blackish spots, round, and as large as a lentil or a pea; little ulcers seated in mucous glands. (The black spots were altered blood-extravasations; the whole intestinal mucous membrane in a catarrhal state.) A longish, dirty-grey, superficial ulcer in duodenum, six lines long; dark fecal masses in the ileum; vermiform process filled with hard feces; large intestine empty, contracted; injected spots on its blue-grey mucous surface. Kidneys large, congested; epithelium and casts from tubuli in pelves, also globules of quicksilver as large as $\frac{1}{10}$ line. Osseous system normal, no trace of inflammation; neither the long bones, sternum nor cranium showed, either in parenchyma or cavity, a trace of the metal, although it was found in the heart-clots, kidneys, parotids, and liver, and in deep layers of cutis of l. thigh where inunction was made the first six weeks; none found by chemical analysis in bones.

f. A dog of medium size, inunction on both thighs from Jan. 20th

to Feb. 22nd. After 8 d., loss of appetite, then retention of stool and urine; later, inflammation and erosion of skin of thigh and adjacent part of abdomen, and severe urethral catarrh. Intolerable exhalations from skin; general marasmus; no salivation. Died Feb. 22nd. Autopsy: R. eye has purulent conjunctivitis; mouth normal; brain firm, solid, somewhat œdematous; liver normal; gall-bladder full of green bile. Kidneys: pyramids dark red; epithelium not infiltrated with fat; intestinal canal full of dark green masses, in upper part fluid, in lower large intestine solid scybala. Mucous and serous membranes of middle and lower large intestine showed so great vascular injection as to leave no doubt of enteritis mucosa; no intestinal ulcers; no fibrinous clots, though fibrin soon coagulated after flowing out, forming a thick, buffy coat. Osseous system normal; no globules of M. to be found; traces of it on chemical analysis in urine and bones.

2. a. Dr. HANDFIELD-JONES gave a healthy cat 5 gr. of hydr. c. cretâ, and examined body after killing it by a blow on the head. No evident effect was produced on the liver, save considerable congestion.

b. To 2 cats he gave 3 doses each—at 12 h. intervals—of 3 gr. of calomel, and killed them 14 h. after last dose. Besides being greatly congested, liver showed an enormous accumulation of oil in the cells of the parenchyma; and also of a yellowish matter, not only in the cells, but free in their intervals.

c. To a kitten 2—3 weeks old he gave 7 gr. of hydr. c. cretâ. The lobules of the liver on their margins where they bound the fissures and spaces were decidedly tinted with yellow matter, which contrasted remarkably with the pale, granular, and oily condition of the larger remaining parts.

"These observations leave no doubt on my mind that the action of mercurials on the liver is to produce a greater quantity of yellow matter in the cells. . . . Jaundice has been known to come on during a mercurial course, and apparently as an effect of the medicine. I have at present a patient under my observation who reports her jaundice to have appeared after taking a 6-gr. calomel pill. These statements are in accordance with the experiments I have detailed,—the animals to whom I gave M. had jaundice of the liver." (*Med.-Chir. Trans.*, xxxv, 251, &c.)

3. The early experiments of Murray were taken to corroborate the theory of "cholagogue" action, for after giving purgative doses of calomel to dogs, he found increased discharge of bile, mucus, and serum from the bowels. Buchheim also reported an increase in the amount of bile discharged by dogs with biliary fistulæ. Although these observations show an increased discharge of bile under calomel, it is clear that they do not necessarily prove an increased secretion by the liver-cells, and therefore experiments as to this point were undertaken. Kölliker and Müller, after giving calomel to dogs with biliary fistula and collecting the bile discharged, reported contradictory results—the secretion being in one instance increased, while in two it was diminished (1855). Scott, experimenting with large doses of calomel on 4 dogs (also with fistulæ), recorded diminution of both solid and fluid biliary constituents in all the animals (*Beale's Archives*, i, 1858). Mosler, with two dogs,

obtained a similar result (Virchow's *Archiv*, xxxii); and Hughes Bennett, reasoning from the experiments of the Edinburgh Committee, announced, as a positive fact, that M. really lessened the biliary secretion. These experiments were made upon 41 animals, but results considered satisfactory were only obtained in 9 instances. In 4 of these calomel was used; a permanent fistulous opening into the gall-bladder was very carefully effected, and about 14 d. afterwards the bile was collected on a sponge. The first dog, before taking any drug, secreted a daily average of 82 gr. bile-fluids and 5 gr. of bile-solids; after taking 4—12 gr. of calomel daily, it secreted only a daily total average of 60 gr.; but it must be noted that the animal's condition was much impaired; it took little food, and soon afterwards died. The second dog got smaller doses ($\frac{1}{2}$ gr.) every hour; the general health became affected, and it soon died; the average bile-secretion was about the same before and after giving the drug. The third dog received some blue pill in addition to the small doses of calomel, and the bile average was diminished one half; the animal suffered much. The fourth dog got purgative doses, with an average bile-diminution whilst under their influence; on one d., however, when blue pill was given, the average was increased (*Brit. Med. Journ.*, 1869, i). Such results scarcely warranted Dr. Bennett's conclusions, which were indeed publicly contradicted by Christison, Fraser, and other members of the same committee. Rohrig (of Kreuznach) reported that large doses of calomel slightly increased the biliary secretion (*Stricker's Jahrb.*, ii, 1873); but we may take the more recent experiments of Rutherford and Vignal (*Brit. Med. Journ.*, 1875-6, ii; *Pract.*, Dec., 1879) as showing, so far as experimental research can show, that the drug does not really do so. They proved (1) ^v that doses of 10 gr., 5 gr., or 2 gr., several times repeated, placed (without bile) in the duodenum of a fasting dog, produced a purgative effect varying with the dose, but so far from increasing bile-secretion, usually diminish it; (2) that there is no difference in the result if the calomel be given in 1-gr. doses, several times repeated, mixed with bile and introduced into the duodenum." (PHILLIPS, *op. cit.*)

4. PREVOST and BINET have published (1888) the results of most exhaustive inquiries into the subject, controlling and testing the results of all previous experimentation, particularly that of Rutherford. The method employed was to establish a permanent fistula from the gall-bladder, the track of which was opened from time to time for the experiments. In confirmation of the statement of Rohmann, the infliction of biliary fistula has been consistent with the preservation of good health in the animals, if only fat is withdrawn from the diet. In regard to calomel, it was found to be among the substances which diminished the secretion. (*Rev. Méd. de la Suisse Rom.*, May—July, 1888.)

5. In acute mercurialism, intestinal catarrh with extremely abundant evacuations is one of the accidents which most frequently supervene; it is mentioned by the majority of experimenters who have studied the effects of M. on animals. (HALLOPEAU, *op. cit.*)

6. In addition to albumen, sugar may also be found in the urine

after the use of M. This was proved by experiments upon animals made by Saikowsky and Rosenbach. (*LEZWIN, op. cit.*)

7. We have witnessed most of the curious experiments which M. Bretonneau has made upon animals with the view of defining the nature of the accidents which M. can cause. A dog which he had caused to take large quantities endeavoured a few d. afterwards to copulate with a bitch in heat. The mechanical irritation which resulted led to the formation of a small sore on the prepuce, which inflamed violently, became the seat of an enormous ulcer, and ended in gangrene. (*TROUSSAUD et FIDOUX, op. cit.*)

Mercurius corrosivus, mercuric chloride, $HgCl_2$, corrosive sublimate.

1. *Proving.*—1. a. Dr. J. BUCHNER, æt. 34, took, Sept. 7th, 1847, 8 a.m., 10 dr. Merc. cor. 2. 10 a.m., feeling of urging to urinate in urethra, with scanty discharge—later no call though bladder was full—after micturition persistent sense of fulness in bladder. Noon, dull pain in r. frontal eminence, tenderness to touch of l. angle of inferior maxilla. N. very restless, frequent waking, slept only 2 or 3 m., then woke, changed position, tossed about. M., great prostration and malaise, so that after shaving had to lie down again and slept 1 h.; cold hands and feet, increased pain in inferior maxilla, dysphagia, so that he could eat no bread at breakfast, flow of viscid saliva which he could scarcely spit out. He went about his usual business, but on account of increased coldness, flow of saliva, dysphagia, &c., he had to go to bed at 10 a.m. and apply warm wraps to his feet. He got warm very slowly and then had confusion of head, except in temples, the salivation continued and the inflamed state of lower jaw. After 1 h. head heavy and confused; he could not speak connectedly, and could not express his sensations distinctly. He noticed his unconnected speech and was vexed at it, so that he remained silent some time. At same time great restlessness, he could not lie long in one position, and had to get up. In afternoon digging and shooting in l. ear so severe that for 3 m. he wept and cried aloud. Later the same symptoms in a slighter degree. N., slept only for minutes at a time. Urine scanty, red, with brick-dust-coloured sediment; ill-smelling sweat towards m. At same time pricking rheumatic pains in lower extremities. The symptoms lasted 4 d., the sweat 6 d.

b. After 3 months took 20 dr. and dil. Soon, burning and heat in stomach with contractive pains involving bowels, at same time congestion of heart and anxiety until he had a loose stool. The symptoms lasted 16 h.

c. Dec. 12th, 1846. Rubbed into l. forearm $\frac{1}{4}$ gr. Merc. cor. dissolved in alcohol. Woke about midnight, tossed about for 3 h. Confusion of sinapit with undulating pain in both cerebral hemispheres. Interrupted sleep in m.

d. Rubbed $\frac{1}{4}$ gr. into gums. M., slight bleeding of gums and drawing pains in teeth.

e. The same dose in clyster caused long-continued tenesmus. (*Alg. Zig. f. Hom., i, Suppl. 78.*)

2. Dr. FORSTER took, 25th Nov., 1847, 10 a.m., 2 dr. of a solution of $\frac{3}{8}$ th gr. Merc. cor. in 110 dr. alcohol. No effect.—26th, 10 a.m., 4 dr. No effect.—27th, 10 a.m., 7 dr. On waking, m., peculiar pressive pain in r. inguinal glands, as though they would swell; this lasted 1 h., and went off on getting up.—28th, 10 a.m., 10 dr. During d. frequent urging to stool, increased discharge of flatus.—29th, 8 a.m., 15 dr. After dinner faint feeling and great exhaustion.—30th, 10 a.m. and 10 p.m., 20 dr. No effect.—Dec. 1st. No medicine, 5 a.m., tensive pressive pain in l. inguinal region, with sense of swelling of glands. N., restless, sleep frequently broken, vivid dreams, pulse febrile, skin dry. After rising, transient stitches through both sides of chest, bruised feeling in abdomen, particularly in caecal region and in course of transverse colon; on pressure these parts feel as if bruised. This pain lasted all forenoon, got better towards e., but did not go quite off.—2nd, 10 a.m., 10 dr. 1 p.m., after dinner febrile pulse, drawing pain in pericranium. Frequent darting stitches through chest, bruised feeling in caecum and transverse colon increased by pressure. E., irritation in larynx causing dry cough, throat dry.—3rd. No medicine. Irritating cough as yesterday, abdominal pain less. Great irritability of larynx.—4th, 9 a.m., 5 dr. Afternoon, feeling as if l. axillary glands would swell, with frequent transient stitches in them. Cough gone. (*Ibid.*, 79.)

3. a. Dr. GERSTER, *xt.* 34, took, Aug. 1st, 1847, m., 5 drops of Merc. cor. 2, without knowing what it was.—2nd, m., 10 dr. Experienced a styptic metallic taste for 1 h.—3rd, m., 20 dr. Same symptoms.—4th, 30 dr. After 3 h. slight vertigo, confusion in upper part of forehead, yawning, objects appear smaller and farther from eye than usual, for several h. All afternoon drowsy, heavy and confused head, desire to lie down. N., dreams of incendiarism and murder. Stool smaller and firmer than usual.—5th, 7 a.m., 40 dr. Soon, slight burning and pressure in stomach, followed by frequent eructations of air. After 1 h., confusion of head, frequent yawning and desire to stretch himself, slight burning and dryness of eyes, conjunctivæ of both eyes red and much injected. Same delusions of vision as yesterday. Humming in r. ear, to which he was accustomed, became much louder. Symptoms relieved by eating. No stool.—6th, 40 dr. No symptom except slight burning (in stomach?) for $\frac{1}{4}$ h. The next 3 d. the stools were harder, drier, and smaller than usual, and the 3 following d. softer and moister than usual.

b. October 16th, m., took 10 dr. of a solution of $\frac{1}{4}$ gr. Merc. cor. in 3j alcohol. Immediately an astringent metallic taste, followed by slight burning in stomach, then slight congestion of head and face with burning of cheeks and uncommonly great discharge of flatus. After 2 h. all objects, especially letters, appeared smaller for several h. After 4 h. burning at edges of eyelids like commencing catarrhal ophthalmia; photophobia in sunshine.—18th, m., 15 dr. Nothing but the metallic taste and burning in stomach.—19th. 20 dr., astringent taste, flow of saliva and several attacks of rigor, then burning in stomach for $\frac{1}{4}$ h. During d. frequent attacks of spasmodic cough.—20th. About the same as yesterday.—21st. Same, and also two clayey, light yellow

stools.—22nd, 7 a.m., 14 dr. Metallic taste and rigor whilst and after swallowing the dose; slight burning in stomach for $\frac{1}{2}$ h. 11 a.m., burning in eyes. Objects all appear smaller and more distinct. This occurred several times during d., especially after yawning, which he required to do all d., though he was not sleepy, and had slept well the previous n. No stool.—23rd. Quite well. (*Ibid.*, 80.)

4. Katherine H.—, æt. 21, took, October 16th, 1 h. before breakfast, 10 dr. of a solution of $\frac{1}{2}$ gr. Merc. cor. in ʒj alcohol. Astringent taste.—18th. 15 dr., astringent taste and rough feeling in throat.—19th. 20 dr., astringent taste, flow of saliva, burning in stomach till dinner, shooting headache in frontal region for 1 h., nausea and inclination to vomit all d.—21st. 25 dr., astringent taste and flow of saliva for several h., then a transient rigor, several fits of spasmodic cough during d. (*Ibid.*, 82.)

5. Dr. HALD, æt. 27, July 26th, 7 a.m., 2 dr. 2nd dil. Merc. cor., not knowing what it was. Towards e. slight chilliness with short hot fit. Slept badly.—27th. 2 dr., very exhausted. Afternoon, cutting in bowels and slight drawing in ossa femoris; legs felt gone asleep. Frequent starting up in sleep at n.—28th. 2 dr., after some h. toothache, which gradually increased and tore from supra-orbital region to superior maxilla. This lasted all d., and was accompanied by chilliness of head and shooting pains in adductor and extensor pollicis of hand and extensor muscles of foot. Afternoon, several watery stools with cutting in bowels. All d. very depressed in spirits. Could scarcely sleep at n. for the toothache, which increased, and if he did sleep he had a feeling of anxiety.—29th. The pains increased from 7 a.m. so that he took no more of the med. Forenoon, several bilious stools, with violent pains in bowels and troublesome tenesmus.—31st. 2 dr., the same kind of toothache for several h., confusion of head. N., could not find a comfortable position to lie in, so was rather sleepless.—Aug. 1st. 1 dr., the toothache increased; headache involving temples; in l. ear, which was painful, full pulsation of arteries; throat rough; gums of last incisors began to swell with burning pain. E., drawing in limbs deeply seated as if in bones. N., sleepless till m.—2nd.—Left off med. on account of toothache, prostration, and painful swelling of gums. Next d., the head was confused, the toothache continued in lessened intensity, as also the drawing pains in cranial bones.—4th. 2 dr.; 4 p.m., with borborygmus 3 pappy brown stools. When at rest shooting in hip-joint relieved by movement. E., chilliness, especially in head, anorexia, thirst. N., sleeplessness and frequent starting on going to sleep.—5th. 2 dr., same symptoms in increased intensity, chilliness in head, pains in temples, shooting in muscles of lower limbs; great pulsation in ears, especially l.; eyes painful; tearing burning pain from teeth of upper jaw to eye; roughness in throat, tiresome pressure in stomach. Afternoon, several bilious stools with tenesmus. N., could not sleep on account of anxiety; burning in orifice of urethra.—6th. 2 dr., pressive burning pains in eyes, vessels of conjunctiva slightly injected, pain in temples, pressure above l. eye. Tearing pains from l. eye to incisors, burning pain in mouth, throat rough, difficulty of swallowing. In lower part of r. side of thorax

shooting pain; painful pressure in stomach; cutting in bowels followed by thin bilious stools with straining. Violent itching in orifice of urethra, changing to smarting during micturition, sore stitches through urethra. Pressive shooting pain in hip-joint. Skin equally sore when moving and at rest. Slighter pains in other limbs. No appetite, thirst great, stomach tender. E., intellect so dull could not understand what was said. Before going to sleep, chilliness of head. On falling asleep, which he did later, a shock through whole body; could not sleep again on account of heat and pressure in chest with anxious feeling. N., the gums round r. incisors swelled.—7th. No more med. Felt rather unwell, no appetite, great thirst, burning pain from mouth to stomach, relieved by drinking cold water. Roughness of throat increased; coryza. Afternoon, bad-tempered, toothache and swelling of gums continued.—8th. Woke pretty well, the only symptoms being burning in throat, toothache, and coryza. Afternoon, darting stitches in hip-joint. The swelling of gums lasted 2 d. longer, as also the roughness in throat. (*Ibid.*, 82.)

6. Dr. J. NÜSSER, æt. 36, took, September 27th, 1847, 10 a.m., 10 dr. 2nd dil. During d. the following symptoms were observed in the order here given: Itching in l. eye, tension about l. scapula, itching between r. big toe and next one, burning-shooting in middle of r. side of chest as if in muscles, slight shooting in middle of liver, pinching-shooting in upper part of abdomen as if in muscles, shooting in l. parietal bone, slight shooting-drawing in l. inguinal region, scraping roughness in pharynx, making him hawk frequently, tearing in l. zygoma, shooting in head of l. hip-joint towards outside, shooting pain in gastric region after food, painful griping in middle of l. testicle (continuing next d.), painful tearing in bone of proximal joint of index and ring fingers and thumb (continuing next d.), itching in several parts of skin (scalp, thighs, &c.), often changing to pricking and burning, itching, burning, and pricking under skin in various parts, on breathing deeply shooting in upper part of l. side of chest internally, itching in anus; when walking, itching, changing to pricking, in skin of middle of back, tearing in upper part of inner side of l. scapula as if in bone, tearing-shooting in a back tooth, extending thence into ear, tearing as if in bone about l. eye near root of nose, and in other bony parts, cutting in abdomen and above navel after food, simple pain in hypogastrium, tearing inwards in l. calf, burning-tearing in l. upper eyelid, then tearing in l. arm while standing, trembling of this arm and of the whole l. half of body; all d. frequent obtuse shooting in upper part of l. side of chest internally, worst when breathing deeply, frequent tearing pain in lowest r. costal cartilage. E., weariness of feet and drowsiness.—28th. Slept well till 3 a.m., but with dreams of ridiculous situations, of travelling, &c. M., after breakfast a liquid, yellow, painless stool, with frequent tenesmus, followed by inclination to go to stool, shooting in hepatic region. Noon, pinching on r. side of navel, tearing in r. hip-joint.—29th. Slept well till 3 a.m. Voluptuous dreams, violent erections in sleep and after waking, during coitus tardy emission of semen. After midnight tearing in middle of sternum. M., pricking in scrob. cordis, normal stool. Afternoon, cutting in abdomen with

slight call to stool. The 2 last d. constant dryness at back of nose, as if in upper surface of velum palati, chiefly in open air, and tearing frequently in l. shoulder. Many of the symptoms aggravated by walking in open air. E., shooting in interior of l. ear, shooting in upper part of r. side of chest, cutting below navel after eating sour apples, when walking in open air, with slight call to stool. From commencement of proving till now occasional soreness of uvula.—30th. Sleep with many disagreeable dreams. Though for 3 d. he had only slept till 3 a.m., yet he did not feel tired or sleepy. M., violent erections and sexual desire, after coitus burning in fore part of urethra and feeling of strength and lightness. 9 a.m., after micturition slight shooting in fore part of urethra and in sphincter ani. From 8 to 10 a.m. shooting in fore part of urethra when walking in open air, then itching in anus. Noon, when eating beef and vegetables, shooting deep in chest, as if in lower part of œsophagus, as though something stuck there that distended the œsophagus and could not go down, he could swallow food and drink, but the pain was increased by swallowing, as also by eructation of air, this was followed by cutting in r. side of upper part of abdomen. E., when walking return of shooting in fore part of urethra and pricking in l. testicle, also sharp shooting in tip of l. thumb.—Oct. 1st. Sleep restless and only till 3 a.m. M., normal stool, tearing in l. metacarpal bones, itching in skin, changing to pricking and burning, tearing in bones (finger-joints, hip-joint, &c.), shooting in lungs, liver, and testicles.—2nd. Slept till 3 a.m. During d. unusual shooting in r. testicle.—3rd. Slept all n. After smelling Merc. c. 3 shooting in hepatic region. The symptoms lasted till Oct. 9th. He only slept till 3 a.m., but did not feel fatigued in consequence. He always had cutting in bowels after eating fruit or potatoes. The sexual desire diminished, he had often cutting in urethra. His disposition was cheerful, and he felt increased facility in mental work. (*Ibid.*, 84.)

7. Dr. PEMERT's proving lasted from 15th to 25th Aug. He took the medicine, Merc. cor. 2, daily, $\frac{1}{2}$ h. before breakfast.—15th. 5 dr., no symptoms.—16th. 12 dr., greasy, scrapy taste. After 2 h., when walking, anxiety, discomfort in vesical region as before stool. After 3 h. a peculiar contractive, twitching pain in some muscular fibres of the r. rectus abdominis near navel, lasting 3 m., and frequently returning. After 5 h. dryness of mouth, greasy and nauseous feeling in mouth, but without loss of appetite. Discomfort in umbilical region, no stool.—17th. 18 dr., felt sick on taking the dose. After 1 h. some nausea, inclination to vomit, confusion of head, especially over eyebrows. Soft stool at noon. 5 p.m., the discomfort in lower part of abdomen recurred in increased degree.—18th. 25 dr., same discomfort and pain in hypogastrium and rectus muscle. Normal stool.—19th. 30 dr., after 2 h. peculiar lax feeling in deltoid muscles. He had felt the same sensation on the 16th and 17th in calves and muscles of thighs. Twitching of some muscles in calves (inner side of gastrocnemius). Twitching contractive pains in muscles of r. metacarpus.—20th and 21st. No symptoms except twitching in rectus abdominis.—22nd. 36 dr., no symptoms.—24th. 30 dr., rheumatic pains in r. deltoid muscle when walking. M., 2 soft stools. Urine scalding.—25th.

Twitching-pricking pain in muscles in r. hypochondrium and in muscles of r. eyeball, also in umbilical region. For some d. afterwards felt the twitching contractive pains in some fibres of the r. rectus abdominis muscle. (*Ibid.*, 91.)

8. Soon after the second dose of 12½ milligrammes, sensation of obstruction and anxiety in the præcordial and epigastric regions, then several palpitations. After the third dose, general sick feeling; some pains in the stomach; transitory colic; sensation of weakness and shuddering in the limbs; palpitations. After the fourth dose, painful twitchings in the stomach; weariness of the limbs and trembling when he rises and stands still; great anxiety; frequent palpitations; vague chilliness; sensation of coldness; paleness of face; some nausea; distension of abdomen; borborygmi; colic with tenesmus and 6 stools during the n. On the next d. there remained only some sick feeling and less appetite than usual. Three d. later the experiment was again made in the same way; the same effects were again manifested, only more intense, especially the anxiety, paleness, inclination to chilliness, weariness of the limbs, and the tenesmus. In addition to this, he had several attacks of vertigo, and twice spasmodic vomiting of serous-like fluid, not preceded by nausea. It required 2 d. before he was again *in statu integro*, and he had no desire to make a third experiment. These doses were given fasting, or at least 4 h. after a meal. (MAGISTROY, in *Arch. Gen. de Méd.*, ser. iv, xi, 58.)

9. To ascertain effects of M. on nutrition in healthy subjects, Liégeois injected 4 cgrms. daily of M. cur., subcutaneously, on four subjects of soft chancre. They gained considerably in weight. (*Gaz. des Hosp.*, 1869, p. 350.)

II. *Faisnings*.—1. May 22nd, 1815, about 5 p.m., I dipped my hands repeatedly into a very concentrated solution of corrosive sublimate to take out some anatomical preparations. I forgot to wash my hands, and went about my other occupations. About 11 p.m. I went to bed perfectly well, and was awakened about 1 a.m. by violent pains in the epigastrium, which rapidly increased to a frightful intensity, somewhat ameliorated by bending the body. They were especially severe in the region of the stomach, and seemed to spread thence over the whole diaphragm. The abdomen was rather sunken and painful to pressure; constricted feeling in the entire thorax; respiration costal, obstructed and irregular; mouth dry, thirst considerable, forehead, temples, chest, and hands covered with sweat, and having an unpleasant feeling of coldness in them. I was in this condition about 1½ h., when repeated eructations and nausea ensued. I made an unsuccessful attempt to vomit, and then for the first time remembered the sublimate. Putting my fingers to my tongue, I perceived by the sharp taste that I had forgotten to wash them, which I did now as quickly as possible and drank a quantity of sugar-water. About 2 I finally vomited repeatedly, and at first very profusely. The vomit was slimy, thick, and had a metallic taste, very acrid, causing a painful constriction of the fauces. Epigastrium very sensitive to touch, and the slightest pressure caused most violent pains. The vomiting ceased towards 4 o'clock. The umbilical region became somewhat painful, and I had

three very liquid stools, with tenesmus. Towards 5 I slept, and awakened about 8, with a dry mouth and skin covered with sweat, but I no longer had the feeling of coldness on the forehead, in the umbilical region, and in the hands. The disposition to vomit was gone, but the epigastrium was still very painful. I took that d. only six cups of bouillon and three dishes of rice-water. The next day I was able to return to my duties, but an unpleasant feeling remained in the epigastrium for 8 d. (CLOUET, in Huber, *op. cit.*)

2. A lady had struck the left leg against a door, some ten years before, so that she could not lie upon it. Subsequently a hardness appeared on the place, which a quack treated with two caustic plasters. On the e. of May 7th he sprinkled upon the place grs of sublimate, with the direction not to remove the plaster before 4 a.m. Meanwhile the lady was attacked with such an intolerable pain that she walked the room as if crazy, and uttering loud screams. Up to the next e. there were added general cramps and convulsions of the hands and feet. 9th.—Retching and actual vomiting. 10 and 11th.—Swelling of the throat, which increased in the n., so as to threaten suffocation. On the 12th Degner was called, and found her head and neck very much swollen; the tongue rigid and swollen; the throat so inflamed that it was only with difficulty she could speak or swallow; the teeth loose; the breath mercurial; on the leg a crust a handbreadth wide and twice as long; below the scab an open sore the same size; and about the affected locality a great inflammatory swelling. 13th.—With the rest, the throat continued so swollen that she could not swallow any fluid; besides heat in mouth and throat as from red-hot coals. 14th.—Having expectorated clots of blood, the patient pulled the membranes from the roof of the mouth with her fingers, causing so great a hæmorrhage that Degner feared she might die, in consequence, that very d. The apothecary, on calling that e., found roof of mouth, throat, and tongue so swollen that she could scarcely speak; in the fauces an ulcer the size of a pea, and on l. side of soft palate a fissure; loose teeth and profuse salivation. 15th.—Condition the same; salivation profuse; diarrhœa, the excrement having the same odour as the mouth. Next d. throat seemed less swollen externally, but face and cheeks were swollen as much, and hard. 17th and 18th.—The same pitiable condition. Pain in stomach; inclination to vomit; sleeplessness; bloody salivation; headache, especially about temples. The next d. the patient complained greatly of slight delirium; she did not know what she was about. 20th.—Increased delirium; she could scarcely be moved any longer, and refused both medicine and nourishment on account of the pain in swallowing. The next d. worse. Beside the daily expectoration of clotted blood and membranes from the mouth, weakness, which would not permit her to get up; constant salivation. 23rd.—No improvement. The next d. swelling in r. cheek was less, but not the hardness. In the n. of 24th to 25th a tooth fell out of itself. 25th.—Salivation less. Weakness and delirium increased. In m. pulse imperceptible; salivation less; she seemed to sleep a little, which had not been the case previously, waking in a fright, and no longer complaining of pain. 27th.—No pulse. Great anxiety. At

n. she wept bitterly, and her cries filled the house. 28th.—She died at 7 a.m., unconscious, with distortion of limbs. During the whole time there was no fever, and the urine was natural, with a white sediment. The surgeon who attended to the dressing of the limb said that not only were the cheeks, gums, palate, and throat ulcerated, but the maxillary bones were exposed also. Autopsy not permitted. (*App. ad. vol. vi Act. Nat. Curios., Norimb. 1742; p. 22.*)

3. Two servant girls, who had had an inunction over the whole body of sublimate ointment for itch, got a vesicular erysipelatous inflammation of the skin, with vomiting, diarrhoea, and tenesmus; also ulceration of the buccal mucous membrane, without salivation. Both died in spite of medical treatment; the one after 4½, the other after 6 d., having had formication of the extremities, but no convulsions or sensorial disturbance. In both corpses, the epidermis was found loosened in various places, the corium highly inflamed. Serous and mucous membranes of stomach and small intestine as well as the omentum were inflamed; the mucous membrane of larynx and trachea cinnabar-red and covered with reddish mucus. In the one who died first was found redness of the mucous coat of the bladder and ureter; intense hyperæmia of the kidneys; two purulent deposits in the region of the pelvis of the l. kidney; congestion of the uterus and tubes, and in the vascular territory of the venæ cavæ, of the coronary veins and cerebral sinuses. In the other an inflamed place on the serous covering of the liver; bloody serous exudation in the pericardium and mediastinum; inflammation of endocardium and of endothelium of large arteries. Only in the kidneys of the first was M. chemically detected. (*Casstatt's Jahresh., 1864, B. 5, p. 106.*)

4. A merchant from Liège, æt. 30, of strong constitution, who had never been sick, went to Paris on business. Aug. 6th, 1813, he got a slight diarrhoea, without known cause, which lasted 3 d. and was cured with ipec. On the 13th, seeming to be fully recovered, he drank, about 3 p.m., from a glass without any mark upon it, containing a solution of sublimate in alcohol. The horrid taste disgusted him so that he broke the glass. An astringent feeling in the throat and frightful pains in the epigastric region were the first symptoms. The physician came at 3.50 p.m., and was told that the man had vomited much green, bitter, not bloody matter, and had had 3 stools. His condition was as follows:—Dorsal decubitus; red, swollen face; very restless; sparkling eyes; contracted pupils; reddened conjunctiva; dry, cracked lips; rather moist, yellow-coated tongue; frightful pains in the entire alimentary canal, especially in the pharynx; abdomen distended, especially painful to pressure. The vomiting had ceased, but the diarrhoea continued. Pulse 112, regular, small, contracted; burning hot skin, especially on the forehead; respiration obstructed; infrequent and difficult micturition, urine red; perfect consciousness; inclination to sleep; occasional spasmodic movements in muscles of face, arms and legs; persistent cramps in all extremities. (White of egg water; 20 leeches to epigastrium; two cold, laxative clysters). About 5, decided improvement; he had taken all the drink (6 lbs.), vomiting profusely, and had had four stools. He got 4 lbs. of a decoction of linseed to

drink. About 6, vomiting, cessation of cramps, pulse 100. About 9, very imperfect sleep. About midnight, biting in anus, bloody stools, severe pains in sigmoid flexure, pulse 125, small, contracted. (Ten leeches along descending colon; two clysters with laudanum.) Vomiting; 4 much less bloody stools; almost sudden cessation of pain; inclination to sleep. On 14th, about 8 a.m., less distension and less painfulness of abdomen; tongue moist; no inclination to vomiting or diarrhoea; pulse 96; skin less hot; cessation of cramps; consciousness perfect. *E.*, pulse 106; extreme heat of skin without increased pains (narcotic clyster). On 15th, he felt much better; had slept part of the n. and wanted to eat. Tongue moist; pulse almost normal; great weakness; at e. the same condition. On m. of 16th, having slept well, he complained only of trifling, not persistent, pains in epigastrium; appetite good. On 17th and 18th, condition the same. On 21st, convalescence set in, and on 31st, he returned home quite cured. (*ORFILA, Vir., sub voce.*)

5. *a.* May 6th, 1825, about 11 p.m., a woman was found by the physician in the following condition:—She lay in bed with the limbs relaxed; skin cold and covered with sweat; face pale; eyes dull and heavy, with dark rings surrounding them; an expression of pain and horror, as one might feel who lives but to die. Whitish, contracted lips and tongue; great thirst; swallowing so difficult and painful that the least liquid caused contractions of œsophagus and stomach followed by vomiting of whitish, slimy, stringy, and subsequently green bilious matter. Pressure on the throat was painful; burning along whole œsophagus. Skin of abdomen cold; pain in epigastrium on slightest pressure. Diarrhoea, with intense urging and smarting. She complained of great burning and intolerable pains in stomach. Pulse slow, weak, thready, almost imperceptible. Respiration very slow. On the floor, in various places, lay patches of white slimy matter, seemingly vomit. Under a table in a corner there was a wet place strewn with a white powder, having the taste and look of sublimate. (White of egg water, 30 leeches to epigastrium, 20 to neck, and a large poultice to abdomen.) At 8 a.m. she could speak more easily; pulse fuller and skin warmer. Noon.—Depression greater; sensibility gone in lower half of body. She had had a cold sweat. About 5 p.m. she died, retaining her consciousness to the last. There was no trace of delirium observed at any time.

6. *Autopsy*, 17 h. after death.—A very fat, large corpse. Rigor mortis very great; body cold; upper extremities semi-flexed, lower ones extended. No trace of ecchymosis in skin, connective tissue or muscles. Vessels of dura mater slightly injected. Arachnoid injected, especially on l. side; some bloody serum in cerebral ventricles; brain substance slightly injected and firmer than natural. Tongue thick, with large papillæ and glandulæ mucosæ, the latter almost as large as a small pea; inside of larynx violet-coloured and injected; on lower surface of epiglottis a gangrenous-looking spot. Trachea rose-red; bronchi and their ramifications still more manifestly inflamed; lungs crepitant and their substance reddish; 4 oz. of reddish serum in pleuræ. Heart larger than normal; both sides enlarged; the walls thickened;

the endocardium not reddened. Pharynx red; velum strongly injected; an ecchymosis on back of uvula; œsophagus almost normal, except in its lower third, where congestion begins, increasing toward stomach, which was small and thickened; its external surface brick-red; under the serous membrane a number of little ecchymoses, giving it a marbled appearance; its veins distended with air; its internal surface throughout blackish-red, especially on the folds formed by its contraction; its mucous membrane easily torn; contents greenish; between the folds a considerable number of whitish granules resembling sublimate or calomel in appearance. In the duodenum very much fainter traces of inflammation; it was filled with green bile. In the omentum many ecchymoses along both curvatures of stomach. In the other intestines nothing noteworthy, and only in the rectum some traces of congestion. In the pelvic cavity about 8 oz. of sanguinolent fluid. Liver, spleen and kidneys normal. In the r. ovary an ecchymosis an inch in size. Chemical examination of the powder found in the room discovered sublimate. Neither in the vomit nor in the contents of the stomach was there a trace of sublimate; but metallic mercury was demonstrated by various methods, a proof that the sublimate had combined with the albumen, milk, &c. (DEVERGIE, *Arch. Gén. de Méd.*, ix, 463, 1825.)

6. *a.* SARAH WILD, æt. 49, sanguine-melancholic temperament, took, with her four children, nearly 2 dr. sublimate, about 7 a.m., Dec. 26th, 1816. In her the following symptoms occurred:—Great thirst, violent pain in præcordia, pulse small, tremulous, rapid; great heat and extreme soreness in pharynx, with dysphagia; in swallowing a little liquid the raw feeling becomes very severe. Incessant and violent vomiting of blood and matter the colour of coffee-grounds; repeated and very offensive stools. After 18 h., change of the pain to the umbilical region for 8 h., thence to the lumbar region till death. Entire lack of pulse 12 h. after the poisoning; even the heart beat in an undulatory, tremulous manner. Brain apparently very much affected. Pupils scarcely sensitive to the strongest light; tongue clean. No urine. Sensible to the last moment. After great suffering death ensued 31 h. after poisoning.

b. Autopsy.—Face frightfully disfigured, skin of back and sides purple. Mesentery and peritoneum highly inflamed, considerable effusion in abdominal cavity. Gall-bladder very full and large. Liver covered with pale livid spots the size of a sixpence. Bladder contracted to size of a walnut; uterus inflamed, but not larger than in women who have borne several children. Stomach not much distended, but very livid along the greater curvature, with a portion of the omentum adherent, and containing a large mass of dark grumous fluid. At the cardiac portion a circular black place 3 in. in diameter, involving all the tunics and easily penetrated with the finger; internal surface very much inflamed, the rugæ a deep carmine, the remainder scarlet. (VALENTINE, *Edinb. Med. and Surg. Journ.*, xiv, 468.)

7. SARAH, daughter of the preceding, æt. 3, began to purge violently 3 h. after the poisoning. Discharge of large masses of bilious matter by vomiting and stool. Pulse small, uncountable; extreme thirst, persistent ischuria. Distressing pains till 6 p.m., then sudden quiet and

death 12 h. after the poisoning. *Autopsy*.—Skin dark crimson colour, nearly purple. Omentum and intestines highly inflamed; kidneys not so much so. Mesentery full of red blood. Bladder firmly contracted. Marked exudation of bile on the concave surface of the liver; gall-bladder nearly full of bile. Stomach deep scarlet within, from cardia to pylorus, with a black circular place in the region of the former, about the size of half a crown, its edges indented and involving nearly the whole thickness of the stomach, which was not very full of a milky fluid. (*Ibid.*)

8. WILLIAM, æt. 11, vomited profusely, at times easily and again with pains, especially in the region of the scrobiculus and navel; dysphagia. After 12 h., coffee-ground coloured vomit of clotted blood and violent purging of coagulated lymph, clots of blood, and a delicate transparent membrane. Great thirst, deep lethargy, pulse small, trembling, and weak; very scanty urine. To the last moment sensible. No radial pulse 12 h. before death, which occurred 24 h. after the poisoning. *Autopsy*.—External appearance as in 7. Eyes more sunken, dark colour of the back, peritoneum very much inflamed. Intestines extremely inflamed, partially livid; one third of the liver almost colourless, gall-bladder very much distended; large serous effusion in the abdominal cavity. Bladder firmly pressed down on the pubic bone, the size of a walnut. Stomach greatly distended and filled with a black grumous mass; the cardiac portion, far more than in the two preceding cases, destroyed; a black circular spot 3 in. in diameter, whence a general inflammation extended over the whole internal coat. Deep scarlet, almost crimson, redness, especially of the rugæ; the greater curvature yellowish, livid, and very soft externally. (*Ibid.*)

9. GEORGE, æt. 8, vomited violently and incessantly a sticky frothy mucus; great pain in pharynx, complete dysphagia, great restlessness, violent pain in scrobiculus, pulse rapid and weak, no urine. Within 6 h. repeated urging to stool, with discharge of great circular pieces of coagulated lymph. 27th.—Very bad n., complained greatly of severe pains about the navel; vomiting less severe, extremities cold, intense thirst, tongue red and burning, coma, pupils insensible, pulse weak and small. Stool livid, grumous, and offensive, abdomen very painful to the slightest touch. Urine scanty. 28th.—Complete stupor, pulse barely perceptible, frequent vomiting of a blue slime, like dissolved blue pill; great restlessness, moderate stool, dirty, hard, containing a worm. 29th.—Death at 5 a.m., about 90 h. after the poisoning. *Autopsy*.—7 h. after death. Quiet aspect. Eyes open, no discoloration of front part of body, no special distension of abdomen; subsequently carmine redness of shoulders, back, and hips. After sawing through the skull the calvarium was raised with difficulty, and only after cutting through the dura mater, on account of its very extensive and strong adhesions. All the vessels of the dura and pia mater, one sinus lateralis and one sinus posterior, strongly injected with red blood, as also the medullary portion of cerebrum and cerebellum, and most of the choroid plexus. No unusual quantity of fluid or perceptible disorganization in either of the ventricles. Lungs redder than usual at that age. About 1 oz. of watery exudation in the pericardium, and about the same quantity in the

pleural cavity; heart firm and of natural appearance. Peritoneum extremely vascular. Omentum almost gone; its remainder, along with the intestines, injected with bright red blood. Gall-bladder nearly full of bile. Liver natural in its appearance, but its peritoneal covering, like that of the mesentery, strongly injected. Bladder shrivelled, very small and empty; kidneys inflamed. In the stomach a pint of bluish material, and the following lesions:—In the cardiac portion, a black circular place, about $\frac{1}{4}$ in. in diameter, whence, as from a central point, a uniform bright redness spread over the whole inner coat. The very large and numerous rugæ more inflamed than the other parts; the texture of all the coats completely destroyed, only the peritoneal coat remaining upon washing away the disorganised parts; the whole larger curvature had externally the same appearance. (*Ibid.*)

10. MARTHA, æt. 14, swallowed only a little of the poison, spitting the greater part out. Vomiting as with the others, but less. Immediate pain in scrobiculus, no dysphagia, pulse small and irregular. No urine or stool. 27th.—Restless n., pupils dilated, insensible; pulse uncountable, toward midnight sopor. 28th.—Sopor till noon. Ischuria, pulse changeable and weak, pupils still insensible, contraction of the corrugator supercillii, with partial squinting; some appetite. 29th.—Quiet n.; copious discharge of urine, general improvement. Steady improvement and recovery complete Jan. 3rd. (*Ibid.*)

11. Early in the m. of Jan. 15th, 1815, a healthy woman about 30 years old, having recently been delivered of her fifth child, drank, by mistake of her nurse, a solution containing 30 gr. of sublimate. While drinking, she noticed a very violent burning in the stomach, and inquiry led to a discovery of the mistake at once. In a few m. the physician arriving found her sitting in bed, her finger in her mouth to excite vomiting, whereby a quantity of fluid was ejected. She complained of intolerable pain in the œsophagus and upper part of stomach, gradually moving downwards. (Emetic of ipec.) In a few m. she became faint. Two large spoonfuls of strong liver of sulphur solution induced violent vomiting. The remedy was repeated in the intervals of vomiting, which was assisted by warm water and chamomile tea, with some sal absinth. 2 or 3 h. after the poisoning cramps set in, at first in the toes and feet, then in the hands and fingers, and subsequently in the arms and legs. Severe cramp in the r. breast drawing toward the back, just below the scapula; breast greatly contracted, secretion of milk suppressed. She appeared greatly exhausted. A little later serious fainting fits, recurring at short intervals. Repeated complaint of burning, deep in the stomach, the more relieved the more she took liver of sulphur, so that afterward she made no more complaint of burning. 1 or 2 spoonfuls of mucilage given toward evening were vomited. The first n. passed quietly, yet the woman seemed very much exhausted. 16th.—The entire d. almost like the previous n.; free from pain, fainting or cramps, and occasional sleep. The stomach refused everything. The second n. disturbed by frightful dreams, distressing thoughts. 17th.—Early in m., formation as if asleep. About 4 or 5 a.m., complaint of pain in the scrobiculus; borborygmi perceptible to hand upon abdomen. Warm cloths and ether soon removed

the pain. During d. she took frequently some negus, oatmeal gruel, and toast, which were retained. At e. very urgent tenesmus, with discharge of mucus and blood only, relieved by two of the usual clysters. Thenceforth all went better. When she attempted to eat animal food, a week or so later, her teeth seemed loose and dull. About this time pieces of dead epithelium, like boiled potato skins, were discharged from the mouth and throat. A large piece of the gum came away from the socket of a tooth drawn a short time before; also a piece, the size of a pea, came from the side of the tongue. Tongue, gums, and throat continued tender during this time. No special constitutional change was left. The r. breast remained in the contracted condition mentioned, the milk appearing several d. later in it than in the other when she again became a mother in 1818. (*Edinb. Med. Journ.*, xvi.)

12. a. March 14th, 1848, at 6 p.m., I was called to a young man æt. 21, who had taken poison at 10 a.m. When I saw him he was in a condition of extreme exhaustion, and confessed having taken over a drachm of sublimate, which he had obtained ostensibly for use in his business as a jeweller. He had eaten nothing since 6 p.m. the day before. He looked pale and anxious; surface, especially of the extremities, cold; pulse almost imperceptible; tongue very dry. No injury to the buccal mucous membrane could be discovered. The vomiting began a few m. after the poison was taken and continued almost incessantly. The vomit was a white froth with considerable blood, covering the floor for some distance about his bed. He had also had a profuse, firm, natural-looking stool. He complained greatly of pain in the gastric region, not aggravated by pressure however. On account of the incessant vomiting, as well as from fear of greater injury, the stomach-pump was not used. He was immediately given the whites of four eggs in water, and ordered the same every h. 15th, 8 a.m.—N. sleepless. He complained much of abdominal pain, especially in the gastric region, increased by pressure. He had had three stools, which, contrary to strict orders, the servant had thrown out. She said they were dark fluid. He had vomited three or four times the same bloody froth as before. The pulse had risen to 80, but was still very small and weak, with frequent intermissions. Tongue red and dry, papillæ elevated, like a ripe strawberry. (Laudanum with syr. aurant.) About 20 p.m. pulse 100 and stronger, with fewer intermissions; the skin warmer; the pain less; neither vomiting nor stool the whole d. 16th, 8 a.m.—No sleep. He complained of considerable pain and tension; neither vomiting nor stool in the n.; pulse 100, strong, regular; tongue still unnaturally red, with elevated papillæ. (Castor oil.) About 9 p.m. I learned that he had slept 3 h. After the oil he vomited about a quart of very acrid stuff, looking like port wine dregs, with great relief. Pulse 100, regular, strong; skin generally warm; he had scarcely any pain; no vomiting since m. Tongue less red and somewhat moist on the edges. The young man and his friends were very sanguine in their hopes, and in fact all the symptoms were improved. 17th.—N. sleepless again with very little pain. Two fluid stools with considerable blood; no vomiting; pulse quite regular, moderately strong. Tongue

had become pale and moist; scarcely any pain in abdomen even to hard pressure. His countenance, however, did not correspond with these apparently favourable symptoms. It had an anxious expression and was extraordinarily pale, with blue about the lips and *alae nasi*. I now observed for the first time that the breathing was pretty difficult, and immediate auscultation showed the smaller bronchi filled with mucus. No pain in deep breathing. He had complained of dyspnoea 2 h. before my visit. He said he felt a constriction and pressure on the chest. (Blister to the chest.) At my next visit, about 1 o'clock, I found the breathing loud and rattling. He had no pain, but was evidently *in extremis*; as during the whole illness the intelligence was undisturbed. Within 24 h. he had passed no urine. For food during his illness he had received white of egg, oatmeal gruel, arrowroot with broiled meat and water. Death about 2.30 p.m.

b. *Autopsy*, same c. about 8.—Mucous membrane of mouth and œsophagus entirely normal, the chief action being visible in the stomach, whose mucous and muscular coats from the cardia out for a distance of 3½ in. were changed to a gangrenous mass, having a corroded torn aspect and a dark brown, almost black colour. The mucous membrane for a considerable distance about this gangrenous portion was browned, but the pyloric half of the stomach, with the exception of some little red spots, was quite normal. In the duodenum and the rest of the intestinal canal nothing abnormal was perceived, except a slight congestion of some of the *valvulae conniventes* in the jejunum and ileum. The bladder contained about half an ounce of urine. Cavities of heart empty. Blood did not seem to be coagulated. Lungs crepitant throughout. The entire respiratory mucous membrane in larynx, trachea and bronchi as far as could be seen was in a condition of intense congestion and varied from dark red to purple. The smaller bronchi were filled with a frothy, bloody fluid. As no disturbance of the cerebral functions had occurred the brain was not examined. (WADE, *London Med. Gazette*, 1848.)

13. A man, æt. 27, took, with suicidal intent, 60 to 70 gr. of sublimate dissolved in water, and came into hospital May 24th. Soon after taking the poison he observed a strong metallic taste in the mouth, with a peculiar smell, then desire to vomit and soon afterwards vomiting, with a sense of constriction in the throat and trembling of the feet. In stomach and œsophagus he had no severe pains whatever. The vomiting brought up first food, then serum, and ceased some h. later after a physician who was called in had given an emetic. Soon after that he was brought to the hospital, where milk and white of egg in water was prescribed. The next d. the feeling of constriction in the throat changed to a severe pain, with an unpleasant tickling, coming paroxysmally and lasting only a few seconds, during which a convulsive cough with great anxiety appeared. The cough was a throat cough, *i. e.* like the cough occasioned by putting the finger in the throat. During these paroxysms of coughing, repeated at short intervals, expectoration of a bloody mucus and feeling of suffocation with extreme anxiety. Evidences of enteritis, severe colic, tenesmus and frequent loose stools (at least twenty in 24 h.) of a slimy liquid, with consider-

able blood. Stool very painful, so that he had to cry out. 26th.—Gums swollen, and all the signs of a severe mercurial stomatitis, of which, for the sake of brevity, we mention here only a considerable swelling of tongue, cheeks, velum, uvula and pharynx; upon the latter, grey soft pseudo-membranous masses are formed. Some stupor and disturbed intellect. Pulse 86. 30th.—Pulse 72. He suffers less, but there is still blood in all the stools, which, however, are not so frequent. June 2nd.—The inflammation of mouth diminished and circumscribed; the grey membranes begin to come off. Swallowing still painful; face pale; only slight traces of blood in stools. 4th.—No more bloody stools. Pulse 84. He is better generally, getting up and walking in the garden. For some d. he has been taking a solution of chlorate of potash. 5th and 6th.—Condition the same, except increasing weakness. 7th.—Pulse 88. Extreme weakness and very pale colour. Stools, coming after eating, of yellowish fluid, without blood. P.m., numerous, reddish-grey, round, ecchymotic spots, not disappearing on pressure, made their appearance over body and limbs, especially on the lumbar region. Urine dark brown, albuminous. Surface very pale. Blowing with first sound of heart, heard at base. Hiccough with every movement of the body. 9th.—Death, without convulsions or agony. (*Monit. des sciences méd.*, 1859.)

14. A gentleman, æt. 50, took over a drachm of sublimate in a quantity of water Feb. 27th at 8 a.m., and immediately began to hawk and complain of constriction with burning in the throat and dysphagia. (Oil, and zinci sulph. ʒss.) After 2 h. Blacklock found him hawking, discharging always a mouthful of mucus and blood, and having just passed a bloody stool, preceded by two natural ones ascribed to aloe taken the previous e. Pulse 120. Tongue white and moist; very disquieting hiccough. Thus the whole d. Toward e. hawking and dysphagia less frequent and severe. Face a little puffed. 28th.—Frequent and copious bilious vomiting and purging; a regular cholera. Pulse over 100 and weak. Face puffed and fuller than usual. Thirst so intense that every 2 or 3 m., in spite of the pain in swallowing, he called for milk. Very disquieting hiccough. Ischuria, even with the stools, since the poisoning, and no desire to urinate. Neither fulness nor pain in the abdomen except in the scrobiculus, where slight pressure causes pain. March 1st.—Continued vomiting of bile and occasionally curdled milk. Diarrhoea stopped. Complains of burning in œsophagus and rectum; numbness and loss of feeling in extremities. Pharynx dark red, painful to external pressure. Pulse 100, soft and weak. Inclination to sleep, which is disturbed by the hiccough; continued ischuria. Abdomen soft and compressible, and not painful to pressure except in the scrobiculus. 2nd.—As yesterday; a natural, though scanty stool. 3rd.—Burning in œsophagus and rectum, thirst, dysphagia, and continued suppression of urine. Less frequent hawking. Bilious discharges up and down. Occasional sleep in spite of the hiccough recurring regularly 26 times a m. Face puffed. Pulse 100, soft and weak. Tongue white and moist. 4th.—Breath offensive, but the mouth not at all painful, and no salivation. Stiffness of the arms added to that of the legs, in lesser degree however. Urine still suppressed.

5th.—Pulse almost imperceptible at wrist. Complains of dyspnoea, and desires to be raised up in the bed; continued hiccough. Vomits now and then a little bile, cannot swallow. Death about noon. Autopsy not permitted. (*Edinb. Med. Journ.*, vol. xxxvi, 1831.)

15. a. J. W.—, a strong man, æt. 38, took, Feb. 10th, 1843, at 10 a.m., 2 dr. of sublimate in coarse pieces which he chewed and swallowed, and afterward drank about a pint of water. Soon after that a doctor gave him 4 eggs. He vomited, and a piece of sublimate half as large as a nut was found in the chamber, which, it was supposed, had not been swallowed. Brought into the hospital soon after, he exhibited great prostration, cold extremities, natural respiration, pulse almost imperceptible, tongue and lips swollen. He was sensible, and complained of constriction in œsophagus. He got the whites of 4 eggs. 2 p.m., increased swelling of lips and gums. Beginning salivation; pain along œsophagus to stomach, causing intense dysphagia. Yellow masses with blood had been expelled by several paroxysms of vomiting. Some pain in abdomen; cramp in lower extremities; pulse small and weak; tongue white and almost filling cavity of mouth; skin somewhat warmer. (About 2 pints of milk and the whites of 24 eggs.)

12th.—Violent hiccough during n.; great pain in stomach on pressure; swallowing more difficult; headache; several evacuations up and down, the latter of a green colour. Feet very cold; the entire skin yellow.

12th.—Skin still very yellow; pulse much contracted; swelling of lips diminished. Evacuation, upward greenish, downward dark coloured, mixed with blood. Stomach region very painful; swallowing still difficult, extremities warm. 13th.—Swallowing goes better, but there is still a burning in the œsophagus. Pulse like yesterday. Has passed no urine since his admission. Very little sleep last n. Hiccough continues. Pupils contracted. Extremities cold. Several stools, streaked with blood, one or two consisting entirely of blood and mucus. Tongue cannot be protruded for swelling. 4 p.m., some delirium, increasing up to e. 14th.—6 a.m., breathing stertorous; facial muscles paralysed; toward noon he seemed to have a great constriction of œsophagus. The ability to speak was lost, and gradually consciousness also. Since last evening no stool, and no urine till death at 3 p.m.

b. *Autopsy*, 22 h. after death.—Body rigid throughout. No signs of decomposition (atmosphere cold and dry). Peritoneum healthy, containing about an ounce of bright yellow fluid. Inside the stomach, about 4 inches from the pylorus on the greater curvature, an inflamed place the size of the palm of the hand. The mucous membrane was very injected with red blood, and showed throughout signs of inflammation. Of the slate-grey colour sometimes seen after sublimate poisoning, there was nothing, nor any appearance of erosion or ulceration. Duodenum and jejunum healthy. In the lower two thirds of the ileum there was slight inflammation of the mucous membrane, which from the cæcum on was more considerable, with at last many small ulcers. Liver large and full of blood; gall-bladder contracted, almost entirely empty. Spleen normal as to size, full of blood, its peritoneal covering thin and adherent. Pancreas healthy. Kidneys of normal consistence, the cortex showing many little red points, espe-

cially between the infundibula, apparently from incipient inflammation. On the back of the right kidney was a cyst the size of a marble, filled with clear fluid. Bladder very much contracted, containing about $\frac{1}{2}$ oz. of turbid urine. Mucous membrane of œsophagus showed an inflammatory redness, but was otherwise normal. Old pleuritic adhesions in chest; lung-substance œdematous, rather firm and doughy; at base of r. lung inflammatory œdema. Bronchial mucous membrane universally inflamed, and tubes full of frothy mucus. Bronchial glands slightly enlarged. Pericardium contained ʒj of clear yellow fluid. Heart seemed healthy, only somewhat smaller than natural. Cranium not opened. (TAYLOR, *Parasitæ*, 1st ed.)

16. A fifteen-year old student, on May 15th, 1874, took and swallowed a portion of a powder containing 2 scruples of sublimate, which had been prescribed for his father for external use. As he at once felt a severe burning, he threw away the remainder. After 5 m. repeated vomiting set in. He drank much milk afterwards, and again vomited, throwing up food which he had eaten for dinner. The violent pains in throat and stomach and constant retching drove him from the garden, where all this happened, to his room, saying that he was unwell, presumably from his dinner. After 2 h. diarrhœa every h., lasting entire n. and next forenoon. The pains and weakness increased continually, and at noon he confessed to his mother that he had taken some of the powder. Condition after 20 h.: Powerful muscular body. Temp. $100\frac{1}{4}^{\circ}$; resp. 22. Thoracic-diaphragmatic breathing; pulse 108. Skin dry; face red; pupils alike, reacting well. The inner surface of the lower lip, the region of the frenum, base of the tongue, and velum, especially on r. side, covered with a grey-white, firmly adherent crust; mortified mucous membrane. Organs of respiration and circulation normal, as also liver and spleen. Abdomen not enlarged, but very resistant. He complains of pains in the mouth, throat, and stomach; the latter sensitive to pressure, as also the region of the sigmoid flexure. The evacuations are painless, consisting of a soft but formed, pulpy mass, light grey, with red streaks in it in considerable quantity, with much liquid. He said he had passed no urine since yesterday evening, that the fluid came exclusively from the rectum. He was perfectly quiet. No appetite; no thirst. (Magn. hyd. in water. Milk, white of 2 eggs.) 16th.—Till midnight he was very uneasy and had frequent stools, afterwards slept well. About 5 a.m., stool of a granular, sulphur-coloured mass. No urine in spite of much straining, the bladder being actually empty. 5 p.m., no evacuation since m.; urged to attempt to urinate, he passed, after much straining, some thick milky drops. Temp. $99\frac{1}{8}^{\circ}$; resp. 20; pulse 76. Pains in stomach have ceased, but it is still sensitive to pressure. Kidney region not sensitive to deepest, hardest pressure. Since m. he has taken emuls. ol. c. tinct. opii. 17th.—He says he feels very well; has appetite, but swallows with difficulty. Temp. $98\frac{1}{2}^{\circ}$; resp. 16; pulse 76. No pain at all. For more than 30 h. no evacuation, no vomiting. Not a drop of urine. At n. he had formication all over body. About 4 p.m., copious, normal-looking, pappy evacuation, containing two living lumbrici. Feels well, appetite good, no thirst, no urine. 18th.—Frequent, black, loose

stools after midnight. Urinary secretion has begun. Feeling of pressure in gastric region. Temp. $98^{\circ}24'$; resp. 18; pulse 76. Abdomen flat. Crusts begin to come off in pieces from mouth and throat. At noon he ate some milk-food with relish. At 5 p.m. a spinach-green evacuation, followed by severe pains in stomach. Cold fomentations to stomach. 19th.—Slept well. In m. two spinach-green evacuations and each time urinated. Itching in whole skin, which is quite dry. Severe pains in stomach region, which is somewhat full; the percussion tone being very muffled—tympanitic. Apparently there was a hæmorrhage into the stomach. Swallowing very difficult. Extreme weakness. Temp. $96^{\circ}34'$; resp. 18; pulse 76. 20th.—During n. several dark green, very tenacious stools. Urine steadily increasing in quantity, containing some albumen. Skin dry. Restless. Hiccough now and then. Pains in stomach less. 21st.—N. very restless, no sleep. Hiccough is much more frequent. Burning in chest and abdomen. Crusts have mostly come off from mouth; places thus denuded of epithelium appear as extensive, rather depressed spots sprinkled with coarse red grains. No stool. Urine normal in quantity, containing some albumen. Pains in mouth, and in swallowing; some pains in stomach. (Morphine.) 22nd.—Very little sleep. Much plagued by the very frequent hiccough, so that he cannot eat and can hardly speak. Temp. $93^{\circ}92'$; resp. 18; pulse 76. Pure blood flows from anus. Very troublesome itching in skin. Burning in intestines; great depression. E., the great increase of heart's action since m. is very remarkable; there is no enlargement demonstrable. The heart's impulse is very extended, visible at a distance, and so strong that the whole thorax and both hypochondria, especially l., from stomach to navel are vehemently jarred by it. Beats 76; tone metallic-sounding, but clear. Singultus ceased at e. Very considerable difficulty in swallowing. Temp. $92^{\circ}12'$; resp. 18. 23rd.—Considerable sleep during n. Early in m. an evacuation consisting of hard feculent masses in bloody fluid. Urine normal in quantity, containing but a trace of albumen. Hiccough entirely stopped; restless. Temp. $98^{\circ}24'$; resp. 20; pulse 108, small. Heart's action strong as yesterday. E., has taken no food today. Face pale, collapsed. Consciousness no longer quite clear. Abdomen flat. Two coffee-ground evacuations. Cold fomentations to abdomen. 24th.—He has groaned whole n. through. Before midnight a black-green, very copious evacuation, followed by involuntary urination and passage of blood *per anum*. Below navel to the r. a hard swelling, the size of a lemon, very painful (extravasated blood); percussion tone over it dull. Restless. (Morphine.) Soon afterward he slept. Temp. $100^{\circ}04'$; resp. 14, very deep with long-drawn inspiration; pulse 112, small. Toward e. dulness to r. of navel very much increased in extent, apparently also flattened out. Unconscious, very restless, frequent groaning. Skin dry. Thermometer could not be applied, but temperature was seemingly higher than normal. The expired air smells very plainly like spoiled meat. Heart's impulse still very strong and extended, but no more on the whole than yesterday or this m. At same time pulse became steadily more rapid and smaller, and later was imperceptible in the radial, while heart's impulse was still

vigorous. Blood flows from rectum. Jactitations became less frequent and weaker. Death before midnight. Autopsy neither desired nor permitted. (*Lowy, Wiener med. Press., 1874, No. 34.*)

17. A carpenter, æt. 30, received for *r. supra-orbital neuralgia* pills of sublimate, which he took for 14 d., and then left the hospital. He had trembling of the limbs, especially when they were extended; heaviness of the extremities; trembling of the feet in walking. The trembling was worse on the *l.* side, especially in the *m.* on rising, at *e.* with feverishness. Sense of coldness of the *l.* side, worse after midnight, so that he could not get warm; towards *e.* icy coldness; cold chills in the sacral region, as if these were shot in there; sweat first in *l.* axilla, then general, on waking from sleep in the *a.* (*Buchner, A. A. Z., xxviii, 155.*)

18. W—, registrar, received for a slight herpetic trouble sublimate pills, and took altogether 24 gr. The herpetic difficulty was cured, but the effects were frightful. He writes: "My teeth, previously sound, became loose, and six came out. A nasal discharge ensued, of the character of isinglass, drying to a strong hard mass, especially in the posterior choanæ and frontal sinuses. Of this mucus, hard pieces, the size of a bean, frequently bloody, were discharged from the nose, at the same time there were often the most dreadful pains in the head. Respiration through the nose was maintained by snuffing water and tobacco. The cartilage of the nose was perforated, but the nose did not fall in; the sense of smell was lost entirely. No improvement from the regular use of water. Subsequently the discharge became more consistent and purulent; the teeth became affected again at the roots, manifested by a prickling pressure, and always ending by prominence in the sockets; profuse lachrymation in the open air. In the front of the head, especially on the *r.* side, an unpleasant pressure, changed to a crampy pain by obstruction of the discharge. Sleep frequently only for 10 h." Cure after discharge of a great portion of the necrosed upper jaw. (*Ibid.*)

19. A woman, æt. 29, contracted syphilis, for which she was treated by means of corrosive sublimate. Violent ptyalism took place, 4 lbs. of saliva being excreted in the 24 h. As this secretion diminished, diarrhoea appeared and increased. Soon after, the patient complained of anxiety and heat, with a fixed, obtuse, and deep-seated pain at the epigastrium; loss of appetite, nausea, tension of abdomen; great thirst and dryness of throat, and rapid pulse. These symptoms were aggravated when the stomach was full. During 5 d. some amelioration was remarked, but bilious vomiting supervened, and the pain and diarrhoea increased. The frequency of the calls to stool became remarkably great; a watery yellowish fluid, resembling saliva, being voided. The deep-seated pain above the umbilicus prevented the patient from lying on her back and *l.* side, and was increased by a full inspiration. Some d. of relief followed, after which a violent increase of fever appeared, with a return of the diarrhoea, an acute pain at the epigastrium, and orthopnoea. Blood-letting was prescribed. The following *m.* the paroids were hot and painful, the mouth was burning, the pulse small, and the stools were suppressed. Towards *e.* the breathing became

stertorous, the anxiety extreme, the pulse thready and intermittent, the extremities cold, and the face hippocratic. She expired in the n. The pancreas was found red, swollen, and somewhat more consistent than natural. It weighed 8 oz., and the blood ran freely from it upon dividing it. The duct was dilated. The parotids also were inflamed. (COPLAND, *Dict.*, sub voce *Pancreas*.)

20. In a man and woman who had taken sublimate for chancre, but were not salivated, there appeared inflammation of the r. eye, which involved not only the posterior surface of the cornea, but also the serous covering of the iris. The pupil was angular; the eye very painful, as if too small; all the sensations aggravated in bed. (v. AMMUN, *Zeitsch. f. Ophth.*, i, 121.)

21. a. LEWIN treated a large series of cases of syphilis with subcutaneous injection of corrosive sublimate. The smallest dose injected was $\frac{1}{16}$ gr., the largest $\frac{3}{4}$ gr. For experiment $\frac{3}{4}$ gr. and 1 gr. were injected. Injection is followed either immediately or soon afterwards by more or less *lively reactive redness* diffused round injection point, with swelling coming apparently from the depths of subcutaneous tissue, and a more or less firm infiltration focus which remains as a hard swelling after the inflammation is gone. Very seldom an abscess is formed. Pain sometimes occurs after the injection, of a pretty severe character, or the puncture sometimes remains for a considerable time sensitive to pressure.

b. It causes several forms of affection of mouth: 1. Slight inflammation (stomatitis), with swelling and tenderness of submaxillary glands. The stomatitis is characterised by hyperæmia of buccal m.m., of gums, and of mucosa of cheeks. Afterwards there is swelling, hyperæsthesia, tenderness of organs of mastication, and increased secretion of parotid and submaxillary glands. 2. Stomatitis ulcerosa diphtherica; ulceration of buccal m.m. with tendency to gangrene, covered with dirty yellow coating resembling the diphtheric membrane. This is particularly at the last tooth and at the fold at junction of the upper and lower jaw, which is liable to be bruised during mastication; on the cheek where it is exposed to pressure of teeth; and on the sides of the tongue. 3. Ptyalism without stomatitis. At beginning of treatment patients sometimes complained of falling out of hair. Perspiration, especially at n., was a frequent phenomenon. Some of the patients got a chlorotic colour of skin and m.m., and complained of debility. In some, 6 to 12 h. after injection, there appeared single spots on various parts of body the size of a pin's head, and resembling ecchymosis, surrounded by a pale red areola. They appeared suddenly, and went off gradually with desquamation of epidermis. The lymphatic glands of pharynx and of submaxillary region are apt to become affected in cold weather. The patients complain of sore-throat, particularly when swallowing, the tonsils are swollen and red, and there are sometimes swollen and sensitive glands in the region of the angle of the lower jaw. Very seldom is there mercurial tremor or erethism.

c. If the injection cure is pushed too far it may cause a state resembling malignant gastro-enteritis. This commences with gastric symptoms such as anorexia, loaded tongue, bad taste, which is sometimes described as metallic, rarely nausea or vomiting. After some

time in stomach a burning, increasing to pain and most felt on pressure. Later diarrhoea, sometimes the stools tinged with blood. Sleep at n. disturbed by anxious startings. Face pale, conjunctiva especially pale, eyes dull, countenance looks suffering. Great weakness, must sit down after walking a few steps. Urine often increased, and its sp. gr. diminished, pale yellow colour. Pulse contracted, quick, 90 to 100, and on exertion 130. Attacks of sickness and vertigo were common. Vertigo even in bed, faintness and coma. Then the pulse would sink to 68. Skin sometimes covered with sticky sweat. The gastric symptoms sometimes increased, then there came vomiting and dysenteric bloody stools with tenesmus. (G. LEWIN, *Die Behandlung der Syphilis mit subcutaner Sublimat Injection*, 1869.)

25. Dr. MÜLLER, of Bern, described a case of hysterectomy for carcinoma uteri, in which a 1 in 1000 solution of the perchloride had been used for disinfection of operator's hand, a 1 in 2000 solution for the sponges, and a 1 in 4000 solution for washing the wound. Two d. after the operation the patient was seized with diarrhoea and albuminuria, the stools were mixed with blood, and the quantity of urine passed was very small. Death ensued on the 3rd d., and the *post-mortem* revealed the existence of ulceration in the colon. There was no nephritis. (*Lond. Med. Record*, p. 118, 1886.)

26. Dr. BUTTS summarises as follows the effects of corrosive sublimate solution used as antiseptic injections. Some h. after the injection, sometimes only on the following d., diarrhoea supervenes, with tenesmus, the motions soon becoming slimy, stained with blood, and exceedingly offensive. The rectal pain is marked, and severe colicky pains are complained of in the abdomen. Nausea and vomiting are often present. Salivation is generally absent, at any rate for some d., but stomatitis may occur. There is great dryness of mouth and throat, with intolerable thirst. The quantity of urine excreted is most frequently diminished, sometimes to the extent of anuria, and it contains more or less albumen with epithelial cells and casts. The pulse becomes small and rapid; the temperature is probably only affected secondarily to the enteritis.* The patients generally complain of intense headache, with much prostration, which may amount to collapse. Erythematous eruptions on the skin of vulva, thighs, face, arms, and trunk are often noticed, or the skin may become dry and irritable. Certain patients appear to be abnormally amenable to the toxic influence of the sublimate, especially cachectic and debilitated subjects. The *post-mortem* appearances comprise injection of the lower part of the small intestines, while in the large intestines the mucous membrane is extremely hyperæmic, and is necrosed in patches and often covered with a diphtheritic exudation. The kidneys are enlarged and pale in colour; examined microscopically the canaliculi are blocked by deposits of oxalate of lime, and there are signs of parenchymatous inflammation. (*Ibid.*, p. 266.)

* Mr. S. Sæll relates (*Pract.*, 1881, i. 130) the case of a woman, æt. 41, in whom a drachm dose of Hg. perchlor. immediately caused vomiting and a temperature of 104° . Under $\frac{1}{2}$ gr. of hyd. \& cret. the temperature rose to 101° , accompanied with vomiting, &c., as before.

27. After abortion at the third month, a young woman of 24 was ordered an injection of 1 in 2000. Instead of calling on the nurse to give the injection, the patient's sister took upon herself to inject into the rectum $\frac{1}{2}$ litre of the solution, containing about 17 cenigr. of the sublimate. In the course of a few m. patient was seized with intense general tremulousness, more marked in the upper extremities; her voice became feeble and consciousness dull. On arrival of the doctor $\frac{1}{2}$ h. after injection, patient's face was pale, the skin cold and clammy. She was unconscious, pulse 130, small and feeble; resp. 56, shallow and irregular. The tremors had disappeared, but the tonus of the muscles had increased to such an extent that the limbs preserved the position in which they were placed for more than 2 m. Attempts to induce the patient to swallow gave rise to attacks of dyspnoea. In spite of treatment the breathing became more and more embarrassed, and it was necessary to resort to artificial respiration. The pulse became imperceptible, and the face cadaveric. Death appeared imminent, but as the heart still pulsated the treatment was persisted in for 3 h., when patient began to show signs of returning life. She had never shown any symptoms of hysteria, and everything pointed to the sublimate as the direct cause of the attack. (*Ibid.*, p. 499.)

28. a. Mrs. —, æt. 28, large and plethoric; weight 220 pounds, called at my office at 7.30 p.m., May 27th, 1881, in an excited condition, and said she had taken poison about $\frac{1}{2}$ h. before. I asked her what kind of poison she had taken. She said bed-bug poison, or corrosive sublimate, and that she had taken half a glassful. I told her that in that case she must die. She was at this time retching violently. "Can't you do something for me?" I told her I would do what I could, and as soon as possible. I gave her over a pint of a strong solution of salt in tepid water. With this she vomited copiously. I also gave her the whites of a dozen and a half of eggs, she being able to take only four or five of them before they were ejected. During this time, which occupied $1\frac{1}{2}$ h., she purged and vomited blood a great many times; and at 9 I ordered a carriage and sent her home. 28th.—At 9 a.m. I called, and found her quite comfortable except a burning in the throat, and also in the rectum after a stool. During the n. she had passed stools of blood quite frequently, and had voided a large quantity of urine. The abdomen is quite tender; the temperature is 99° , and the pulse 115. I ordered injections of the aqueous fluid extract of hydrastis, *per rectum*, in the proportion of two teaspoonfuls in half a pint of warm water, to be taken after each stool. In the evening I found the pulse 80, and the temperature 100° . The patient says the injections afforded great relief. The abdomen is not so sore, and the burning in the bowels has entirely ceased. The stools are not bloody. There has been no emission of urine. Continued the same treatment. 29th, a.m.—Pulse 94, temperature 100° . She complains mostly of her throat. The tenderness of the abdomen is almost entirely gone. No passage of urine. I passed the catheter, but obtained none. Gave iod. potass., 10 gr. in solution every h. Also ordered jaborandi injections to be substituted for the hydrastis. E., the pulse is 105; the temperature $100\frac{1}{2}^{\circ}$. The patient only took the iod. potass. a few

times, as it nauseated her. She has perspired freely most of the d. Passed the catheter, and there still was no urine. Ordered half of the original dose to be given in two spoonfuls of milk. 30th, a.m.—Pulse 106; temp. 100.2°. The general condition is the same as last e. She has very small stools every h. Continued the same treatment. E., pulse 96, temp. 99.9°. The patient is quite drowsy, but drinks a little milk. When getting up to stool, she vomits a little. Administered 10 dr. of apocynum cannabinum in the mother tincture hypodermically over the r. kidney. After waiting $\frac{1}{2}$ h., the catheter was passed, but there was no urine. 31st, a.m.—Pulse 96; temp. 99.9°. The stools are very small, and have a cadaverous smell; no urine; complains of no pain; takes milk and medicine; vomits a good deal of bile. Gave 10 dr. of apocynum in the arm hypodermically. Also, to satisfy the husband that the bladder had the power to eject urine, I injected an ounce or more of warm water into it, which was promptly voided. E., pulse 88, temp. 99°. Gave hypodermically over the c. kidney gr. $\frac{1}{2}$ of pilocarpin. In less than 5 m. a profuse perspiration was produced, a large quantity of bile was thrown from the stomach, and a very large stool passed, but still there was no urine. Ordered apis mel. 2 trit. every $\frac{1}{2}$ h. June 1st, a.m.—Pulse 90, temp. 99.6°. She is about the same. Gave gr. $\frac{1}{2}$ of pilocarpin hypodermically, and she commenced perspiring in 1 m. by the watch. Passed the catheter, and there was no urine. Gave the apis every h. E., Dr. Burt was present in council. Pulse 80, temp. 99°. The patient is still able to walk. Dr. Burt advised pilocarpin gr. $\frac{1}{2}$ to be given hypodermically twice a d. Also potass nit. every 2 h. 3rd, a.m.—Pulse 88, temp. 99.5°. She is becoming weaker, her speech is more difficult, the face is very much swollen, the tongue thick and deeply marked along the edges by the teeth. The hiccough was subdued by the use of small pieces of ice; no urine; she is quite drowsy. Elm water was given her to drink; pilocarpin hypodermically; alternated nit. potass and nit. ac. every h. E., the patient seems brighter. In the afternoon hiccough set in, which would not yield to ice; but with ice and hot water in quick succession it yielded completely. The pulse this evening is 85, temp. 99.2°. The face is not so much swollen, and she can talk a little better. Repeated the pilocarpin, and continued same medicine. 4th, a.m.—Pulse 90; temp. 99.9°. She seems quite stupid. The face is very much swollen; we can scarcely understand a word that she says, but she is entirely conscious, and answers yes and no by a nod or a shake of the head. She is very quiet, and says that she has no pain. The catheter fails to find any urine in the bladder. Same remedies. E., pulse 80, temp. 100.5°. She is becoming very weak. The swelling has decreased very much. The pilocarpin does not produce as profuse perspiration as before. She complains of some pain across the kidneys. Hot fomentations were applied and the same medicine continued. 5th, 4.30 a.m.—Was called in haste to find that my patient had passed quietly away a little before 4, without even a moan, or anything to indicate to the watchers that dissolution had taken place.

At 4 p.m. an autopsy was held; present, Drs. W. H. Burt, Duncan and Snyder. There were two inches of adipose over the

abdomen. The peritonæum was normal. The stomach was very much inflamed, its cardiac portion being almost perforated by ulceration. The kidneys were examined very carefully. They were found to be inflamed, and so hard that to dissect them was like cutting into firm cheese. The ureters were also inflamed. The small intestines were almost normal. The descending colon was slightly inflamed. The inflammation of the liver had been severe, and its texture was solid. The gall-bladder was full of bile, and decidedly inflamed. There was no urine in the bladder, and it was literally lined with fat. The uterus was normal. (I have neglected to state that during her sickness, at the proper time, she menstruated as if she had been in perfect health.) (SKILES, *Clinique*, Oct., 1881.)

III. *Experiments on animals*.—1. Three gr. of corrosive sublimate in substance were put upon the connective tissue of the thigh of a medium-sized dog about 11 a.m. At 6 p.m. he seemed dull. Next m. about 11 a.m. pulse was very rapid, tongue moist and natural in colour. No sign of paralysis or vertigo. At 5 p.m. dyspnoea, the dog lying upon his side. Next m. he was dead. *Autopsy*.—The thigh was infiltrated and considerably inflamed; the place upon which the sublimate was put was greyish. On the mucous membrane of the stomach (which was natural in colour), close by the pylorus, were found six or seven coal-black spots, caused by extravasated venous blood. The small intestine was normal, the rectum somewhat red. The crepitant lung was brown, containing much blood, and floating on water. Mitral valve cherry-red; otherwise heart was healthy. (ORPILA, *Tex.*, sub voce.)

2. About 11 a.m. 6 gr. of sublimate in substance were applied to the connective tissue of the inner aspect of the thigh of a very large dog. About 1 p.m. he vomited; next d. burning thirst; the 3rd d. he would not eat, and endeavoured to guzzle water, which he immediately vomited again. Inconsiderable vertigo without spasm or paralysis. Death about 4 p.m. *Autopsy*.—The thigh operated upon was very much infiltrated and excessively inflamed, but not an atom of the sublimate was to be found. The mouth was greyish; the stomach contained much yellowish mucus; the mucous membrane here and there cherry-red, and, at the pylorus, ulcerated. The small intestine seemed normal, the rectum very much inflamed. The tricuspid valve of the heart was beset with minute black points of extravasated blood, which the slightest friction changed to ulcers; otherwise the heart was healthy. The lungs were crepitant, somewhat infiltrated, and floated on water. (*Ibid.*)

3. Sept. 13th, about 11 a.m., 6 gr. of dry sublimate were introduced into the connective tissue of the back of a small, weak dog. On the 15th, he would not eat and had a burning thirst, but vomited as soon as he drank. On the 16th, 17th and 18th, condition the same, with marked increase in the rapidity of heart's action. Death the n. after the 18th. *Autopsy*.—Intestinal canal appeared unchanged. Endocardium in both chambers of the heart red and inflamed; numerous red spots on some of the columnæ carneæ; lungs engorged and spotted black. (*Ibid.*)

4. Injection of one grain sublimate into the jugular vein of a large dog produced salivation, dyspnoea, and symptoms of inflammation of the lungs, which increased in the days following, and there were added vomiting, diarrhoea, fever and cramps. On the 4th d. the dog died. The lungs were beset with blackish swellings the size of a pea, of which some were inflamed, others suppurating, and still others gangrenous (bronchial glands?); liver was black and softened; gall-bladder full of thick, black, viscid bile. (GASPARD, *Journ. de Phys.*, i.)

5. A gr. of sublimate, dissolved in ℥ss of distilled water, was injected into the jugular of a bitch. After 15 m., she was taken with a chill, dulness, diarrhoea, dyspnoea, and salivation. The symptoms of pneumonia and dysentery increased. There was tenesmus, with mucous and bloody stools; and after 5½ h. she died. The lungs were extensively inflamed and distended with blood, sinking in water. The intestinal mucous membrane was red and inflamed, and covered with a dirty sanguinolent and ichorous mucus. (*Ibid.*)

Mercurius cyanatus, mercuric cyanide, Hg (CN)₂.

I. *Proving*.—I. A partial proving of the cyanide gave great prostration and weakness, a low febrile condition, a whitish-grey deposit upon the tonsils and mouth, extending along the r. side of the tongue, with slightly swollen tonsils and difficult deglutition. These symptoms are given as communicated to me by the prover. The prostration and other symptoms were so severe that he ceased taking the drug,—the second potency had been used,—and rapidly recovered by the use of baptisia. (W. A. ALLEN, *Hom. Times*, Oct., 1877.)

II. *Poisoning*.—I. a. A strong healthy man, in April, 1823, after futile attempts to take a preparation of prussic acid, swallowed about 23½ gr. of cyanide of mercury. Immediately, repeated vomiting mixed with blood ensued, frequent and copious stools, and terrible pains in the whole abdomen. The patient drank mucilaginous drinks. After 4 d. Dr. Kapeler was called. The patient's face was grave, the eyes fixed, and the conjunctiva injected. He confessed, at last, to having poisoned himself in the above-mentioned way. The exterior of the body showed nothing remarkable, except a dark blue discoloration of the scrotum and of the semi-erected penis. Terrible headache; strong heart-beat; rather slow, but full, hard and even pulse; free respiration; slight cough; normal resonance of the chest. Lips, tongue, and inner surface of cheeks studded with numerous ulcers covered with a greyish pulp; salivary glands swollen; ptyalism; swallowing difficult, continued nausea, and frequent vomiting after drinking; great thirst. Abdomen soft, not sensitive to pressure; frequent urging to stool, with tenesmus; stools infrequent and mixed with blood; suppressed urination. (Twenty leeches to the anus; veal-broth as a drink; injection of bran-water; boiled barley and honey for gargling.) On the following d. the condition was the same. (Thirty leeches and poultices to the abdomen.) On the 6th d. none of the symptoms had abated; the condition of the mouth was the same; vomiting, tenesmus, and suppression of urine continued; the abdomen soft, not painful on pressure; the heart-beats violent and strong; the pulse unchanged. (Venesection.)

Restless, sleepless n.; when in a warm bath the anxiety ceases. On the 7th d. the heart-beat not so strong; pulse a little weaker; salivation less profuse; the condition of mouth and other symptoms unchanged. (Thirty leeches.) During d. the patient is quiet, and only complains of pain in the mouth; slight convulsions in the extremities. On the 8th d. general weakness, frequent fainting, somnolency, vomiting less frequent, suppression of urine; the semi-erected state of the penis also continues, and the purplish hue. In the e. slow contracted pulse, cold extremities, hiccough. On the 9th d. condition the same. Extreme weakness, and fainting attacks. Continued hiccough. At 1.30 died in a fainting attack.

b. Post-mortem examination 20 h. after death. External condition: Well developed body, dull pallor of the skin, upper and lower extremities rigid and contracted so that the body only rests upon the back; the muscles red, very large, and covered with a thick layer of fat. Larynx, trachea and bronchiz contain much whitish phlegm, a part of which flowed from the nose; the pleural cavities contain several grammes of pinkish serum; the lungs somewhat pink, healthy, and crepitating; wherever a cut is made, much serum flows out. Circulatory system: On making a cut into the skin, muscles, or blood-vessels, pale and very fluid blood flows out. The inferior vena cava is filled with a very large, elastic, and tough coagulum; the heart, embedded in fat, appears a little larger than normal, without having hypertrophied walls; but little blood in either ventricle; fibrous coagula in the r. auricle. Digestive organs: Peculiar stinking odour from the mouth. Inner surface of cheeks and the gums are covered with ulcers, having a greyish coating; the tongue thicker than normal, ulcerated on its edges, and covered with a very thick dry coating, hard to remove. The pharynx is normal; in the middle of the cesophagus an ecchymosed pink spot the size of a thaler. The peritoneal cavity contains some yellowish serum. The stomach is of moderate size, and externally normal; the intestines distended by gas. The mucous membrane is bluish red in the small curvature; in the cardiac portion and large curvature dark red, exceedingly tumefied, and covered with ramifications of blood-vessels. In the duodenum and jejunum it is very much tumefied, dark red, in some spots quite black, and in others gangrenous. The redness the same in the cœcum; pale in the ascending colon, more red in the transverse colon, less in the descending colon, and again darker in the rectum. The mucous membrane throughout the intestines is swollen, and in some portions, particularly in the small intestines, granulated. In all places where the membrane is raised in this manner, there is marked infiltration of serum into the submucous connective tissue. The pancreas is very large, hard, dry, easily torn, and creaks under the scalpel. The liver is enlarged, but the substance shows very little change. The gall-bladder contains a blackish-green, stringy, pitchy fluid. The spleen is small, otherwise normal. Uropoietic organs: The r. kidney is a third larger than normal, its substance is pale; the l. is a little smaller and less pale than the r. The bladder is small, contracted, containing a very small quantity of milky urine. The penis semi-erected, and, like the scrotum, of a purplish hue. The

skull and spinal column were not opened. Neither in the blood nor in the excrements could M. be found chemically. (ORFILA, *Toxicologia*.)

2. A student took at 10 p.m. on Dec. 3rd, after drinking 3 glasses of beer, 2 gr. of cyanide of mercury in a fourth of another glass. He had not taken solid food for 7 or 8 h. Immediately, nausea followed by vomiting. In about 10 m. continuous vomiting was added, violent urging to stool, soon followed by evacuations. Vomiting and diarrhoea now alternated until 10 a.m. During this time he may have had 30 to 40 attacks of vomiting and diarrhoea. To these symptoms were added bitter taste, violent colic increased with every evacuation, vertigo, headache, and great chilliness. 4th, 12 a.m.—The patient's face cyanotic; pupils widely dilated; extremities cold; pulse weak, 130; tongue clean; abdomen not distended, and not painful to the touch. Lungs and heart unaffected, only the heart's impulse and sounds very weak. Urine not passed with the stools. Prescription: milk, mucilaginous drinks, cold applications to head. In e. vomiting had completely stopped. There were two thin evacuations tinged with blood; these were without urination. Pulse 132, small; cyanosis somewhat less. 5th.—Patient slept all n. On waking violent headache; increased nausea and thirst; difficulty in swallowing; entire lining of the fauces highly inflamed; evacuations had ceased; bladder empty. Pulse 102, irregular; pupils somewhat more contracted. Same prescription. Patient slept much during e.; had no evacuation. Pulse 92. 6th.—Had a good sleep; pulse 90; tongue thickly coated, but no vomiting and evacuations; otherwise the same. 7th.—In n. vomited 20 or 30 times, with increased bitter taste. The matter vomited consisted of a whitish, turbid, slimy mass, of alkaline reaction, without any marked odour. Tongue moist and coated; no evacuation; bladder empty. Pulse 88; profuse nose-bleed. Headache and vertigo continued. Ice pill and an injection. After first spoonful of med. vomiting again; the injection was followed by two dark faecal evacuations slightly tinged with blood; no urine. Pulse 90. Slight nose-bleed, otherwise the same. 8th.—In n. violent vomiting twice of much dark blood, a dark faecal stool; slight thirst, no appetite; tongue thickly coated; formation of vesicles on l. border of tongue, also on l. side of soft palate; swallowing remains difficult; pulse 90, and regular; but little nose-bleed; no urine, no sweats. There was no urination up to the 10th, when, during an attack of nose-bleed, there was urging to micturate, and the urine passed in bed. The urine, which was collected on the 11th, had an acid reaction; the quantity was too small to take the specific gravity. Microscopical examination showed numerous straight and twisted tubuli covered with finely grained detritus; no blood-corpuscles. A chemical analysis disclosed much albumen. Once or twice a day, attacks of nose-bleed, alternating with vomiting, up to the 17th; also a daily increase of urine. On the 18th no nose-bleed, and no more albumen or tubuli in urine, which was now copious. Pulse 54; tongue still thickly coated. On 20th and 21st no nose-bleed; the tongue, for the first time, moist and clean; taste and appetite improved; pulse 88, intermitting. On 22nd, no more vomiting, but also no evacuation in

spire of three injections. Same condition on 23rd. Another injection on 24th brought a copious normal evacuation. Soup and gruel were well received. On 25th decidedly convalescent, with a remaining tendency to constipation for several d. (Moose, *Virchow's Archiv*, 1864.)

3. Mr. H—, æt. 19, architect, weakly, nervous constitution, several h. after eating a hearty dinner, took a glass of *sax sacré* in which was put by mistake a teaspoonful of a saturated solution of cyanide of mercury. A short time after taking the poison, the patient experienced a general feeling of coldness, soon followed by nausea, vomiting, and diarrhetic evacuations with violent colic. During the evacuations feeling of general prostration, soon amounting to a fainting fit, in which he fell to the floor, where he lay for an indefinite length of time in an unconscious state; he was alone in his room and received no aid. After consciousness had returned he crawled into bed, where he was found next m., 7 h. after taking the poison. Dr. Léon Simon saw him about 10 a.m. Not knowing the cause of the attack, he received an infusion of tea, which was soon after vomited up. At first sight the young man seemed to be suffering from an attack of cholera; his face was pale, somewhat bluish, and distorted, the eyes sunken, skin icy cold, pulse small, 70 to 76. Tongue pale; violent thirst, but what he drank was immediately vomited; a disagreeable astringent taste in mouth. He had had no evacuation and had not urinated for 2 h. The abdomen was not tympanitic, or particularly sensitive to pressure. Simon thought that the repeated evacuations had carried the poison from the intestinal canal, and prescribed neither emetics nor chemical antidotes, but gave the patient *hepar sulph.*, 3rd dil., with alternate drinks of milk and albuminated water. 6 p.m., patient had vomited twice, not very copiously, but had had much retching; 6 fluid offensive passages. The skin had become warm again; the pulse was quicker and stronger—90 beats. The tongue continued pale, with a yellowish coating on back part. Scraping in œsophagus; difficult swallowing; pharynx looked red and arborescent. Violent thirst, burning in stomach; epigastrium and (slightly) abdomen painful to pressure. No urine apart from stools. N. was spent sleeplessly. Patient was much excited and talked without cessation. He got angry with his watchers, and talked at random in his rage. He drank much, vomited 6 times, and had 8 stinking green slimy stools; no urine passed. Next m. condition was same as c. before. Skin hot, somewhat moist; headache; vertigo when sitting up; ringing in ears; tongue redder at edges, coated grey at back. *Hepar sulph.* continued. Next d. condition was improved; he had vomited but once, and had 3 fluid passages much less painful; passed urine once; sleeplessness and excitability same; extremely violent headache. Vertigo and ringing in ears on sitting up. Great weakness. *Belladonna*^{1st}. 15th.—Sleeplessness and headache same in n., but not so furibund; less thirst; no more vomiting; 6 slimy diarrhetic stools, with some tenesmus. Pulse increased; skin moderately warm; less vertigo; mucous membrane of mouth affected, gums swollen, covered with a white layer, with a violet-coloured margin; tongue swollen, and covered with tenacious grey

coating; entire mucous membrane of mouth and fauces red and arborescent. Nitric acid⁶. 16th.—General condition same; fever in n., with sleeplessness and violent headache; no vomiting; no evacuation; condition of mouth somewhat worse. A white transparent layer, resembling mucous syphilitic patches, has formed on palatine arches and tonsils; further, there was present on inner surface of r. cheek a round ulcer with greyish base and sharply defined edges, surrounded by a bright red border. Nitric acid²². 17th and 18th.—Condition the same, except that the ulcer in the mouth had spread, and was covered with a layer of greyish exudation; great thirst, cannot take warm drinks or meat broth, the latter seemed to him too salt. Constipation, and some pain in belly; the latter is not distended, and not very sensitive to pressure; urine clear but scanty. On 17th patient was left without med. On 18th and 19th he received sulphur²⁴. He had continuous hiccough for 24 h.; this was at last relieved by *nux vomica*. 20th.—Condition of mouth improved. Ulcerated surface clean, and is beginning to cicatrize; gums less swollen, less red, and the white coating has disappeared from these and from throat. Less thirst; meat-broth and light soups well received. Constipation; urine more copious; nights are more quiet; still patient has not his natural sleep. The neuralgic headache still continues during first part of n. Pulse small and weak, 70 to 75. Patient could sit up yesterday for an h. without being too much fatigued thereby. On 21st improvement continued, but on 22nd there was a sudden return of watery evacuations, which were preceded by violent colic; no urination; tongue is again covered with a grey coating; patient has a very disagreeable metallic taste, a return of the thirst, aversion to food, nausea; pulse accelerated but weak; skin moist and cold, and general prostration. *Arsenicum*¹². 23rd.—Symptoms in mouth better; increased diarrhoea; since yesterday, 12 blackish, fluid, very foetid stools, and violent colic; urine scanty and dark. Extreme weakness, pale face, icy-cold skin; small thread-like pulse, 100; thirst moderate; aversion to food. *China*⁹. 24th.—Diarrhoea the same; patient very weak; pulse small; skin moist and icy cold. Hippocratic face; could not sleep at n. on account of frequent evacuations. *Carbo veg.*²⁶ 25th.—But 8 evacuations during past 24 h. They were more yellow; one of them contained some blood. Pulse stronger, 100; skin not so cold, and countenance more natural; less thirst; tongue retains its grey coating. Gums less inflamed and swollen, but teeth painful. Mucous membrane of mouth and pharynx quite clean. *Carbo veg.*²⁶. 26th and 27th.—Considerable improvement. Diarrhoea checked and strength returning. Patient can remain up almost an h.; some return of appetite; patient can take soup; when sitting he complains of pain in rectum and about anus. 29th.—No more diarrhoea, but pains in rectum are becoming unbearable. The parts about anus are swollen, sensitive, and somewhat red; no stool, but some black blood is expelled when making the effort. *Belladonna*¹⁴. 30th.—All symptoms worse; 6 profuse evacuations of blood; patient is again extremely weak; pains in anus continue very severe; around anus small hæmorrhoidal tumours, and wart-like elevations on mucous membrane. *Rhus tox*¹⁹. March 31st, April 1st and

2nd.—The bloody passages have ceased, but not the pains; besides the above-mentioned symptoms, there is found about the anus a greyish diphtheritic coating, quite similar to that on the inner cheeks; also erosions on mucous membrane; in short, condition of anus was similar to the pathological affection styled ulcerating mucous patches. Merc. solub.¹⁹. 3rd.—Aggravation of pain in rectum; extension of ulcers and of diphtheritic coating; ichorous discharge from rectum diffusing the characteristic gangrenous smell, and leaving broad blackish stains on sheets. Lachesis²⁰. 4th.—Rather less pain, and much less gangrenous odour; discharge from anus still profuse, but more pus-like. Since yesterday m. some pain in calf of l. leg; on examination it was found that the veins formed two hard cords, which united a little below the bend of the knee; the slightest touch is very painful. Lachesis²¹. 5th, 6th, and 7th.—Improvement daily; discharge from anus growing less and less; it is of a serous nature, and has scarcely any odour. Yesterday patient had a painful passage, but sensitiveness has much decreased. He can now sit on an air-cushion. The leg is much in the same condition, and begins to swell as soon as he is on his feet. 10th.—Discharge is nearly stopped; parts around anus are somewhat red, but there is no swelling or any diphtheritic coating; patient remains up for several h. each d.; for 2 d. past he has been able to eat and digest meat. Daily, one or two soft stools, but slightly painful. The leg is less painful but continues somewhat swollen. No med. 12th.—Condition same as 2 d. ago. Lachesis²². 14th.—Leg is less painful, venous cords having grown much smaller; rectum and anus almost well. Lachesis²³. 18th.—Improvement continues. 28th.—Leg continues somewhat painful; otherwise well. Lachesis²⁴. 8 d. after patient visited Simon. His condition was improved in every way. He could walk more than an h. without fatigue. May 14th.—Simon saw the patient for the last time; he had resumed his usual occupations. [*Bull. de la Soc. Méd. Hom. de France*, iv, 340.]

III. *Experiments on animals*.—1. *a.* A small birch received 7 gr. dissolved in distilled water. For 5 m. retching, cramps, alternated with weakness; respiration and heart's action at first accelerated, then abnormally slow. Death in 10 m.

b. About 3 gr. were injected into connective tissue of thigh of a dog. In 3 m. retching and spasms, broken from time to time by fits of weakness lasting $\frac{1}{2}$ h. The animal then remained weak with tottering gait; the vomiting stopped. In 4 h. all symptoms disappeared.

c. About $\frac{3}{4}$ gr. were injected into the jugular vein of a young dog; he immediately fell on his side; slight spasms, lasting but some seconds; very slow respiration, heart-beats only 32 per m. Respiration and circulation grew slower and slower, and the animal died without spasms in 5 m.

d. The *P.M.* changes were of no decided character. Lungs contained little blood, and crepitated; heart was relaxed, and its chambers contained much blood, which was partly fluid. In the dog killed by injection into the jugular, the blood formed very elastic, firm, fibrous conglua in the vena cava ascendens and the iliac veins. In the other animals the blood in the vessels was mostly fluid. The colour of the

mucous membrane of the stomach was very variable; in 2 cases there were dark red spots, formed by the union of many small vessels. The same colour, somewhat less marked, was found in a dog which received 12 gr. after fasting 36 h. The same appearance of mucous membrane of stomach and intestines was seen in the dog killed by hypodermic injection. This dog's stomach was partly filled with food. Another dog, killed in the same way, had eaten nothing for 48 h.; the mucous membrane of stomach and intestines was whitish; he had vomited several times. In all the stomach was closely contracted, except in the one killed in 10 m. by injection into the jugular vein. In all, without exception, the liver was filled with copious fluid blood. (ORFILA, *op. cit.*)

2. I poisoned a large dog with the cyanide, by injecting some of the crude drug under the skin. The symptoms were—nausea; vomiting; excessive thirst; many stools, of what I took to be blood but proved to be bile and mucus, with much tenesmus; respiration very slow, the last h. before death about 1 per m.; dilatation of pupils; intermittent pulse, beating twice, then stopping once, then beating 5 times and stopping twice. The dog had no pain, but was in a listless state, with excessive and complete prostration. *Post-mortem* examination revealed inflammation of the larynx, with its mucous membrane and that of the posterior nares loaded with mucus; cardiac portion of stomach highly inflamed, the viscus containing about a pint of bile and mucus; whole intestinal tract filled with bile and rectum congested; liver highly congested; both ventricles of heart filled with dark blood, in r. a white fibrinous clot. (BURT, *Amer. Homoeopathist*, ii, 29.)

Mercurius iodatus, mercurous iodide, Hg I.

I. *Proving*.—1. Dr. F. S. P. LOAN proved 1st trit.* Dull headache on awaking at n.; dull heavy aching at base of brain, in throat and nostrils. Feeling of dryness in teeth; grinding sensation in roots of teeth, with occasional pains in abdomen (3rd d.); creeping grinding sensation at roots of teeth with pressing together, and sense of soreness deep behind umbilicus (4th d.); sensation of fulness, grinding, and drawing in roots of teeth, with constant desire to press teeth together,—he had pressed them so hard during sleep that the muscles were lame and tired on awaking; gums feel slippery; increased flow of saliva, with congested feeling at the root of a tooth (5th — 14th d.). Sense of dryness in throat; dull, heavy, aching pain in throat; fauces and roof of mouth dry, gums and side of mouth moist; sensation of nausea and faintness, with pressure high up in rectum (4th d.); sensation of strings of air-bubbles running transversely across abdomen below umbilicus,—also a shooting pain, as of a knotted string, down, through, and across, above the umbilicus; loud rumbling in bowels (2nd d.); occasional pains in abdomen, with grinding sensation in roots of teeth (30th d.); frequent short darting pains in l. abdomen, and occasionally in r., running from deep in pelvis up to hepatic region; for 65 d., constant daily return at 2 a.m. of a heavy uneasy sensation below umbilicus, as if full above and empty below, with a kind of pressure towards anus and sensation as if it could not move at all, succeeded by feeling as if an acid loose stool would be discharged, and then of faintness and sickness in hypogastrium, and frequent painless discharge of insiduous flatus. Slight constant discharge of mucus from urethra, with slight soreness around glans; diarrhoea (5th, 7th, and 9th d.). Some tightness and pressure in lungs. Aching and drawing pain in bones of l. forearm, and some pressure in hypogastrium, at mid. day, returning at 9 p.m. with passage from bowels; sense of itches in foot. Profuse sweat of genital organs. (Allen's *Encyclopaedia*, vi, 269.)

* Manner unknown in all these provings.—Eds.

3. L. J. B.—took 2, and 22 trits. Fine bright red eruption on roof of mouth; several sharp sudden pains in r. chest, from above downward; while in bed at n., severe pain in l. femur and dull pain in sacral region, lasting 24 h., relieved by motion, stretching, and turning from side to side. (*Ibid.*)

7. Miss R.—took 2nd, 3rd, 5th, and 25th dec. potencies. Bad headache on awaking, in forehead, as if sword were run through l. temple to r., also in occiput bruised pain as from a blow (after 10½ h.); dull pain above l. temple, followed by throbbing pain in r.; very sharp pain on top of head, lasting a long time, after 4 d.; sharp pain in occiput, after rising in m. Sharp lasting pain in superior arch of l. orbit, as if from knife. Tongue coated yellowish white; small, red, mixed elevations on tongue. Burning in throat when swallowing saliva; burning in throat, with pain when swallowing; tonsils slightly swollen; empty deglutition, she is obliged to swallow frequently. Burning at stomach with pain as if from a blow (1st and 2nd d.); bruised burning pain at stomach, more severe than any preceding it (4th d.); sharp, cutting pain in stomach, with nausea and inclination to vomit, in m. when awaking, and lasting all d. Pain in l. hypochondrium, with dimness on awaking in m., and lasting all d. Sudden darting through r. side, as if from a sword. On the 7th d. excruciating, sharp, sticking pain in back (dorsal region), causing her to shed tears, lasting ½ h.; it returned next d., but not so severely. Dull pain behind both ankles in m., on rising; sharp, cutting pain in small toe of l. foot, lasting 24 h. (*Ibid.*)

4. Edward W.—took 22, 23, 24, and 25. Pressive aching in frontal region, lasting a short time, after 12d d.; dull headache at r. temple. Pinching pain in r. elbow, lasting few m.; slight aching pain in r. elbow. Pinching pain in r. knee, lasting a d. and 2 h., followed shortly after by pain of same character in r. elbow; pressing, squeezing pain in l. knee; pinching pain behind lower third of l. leg; aching pain on anterior surface of l. leg; aching on internal surface of l. leg above ankle, lasting about 2 h., followed by aching in forehead; severe aching pain in r. leg, on posterior surface, immediately followed by pinching pain on posterior surface of r. forearm; pressing, squeezing pain in r. ankle; sharp cutting pain in r. ankle, after ½ h.; aching on dorsum of r. foot. (*Ibid.*)

5. Miss X.—took 24 and 25. Dizzy headache, like rush of blood to head, followed by violent pain above r. temple; headache in m. when rising, lasting over ½ h.; headache with faintness, while in church (2½ h.); general headache (1½ d.); slight headache all over forehead; bad headache all over head (24 h.); violent headache, especially over r. temple (18 h.); very violent headache, involving entire head; very violent headache, lasting some m., over r. half of frontal and r. parietal bones (19 h.); slight general, dull headache on awaking (21 h.); sensation in skull as if it were cracking, continuing the whole afternoon (17th d., also on 19th); increased throbbing pain in head, more in forehead, after 49 h.; headache is always on top of head, or on r. side; headache is worse in m. before rising, and for short time after rising, also when she walks about in house; headache over top of head (after 46 h., 5th d.); headache all over top of head, proceeding after some time into forehead; headache all over top of head, with wave-like motion of the blood, after ½ h., 1st d., recurring all over head on 5th d.; slight headache over top of the head, 10th d.; sharp pain on top of head, followed by pain in r. hip, after ½ h.; pain in r. side of head; slight pains in r. side of head; violent pain in l. side of head, near l. temple; violent pain over entire r. side of head, extending from r. temple to nape of neck, lasting longer than usual (24 h.); rather violent pain in r. side of head; very violent pains in r. side of head; sharp, aching pain in r. side of head (3 d.); sharp pain in r. side of head, extending to neck and r. eye (4 d.); several slightly sharp pains in l. side of head, above l. temple (2 d.); very short, sharp pains in r. side of head. Sharp pain in the septum narium (4 d.). Sore-throat, with difficulty in swallowing and frequent empty swallowings; severe burning in r. side of neck, as if a coal of fire were laid upon it, continuing, but not so severely, for a few m. Nausea (21 h.); nausea, with disgust at sight of food (before supper); nausea, with suffocation about heart, and dimness (25 h.); while at dinner, inclination to vomit, obliging her to cease eating (65 h.); inclination to vomit, with dull, dizzy pains over top of head, following immediately after a slight pain at heart (93 h.); strong inclination to vomit, after 43 h.; slight pain in l. side of stomach (23rd d.); several short, rather burning pains in l. side of stomach (22nd d.); dull, constrictive pain in stomach, followed shortly after

by aching pains in r. arm and shoulder (21 h.); rather severe cramps in stomach, followed immediately by pain in r. side of back; sudden, sharp, momentary pain in stomach, as if a knife were driven in. Aching pain in region of liver, proceeding from r. side to l., producing dizziness and nausea; two successive sharp pains in r. hypochondrium, followed by sharp pain through stomach, with sensation as if pain had turned around; slight sharp pain in r. hepatic region; very sharp pain under r. floating ribs; very sharp pain in l. hypochondrium. Several successive violent pains in chest (24 h.); sharp pain in the chest, behind sternum; rheumatic pain in r. side of chest (27 h.); dull, continuous pains in r. side of chest, at n. while in bed; aching pain in r. side of chest; sharp pain in l. side of chest; sharp pain in r. side of chest, followed by slightly sharp pain in l. side; sharp pains in l. side below axilla, followed by a double pain on top of head; short, sharp pain in r. side,—a few m. after, the same pain appeared further back under arms, with aching in r. side of chest, followed by soreness in chest as if from a cold; stitches in r. side of chest (25 h.); sharp throbbing pain in l. side of chest; the pains in chest appear on l. side, those which appear on the r. side always proceed to l. Sudden but lasting pain in l. side, about heart, taking away her breath; slight pain in heart, when yawning; sharp pain about heart (3 d.); rather sharp pain at heart; slight itching pain at heart (24 h.); sudden spasmodic action of heart, as if it jumped out of its place. Slight, sharp pain in l. side of neck; several violent pains in back (2 h.); aching pain in back (3 d.); sharp sudden pain in l. shoulder-blade; sharp pain in l. scapula (22 h.); sharp, cutting pain in the back, between shoulders,—2 h. after, same pain appeared lower down, about last dorsal vertebra (2 d.); throbbing pain between shoulders; sharp pain in lumbar region; sharp pain in small of the back. Pain in r. arm and sole of r. foot (21 h.); dull, lasting pain in r. forearm, and simultaneously in l. hip; sharp pain in l. shoulder (23 h.); sharp pain in r. shoulder, with aching pain in back; pain in l. arm above elbow (29 h.); dull, aching pain in l. elbow (65 h.); rheumatic pain in l. arm below elbow, proceeding afterwards into l. thumb; dull, aching pains in both forearms (75 h.); pain on back of r. hand (92 h.); pain in r. hand, followed by rheumatic pain above l. elbow (3 d.); rheumatic pain in r. hand at n. in bed; rather sharp pain in palm of r. hand; several sharp pains in l. forefinger; rather sharp pain in palmar surface of r. thumb, with slight pain on top of head (75 h.). Rather sharp pain in r. lower limb, extending into foot (33 d.); sharp pain in r. thigh (24 h.); sharp pain in r. thigh, followed shortly after by slight pain in the nose; slightly sharp pain in r. thigh, above knee; pain on anterior surface of r. leg above ankle; four successive pains on l. leg above ankle, at intervals of 15 m. (2 h.); sharp pain in l. leg, between foot and knee; slight lasting pain in sole of l. foot, followed by sharp pain in l. chest (56 h.); pain in sole of l. foot, with feeling of faintness through the whole body (99 h.); pain in sole of l. foot, extending through into large toe and proceeding half way across dorsum of foot (4 d.); pain in sole of l. foot, relieved by movement (3 d.); pain in large toe of l. foot, with itching on large toes of both feet; pain on dorsum of large toe of l. foot, with sharp pains in fingers of r. hand; slightly sharp pain in large toe of r. foot; short, sharp pains in 4th and 5th toes of r. foot. Faintness, with feeling that it would be relieved by lying down; deadly faintness, with entire loss of muscular power, followed by spasmodic motion upward and downward of lower jaw, which continued throughout next d.; while in church felt as if she would faint. The following symptoms appeared in rapid succession at n.: pain behind l. ear, followed by pain in tips of fingers of r. hand and a pain in sole of r. foot near the toes; slight pains in toes of l. foot, followed by pain in back part of head, then in forehead, and finally near r. ear; sharp pain in toes of r. foot; slight pain about heart; violent pain in r. side of head, pain in heel of r. foot, followed by pain above r. temple, and afterwards by sharp pain in l. side of neck. A small, stinging pimple appeared on r. cheek, shortly after one in exactly the same position on l. cheek, the latter was more itching than stinging; itching on sole of l. foot; slight stinging in l. cheek. Frightful dreams and nightmares; frightful dreams of drowning and of coffins; nightmare, she thought that an immense sheet of letter-paper was coming down over her to smother her. Occasional general chilliness; chills with trembling all over body (3 d.). The pains are felt more on the r. side; the pains are better during pressure, but as soon as this is removed the relief passes away. (*Ibid.*)

6. Dr. JAM. BLACKBURN took 1st to 6th trit. Lively, good-natured, and talkative; he feels very lively, whistles, sings, and is disposed to be decidedly merry and good.

natured, (soon after great depression); from noon till 4 p.m., feels depressed, from 4 to 6 p.m., is lively and cheerful, from 6 till 12, all symptoms are aggravated; while in open air always feels cheerful, in a warm room he is generally dull and depressed, Dulness of head, with severe, dull, frontal headache, when awaking at n.; dull, heavy condition of head, with dull soreness of bones of face (this last constant throughout whole proing); head feels dull and heavy (6 h.); dull headache on awaking in m., which continues till he exercises, after which it passes off; dull headache entire forenoon; dull headache with soreness of face and nose, the entire c.; when he awakens at n, always has a dull headache; dull headache, aggravated by pressure; dull headache, especially at r. temple, with nausea and feeling as if he would vomit; dull headache, with dulness of the head, in a warm room; entire head feels dull and compressed, and as if pressed down upon pillow by a heavy weight (12 h.); dull pressive headache after dinner (3 h.); occasional sharp stitches through head and face; the severe lasting pains occur on the r. side; the pains in head and face are relieved during pressure, but are worse after this is removed; in bed at n., very severe headache over the r. half of forehead and r. ear, with severe pain or dull soreness in r. orbit and eyeball; dull heavy pain over forehead and temples, extending down sides of face (2 h.); dull frontal headache, especially affecting l. orbit (3 h.); dull frontal headache, with pain at root of nose (3 h.); dull frontal headache the entire d., with occasional sharp stitches through head and face (2 h.); dull frontal headache the entire c. (3 h.); dull frontal headache with pain in orbits and root of the nose, when awaking at n.; sudden severe and sharp pain in r. side of forehead, above r. temple; severe shooting pain in forehead, superior arch of the r. orbit, and root of nose, steady, aching pain in r. temple (2 h.); momentary pressive pain in both temples (4 h.); occasional shooting pains in temples (2 h.); severe sharp pains in r. temple, at n. in bed; severe sharp stitches in both temples, while going down stairs; pain in l. parietal bone, aggravated by touching part, and by combing hair (24 h.); dull pains in the r. and l. sides of head, in front of ears (3 h.); dull pains in entire r. side of the head, with stiffness in nape of neck, and sensation as if r. ear were closed up; numbness of occiput and nape of neck, with stiffness of neck; numbness and tingling of scalp (12 h.); itching of scalp; persistent itching on top of head, at n. in bed. Pain and soreness of entire r. orbit (3 h.); pain in superior arch of l. orbit with headache, aggravated by noise and talking; dull pain in inferior arch of r. orbit; dull pain in superior arch of l. orbit, with dull frontal headache; slightly dull pain in superior arch of l. orbit, and in l. malar bone, painful when touched; sharp pain in superior arch of l. orbit; sharp pain in inferior arch of l. orbit and l. eyeball, with feeling as if lachrymation would occur; sudden sharp pain in superior arch of r. orbit, aggravated by stooping (22 h.); severely acute pain in superior arch of r. orbit, on rising in m.; when lying on l. side, black clouds float before eyes, this never occurs when lying on r. side. Dull pain in front of both ears; sudden, sharp pain in external meatus of r. ear; stinging throbbing pain in l. external ear; sensation as if r. ear were closed up, although his hearing remained good; at n., while in bed, dull pain in internal meatus of r. ear, followed immediately by itching of small spot on top of head; boring pain in internal meatus of r. ear; sharp, intermitting boring in internal meatus of r. ear (1 h.); sharp throbbing, boring pain from within outward, deep in l. ear; touching r. ear, or introducing finger, causes sore pain in ear, and also aggravates the headache on that side. A great deal of mucus in nose, obliging him constantly to clear it; pain at root of nose (12 h.); steady, dull pain at root of nose; severe shooting pains at root of nose; severe throbbing pain on r. side of nose, deep in bone; r. side of septum narium and r. nostril are very sore and much swollen; for 3 d. sore painful spot on l. wing of nose. Dull soreness of the whole r. side of face, especially r. half of inferior maxillary bone; dull pains in l. malar and r. orbital bones; slightly dull pain in l. malar bone, which is painful when touched; sharp pain in l. cheek, with soreness of l. half of inferior maxillary bone; steady sharp pain in upper portion of l. malar bone, which is painful when pressed; sharp throbbing pain in r. cheek, with same on external surface of r. forearm; dull bruised pain in r. malar bone, radiating into forehead and r. side of head; at same time a small spot at end of one of the *radix pulvate* and burns like fire (4 h.); dryness of lips, with burning dryness of lower lip, and sensation as if upper teeth were pressed tightly together; deep boring pain in ramus of r. side of inferior maxillary bone, extending up to r. orbit. L. lower molar teeth felt so long that he could not eat; pain in 2 l. molar teeth,

aggravated by bringing them together, with feeling as if they were too long; disagreeable feeling in teeth, as if they were very tight in their sockets (a d.); sensation in upper teeth as if they were pressed tightly together (3rd and 4th d.). The coating on the tongue presents occasionally a light brown colour; tongue thickly coated with yellowish brown fur; tongue is coated bright yellow, tip and edges being red; the tongue retained through entire proving a thick, dirty yellow coating; on rising in m. back part of tongue is covered with a thick, dirty yellow coating; tongue thickly covered with a yellowish-white coating; tongue slightly coated at back part; coating on tongue is always on back part, front, with edges and tip, being clean; the papillæ can be prominently seen through the coating on tongue; small raised blisters on back part of tongue; dryness of mouth and throat, with frequent empty swallowings; dry and sticky condition of mouth, gums, and teeth; constant secretion of mucus in throat; difficult to dislodge, and causing itching; excessive secretion of mucus in throat; in m. there is very much mucus in throat; a great deal of mucus descends through posterior nares into throat; dryness of throat, with sharp pain above epiglottic and in l. tonsil when swallowing, also in l. half of hard palate; throat dry and burning, with pain when swallowing; the throat and nose are dry, and feel as if entirely closed up with mucus; sensation as if a lump were in throat; burning in throat; for several d. throat has felt swollen; tonsils, uvula, and pharynx are red and congested; the mucous patches on tonsils and walls of pharynx are easily detached; pain and swelling of r. tonsil; slight pain in r. tonsil, with sensation as if it were swollen, with pain when swallowing; posterior wall of pharynx is red, irritated, and inflamed, and coated with patches of mucus and small spots which look ulcerated; pricking-burning pain in r. side of pharynx; steady, sharp pain in r. side of neck, extending over r. side of head (a b.); soreness, with sensation of stiffness (but without actual stiffness) in r. side of the neck, followed by slight pain in internal meatus of r. ear, going through into throat, and causing dulness in ear and sensation of swelling in the throat, with disposition to swallow frequently. Desire for acids not very great, but stronger than he ever had before; frequent want of appetite, with disgust at seeing food. During proving appetite was very variable, at one time excellent, and at another entirely wanting; sometimes an excellent appetite until sitting down to eat, when, at sight of food, it would vanish; the smell of food while cooking would sometimes remove the appetite; during proving there was great thirst (principally in e.) for water, of which he drank large quantities; occasionally there was thirst for acid drinks. Slight nausea; weak, empty feeling at stomach, with slight sensation of nausea (a f. h.); steady, sharp pain in stomach, with hardness of the stomach and abdomen, pain increased by pressure. Slight aching in l. hypochondrium; extremely acute, stitching pain in r. side below ribs, he could not speak without gasping, and had to stand with his hand pressed against his side, which gave some relief; severe stitching pain (immediately) at umbilicus, with dull, tired feeling in small of the back, oppression of chest, dull pain above r. temple, and pain in r. shoulder, worse when using arm, immediately after lying down at n.; hardness of abdomen, as if from incarcerated flatus; rumbling in abdomen, with escape of flatus, at n. while in bed; feeling in abdomen as if diarrhoea would come on; cutting pain in abdomen, with great discharge of flatus, followed by a small stool, consisting of hard black feces, with stinging and burning at anus (at n.); slight cutting pain in abdomen, with inclination to stool, but with evacuations only of wind; colic pain in abdomen, with sensation as if escape of flatus would relieve; slight colic on awaking; slight colic pain in abdomen, with great discharge of flatus on awaking in m.; severe colic pain in abdomen. Small, soft, diarrhoeic stool; copious, very thin, light brown stool, accompanied by froth and wind, and preceded by cutting pains in the abdomen; in m., thin, light-coloured stool; emission of exceedingly foul-smelling flatus, followed by immediate inclination to stool, which was small, thin, and very foul smelling; copious, soft, dark brown stool, with soreness at anus; copious, soft, dark brown stool, with burning-stinging at anus; slight cutting pain in abdomen, followed immediately by a copious, soft, yellowish brown stool (the stools always follow immediately after the colic pains); copious light brown stool, consisting first of tolerably compact faeces, then of soft sweet, and finally of froth; small stool of very tough faeces, almost of consistency of pussy, requiring great straining for their evacuation; after much straining and exertion he passed two small lumps, about the size of beans, of hard black faeces, covered with white and green mucus, at n.; the stools which

occur in the daytime are copious, soft, and of a dark or light yellowish-brown colour, the stools at n. are scanty, hard, and black. During entire prostrating urine has been copious, and of dark colour. Occasional sharp shooting stitches at end of penis, through glans; seminal emission, of which he knew nothing until m.; copious seminal emission, preceded by lead dreams. Slight hacking cough, when inapting. Oppressed feeling in chest; dull boring pain in r. side of chest, at 6th rib; sharp stitches, as from needles, in l. side of chest, produced by pressure on stomach. Pulse weak, irregular, and labouring, about 80 per m. Stiffness of neck; stiffness of entire neck, with pain when turning head (3rd d.); great soreness and stiffness of neck, with soreness and numbness of back between the scapula; dull pain over the l. scapula; sharp sticking pain in dorsal region of back; very severe pain, as if bruised, over entire scapular region; throbbing pain on r. scapula. Wearied feeling of all limbs, especially when lying on l. side, relieved by lying on r. side; heaviness of limbs, with lassitude and drowsiness; bone pains, generally felt deep in bones. R. arm is lame and tired after writing; slight numbness and wearied feeling in r. arm, aggravated by writing (while other motion but very rarely produced or aggravated this symptom, it constantly appeared as soon as he began to write, and disappeared when he had finished); lame numbness of l. shoulder and entire l. arm; dull, heavy feeling in entire r. arm; r. arm, especially in bend of elbow, is very painful on rising in m., worse from passive motion; lamina rheumatic pain in r. arm, aggravated by writing; severe dull pain in the r. arm, deep in the bones, aggravated by writing; soreness and lameness of the l. shoulder and arm every n., when lying on the l. side (previous to proving the drug he always lay on his l. side, and without inconvenience; now he must frequently lie on his r. side); entire r. arm is very sore and painful, worse from pressure, rubbing, and passive motion; the pains in r. shoulder, arm, and hand, are reproduced and exaggerated by writing; lameness and stiffness of the r. shoulder; severe pain in r. shoulder, obliging him to cease writing; sharp pain in the r. axilla; sharp pricking pain at back of r. shoulder; pain and soreness of l. arm and elbow, in e., at n., and in m. on waking; sharp boring in r. arm, above the elbow; continual dull pain in bend of r. elbow; sharp, stabbing pain in bend of r. elbow; dull lamina pain of l. forearm and hand; sharp pain in l. wrist, extending (but more severe) into thumb, followed immediately by sharp intermittent pain on dorsum of l. foot, extending into the 3rd and 4th toes; sharp aching pain in radial side of the r. wrist, aggravated by using limb or by twisting wrist (on awaking in m., and continuing all d.); weak, numb feeling, with cramp-like pains, of r. hand; dull pain in palm of l. hand, with numbness of fingers and inability to grasp objects (at n. while in bed); throbbing pain in palm of l. hand, extending up arm into l. chest; numbness of fingers of both hands; sharp throbbing sticking pain at base of l. forefinger, with lameness and stiffness of whole finger; sharp prickings, as if from needles, appear simultaneously in first joints of 3rd and 4th fingers of both hands, with stiffness of fingers,—the prickings are aggravated by moving or bending the fingers; throbbing pain on palmar surface at base of the l. thumb, with paralysed feeling of thumb. Weariness of lower limbs, with dull pains and tingling (3 b.); searing pain along anterior surface of r. thigh and leg from hip to middle third of the leg, relieved by pressure and motion, worse when at rest (3 b.); passive motion causes tingling through entire r. lower limb, even to toes; aching pain in r. hip-joint; deep boring pain on the external surface of l. thigh, apparently in femur, confined to a small spot, and very persistent (pain is dull, and thigh feels as if it had been beaten),—pain in thigh left after leaving 3 b., but was reproduced by shaking limb, and was then accompanied by tingling in r. and l. legs, feet, and toes, as if they were going to sleep; throbbing pain on internal surface of r. knee the whole e.; heavy lamina pains in calves of both legs, with pain in l. knee-joint; deep throbbing pain on external surface of r. leg, apparently in tibia (this pain returned after 4 d.); severe lamina pains on posterior surface of both ankles (on awaking in m.); sharp boring pain on anterior surface of l. ankle; cramp-like pain in l. side of sole of l. foot, with numbness of l. leg. At 4 p.m. he had to lie down from great weariness; disposition to sleep, with sleeplessness; he felt better after lying down a short time, indisposition to do anything, with desire to lie down and rest; he feels languid and sleepy; excessively tired feeling of whole body, especially of limbs, with indisposition to do anything, and desire to lie down, with dull aching in forehead and bones of face. The pains are steady, dull, throbbing, and boring, also sudden, sharp, stinging,

and pricking; slight sticking pains in both scapulae, in r. temple, r. side of chest, l. ear, along outer border of both hands and both little fingers, within a few m. after taking the medicine (pains in the head, body, and extremities occur oftener and more severely on r. side; many pains appear on the l. side, but they are less severe and lasting; the pains proceed from r. to l.; many symptoms appear at n., while in bed; passive movement of the part while sitting or lying always aggravates, it renders the pains more perceptible, and reproduces pains which had disappeared; a state of rest seems to favour the action of this remedy, as the symptoms appear during rest and at n., and are worse during rest, whereas they are ameliorated and leave during active motion; better after rising until noon, and from 4 to 6 p.m.; however badly he feels, the open air will dissipate all his unpleasant symptoms. The action of the remedy is materially influenced by the condition of the mind, and is affected or retarded by care, grief, anxiety, &c.). "On Feb. 17th I took 6 gr. of a trit. in course of next 3 d. I was in close attendance upon a severe case, which caused me great anxiety; during this time I did not experience a single symptom, but as soon as my anxiety was relieved, the symptoms appeared as regularly and even more violently than before." The pains which he has at n. while lying on the l. side are relieved by lying on the r. side; steady pressure sometimes relieves the pains. Chest, stomach and abdomen are covered with a fine, bright red eruption, consisting of innumerable points, but appearing as a universal redness, pitting and disappearing after pressure, but returning when it has been removed; a painful pimple appears on end joint of the r. thumb, and remains several d.; itching and burning pimple on r. scapula near lower border, which, after scratching, becomes exceedingly sore and painful (at n. in bed); pimple on r. side of septum narium, sore and painful for several d.; itching without eruption; itching rather increased by scratching; universal itching, not relieved by scratching; itching on various parts of body; slightly itching, persistent itching spots over whole body, following each other in rapid succession; very troublesome itching over whole body in daytime; very troublesome itching all over body, at n.; excessive itching, especially of chest, abdomen, back, and hips; the itching in d. and e. is not relieved by scratching, but at n. in bed scratching relieves; itching is worse at n., and especially while in bed; pricking pain on posterior surface of r. thigh, removed by rubbing and scratching; fine pricking pain in bend of the l. knee-joint, causing him to scratch at n.; sharp stinging on back of r. hand; sharp stinging on dorsum of large toe of l. foot; itching behind r. ear at n. in bed; itching on various parts of r. side of face, at n. in bed; itching on r. buttock, at n. in bed; a small itching spot on r. cheek, which he has scratched, pulsates and stings as if from needles (2 h.); persistent itching on r. side of chest, about 5th rib, disappears after scratching; persistent itching on r. side of neck (at n. in bed); persistent itching on posterior surface of l. elbow (at n.); pricking-itching in r. axilla; stinging-itching on l. scapula as if jagged with a needle (6 h.); stinging-itching on external border of r. foot, relieved for a time by scratching, followed by itching on r. leg above ankle; stinging-itching on r. knee, and afterwards on l. foot, at n. in bed. Slept very well after 7 a.m., wakefulness till then; he awakens early in m., and cannot sleep again; sleeplessness without restlessness, lies awake quiet and calm, not being able to sleep; he dreamed that he was proving the drug,—this was followed by a seminal emission. Burning heat in nape of the neck and occiput (5 h.). (*Ibid.*)

7. Dr. KERR, perfectly well, counted his blood-corpuscles (red) and found them up to his usual average (4,775,275). He then took gr. $\frac{1}{2}$ of merc. iod. 3 times a d. for two weeks, beginning Sept. 10th. On the 20th he found the corpuscles 5,572,200 in number. On the 24th, having been up greater part of n. with a patient, and feeling no appetite for breakfast, they were 5,175,875. Next d., and feeling slept well, and appetite returned, they were 5,562,062. (*Amer. Journ. of Med. Sc.*, lxxi, 36).

8. Same gave to a patient with chaneroid gr. $\frac{1}{2}$ of same daily for 4 mo. At end of time his corpuscles were 5,305,125 (average being 5,000,000). Three weeks later, dose having been gradually diminished to gr. $\frac{1}{4}$, they were 5,302,375. (*Ibid.*)

III. *Experiments on animals.*—1. *a.* 3j was administered along with food to a pointer dog at 4 p.m. The consequences were,—vomiting, with black semi-fluid alvine evacuations in course of n.; glassiness of eyes and thickropy discharge from nostrils by 3rd d.; and about close of 5th d. prostration, and regular slow motion of extremities to and fro at each respiration. On the succeeding n. the animal died. Up to the last d. he was able to stand, showed no want of appetite, and had not suffered any perceptible sensorial derangement.

b. Dissection exposed to viewed a half decolorised coagulum in l. ventricle of heart, and a little dark semifluid blood in r.; strong prominent corrugation of lining membrane of stomach, with redness of apices of rugæ, dotted red patches at sides, and a string of extravasated blood in every furrow. (COGSWELL, *Iodine and its Compounds*, p. 160.)

2. *a.* ʒj was given to a strong male rabbit at 9 a.m. In a few h. animal voided a copious semifluid stool; the d. following he was affected with tremors and debility, and gave utterance to low plaintive cries in course of n. succeeding which death took place. Shortly before this he passed a scanty semifluid evacuation.

b. Lining membrane of stomach was excessively injected about 1 in. from pyloric orifice, and presented a small quantity of extravasated blood upon its surface. Its contents were soft, blackish green, and homogeneous, as were those of the small intestines. Rectum and bladder were empty. (*Ibid.*)

Mercurius biniodatus, mercuric iodide, Hg I₂

1. *Proving.*—1. A man, æt. 22, lymphatic, took every 2 d. 10 centgr. of 3x trit. The 22nd d. there appeared 2 boils, one on inner side of middle of l. thigh, the other on l. leg. At same time 2 smaller boils on l. side of face about malar region and inflammation of a sebaceous follicle on r. cheek. 18 d. later there was a painful follicular inflammation at level of chin and a small boil on l. naris. Finally a pustular eruption at orifice of nostrils. (ANDRIZU, *Journ. de la Soc. Gall.*, viii, 140, 1856.)

2. A man, æt. 30, lymphatico-sanguine, took every d. 20 centgr. of same. On 14th d. a small red tubercle in centre of l. temple, which lasted 9 d. (*Ibid.*, 141.)

3. A woman, æt. 40, stout, lymphatico-sanguine, took every m. 20 centgr. of same. On 9th d., on middle of l. maxillary region, a projecting pustule the size of a pea with hard red areola. A similar smaller but very red tubercle above middle of l. eyebrow. A similar tubercle above r. eyebrow. All were gone in the space of a week. (*Ibid.*)

4. A man, æt. 25, lymphatic, took every m. 20 centgr. of same. The 7th d. there appeared 2 tubercles of bright-red colour, the size of a large shot, one on l. temple, the other on l. side of forehead, a finger's breadth below the commencement of the hair. There were at same time weight and dull pain in frontal region. They went off in 11 d. (*Ibid.*)

5. A girl, æt. 5, took every m. 5 centgr. of same. On the 13th d. there appeared 2 boils, one on the front of l. thigh about its middle,

the other on the inside of l. leg. The 15th d. a styte appeared. (*Ibid.*)

6. A woman, æt. 30, lymphatico-nervous, took every m. and e. 10 centgr. of same. The first 6 d. she had great weakness of stomach, accompanied by much weakness of limbs, which came on after each dose and lasted about 2 h. From 7th to 14th d. no symptoms, but on 15th d. she had great heaviness in hypogastrium, with a feeling when she walked as if something would come out of vagina. The uterus in fact was so much prolapsed that it projected from the vulva the size of an egg. At same time drawing pain is more severe; the womb was enormously congested. The medicine was discontinued, and 12 d. later the womb had resumed its ordinary size; but it was considerably lower than normal, though all the symptoms had disappeared. (*Ibid.*, 146.)

7. A young woman took 3 gr. of 2x trit. three times a d. After 4 d. following symptoms occurred, in order as recorded; intense shivering, followed by feverishness; pain on pressure at epigastrium; painful swelling of tonsils and submaxillary glands; distension of abdomen about navel, with pain at that part on pressure; loud and bitter belchings; hot perspiration; nausea, while passing a diarrhetic stool; frightful dreams; aching pains from hips to ankles, as though she had walked many miles, felt more particularly in bones; catching pain under r. breast, oppressing breathing; urine thick and dark when passed; frequent desire to micturate, she cannot hold her water for a minute; bitter taste; profuse flow of saliva, and aching in teeth of lower jaw; hot and inflamed state of r. side of nose, with coryza; feeling in forehead as if head were bound round with tight cord; pains in bones of head, chiefly occipital; low spirits, and disposition to cry; excessive giddiness, everything seems to reel round her. (ROBINSON, *Brit. Journ. of Hom.*, xxiv, 517.)

8. [The following (8—11) are results of a proving by the Philadelphia Provers' Union, made in 1855, of which we only know that the potencies from 1—10 were employed, and whose only record now extant is the schematic pathogenesis given by Hering.]

Dr. AZARON. Ill-humour and slimy taste on waking in m. Slight headache in region of coronoid (3rd d.) Dimness of sight (1st d.) Fine ringing in teeth at times (7th d.); salivation (31h d.); large flow of water in mouth (3rd and 4th d.), not so much, but obliged to expectorate (31h d.). Hawking and spitting of small quantity of white, tough expectoration through d. (2nd d.); disposition to hawk, sensation as of lump in throat, with disposition to hawk it out all 5th d., hawked up a hard greenish lump on 31h d.; sore-throat, feels as if scalded on waking, worse during empty swallowing, all d. quite troublesome (6th d.); sore-throat, worse during empty deglutition (3rd, 4th, 7th, and 8th d.). Nausea and sore-throat after $\frac{1}{2}$ h. (1st d.). Pain around umbilicus (1st d.). Urine red (2nd and 3rd d.). Hoarse and husky $\frac{1}{2}$ h. after getting a little wet in a shower, in e. (5th d.). Cough, with a little loose, whitish, slimy expectoration through d., and with slight difficulty of breathing (10th d.). Cough with white, thick expectoration, became dry in e. (11th d.), better afterwards, but prevented him from making another proving; breathing more difficult than usual (5th d.). On waking, stiffness and pain in neck, in region of 1st or 2nd cervical vertebra, going off in short time (4th d.). Weakness of knee-joints (1st d.). Foolish dreams (3rd d.); dreams about gunning and farming (7th d.), gunning and travelling (11th d.); anxious dreams (2nd d.), about removing and his relations (4th d.). Chilly and aching in lower limbs, through forenoon (2nd d.); flushes of heat, and tickling sensation over face (1st d.) (HERING, *Mar. Med.*, vol. 1.)

9. Mrs. AZARON. Pain in forehead (1st d.). Eyes watery, look slightly swollen.

Running from nose, with a good deal of sneezing (and d.). Tongue conversely dry, with desire to wet the mouth. Desire to drink, but small quantities. Loud rumbling in bowels (and d.). Pulse accelerated, beating stronger. An almost insupportable pain and aching in lower limbs, in e., better on moving, disappearing during a walk (and d.). Chilliness at bedtime, followed by flush of heat over face (1st d.); flush of heat and sensation of being tickled over the whole body (2d d.); flushes in face, face hot and hands cold. (*Ibid.*)

10. Dr. KOTTNER. Irritation of mucous membrane of nose, causing constant snuffing (f h., 1st d.). (*Ibid.*)

11. Dr. J. R. COKE, jun. Severe headache all over, from 3 p.m. on 1st d., and all 2nd d.; sharp pain in sinicupit, over both eyes (11 a.m., 1st d.). Eyes inflamed, r. eye worse, bright light irritate greatly (1st d.); r. eye inflamed, and slight lachrymation (1st d.); pains in and over l. eye (2nd d.). Much saliva in mouth (4th d.). Throat slightly sore, disposition to cough (1st d.); quite raw and inflamed, cough frequent, and expectoration more than usual (2nd d.); l. tonsil inflamed and swollen, velum elongated, which seems to cause coughing (3rd d.); both tonsils swollen and inflamed, and velum the same (4th d.), not so much, but headache very severe, on 4th d.; lessening on 6th d. Occasionally pain in chest or heart, most on l. side (5th d.); constriction across chest (6th d.); aucture across chest, most painful l. side (4th d.); pressing pain across chest (5th d.); sharp cutting pain in chest, and sticking pain in heart (6th d.). Feels weary, and a sort of aching as if bruised in whole body (4th d.). Could not sleep well, very restless, headache. (*Ibid.*)

12. Same proved on a woman. Pain in head, and slight pain in throat and l. eye (10th to 11th d.); pressure in head, and pain in chest (most on 9th d.); pressure pain in head, all d.; dull pressing pain in forehead and l. side at 9 p.m., drawing and sticking at 10 p.m. (1st d.); dull pressing pain in forehead, most severe in r. side, continuing at intervals from 7 to 10 p.m. (2nd d.), with sticking pain in heart, till 9 p.m. (3rd d.), slightly, 3 p.m. (4th d.); pain in forehead and heart (6th d.); pressing-stitching pain in forehead, throat, l. eye and l. cheek (7th d.); pressing-stitching pain at sides of head, just above ears (4 p.m., 4th d.). R. eye much inflamed, blood vessels injected (and d.); both eyes, r. eye weeps greatly (4th d.); still inflamed, and weeping, while both eyes pain (6th d.); aching pain in l. cheek and eye, which appears slightly inflamed (6th d.); albuginea considerably inflamed, and some pains (8th d.). Sticking pain in throat (6th d.). In the waist, l. side, sore feeling on bending. Aching pain across chest (10th to 11th d.). Dull aching pain in heart (10th to 11th d.); shooting pain in heart (all 7th d.); sticking pains with or without headache (2nd, 3rd, and 5th d.). Sticking pain along l. side of neck and in heart, continuing till the 11th sleep (7 to 10.30 p.m., 4th d.); severe pain in back of neck, as if the had been struck (7 p.m., 5th d.). (*Ibid.*)

13. Dr. SCHWAB'S made five provings. Good-humoured, even merry, though head is worse (1st d.); ill-humour about little things in m. of 2nd d., not on 4th d., again on 5th d. Dulness in head, occurring often in course of proving, in afternoon; dulness of head, and slight pressing pain on l. side, as during a coryza (4th d.), relieved by walking in air (10th d.); dull pain in l. half of brain, with sensation in anus as of piles (4th d.); every d. some headache, in m., headache, disappearing with a coryza which ceases at noon (10th d.); on 6th d., headache at n., continues in m., later only r. side, congestion as with a cold, in afternoon changing sides, next d. still more congestive, during e. r. side only, of unusual continuance till late, towards m. of 8th d. same in bed, less after rising, better 9th d.; headache while sitting still, after sleeping during d. (and d.); slight pressing pain in l. brain (6 to 7 p.m., 3rd and 4th d.); pressing aching in head and ear (7th d.); headache, l. side (1st d.); head-ache, after awhile one-sided, goes from r. to l., disappears after dinner (5th d.); on waking, pressing headache l. side, disappearing in e. (11th d.); several small pimples on hairy scalp, without itching, containing some pus, and forming crusts (7th to 9th d.); small pustules on head (15th and 16th d.). A pain in the supra-orbital bone he had once before returned (and d.); eyelids affected by the coryza (8th d.). [This prover (and he only) had a series of symptoms referable to hearing, but as one of them is "hearing as usual dull in the morning," he would seem to have been labouring under (probably catarrhal) deafness, which would explain—and mitigate—his singular experiences.] Much nasal catarrh throughout proving; also toothache, to which he states he is liable. On point of tongue a small blister (and and 3rd d.); scalded

sensation of tongue a h. after breakfast (1st, 9th, and 12th d.); sensation in mouth as if there were fibres in it (10th d.); soreness inside l. cheek (2nd d.); sensation of being burned in mouth (forenoon, 14th d.); taste right, but flabby (6th d.); pappy taste, but a good appetite (5th and 31st d.). Phlegm in throat; much phlegm in throat and nose (8th d.), hawking it out of throat (10th d.); throat and nostrils dry. Inclination to have the food more salted (12th d.); heartburn after dinner (15th d.); squariness during meals several d. Pain in stomach (10 a.m., 4th d.) Pain in r. hypochondrium (yesterday in l.), with drawing sensation in anus as if hemorrhoids were coming (1 h. after dose), continued somewhat till 6th d.; transient drawing pains in l. hypochondrium, afterwards a lame sensation there (m., 8th d.); sprain-like pain in r. hypochondrium, near pelvis (12th and 14th d.); sudden cutting pain in region of liver (14th d.); rumbling in abdomen (10th d.); pain in abdomen as before a stool (e., 7th and 9th d.); in m. after good night's rest, pain as if sprained in r. pelvic region, towards back, it disappeared while walking (5th d.). Diarrhoea in m.; soft stool 6th and 8th d.; 4 firm stools in 24 h., more at n. (10th d.). Pressing bearing down on bladder (3rd d.); sensation in urethra as if the urine were hot, during normal stool in m. (15th d.). Sensitiveness of r. testicle and spermatic cord (towards 2 p.m., 31d d.). Voice veiled and rough (8th d.); hoarse, with coryza (31st d.); spells of cough during d. (5th to 9th d.); profuse yellowish expectoration (10th d.). During a walk, sudden sticking in muscles of chest, l. side, exactly on spot where, 2 years before, he had commencement of acute rheumatism (8th d.); sticking pain in muscles of ribs, l. side, after walking out during thawing weather (9th d., somewhat the same 10th d.). Rheumatic pain, for short time, in muscles of neck and back of neck (6th d.); pain in os coccygis, 1st, 2nd, and 8th d., like a pain he had before proving. Stiffness of limbs, better after walking (9th d.). Rheumatic pain in r. knee and hip, during forepart of d., disappeared latter part of d. (10th d.); pain in l. hip-joint as if sprained (5th d.); feet are painful (6th d.), particularly soles (7th d.); pain in ball of foot and large toe, relieved by walking (10th d.); towards m., pain in r. big toe, like podagra, but without swelling and redness, it disappeared after rising (3rd d., returned 6th and 9th d.); sore pain between toes of r. foot (10th d.). Painful itching on several parts of skin of r. forearm (9th to 12th d.). Deep sleep, afternoon, several d. in succession; quarrelsome dreams. (*Ibid.*)

14. Dr. PINKER. Great heat in vertex, only objective, all d.; at 12 p.m. felt it very hot, and a slight pulsation in it (6th d.). Increase of saliva, about noon (6th d.). Weakness in bowels and stomach, partly extending into chest, from 6 a.m. till 3 p.m., feeling as if he would have a stool; during this time had to belch up wind frequently (1st d.). Easier stool, and not so thick as usual (2nd and 5th d.). Awoke from feeling of great soreness in whole breast, but only for a few m. (4th d.). Synovial inflammation of l. index; on 2nd d., about 3 p.m., a pricking-itching over r. hand, lasted 2 h., followed next d., at 6 p.m., by itching pricking at lower part of upper arm, all round it, lasting $\frac{1}{2}$ h., and same sensation in upper part of upper arm, mostly in armpit, lasted only few m.—all this on r. side. (*Ibid.*)

15. Dr. NEGEHOANZ. Eyes inflamed, particularly the r. (8th d.).

16. Symptoms obtained by Drs. Miller and Payne, denomination being impossible, (see Kering's list of sources.) Heaviness in head, with soreness over the bowels (15th d.); dull heavy pain in head (5th d.); pain and heat in the head; fulness in head (2nd d.); headache, worse in forehead (4 p.m., 7th d.); headache, particularly in afternoon and e., with a drowsy stolid feeling in brain (3rd d.); violent headache with nausea, from m. till 2 p.m., returns in e., particularly in forehead (1st d.); dull heavy aching pains at base of brain, throat, and nostrils (latter dry); after a gr. of *and* *trit.*, taken in e., slight heavy feeling right through forehead up to vertex, also same sensation outside skull, next d. heavy feeling in forehead all d., more worse than d. before, and in e. with severe throbbing in r. side of head, from front to vertex; slight heaviness, and in afternoon slight throbbing from vertex to nose, r. side (6th d.); headache r. side, disappearing after rising; heavy feeling outside of skull. Eyes much inflamed, and burn (1st d.); burning in torcheal at 2 p.m., eyes burn and are inflamed till 10, next m. better (4th d.), less inflamed, but weak and hot (9th and 10th d.), this returned (14th d.). A cold in head, disappearing in open air, but returning in a warm room, with it a cough from irritation (1st d.). Heavy dull aching in upper jaw, then in lower, mostly on the sides, worse e.; he pressed the teeth so much during sleep that the muscles were tired and lame on

waking; pain in jaws and temples (7th d.). During dinner pain in all the teeth from mastication (8th d.); the gums of the upper jaw over second *x*. molar cavity sorely tender, as if an abscess was forming, continuing 4 d., on 6th d. it had entirely disappeared without forming an abscess; unusual flow of saliva for the first 24 h., salivation returned later again, with constant decided metallic taste; on e. (after 20d dose in m.) metallic taste and taste of iodine; gums feel sore, as if he was going to be salivated. Slight superficial ulcers in throat, in patches, almost constant desire for empty deglutition, apparently from large collection of water in mouth, and from sense of fulness in throat (3rd d.); during eructations pain in region of *r. parotid gland* for a h., for 24 h. there was soreness to touch there. Nausea and sinking at epigastrium, with general sick feeling (13th d.); squeamishness of stomach, with uneasiness and lassness all over limbs, with rheumatic pains, inclination to vomit, and constant strong desire for stool. In region of liver, pancreas, and spleen, heavy painful sensation, which does not continue all the time (13th d.); aching and full feeling in *r. hypochondrium* (3rd d.); sensation like rheumatism, e. till fully asleep (12 d.). Frequent desire to stool, with pain in abdomen; motion in abdomen, and urging to stool, without stool, from 11 p.m. the whole n. through (13th d.); pain in abdomen, with diarrhoea, from 11 p.m. the whole n. through (20th d.). Severe griping and colic pains, forcing him to stool, followed by a very large, copious, but not loose discharge of rather a light-brown colour, could not pass any urine as long as discharge lasted, after discharge urging for evacuation continued, with irritation and itching in rectum and anus, which felt as if it would protrude; about 21 again had severe colic pains, which left him after a scanty loose, light-yellowish brown, somewhat watery discharge, coated with mucus, and of slight bloody appearance; after the discharge a slight tenesmus existed for a time, but colic pains disappeared more and more, only great soreness of the bowels remained; after dinner (2 p.m.) colic pains again returned, with a thin, loose discharge, and slight tenesmus; in afternoon and e. only a soreness in bowels. Increased flow of urine (1st, 4th, 5th, and 6th d.). In afternoon he felt several times sharp shooting through *e. side* of chest, like rheumatism, going down arm. Aching and stiffening feeling in *r. splenius capitis* (3rd d.). Rheumatic shifting pains, general in limbs, and mostly muscular, alternately in arms and hands, legs and feet, occasionally pains of like character in *l. ear*, as if it would be a violent and long-continued otalgia, it lasted only for a moment at a time, but frequently returned (13th d.). Rheumatic pains, soreness and stiffness, in *l. arm*, worse by motion and during middle of d., better in e., and as n. could lie on the arm; rheumatic pain—more in *r. forearm* and hand, with sense of great weakness, at n. pains got so violent as to disturb his sleep; dull, aching, strained sensation in middle of *os humeri* as if about to break, wavering stitches through all the muscles, and sensation as if they were sore, desire to stretch limbs and body; aching and drawing pain in bones of *l. forearm*; jerking in fingers of *l. hand* in e. till he fell asleep. At 2.30, when walking, acute pain passed through and around head of *r. tibia* at knee-joint, in 3 or 4 successive throbs, passed off in 3 m., returned in same degree and form, and at same time came in *r. parotid gland*; in ½ h. pain in knee disappeared; a throb of a like pain felt in *l. acetabulum*, and in 5 m. renewal of similar pain in same place (13th d.). Weakness in m., all d. was pain in *l. fingers* (3 d.), from midnight till m. very restless feeling, with constriction in diaphragm almost like cramp. Nearly a month after the other symptoms, several d. after 12th dose, 2 small pustules on outer side of *r. leg*, just below knee, about 2 in. apart, slightly itching, sore to touch, with inflamed bases; on 2nd d. after their appearance they scabbed over, but matter continued to accumulate under scabs; they were quite sore, and were not healed till 13 d. afterwards; later, another sore of same character appeared in joint of same leg, below knee, which healed in 3 d., and no more appeared. A wen which had existed behind *x. ear* from infancy, in a young woman of 24, burst open and discharged 19 d. after 1st dose, and 21 d. after last dose, Very strong itching on neck and dorsum of hands, particularly on fingers of *r. hand* (13th d.). Very sleepy and drowsy in e., with squeamishness of stomach and great uneasiness and lassness all over limbs (5th d.); sleep disturbed by troublesome dreams, such as swimming and wading in water, and pushing through low places, and under a shed; half-conscious sleep with fearfulness, dreamed of detecting robbers in n., attempting to enter dwelling (12th d.); dreams a great deal (11th, 12th, and 13th n.). Sometimes a chilly feeling and creeping sensation all over skin, and uneasy

are feeling all over bowels; often felt chilly, and then again quite warm, although his pulse was natural (and d.); felt pretty warm all over, but not feverish, sometimes a chilly feeling, and creeping over the back. (*Ibid.*)

17. Dr. RAUX. Dull pressure in cerebellum below occipital protuberance, after awhile pressure over eyes (from inhaling the vapour). Almost constant desire for empty deglutition, apparently from large collection of water in mouth, and from sense of fulness in throat (3rd d.). (*Ibid.*)

18. RICHMOND. (From external application to forehead.) Dull, tending, tearing, gnawing pains in forehead, worse during n., disturbing sleep (3rd d.). Skin on forehead pale reddish colour (1st d.), dirty grey (5th d.), afterwards quite full of the finest wrinkles, peeling off in small scales after 7th d.; numerous small cracks and chagales in all directions on forehead. (*Ibid.*)

III. *Experiments on animals.*—1. A strong male rabbit took, at 8 a.m., ℥j along with its food. In the progress of the d., the animal gradually became much enfeebled, evacuating the contents of the bowels, and on the following m. life was found extinct. On examination, the inner surface of the stomach was seen occupied, for about the space of an inch near the pyloric orifice, by some of the poison mixed with vegetable matter, which were washing with cold water would not remove, while the immediate neighbourhood presented a crowd of minute yellowish elevations. The general surface of the inner membrane was preternaturally reddened. (COOCHWELL, *op. cit.*)

2. 10 gr. were dissolved in $\frac{3}{4}$ ss of water containing ℥j of hydriodate of potash, and the whole of the fluid was administered to a large, young Newfoundland dog. The animal manifested strong dislike to the taste and in 4 or 5 m. vomited a quantity of frothy mucus, with violent retching, which was repeated about four times within the h., the last matter brought up exhibiting streaks of blood. During this time great uneasiness was indicated by constant changes from the standing to the lying posture, and the reverse; and after several attempts to relieve the bowels, the animal succeeded in about $\frac{1}{4}$ h. in evacuating a loose stool. The whole of the following d. was spent in a state of marked depression, after which he began to take nourishment, and in 4 or 5 d. seemed to be not at all under the influence of the poison. (*Ibid.*)

Mercurius præcipitatus ruber, mercuric oxide, HgO.

I. *Proving.*—1. Dr. EISLER took, while observing a strict dietetic regimen, gr. $\frac{1}{2}$, $\frac{1}{4}$, and j n. and m., without effect. He then took 2 gr. m. and e. On 1st n. he was attacked with painful colic and constant tenesmus which grew worse and worse, spreading through whole intestinal tract, and causing in anus a feeling as if a red-hot iron were moving up and down in it. Though the tenesmus was most violent, nothing passed but a small quantity of blood, with severe cutting and burning. When nausea and burning at stomach set in, he took demulcents, and was well in 2 d. After waiting a d. longer, he began to take 3 gr. m. and e., increasing grain by grain up to 6. There followed a peculiar itching in the whole lining of the buccal cavity, without salivation or toothache; offensive breath; and soon after burning pain inside both lips, which were much swollen. In a mirror he saw characteristic mercurial ulcers there. He discontinued the experiment (having taken over 34 gr.), rinsed mouth with inf. saly., and in a few d. all was right again. (FRANK'S *Mag.*, i, 772.)

II. *Poisonings*.—1. A man, æt. 51, in good health, swallowed at midnight of July 7th, 1888, a powder containing about a teaspoonful of *M. ox. rub.* On admission to hospital at 2 a.m. he was unconscious, and vomiting (he had taken an emetic, which had apparently been ineffective). Pupils inactive to light; face and hands cold, bathed in sweat; pulse weak but not abnormally rapid. Did not answer questions or put out his tongue, but kept his teeth clenched. There was otherwise general muscular relaxation, and he passed his evacuations under him. The stomach was washed out and he was ordered milk, &c., in small quantities. 11 a.m., has kept little down; still insensible, but pupils react to light. Bowels have acted twice, first motion consisting of loose fecal matter with mucus, second fluid and greenish, containing little fecal matter, but mucus and streaks of blood. 4 p.m., consciousness returned, apparently cannot protrude tongue beyond teeth. Complains of epigastric pain and tenderness, and of cramps in legs. Abdomen rigid in upper part, and slightly distended. 9th.—Patient better, but abdominal symptoms still continue. After this he gradually improved; vomiting and diarrhœa ceased; and he left hospital well. (*Lancet*, 1888, ii, 570.)

2. A young girl took a goodly portion of red precipitate in confectionery. Violent stomach-ache, which she tried to conceal as much as possible. Finally vomiting set in, by means of which a portion of the poison was expelled. The pains extended over the entire abdomen. Suspicion being aroused, she received a large portion of hot milk. The abdominal pains grew worse and worse; copious diarrhœa, with very painful cramps in the lower extremities. This condition lasted fully 6 h. The physician who was called found the abdomen hard and contracted, the skin cold and covered with sweat, terrible pains in the abdomen. Injections of bran-water with five drops of laudanum were ordered every $\frac{1}{4}$ h. The pains and diarrhœa grew less; night-sweat followed; the patient slept several h., and was in a very satisfactory condition next m. There remained a remarkable sensitiveness of the abdomen, and a peculiar tendency to involuntary spasmodic contractions of the extremities. Several d. later the patient resumed her duties. (*ORFILA, op. cit.*)

3. A woman, æt. 36, in seventh month of pregnancy, took by mistake a large pinch of red precipitate. In order to promote perspiration she went to bed. In an h. she had nausea, vomiting, oppression of the chest, pains in stomach and entire abdomen. After vomiting several times, the attacks abated, with the exception of some pain in the abdomen; she arose and went to her sister's house in the neighbourhood. She had scarcely reached the house when all the symptoms returned, only the vomiting so much more violent and frequent as to bring up a quantity of blood, which was followed by fainting. After being revived by strong smelling-salts, the vomiting returned with the same force, now accompanied by diarrhœa. The pains in the abdomen became unbearable; thereto was added burning in the mouth and throat, with unquenchable thirst. Nothing of any importance being done, trembling likewise followed. On the 3rd d. the condition was the following:—Trembling all over; extraordinary redness of the

whole face and eyes; staring wild look; specific, intolerable odour of ptyalism. In a short time she again vomited, twice bringing up a quantity of blackish blood. The gums swollen and inflamed; the tongue so thick as to fill the entire mouth, and in several places as if ulcerated through. The buccal cavity had the appearance as if lined with a thick crust of old rotten cheese. The larynx was also swollen and even inflamed on the outside. The pulse rapid, small and hard. The abdomen, already enlarged by pregnancy, was swollen to bursting, and so sensitive that the patient could not bear the slightest touch. She had not felt child's motion all d. She received sulph. pur. boiled in water, and mucilaginous drinks. The vomiting stopped after the first dose, and she felt great relief; the remedy was therefore also given in injections. At 3 p.m. she again complained of nausea, and dreaded return of the vomiting of blood. She felt oppressed about the chest. After letting blood these attacks disappeared, and no vomiting followed. On the 4th d. the other symptoms abated, but she could not sleep on account of severe pain in the mouth. The putridity of the mouth was at its worst; the teeth could scarcely be seen on account of the swollen gums and the collection of mucus. The tongue had two holes large enough to admit a finger; it was actually deformed. On the 5th d., marked chemosis of the eyes; this was removed by an eye-wash. Gradually all symptoms improved, the woman got well, and in due time was delivered of a healthy child. (*Hufeland's Journal*, B. lv, 1822.)

4. A girl, æt. 22, came into the hospital with the following symptoms: Cold clammy skin, especially on the extremities; stupor, similar to narcosis. Pupils somewhat dilated, and still somewhat sensitive to light. Pulse frequent, small, weak; eructations, foaming at the mouth, occasional vomiting. The fluid first vomited contained red powder. Pressure on abdomen and epigastrium produced no pain. Blood was not contained in the vomit. The stomach-pump was used, and white of egg given. In 6 h. the skin was hot and red. Pressing sensation in the region of stomach and abdomen; cramps in legs; vomiting of mucus; dryness, pain, and redness of pharynx. Pain when urinating, yet the urine was neither scanty nor bloody. Several painless stools, mixed with blood; tongue dry, but neither furred nor red; pupils slightly dilated; small thread-like pulse. Chemical analysis showed red precipitate. (*HUBER, op. cit.*)

5. A journeyman mechanic, æt. 36, swallowed, on the 6th of July, 1835, at 8 p.m., an ounce of red precipitate, which produced violent cramps, itching, vomiting, and such prostration that he could not stand on his feet. Bloody stool, with pain and tenesmus. Next d. at 10 a.m., he was brought to the hospital, with the following symptoms: Sunken, thin, bluish face, with sunken eyes surrounded by blue circles, and an expression of great suffering; great prostration, nausea, pressing in epigastrium, rumbling in abdomen, frequent watery stools. Received milk emulsions, with small doses of tartar emetic. In the evening, the vomiting had stopped, but the sensitiveness of abdomen increased. Slept a little during the n., but towards m. complained of cold feet and great weakness. Although covered with several blankets, he could not get warm. July 8th, 6 a.m.—The entire surface of the skin was livid;

the extremities cold, the muscles rigid and clearly defined, the countenance void of expression; the voice weak, indistinct; the heart-beat scarcely perceptible. Bathed in camphor-vinegar. Dead in 3 h. *Post-mortem* showed great venous engorgement of the membranes of the brain and choroid plexus. The r. heart and large vessels filled with black fluid blood. The lining of the œsophagus discoloured; the papillæ of the tongue swollen. Mucous membrane of stomach corroded, especially in the large curvature; particles of the poison had become embedded in the coats of the stomach and had produced numerous small ulcers, with raised edges, tumefaction and sponginess of the membrane, each ulcer with a particle of the poison lodged in its centre. The stomach and duodenum each contained a brownish turbid fluid, full of precipitate; the duodenum contained, besides, larger pieces of the metallic oxide. The anterior surface of the stomach, the omentum, and the intestines were inflamed. (*Buchner's Report*, 2 R., Bd. 3.)

III. *Experiments on animals*.—1. Half an ounce of red precipitate was applied to the thigh of a dog. Besides general weakness, no symptoms appeared. In 4½ d. death occurred. The *post-mortem* examination showed the stomach bluish red, the duodenum white. The rectum had undergone a remarkable change. The inner membrane was soft, tumefied, in ragged folds, cauliflower-like, of a dirty, bluish-red colour; the peritoneal membrane was unchanged and bluish red. The blood-vessels on the surface of the heart injected; beneath the lining membrane of the ventricles were noticed reddish streaks. The base of the tongue was somewhat swollen. (*HUBER, op. cit.*)

Mercurius sulphuratus, mercuric sulphide, cinnabar, vermilion, HgS.

1. *Proving*.—1. HAHNEMANN, *Mat. Med. Pura*, vol. i of original, vol. ii of translation. Contains 41 symptoms from self.

2. A girl, æt. 15, lymphatico-sanguine, took every m. 20 centigr. of cinnab. 3x. The 11th d. an eruption came out on l. upper and forearm, of isolated vesicles the size of a pea, or of vesicles in groups on a deep red base. (*ANDRIEU, Jour. de la Soc. Coll.*, viii, 143.)

3. A man, æt. 22, took every other d. 20 centgr. of same preparation. The 21st d. there appeared redness, pain, and swelling like erysipelas on l. cheek and half of nose. There was also redness and swelling of the l. eyelids. The 5th d. of the appearance of the symptoms fluctuation was perceptible at middle of the erysipelatous swelling. But this was absorbed without bursting. (*Ibid.*, 144.)

4. A third person (no particulars) took same dose in same way. The 20th d. there occurred smarting, heat, and burning in nasal fossæ with swelling of m.m. For 8 d. there flowed from nose a large quantity of yellow mucus mixed with blood. The redness extended to upper lip, and vesicles appeared there. (*Ibid.*)

5. A man, æt. 25, took every m. 20 centigr. of same preparation. The 17th d. there occurred violent itching at anus, calves, and wrists without any eruption. This lasted for 27 d. (*Ibid.*)

6. Dr. SMITH ARMOR, Jan. 25th, 1851, 6 h. after taking 1 gr. of 3x trit., had rumbling through abdomen below transverse colon, which

lasted about $1\frac{1}{2}$ h. 26th.—Took 2nd dose in m., and in 3 or 4 h. after, abdomen below transverse colon felt hot, tongue was covered with white fur, and there was beating burning in both temples, which he felt all d. (Dr. NEPHARD'S provings, in *Mercalf, op. cit.*)

7. a. A. J. BREWSTER, æt. 26, enjoys good health; took Jan. 11th, 1851, at bedtime, 20 pellets of 6th dil. 12th.—In m. sense of general prostration; great weakness of all limbs; feeling of depression and weakness of whole system as after a severe illness; indisposition for mental labour; head feels weary as from long mental application,—a dull heavy ache in front of head, going backwards, mostly over r. eye and temple, with heat in head. Occasional darting pains through head from without inwardly; eyes watery and dull, with sharp stinging pain in inner canthus of l. eye, as of a sharp stick being stuck in lower lid. Loss of sleep during fore part of n. Restless and tossing about during whole n. with anxious dreams, which he is wholly unable to recall after waking. Nausea, with occasional throbbing in l. hypochondrium. Abdomen distended; stools hard and too large. Dull aching in bones of forearms and legs. Numbness in l. arm from elbow to end of little finger, passing off on using arm, and returning again while at rest. In m. appetite greatly impaired. Feels better in open air and after dinner. Pulse 60. Skin moist and cool.

8. Jan. 22nd, took, at 10.45 a.m., 5 gr. of 3rd trit. 3.15 p.m., felt sharp steady pain in forehead, mostly in r. orbital region; soon after felt sharp throbbing in l. hypochondrium in region of spleen. At 10 p.m. felt dull aching pain in bones of forearms and legs. 25th.—Took at 11 a.m. a dose of 3x trit. In $\frac{1}{4}$ h. felt sharp aching pain in r. supra-orbital region, shooting backwards and downwards to ear and side of neck. Front of head very hot. Pain is worse in warm room and on moving eyes and scalp. Chilliness in warm room. Uneasy indescribable feeling in abdomen. Numbness of l. arm from elbow down to end of little finger. 10 p.m., pain in head increased to a heavy stupefying ache, aggravated by thinking, reading, and pressure. Tenderness of epigastric region. 26th.—In m. symptoms all better. 8 p.m., pains in head return, with numbness and heavy aching in arms, knees, and lower legs. 27th.—11 a.m., pains in head return again, with disposition to fall asleep (while trying to listen to a lecture) several times, notwithstanding his making a great effort to keep awake. Constrictive feeling in umbilical region. Urine tinged yellow. Pains all aggravated in e. Better in open air and after eating and sleeping. (*Ibid.*)

8. Dr. J. P. DAKE, dark hair, subject to indigestion, costiveness, and a dull heavy feeling in fore part of head. Jan. 28th, 1851, took 5 gr. of the 3x trit. at 11 p.m., about $\frac{1}{4}$ h. before retiring. Ten m. after he felt a warm glow through his legs, which was soon succeeded by dull pain in l. arm just above elbow, and by occasional darting pains in lower extremities. There was also dull pain in lower dorsal portion of spine, continuing only for a short time. A space about the size of a quarter of a dollar, just above and between supra-orbital regions (root of nose?), felt as though pressed upon by a cold metallic body, while within the cranium underneath there seemed to be more warmth than usual. (A dull pain felt before in l. temple and side of forehead disap-

peated.) Urgent desire to urinate. Although intending to sit up and study longer, yet feeling wearied in body and confused in mind, he soon retired. Upon lying down there were rumblings in abdomen, and pains passing from epigastric to pubic region. There was also some nausea and uneasiness in stomach. Every little noise about the house troubled him, as though it were something serious. Although accustomed to dream much, yet he had more troublesome dreams than usual. He awoke and started up several times without purpose; once with heavy pain in fore part of head. Upon arising at 7 a.m. he felt a little giddiness and pain in forehead, with sensation of soreness in eyeballs. These passed away soon after breakfast. (Before noon, acidity of stomach, general headache, and heaviness of eyes came on somewhat as usual, only much aggravated.) The prover had taken the 3rd cent. trit. previously, and felt nearly the same symptoms as those recorded above, but did not ascribe effect to med. In one of his dreams he saw a spider as large as an ox. (*Ibid.*)

g. Dr. JOHN H. HENRY, æt. 22, healthy, light hair, from the 6th dil. (The prover has taken the medicine repeatedly, and alleges himself always to have experienced the same symptoms. We have noted them down *bonâ fide* as they were given to us, although some have expressed a doubt about them, because there were so many and so distinct. This prover is, however, unusually sensitive to the action of all medicines, and we could not do more than to express to all our provers the awful responsibility they underwent in diverging even in the slightest degree from the most accurate and truthful statement. N.)

a. Pain in region of causality; sensation of sticking over accretive region, which increases and becomes a numb pain extending to r. temple (time and locality), with feeling of warmth on r. side. Disposition to sleep during d. The pain extends from one temple to the other across the os frontis from r. to l.; is mild in forehead, but violent in the organs of locality and time both n. and d. and on rising in m. Before going to bed there is a drawing pain in head, extending from crown to occiput, inclining to r. Pain deep as if in centre of head.

b. Pain from r. lachrymal duct around eye to temple. Drawing sensation from r. inner canthus across malar bone to ear. Sensation as if there were something in eyes, lasting 3 d. Feeling as if eyelids were enlarged or puffed, as if muscles were too short, when looking up to the wall. Pain from inner canthus of l. eye across eyebrows (organs of size, colour, order, calculation). Itching of lids of both eyes.

c. Itching of nose with bleeding after blowing it; the blood is very dark. The itching is caused by pimples at r. nostril.

d. Taste as of tobacco or coffee in mouth. Pricking sensation in mouth and fauces. Small spot on l. side of tongue, which itches. Small sore on roof of mouth. Itching on l. side of face.

e. On turning head, pain in r. side of neck below sterno-mastoid. Pain in back part of neck, when head is thrown back, extending to occiput. The muscles at back part of neck seem as if contracted. General pain all over back down to loins, worse after every dose of medicine, aggravated on drawing a long breath.

f. Pain in upper part of l. and r. lung; an inward soreness over

heart, extending along l. arm on taking a long breath. Mucus which is thrown up tastes like old tallow mixed with coffee. Pain under lower point of the sternum, extending to l. side under short ribs.

g. Pain along l. arm, particularly in little finger, third finger and thumb; on supinating forearm, pain is worse at elbow,—it feels as if the "crazy bone" were struck; the least twitch causes elbow-joint and shoulder to crack. Itching in palm of r. hand. Pain in little finger of r. hand. Itching in joints of r. hand. Pain in knee-joint, worse at noon, while walking. Drawing in all muscles of lower extremities on under surface. Sore feeling of ankle, attended with heat and itching over whole leg.

h. Sore feeling extending from small of back around both sides over the ossa ilii, worse on pressure. Pain in lower abdomen, attended with diarrhoea and also flatulence, after taking first dose.

i. Sensation as if there was a raw spot in the centre of the urethra, which woke him up 2 n. in succession.

j. Rush of blood to back part of head, attended with violent itching and heat extending to each ear; and behind l. ear there came three hard lumps, one the size of a small shot, the other that of a buckshot, and the last a size larger. On the same n. sharp pain in region of the kidneys, as if one had driven a nail on each side of the vertebræ. Copious discharge of clear urine. Flow of mucus from the r. nostril, lasting for 3 d. Pain on the 7th rib of each side in a spot as large as a quarter of a dollar, more on l. Great constipation, lasting all the time he took the medicine, and for a long time afterwards. Bleeding piles for 2 d. Violent itching in anus, worse at n. in bed. A whitish furred tongue in m.

k. Violent itching of corona glandis with a profuse secretion of pus; the itching was so violent as to cause him to rub it, which only eased it for a short time, to return with tenfold violence. Two small red spots made their appearance on each side of glans, secreting a large quantity of lardaceous matter. It had the appearance, according to his opinion, of herpes preputialis. Profuse sweating between thighs. Violent erections in e. After finishing the medicine all desire for an embrace is lost, which was not the case before he took it. All the above symptoms, except the perspiration, were most violent at n. in bed; the sweating about 12 noon. He had also a constant pain in l. arm-joint when turning and straightening the arm, and when writing. (*Ibid.*)

10. a. Dr. ALBERT LINDSAY, dark hair, æt. 28, took, Jan. 21th, 1851, 20 pellets of 6th on going to bed. He uses no coffee, tea, spices, nor any stimulants. Great restlessness at n., continual dreaming and waking. He would be scarcely lost in a drowse, before he would be dreaming vivid dreams of studies and business, &c. Drawing-aching pains in thighs from hip-joints nearly down to condyles, aggravated by moving, and accompanied with great lameness, experienced on getting up and attempting to walk, getting better after walking a short distance. This continued next d. 13th.—Took 20 globules at bedtime. Had many dreams and woke up often. 14th.—Took 20 globules at 7 a.m. Shooting-aching pain on posterior side of r. thigh from hip-joint to

middle of os femoris, about 9 a.m., on straining at stool. In e. of same d. took again 30 globules. Continual restlessness, and dreams that a lump was in his throat and r. ear. 16th.—At n. 20 to 30 globules. In addition to restlessness and dreaming, woke up with throbbing pain in organ of conscientiousness, extending to forehead over eye. During d. and n. of 17th he was troubled with aching pains in thighs, and soreness in umbilical region. Weak sensation in l. eye during 18th. Vivid dreams of the lectures, particularly the anatomical, during n. of 18th; he could not believe that he was not actually there. Almost every m. after waking a kind of dull pain (some m. sharper and more intense) in forehead and top of head, worse when lying on l. side and back, going off when turning to r. side and pressing forehead into pillow. As soon as he turns to l. side or the back the pains return. On turning to r. side, or getting up and washing, the pains disappear. Violent itching and pricking on inner side of knee-joint ever since he has commenced to take the medicine, worse at n. and in m. before getting up. 21st.—Violent itching on inside of thighs, knees, and legs, worse at knees, especially at n.

A. 22nd.—At bedtime took 5 gr. of 3rd trit. Had several dreams, and awoke several times through n. On waking up in m. had aching pain in the whole of forehead and top of head, aggravated by lying on l. side and back, relieved by lying on r. side and pressing forehead with pillow. A dull, heavy, and at times sleepy feeling during d. 24th.—Restless sleep with many dreams, feels very tired in m., aching across small of back and in limbs. A kind of throbbing pain in forehead on waking, going off on pressing head on pillow. 25th and 26th.—Same pain in diminished degree. 27th.—Symptoms of cold in head,—fulness of head, discharge of much mucus from nostrils, aching pain in the small of the back and legs. Uncommon tiredness and weakness. Sensation of emptiness in stomach, is very hungry within 2 h. after eating a hearty breakfast. Sore on inside of the under lip towards l. 28th.—Severe aching and drawing pains in back from region of kidneys to sacrum, and in thighs and legs, all last n. and to-day. Drawing up of legs affords relief. He did not wake up with headache in m., but about 9 a.m. a kind of sore pain commenced at crown of head and extended as far front as the organ of veneration (at times there is a slight sensation of throbbing); it is very sensitive to touch, he cannot even touch the hair without causing a sore pain. This pain continued all d. Weakness and sleepiness in eyes about noon, could scarcely keep them open. 29th.—No pain this m., but scalp is sensitive to touch. Slight pains in back and legs, but much better than yesterday. [The prover here remarks that when he was from 13 to 17 years of age he took large quantities of calomel, and was in consequence for years afflicted with terrible drawing, aching pains in the legs, especially 12—20 h. before a storm. He was a regular barometer. The pains he experienced were exactly like those he suffered years ago from calomel. He was, of course, entirely ignorant, like all the others, of the nature of the medicine he had taken to prove.] (*Ibid.*)

11. Dr. C. L. MERRIMAN, æt. 31, light hair, nervous-sanguine temperament. Took, 28th Jan., 20 pellets of 6th dil. at 10 a.m. In 2 h.

felt fulness and general pressure in whole head as after taking cold, with dull aching pain in the region of benevolence; better in the open air. Great drowsiness and lassitude in warm room; occasional shooting and pricking pain in two middle fingers of l. hand, better by firm pressure upon thumb. The above symptoms continued about 8 h. 30th.—20 pellets of 6th. Symptoms similar in kind, but somewhat less in degree, and passing entirely away in about 8 h. (*Ibid.*)

12. Dr. S. L. MURFORD, of good constitution, not predisposed to any acute or chronic disease, Jan. 25th, 1851, took 5 gr. of 3x trit. on going to bed, but without producing the slightest effect. Feb. 2nd.—Repeated dose without any effect. 3rd.—Took 10 gr. of 1, trit. Shooting pains in forehead with great heaviness. Shooting pains in inner canthus of r. eye with burning and itching. Hoarseness of voice in m., going off in 2 or 3 h. Shooting pains in bowels at intervals during d. Flushes of heat, confined to abdomen, with great flatulence. All the above symptoms more in forenoon and less in afternoon and e. 4th.—Pain in bowels before each evacuation; all the other symptoms as detailed above in a less degree. (*Ibid.*)

13. Dr. T. M. RANDELL, æt. 20, dark hair, took, Jan. 13, 1851, 20 globules of 6th dil. Seemed to lower pulse in forenoon and make it irregular. 11.40 a.m., pain in l. side of head, temple, and supra-orbital ridge; sensation as if abdomen was too large, and wishes to have everything loose about bowels. Numb pressing pain in eyes. Numb feeling in elbows, as if ulnar nerve was compressed; also numbness in knee-joints. Hands cold. Pain in forehead. Sticking in chest just beneath sternum. Gripping pain in bowels. Pulse, which was at 12 (noon) from 44 to 52, rose at 4 p.m. to 80. Pain in organ of taste. Sensation as if there was something in ear. In afternoon his friends remarked that he was very cross and sullen. Sleep restless, with vivid dreams, but he cannot remember them in m.; urine turbid. Pain in tendo Achillis and os calcis after walking. Pain in l. side of face and teeth. [The above symptoms were produced by a single dose. Several other doses had a similar effect.] (*Ibid.*)

14. J. C. RAYMOND, æt. 27, took on Monday e., Feb. 3rd, 1851, 20 globules of 30th dil. In about an h. had sharp darting pains like electric flashes passing from first phalanx of r. ring-finger to middle of forearm, and from lower extremity of l. radius up to elbow. Restlessness and sleeplessness during n. from a constant flow of ideas changing from one subject to another. On Tuesday an increased flow of saliva; from 4 to 5 p.m., severe pain extending from cartilage of 7th rib at its junction with sternum to r. hypochondriac region under inferior border of 10th rib. On Tuesday n. he took 40 globules; on Wednesday n. 60; on Thursday n. 5 gr. of 1, trit., and on Friday n. 10 gr. of same with no perceptible effect until Saturday, when there was increased sexual desire with erections, which continued at n., terminating by emission of semen. On Sunday n. took 20 pellets of 30th. Increased flow of saliva during Monday, so much so that when he attempted to speak he found some difficulty from his mouth being constantly filled with saliva. He had some pain of dull character in forehead over eyes, p.m., which became severer in e. and was aggravated

by motion. Had occasional pains in l. chest between cartilages of 5th and 6th ribs. Tuesday, increased flow of saliva still continues. In afternoon pain of dull aching character in r. frontal region, aggravated in e.; also return in e. of pains in l. chest in region of heart, of a sharp cutting character, producing difficulty in getting breath while they continued. Wednesday n.—He was awakened several times from sleep by severe pain in r. arm. It continued in m., and during d. of Thursday, at times very severe, commencing about centre of humerus and extending to elbow and along radius to its inferior extremity; the pain was of heavy aching character, deep-seated, and caused lameness and difficulty in moving arm. In forenoon he had also a return of sharp cutting pains in region of heart, followed by wandering pains throughout whole chest. (*Ibid.*)

15. a. Dr. HAMILTON RING, æt. 29, light hair, took, Jan. 14th, 20 pellets of 30th dil. at 4 p.m., and on 15th also 20 pellets of same dil. at 9 a.m. In course of 15th he experienced on bridge of nose a sensation similar to that which is produced by touching it with a metallic substance. Sticking pain about punctum lachrymale of upper l. eyelid. Next d. he noticed a small pimple (like a transparent vesicle) sore to touch, on the inner edge of the eyelid, near the spot where the pain was, which later had disappeared. 17th.—10.30 a.m., took 30 pellets of 6th dil. Soon after, aching and somewhat sharp pain in l. hypochondrium, in front, over a space as large as may be covered by the hand; worse on moving about and in open air; soon extending around lower border of ribs behind, and to region of l. kidney, where it seems dull and somewhat pressive (all felt and disappeared in 4 h.). Soon after this same pain came in r. hypochondrium, in front and extending around to back, and region of r. kidney, where it is of the same character as in l. kidney. The dull pressive pain is felt in one and then in the other kidney alternately. The pains intermit in severity, and those in the hypochondria are relieved by bending forward. Occasional flashes of pain in r. temple from front backwards (organ of mirthfulness). Soreness in the roof of the mouth. Heaviness in head, desire to sleep during d., restlessness at n., indisposition to mental exertion. (The above symptoms appeared nearly if not exactly in the order in which they are written.) 18th.—In e. occasional shootings in upper part of l. temple along temporal ridge; dulness in whole head, especially in forehead just over eyes; lame sensation in r. shoulder-joint.

b. 19th.—At 10.30 a.m. took one powder of 1st trit. (cent.), after which the following symptoms were experienced:—An h. after, uneasy, creeping, and pressive sensation about ossa nati, lasting about an h.; it is the sensation experienced by most persons on putting on a pair of heavy spectacles, if not accustomed to wear them. Also for a short time pain and sensation of fulness in meatus of l. ear. In e. sensation of approaching looseness of bowels. Itching on various parts of body, while walking in open air. 20th.—In forenoon head full; nervousness and irritability about noon for a short time; also, for a short time, sticking pain in back part of l. knee-joint; in afternoon slight pain in r. knee-joint (similar to pain in l.), with creeping sensation above and below it, seemingly about bone, lasting about an

h. (during d. itching over body). 21st.—Frequent itching over the body, and itching and sticking in internal and external canthi; head full, heavy, with strong pulsations of temporal arteries; great inclination to sleep during d. 22nd.—Itching on body and in canthi, as before; a spot on r. side, between ribs (7th and 8th), as large as a wafer, very sore to the touch, with occasionally sore pain in and around it; head less heavy than the d. before; sore spot on tip of tongue. 23rd.—About 4 a.m. was awaked by dull sticking pain in region of l. kidney, which lasted but a short time; afterwards tossing about and sleeplessness for an h.; after rising from bed fullness and pressure in occiput and back of neck, continuing with much severity till about noon, after which the symptoms somewhat abated; heaviness and sleepiness during d.; pains of short duration in r. hypochondrium, in middle of l. breast, in front of l. kidney, in occiput; itching over body at times. In e., sticking pain in the region of l. side of 5th and 6th dorsal vertebræ; sore spot in r. side has continued, with the characteristic symptoms before mentioned; during d. there were pains at corresponding spot on l. side of same character, but without a *sore* spot. 24th.—Occasionally sticking pain on r. side of same dorsal vertebræ (5th and 6th); pain sometimes in l. side of occiput (organ of amative-ness); itching of eyelids and of various parts of the body; sore spot in r. side continues. The pains in knee-joints, mentioned as having been experienced on the 20th inst., have been occasionally felt in a slight degree every d. since. The sore spot on r. side continued 3 or 4 d. The itchings in various parts of body and in the canthi of the eyes were felt for 5 or 6 d. The dulness of head and unfitness for mental exercise have not, after the lapse of a week, entirely disappeared. The severest pains experienced were those in the hypochondria and kidneys. The pains mentioned as felt on the 23rd and 24th, on the side of the 5th and 6th dorsal vertebræ, have been occasionally felt until the 27th. Has been disposed to costiveness during the whole time of taking the medicine. On 27th after dinner had feeling of weight in lower part of rectum and a sensation like aching. (*Ibid.*)

16. Dr. C. E. TOOTHAKER, of lymphatic nervous temperament, light hair, general health good. (In childhood affected with rickets; in youth with burning sensation in chest, with colic in umbilicus and stomach. Subsequently he had pains in the face, itching and burning in throat and roof of mouth. At present ringing, humming, or roaring in ears, with frequent itching sensations over whole body; slight dull pain in back of head and neck, sense of dull pain in one or both ears. Some remains of a former severe chronic bronchitis, causing frequent hawking and spitting, with thick pus-like mucus in m. Disposition to flatulence in bowels; passes water frequently. Frequent sleepiness when sitting. Languor.) Jan. 18th, 1851, 9 a.m., took 30 pellets of 5th dil.; 6 p.m., sensation of soreness on l. side of root of tongue on swallowing, accompanied with roughness and stiffness, continuing through n. 19th.—At 9 a.m., took 30 pellets more; 10, slight pain in occiput. Sense of elevation on walking in open air; never felt better in his life; like effects of a cordial. At 8 p.m., after tea, peculiar metallic taste in mouth, not much unlike sulphate of zinc, or the taste left after a metal

or salt, continuing more or less 1 h. 20th.—5 a.m., peculiar agreeable sensation of exhilaration, and of fulness extending from all sides of chest, particularly thorax, towards stomach and heart, accompanied or followed by similar sensation in all the joints, continuing with intermissions till 8. Occasional pain in sinuiput. Peculiar drawing in mouth after rising until breakfast. A small sore on r. side of tip of tongue, also one on each lid, continuing several d. 2 p.m., sensation in mouth has continued since 8, modified by continual tendency to hawk and spit, with unusually large flow of saliva and mucus; also sensation of warmth under sternum and sense as if secretions were flowing from stomach and all mucous surfaces, as well as from salivary glands. A peculiar nervous thrill pervading whole frame, even to fingers and toes, affecting especially joints. Sense of languor and depression, as if following excessive exhilaration or as after intoxication. The above sensation continued with intermissions for 3 d. In the eyes for 2 d. excessive itching of inner canthi for considerable time from 6 p.m. From 9 to 12, itching in outer canthi, severe and frequent, with sense of stiffness in upper lids. In afternoon when sitting in house, sense as if a breeze of cold air were blowing upon eyes, very marked. Eyes very sensitive to cold air on walking out. Frequent pain in lower side of l. knee, near inner side of tibia. Lameness and frequent stitches on walking, particularly on inner side knee-joint. (*Ibid.*)

17. Dr. DANIEL WILDER, æt. 39, Jan. 13th, took 20 globules of 6th on going to bed. Restless uneasy sleep. 14th.—Took same. Increased restlessness, with constant dreaming; seemed to dream before getting asleep. 15th.—Pain in all joints with lameness during d.; dull pain in forehead, which is cold, and is relieved by warm hand; aching soreness of eyes, worse in e. Pulse at noon 60, in e. 80. Aching soreness in teeth; regurgitation of wind from stomach; sores in mouth on under lip; severe pain in forehead, which lasts all n.; great restlessness and nervousness. A good deal of mucus at posterior nares, which comes away in lumps. An eruption on inner and lower part of thigh, with itching. Unusual irritability during whole time since taking med. (*Ibid.*)

18. Dr. JOHN TURNER, æt. 27, nervous-sanguine temperament, took 20 globules of 30th dil. before going to bed, 14th Jan. Slept very well; had dreams, very vivid at the time, but could not remember them. Next d. general nervous uneasy sensation, with depression. 15th.—10 p.m., took 20 globules. Felt drowsy sensation as if he could sleep readily; went to bed at 12. Still had the drowsy sensation, and strong, very strong, desire to sleep, but could not sleep for disagreeable nervous feeling, which caused him to toss about in bed for 1½ h. Sleep not so good as n. before; dreams vivid and rather pleasing, but on waking could not bring any one to recollection. (He dreams more or less every n., but thinks his dreams were unusual.) 16th.—General morbid sensation of mind, rather disposed to be fretted at very little trifles, and not at all satisfied with himself,—in fact, thought that he was not at all amiable. At n. took 40 globules. Symptoms respecting rest, dreams, &c., as on 15th. 17th.—This d. mental symptoms even aggravated; disposed all d. to condemn himself for fretfulness and want of trust.

Sexual excitement all d.; general feeling of disorder in whole animal frame, but no particular symptoms.

4. 27th.—10 p.m., took 5 gr. 3rd trit. Felt no desire for sleep; sat up and wrote and read until 1.30 a.m., did not sleep for $\frac{1}{2}$ h. after going to bed; dreamed continually but not so vividly; woke $\frac{1}{2}$ before 8, dry throat and thirst, feeling as if he had not had any refreshing sleep, although he had been nearly 6 h. under influence of sleeping dreams. No particular sensations this d.; moral and mental symptoms not so prominent; rather better mentally. From first time he took med. felt as if pimples were coming out on body, and had general uneasy sensations and itching. (Prover had had this feeling for some time, but thinks it has been worse since beginning proving.) Since first taking drug, he has with great difficulty read any medical work; it is quite difficult to get his mind fixed on any subject long; he also cannot fix his attention on lectures so well as before (the open air relieves this sensation); cannot think long, deeply, or clearly on any subject; appears to be altogether disturbed. 19th.—12, m., took 5 gr. 3x trit. 5, strange congestive sensation about head, principally forehead. 8.30 to 10.15, sensitive pressure in forehead. 10.15, sensation as of water in l. eye, soon passing off; pain and tired feeling in r., then in l. hip, and tired feeling in all lower joints, better from rising and walking, did not return on sitting; general feeling as of having taken cold, and of not being fit for any mental labour; depressed, melancholy, and rather cynical state of mind; nervous system excited. 21st.—8 a.m., took 40 globules of 6th dil. Observed no symptoms until 7 p.m. L. cheek flushed, and in l. eye watery sensation,—soon passed off; congested sensation over whole head, particularly forehead; great difficulty to collect ideas and study usefully, and even aversion to close study; after retiring did not sleep for over an h., but tossed about, very nervous and mentally vexed. 22nd.—Symptoms of head and mind much the same as yester-eve. Eruption on posterior cervical region, and soreness from r. ear thither as if glands were affected; this soreness increased, and on e. of 23rd became very severe. L. eye watered several times to day, passing off each time in a few m. Soreness of glands of neck continued until m. of 27th, but gradually decreased in degree. Occasional fever and fulness of blood in forehead still. (*Ibid.*)

19. Mrs. B.—took 6th dil., and experienced great increase of flow of urine and saliva, lasting 1 h., with shooting pain in l. head from occiput to forehead, and lachrymation. (*Ibid.*)

20. Miss F.—took one dose of 6th, and had dizziness and lightness of head, soreness in stomach, with tightness in temples. (*Ibid.*)

21. Mrs. F.—took 20 dr. of 5th at 8 a.m. At 8.30, sense of fulness and weight across temples, with sometimes throbbing over r. temple, worse on motion. These symptoms disappeared before noon. Aching in small of back as if bruised. On another occasion took 10 dr. of same at 8 a.m. Aching in both ears, lasting about 15 m. 11, unusual drowsiness and heaviness over eyes. From 1 gr. of 5x trit., unusual drowsiness in m. P.m., 2 stools, last with straining. (*Ibid.*)

II. Poisonings.—1. A sanguine, active man, æt. 68, wore for several

months a lower set of artificial teeth, on a vulcanized rubber plate, coloured with cinnabar. After having for months symptoms of cinnabar poisoning, without having found the cause of his disease, he had also made for him an upper set of the same material, and used both five months longer before its relation to his complaint was discovered. The symptoms are reported in the order in which he gave them. "I suddenly," says he, "found myself unable to attend to my usual duties, on account of fatigue. When making extraordinary mental or physical exertion, the exhaustion which followed was so extreme that I had to lie down. At the same time I was troubled with palpitation, worse when lying on the left side or with the head low. Violent pain in the head from front to back, and down the spinal cord to a little below the shoulder-blades. If the exertion was continued, there followed nausea, vomiting, diarrhoea, and severe pain in the r. hypochondrium. These symptoms varied in intensity. Soon after using the complete set, there followed violent aggravation of all the symptoms; burning pain and soreness in the liver; at times, suppression of bile; total loss of appetite; white coating on the tongue; bitter metallic taste; high fever at n." Finally, he had to take to his bed for six weeks. For three weeks of this period there was very high fever, followed by copious, sticky, stinking sweat, as thick as mucus, lasting 24 h. Afterwards, the fever abated for a week, when the same symptoms recurred in a more violent form. Finally, when the patient had worn the entire plate for five months, the case was very carefully re-examined, and the following combination of symptoms found: Aversion to mental occupation; feeling as from over-exertion of the mind. Cannot follow one idea without great exertion and exhausting fatigue; cannot collect his thoughts; irritability; dissatisfied with himself and everyone else. Cannot sleep in the daytime; restless and sleepless at n., or else sleep with anxious dreams; heaviness and dulness in the head; can scarcely lift it from the pillow. Occasionally, shooting pains through the head from without inwards, and from front to back. Feeling as of rush of blood to the head, with violent vertigo and great weakness, particularly in the m. Vertigo and feeling of weakness in the head; frequently staggers when walking. Often feels as if he had taken cold; symptoms of coryza; running at the nose; throbbing of the temples, and rush of blood to the head all d. and all n. Rushing sound in the ears; deafness. Eyes red and painful; feeling as of sand in them. Conjunctiva of the lower lid injected, and covered with small granulations. Sore mouth, white tongue; bitter, metallic, disgusting taste. Sore throat and pharynx; great irritation in the larynx. Frequent oedema of the epiglottis; frequent attacks of suffocation on swallowing; hoarseness and loss of voice for several weeks. Cough worse at n.; expectoration at first clear, then opaque, after several weeks consisting of grey, pus-like, occasionally blood-streaked sputa, smelling very offensively in the m. Pain beneath the sternum; pain in the heart, worse when lying on the l. side; palpitation during frightful dreams; pulse 90 to 100. Pain in upper r. lung and in cardiac region, extending into l. arm, which often feels numb. Throbbing in hypochondria. Very severe pain, extending from the region of the short ribs to the r. kidney and the l.

hypochondrium; swelling and heat in the r. hypochondrium. Burning pain in the r. lobe of the liver, with soreness and sensation of great heaviness there; these hepatic symptoms are very severe and continuous. Capricious appetite; loss of appetite; nausea with vomiting, about once a week; the matter vomited is bitter and sour. Enlargement, pain, and soreness of the abdomen; it feels distended, and he wants to loosen the clothes. Stool hard and copious, or sudden diarrhoea, consisting of white or dark passages. Urine frequent and increased in quantity, with sediment at first whitish; later, reddish. Limbs and joints painful, especially the knees; hands and feet very cold each m., and hot at n. Hot skin in the e., heat at n. in bed. Fætid sweat between the thighs at n.; feeling of lameness in all the limbs, with great fatigue, particularly in the m.; feels too weak to stand, and all bodily and mental exertion is too much of an effort. The pains and fever are worse in the e. and in the cold; pains in the head and eyes worse after sleep. The pains are generally relieved by continuous rest, warm bathing, galvanism, and heat; and aggravated by cold. (ОЗНАКА, *N. Z. f. hom. Klinik*, xvii, 125.)

2. A patient of light complexion, who took ʒss rit. for phimosis, soon complained of following symptoms, which he never felt before: Intense headache, relieved by external pressure, pain was so severe he could hardly endure it, much worse after sleep; head excessively sore to every touch; pain darted through from sides of head (most frequently r.) and temples, and thence to occiput. Excessive lachrymation. Noises in ears after eating. Dryness in mouth, with desire for cold water; bad taste in mouth, with phlegm and pytalismo; loss of appetite, eats very little; constipation, only one passage in a week. Soreness under r. breast, particularly on drawing breath. Feeling of coldness and sensation of inertia; drowsiness; nightly sleeplessness, hears clock strike every h. Redness of skin, like a chronic eruption. He took drug for 2 weeks, with constant improvement in phimosis. After discontinuing it for 10 d. he still had severe headache, which was finally relieved by iodine. (NEIDHARD, *loc. cit.*)

III. *Experiments on animals.*—3. a. Two to four grms. of powdered cinnabar applied to the thigh of a dog cause death in 3—4 d., size of dose not seeming to have any influence on rapidity with which death ensues. P.M.—Mucous membrane in some parts is pale, in others blackish; in others the folds are yellow, surrounded with a whitish border. In other cases there are found spots similar to gangrenous ulcers, the bases of which are covered with clotted blood. In small intestines no change is observed; in rectum there are occasionally found black streaks. The lungs, particularly the l. lobe, are sometimes filled with black blood.

b. In a dog killed by ʒij introduced into stomach, pleura and lungs were found inflamed; thoracic cavity contained sero-purulent exudation. (SMITH, in Huber, *op. cit.*)

2. The accompanying woodcuts illustrate the effects of mercury on the bones of a dog, the skeleton of which is now in the Museum of Edinburgh. The history of the case is given by Professor Bennett in his 'Principles and Practice of Medicine,' and is as follows:—The

dog lived in the shop of Mr. Ballantyne 18 years ago in Carrubber's Close. At that time the work carried on consisted almost exclusively of painting with vermilion and lacquering Japan articles. The dog, who never left the premises, was frequently seen lapping the vermilion oil-paint, and there can be no doubt that in this way there was introduced into his system a considerable quantity of mercury. After death the dog was dissected. Numerous cancerous-like masses were found in the lungs and internal viscera, and his skeleton was preserved. It will be seen that the shafts of the long bones and not their extremities were attacked. The disease closely resembles what may be observed in many other specimens of so-called syphilitic disease. Yet in this dog we have the positive proof that it was caused by mercury, as all attempts to communicate the syphilis to dogs by inoculation have failed. [The woodcuts, not even excepting the extremities of the long bones, as stated above to be excepted, have very much the appearance of a specimen in the Museum of the Royal Veterinary College of osteoporosis.] (WILLIAMS, *Princ. and Pract. of Veterinary Surgery*, communicated by Mr. HURDALL.)

MEZEREUM.

Daphn Mezereum, L. Common mezecon, spurge olive. Nat. Ord., *Thymelacae*.

1. *Printings*.—1. HAHNEMANN, *Fragmenta de Viribus*. Contains 62 symptoms from self, and 34 from authors.

2. LIND, *Chronic Diseases*, part iv of original, vol. of translation. Contains 610 symptoms, including contributions from 115 other persons.

3. a. Dr. HARTLAUB, æt. 41, phlegmatic melancholic temperament, in good health, March 30th, 1849, 5 p.m., smelt at the fresh bark and chewed a piece. Taste acrid and disgusting, then smarting burning like pepper on tongue, repeated eructation of air, shuddering loathing, earache (doubtful). The burning spread from tongue all through buccal cavity, especially hard palate, with great dryness of that part, especially posteriorly, and in upper part of œsophagus; much saliva and hawking of mucus, which detached itself easily. Mucus came down from choana and was apt to get into air-passages, causing hawking and lachrymation. Rough embarrassed speech. After 1 h. the smarting has spread to the lips, which are dry and swollen; this lasted till e.; taste diminished, tongue felt scalded. Pressive pain in upper part of forehead. E., twisting pain about navel, with nausea and as if water-brash would come on or faint feeling, tearing pain across chest anteriorly.—31st. Perspired profusely at n. and woke frequently, strong erections with sexual desire. In m. soft, brown, sour-smelling stool, scanty urine, tongue and palate feels scalded. A.m., coryza in eyes and nose, with increased thirst, hot skin, and quick pulse, swelling and heat of penis. All d. repeated discharge of flatus, with several soft stools. E., again chewed some bark and flowers, and was exposed for 1 h. to exhalations from bark while preparing it for medicinal use. This caused violent smarting and burning in mouth, with much watery saliva.

Another soft, dark, greyish, or black stool, with much borborygmus during and after stool.—April 1st. Long sleep, perspired a little. M., scanty urine, with increased thirst; tongue as if scalded. 9 a.m., a soft, dark and light brown stool as if fermented, with much indigestible matter and very fetid. A.m., frequent discharge of much watery urine, warm hands and cold feet and legs up to knees, hard pulse. The same kind of stools continued for several d., always in forenoon and partly light coloured, loss of appetite and discharge of fetid flatus, perspiration in m.

h. March 4th, 1850, 4 p.m., chewed several pieces of fresh bark, and was exposed to exhalations for 5 h. while preparing the medicine, till 9 p.m. Next m. pressed out the macerated bark. When chewing the bark had but little burning or smarting in mouth, later the peculiar pain set in severely, and next m. the epithelium became detached, with swelling. After some m. burning in mouth, not on the part touched by the bark but in fauces, relieved by breathing in air, but increased; felt very weak and faint. After $\frac{1}{2}$ h. mucus from nose and smarting and watering of eyes. After $\frac{3}{4}$ h. eructations, transient pain in fauces anteriorly, pain in middle of r. eyebrow. The smarting spread gradually from fauces through whole mouth to lips. 7 p.m., fauces painful on swallowing, and as if swollen and excoriated or scraping. 7.30 p.m., pricking in œsophagus when swallowing. 8 p.m., the pain in œsophagus violent and general, very painful when swallowing, especially in uvula and soft palate, pricking pain and as if swollen in l. meatus auditorius, at same time rheumatic headache on l. side, a kind of tearing. 10 p.m., same pain in upper part of head and in l. ear. E., loss of appetite and chilly, then general heat and perspiration. Transient pres- sive pain in eyeballs.—5th. Yesterday on going to bed violent itching in legs, so that he must scratch. At n. vivid but not remembered dreams. Some sweat towards m. On rising scanty and slow discharge of urine, of strong smell, dark and hot. Forenoon till noon, repeated hurried discharge of urine, the water he washed in felt unusually cold, the air too felt very cold, especially to his head, and he felt when sitting in room as if cold air blew on his head. On pressing out juice, smarting in eyes. 8 a.m., stretching of body and yawning, eructations, discharge of fetid flatus, drawing-tearing pain under r. knee externally and in metacarpal bones behind l. thumb, also in distal phalanx of r. 4th finger and r. wrist, where the metacarpal bone of index joins it. Pulse accelerated a.m. To-day the mouth symptoms increased, those of fauces diminished. All d. mouth very painful, the epithelium of inner surface of lips and of gums of front teeth quite detached where the bark had come in contact with it. Much toothache, the gums bleed easily, tongue much swollen, especially at its tip, with thick white coating and prominent red papillæ on a white ground, tip of tongue very red, epithelium denuded, a deep fissure in middle of tongue, external lips dry, taste almost extinguished, milk tastes smoky, teeth very painful when biting and when air meets them, with constant drawing pain in them all d., the upper front teeth of l. side particularly affected. P.m., painful jerking in lower l. molars, cheeks very painful when pressed, and as if swollen. E., toothache increased, especially in l.

upper incisors. Also painful pressure in eyeballs, diminished appetite, pain as of dislocation in r. big toe. E., copious, soft stool, as if fermented and not quite digested, of brownish-yellow colour, very fetid and sour smelling.—6th. Woke last n. at 2 a.m., fell asleep again, and towards 5 a.m. a scanty, thin emission, many unremembered dreams. On rising in m. tinnitus in r. ear, can hardly move r. leg, knee feels weak, 6 a.m., feeling of hunger in stomach, with borborygmus; noon and e., diminished appetite, stomach feels uncomfortable after eating, especially fat things. Mouth better to-day and toothache gone, some hollow teeth in mouth have become sharp, tartar on teeth rough. Tongue still swollen and large ulcerated papillæ, not coated but very red. External lips all d. very dry and shining, very painful in e., some burning, especially near them inside. During d. hurried micturition. After supper much eructation of sour rancid taste; very tiresome pressure in stomach, with very irritable temper. Distaste for everything, he would like to run away, very drowsy after supper, apt to start with palpitation thereafter, frequent yawning, stretching of limbs, itching in several parts of body, especially scrotum and nostrils. E., shuddering frequently all over body, also over several parts, over l. leg downwards; pulse 80 to 90, rather full. Stool in e. insufficient and hard, much itching in and about houghs, scratches himself raw.—7th, m., after rising rheumatic pain in muscles of l. scapula, tongue and mouth inflamed and red, uncomfortable pressure in stomach and abdomen, jerking stitch in r. side of chest about lowest ribs, then beneath r. scapula. Several times during d. and in e. much itching about anus.—8th, m., on rising very tired, this goes off during d. 7 a.m., stool (after 33 h.) copious, soft, fetid; on urinating the last portion causes smarting-burning in fore part of urethra; soon afterwards violent itching in l. inner canthus, appetite diminished, stomach easily deranged by fat food.—9th. Painful swelling in r. concha above meatus, humming and buzzing in r. ear. Noon, on rising from stooping many black spots before eyes. Hollow teeth very sharp. No stool to-day.

c. March 14. While preparing the med. was exposed to its emanations from e. till 3 a.m., also chewed bark. Immediately after chewing, nausea, loathing, burning in fore part of mouth, tongue, and further in mouth, with flow of saliva; tearing drawing through r. big toe; smarting in eyes; loud rumbling in bowels, flatus rushed noisily through anus.—15th. Scanty soft stool m. E., again exposed to emanations.—16th, m., noticed a large sigillation on back of r. hand behind index, not caused by external violence; it is a discoloured swollen not round spot about 2" in diameter, quite painless. At same time violent itching on this hand, especially on wrist, and intolerable transient itching on several parts of body; some liver spots more scurfy than usual. Sensitiveness to cold water, also of the teeth when drinking; tongue coated white, yawning; no stool to-d., and very little urine passed. E., exposed for 2 h. to emanations of plant. Soon, intoxication and constriction across chest anteriorly not deeply seated, and at same time over back about scapulæ, drawing pains in rectum and anus, occasional pain in glans penis; after urinating cutting pain in front part of urethra; irresistible drowsiness; indifference to everything.—17th. Immediately

after rising, m., inflamed eyes, conjunctivæ much injected, dirty red, especially about external canthus of l. eye, with pressive pain as from dryness; several times urging to urinate; pain in r. ear deep in meatus, a stitch still deeper, meatus of that ear more open than the other, feels swollen or relaxed; difficulty of thinking with pressive confusion of head, and here and there pressive pain in head, hair hangs down loosely. A small cut is very painful for a long time. The sugillation on r. hand is paler and painless. In forenoon, smelt 16 different preparations of mezereum for $\frac{1}{4}$ h. and again in e. In forenoon, dark, lumpy stool expelled with much pressing. After dinner, irresistible drowsiness with painful pressure in eyes, the conjunctiva of lids very inflamed. Occasional itching in anus. Afternoon, a shoot up anus. E., when sitting still, violent, painful, paralytic pressure in r. acromion, on depressing arm the pain much increased from the weight of the arm; soon afterwards, when walking, as if dislocated in r. hip-joint and outer aspect of thigh about trochanter maj. 9 p.m., an h. after supper, shudder down body, with yawning. E., very sleepy.—18th. Dreams much at n. On rising, m., incisor teeth very sensitive, especially on biting; whole head confused and heavy, chilly, general malaise; some streaks of blood in expectoration. Forenoon, tasted these 16 preparations for $\frac{1}{4}$ h. After $\frac{1}{4}$ to 1 h., eruciation, smarting on lips and tongue, violent burning as from pepper on front of tongue and lips; rheumatic pains in muscles of scapulae, like tension and swelling. After dinner, borborygmus in bowels and loud discharge of inodorous flatus; dull pain in l. side of chest behind heart, probably in lungs. Very cold hands. 3 p.m., when sitting writing, involuntary twitching of whole r. lower limb on its inner side, a jerking and twisting. 5 p.m., burning on lips and tongue as if excoriated, but not really so. Some discharge from nose; thirst for cold water. When near the fire, pressive frontal headache. E., increased general heat, quick pulse. 7 p.m., feeling of air in and distension of r. meatus externus. 8.45 p.m., gums behind upper incisors swell up in a blister and also on hard palate anteriorly, upper incisors on edge. Drowsiness, shuts eyes involuntarily, and legs jerk involuntarily. Fell asleep before 10 p.m. and awoke in a stupefied condition about 7½ p.m.; on attempting to walk, violent pain in r. metatarsal bones; pulse still quick. No stool to-day.—19th. Difficulty of getting to sleep, e., woke several times with pains in bones, especially of l. wrist and knees. M., urging to urinate, got up at 4.30, having had but little sleep. After getting up, m., rheumatic pain in r. knee; soon afterwards shooting behind third and fourth toes, also in l. metatarsus. The eyes, especially in l. canthi, stick together, with itching and pressure; some coryza and lachrymation, the upper incisors on edge, audible borborygmus in bowels with feeling of hunger, hiccough. Forenoon, quick pulse, chilliness, cold feet and hands; skin of hands dead and chapped and corrugated. 10.30 a.m., sneezing several times, increased thirst for cold water. The epithelium of front part of lips, of gums, and of tongue is quite detached to-day. There is no burning or smarting, the denuded parts are destitute of feeling and taste, the tongue feels scalded, is white coated, and the tip excoriated. In the chin beard is a small pustule, and a couple of pimples on chest. After-

noon, hard, lumpy stool, with much pressing. 5.30 p.m., burning in r. acromion; when walking, pain of l. big toe as if dislocated, cold feet. Smelt the tincture while stirring it.—20th. Felt cold during n. and in m. on waking, woke frequently with violent itching in lower limbs, nocturnal urination. The decayed teeth get sharp and decay away, the tongue is swollen and red, with white coat; sneezing, pulse slow, no stool. Smelt the tincture while stirring it.—21st. Long of falling asleep last n. Slept later in m., some blood in expectoration. Forenoon, copious stool. Epithelium restored in mouth, anorexia, teeth much decayed away, and sharp, fluent coryza. Again exposed to emanations of the drug.—22nd, m., blood in expectoration, chest feels weak. The pimple on the chin has become a small ulcer, with thin, oily, sticky discharge, and is very painful; the outer wall of r. ala nasi inflamed, swollen, and painful; fluent coryza, alternating with stuffed nose, r. nostril completely stopped with scab and very painful, the ordinary liver spots on chest and arms very dark and scaly, great itching on back of both wrists where several small, dry, dark brown scabs have come; tongue swollen and its tip feels scalded. On rising, m., teeth sensitive when pressed together, especially upper incisors, very bad appetite, stool copious, brown, firm, and lumpy.—23rd. Again exposed to emanations. Nose as yesterday; drawing pain in r. sole when treading. Occasional slight shooting and drawing pain in anus and fore part of penis. Nose and ulcer better during d.—24th. Woke at n. with vivid dreams of someone walking about in house and speaking loudly. Noon, on shutting eyes violent pressive pain in r. eyeball. Nose and ulcer better, teeth decayed away down to gums. Appetite bad, after eating fulness and pressure in stomach, eructation, with taste of food and acid. No stool.

d. Exposed to emanations from 9 preparations, p.m. Soon, feeling as if wind were howling in r. ear. 8 p.m., some blood dropped from r. nostril; otherwise stuffed nose and scabbiness of r. nostril; great itching in l. border of lower lip; r. meatus auditorius feels wide open, increased by yawning, relieved by inserting finger; itching of backs of both hands; on yawning ringing in r. ear; much pressure in eyes, with dry feeling in them. He feels too warm and yet has cold chills, especially over back and lower limbs; itching in l. side of anus, in legs, and scrotum; very drowsy with frequent yawning, can hardly keep his painful eyes open; when walking, patella as if dislocated, cracking in r. knee when walking after sitting; during drowsiness violent erections; pressive pain in l. side of chest anteriorly, about fourth rib; boring pressive pain on r. shoulder, then behind l. acromion. 10 p.m., epistaxis from r. nostril. Under l. ear on border of ramus of lower jaw a small swollen gland, painful when pressed.—25th. Kept awake with many thoughts, always chilly, towards m. warm, very confused dreams. On waking m. dryness of mouth and tongue. Upper incisors very sensitive when teeth pressed together. Very chilly, lazy, and disinclined for work. Feels as if food remained undigested in stomach, out of spirits and indifferent, r. hand cold, l. warm. 9.45 a.m., as if air were in ears, with pinching pain, worst in r. ear; on moving arm feels as if dislocated at junction of clavicle with scapula. 11 a.m., increased thirst, though he is cold.

No stool to-day.—26th. Forenoon, when walking in open air, drawing and cutting pain in front part of urethra and neck of bladder. 2 p.m., exposed to emanations. Immediately as if r. external meatus were distended with air, later the same in l. meatus with feeling as if ear were stopped; very cold hands, tensive stretching pain in upper part of r. scapula. 10 p.m., boring pressive pain in r. side of vertex, then in l. side of forehead, later on r. side of, and above, r. eye, like a peg driven into it; a stool, the first for 3 d., dark brown and lumpy, with much pressing; afterwards itching on prepuce internally.—27th, 9 p.m., a stool similar to that of yesterday, before and after it crawling in anus as from thread-worms; itching on prepuce after urinating. The decayed teeth break off still more.—29th. Yellowish-brown stool, not very firm, with some streaks of blood. Yesterday and to-day, pressure in stomach after eating baked fruit. During proving brown rings round eyes, with sallow complexion and circumscribed red spots on cheeks, flesh of body seems very lax and falling away, belly very much fallen in. The eruption on the hands lasted till April 14th. (*Hom. Vierteljahrtsch.*, viii, 6.)

4. R. W.—, housemaid, æt. 26, was engaged in pounding bark. Next d. complained of toothache in some decayed l. upper molars, jerking pains with pale swelling of gums, and bleeding and suppuration of them; the cheek externally was painful when touched. On another occasion she again pounded the bark, and had violent shooting pain in r. side about lower ribs, especially when breathing deeply. (*Ibid.*, 29.)

5. A woman exposed to the emanations had flow of saliva and contractive spasms in heart. (*Ibid.*)

6. a. Dr. BRUKO LINCK, æt. 41, robust, choleric melancholic temperament, took, May 14th, 1852, Mez. ʒ. In ¼ h., scraping in fauces with flow of saliva; frequent eructation with burning in throat relieved momentarily by drinking cold water; transient pain in ear; the burning and scraping in throat lasts 2 h. Violent, almost painful hiccup lasting almost 1 m. Transient tearing pain in tip of l. scapula and in l. side of back. Slight toothache in carious tooth, transient; painful fine tearing from one temple to the other, frequently recurring. Fine drawing in l. upper teeth; drawing pain in r. occiput.—18th, 5 a.m., same dose. The scraping in fauces soon came on, and lasted till 8 a.m. After 1 h. obtuse pain in region of spleen and in l. side of chest, long continued, aggravated by inspiration, sometimes most posteriorly in region of 4th false rib. Drawing pain in teeth on l. side, transient. Greater calmness of mind and body than before. Easy stool (had habitually a painful feeling in rectum with difficult evacuation). Itching in r. eye and l. whisker. Dull drawing above r. ear as if in bones. Afternoon, another similar dose. While walking in warm weather, a long-continued feeling of dilatation in r. ear, and coldness as if meatus were shortened, and membrana tympani were exposed to air. Then itching in r. outer ear and sealing up of it with mucus, compelling him to wipe it often. Drawing-pressive pain above and behind r. ear. Burning stiches on skin of arm and leg. The pain in r. side of head continues with feeling as if the part were suppurating, and as if the bone would be painful to touch, which it is not; aggravated by walking.

Burning pricking on various parts of skin like insect-bites. Pinching in r. ear. On going out at n. to see a patient the pain in side of head returned, and was increased at every step. Fine pricking in upper lip at r. angle of mouth.—19th, m., same dose. Tearing pains in r. clavicle and adjoining parts of neck, transient drawing in lower teeth. Frontal headache p.m. Drawing in dental border of l. upper jaw. Great cheerfulness and desire for work. E., dislocative pain in l. knee on its inner side. 11 p.m., dull pressive pains above r. ear, superficially as if in bone or skin, extending to upper border of auricle, gradually becoming more severe and then declining, undulating.—20th. Same dose. On getting into his cold bath a sudden sharp pain between articular surfaces of l. knee-joint almost making him fall. Feeling of a spider's web or blowing of cold air on l. side of face in the beard. Nausea in throat. Pain under angle of l. scapula. Shooting in l. ear. Great weariness and weakness of knees. Pain in elbow as from a blow. Intoxicated feeling in head with uncommon weariness of knees and soreness of them. Spirit lively.

♂. May 27th, e., took a teaspoonful of a mixture of 2 dr. tinct. with 2 oz. water. Slept till 6 a.m. quietly.—28th. Another teaspoonful. Felt very tired and ill. Pain in r. knee anteriorly and externally, near patella, as from a blow. Extreme weariness in knees, especially when sitting, not when standing or walking. Confusion in forehead. Oppression of chest as from heart, with long deep respirations. Nausea in throat, intoxicated feeling in head, trembling as if he had taken too much wine. Drawing-tearing pain in r. wrist. Stretching of limbs, quivering in l. upper eyelid, great weakness of wrists. Erection and belching up of fluid, which does not come as far as mouth. 11 a.m., another teaspoonful. Very sleepy e. after 3 glasses of hock.—28th, 6 a.m., 1 teaspoonful. Sharp pain on a small spot of thoracic parietes over heart. Extreme weariness of knees and drowsiness; after a short sleep the weariness goes off. Pain on r. patella as from a blow. When lying noise like a distant mill-wheel in l. ear, going off on rising up. Oppression and anxiety on chest, especially about heart, with deep breathing.—June 1st, 1 teaspoonful. Drawing pain in l. scapula, drawing-tearing pain about l. wrist and forearm. Bruised pain above knees, especially when going uphill. Sharp cuts as with a knife on anterior aspect of r. thumb in flesh of last phalanx, frequently. Violent jerking shoots on back of r. hand between metacarpal bones of r. fingers. E., 2 teaspoonfuls. Slept soundly.—2nd. 2 dr. of tinct. in water at once. Scraping in throat. Confusion in head like intoxication, but not interfering with work. Uncommon laziness of speech, every word is an effort. Indifference, but not out of spirits. E., 4 dr. tinct. Burning as from pepper for a long time in mouth. Drawing-tearing pain in lower jaw and teeth.—3rd. Tearing pain in l. shoulder. Indifferent and laconic. Noon, 4 dr. Tearing in r. shoulder and forehead. E., disagreeable warm stinking vapour in nose.—4th. Apparently from a chill at n. colic with pappy, lumpy, brown, very fetid stools, then thin fæces by drops, with great forcing in rectum. Indifferent and laconic. Sore pains between toes when washing feet in cold water; the epidermis is white and puckered up like a discharged blister.

—5th. Diarrhoea continues.—6th. Rheumatism in l. scapula and neck, increased by turning to opposite side.—7th. 5 dr., scraping, burning, pepper-like feeling in palate and fauces. Afternoon, great straining at stool, with scanty evacuation of soft fæces with much pressing, afterwards troublesome painful soreness in rectum. Constant visible twitching at root of nose, tearing pain in knee. Tearing in l. wrist. (*Ibid.*, 29.)

7. *a.* H. L. L., woman, æt. 32, nervous, subject to attacks of weakness and facial neuralgia, otherwise healthy, proved solution of Mez. 1.—May 17th, 6 p.m., 2 teaspoonful. Soon, painless quivering in outer canthus of l. eye, lasting some h. Transient shootings in side, shoulder, arm, and fingers. Scraping in throat, causing cough, relieving by hawking, returning more severely after eating, lasting till 9 p.m. Wakes suddenly at n. with violent facial pains like the old neuralgia, but soon going off.—18th, m., after a walk constant tearing in l. side of face and teeth. 8 a.m., 1 teaspoonful. Immediately quivering in canthus. The tearing in face increases to acute pain in jerks. Scraping in throat. Sudden headache with inclination to shut eyes, discomfort in stomach and slight vertigo. Trembling of r. hand, powerlessness of finger-tips, so that she could hold nothing firmly. Shootings or fine tearing in l. temple. Great weariness. Slight stitches in chest on respiration. Chest oppressed and constricted. Shooting in ear, especially l., in repeated short attacks. Tendency to wink. Constant trembling of r. hand. General relaxation, great drowsiness. Occasional rigors. 11 a.m., tearing in face. 1 p.m., after slight vexation very violent headache, head painful to touch. Stitches in chest increased. Disagreeable chilliness in l. thigh, foot cold and often goes to sleep, hand trembles. Great weariness, irritability and malaise, disposition to weep, sadness, disinclination to work. Afternoon and e., pain in r. side. E., 1 teaspoonful. Great weariness, cannot sleep for 2 h. Woke about midnight with violent pain on both sides of face, considerable pain in r. side of head. Transient pain under l. shoulder. Powerlessness of r. hand. Sleep very restless and disturbed by violent faceache. Pains in lower limbs, cold feeling and going to sleep of them.—19th, 10 a.m., 1 teaspoonful. Immediately tearing in face and trembling of r. hand lasting 2 h. Constant rigors, great weariness and drowsiness, prickling in lip as if vesicles were about to appear. 5 p.m., 1 teaspoonful. 6 p.m., when walking ears felt stretched open and the air penetrated coldly into them. After eating scraping in throat. Slight facial pain at n.—20th, m., 1 teaspoonful. Great weariness, must go to sleep for another h. Great trembling of r. hand, frequent going to sleep of legs and feet, constant rigors. Hand so weak she cannot do anything with it, writing is most difficult. 2 p.m., so drowsy she must lie down, and slept 4 h., but was often half wakened by faceache. On waking hands are quite numb, r. foot very painful, shooting pains in it, especially in toes, r. hand trembled violently, teeth felt too long and icy cold. Pale face, and looks ill. Frequent stitches all over body. Chilly, cannot get warm all d. Teeth painful when tongue touches them. 9 p.m., attack of extreme anxiety since 6 p.m., weeping, palpitation and coldness of whole body, so weary and weak in all limbs she

can hardly walk across room. N. very bad, faceache and weakness and weariness kept her awake till 2 a.m., and had still faceache when she slept.—21st. Constant going to sleep of hands and feet. At n. much faceache and restless sleep.—22nd, m., repeated dose. All d. lively and strong, but much troubled by stitches under l. mamma darting through chest to between shoulders, caused or aggravated by breathing. At n. again faceache.—23rd. Pains in chest all d.

8. May 28th, forenoon, 10 dr. Mez. 7. Soon, disagreeable feeling of nausea in throat as though she would vomit, relieved by eating. Afternoon, slight attacks of faceache, increased in e., went off about midnight. Slept well.—29th., 8 a.m., 15 dr. Nausea, frontal headache, trembling of l. hand, quivering of l. upper lid, crawling and pricking in many parts of body. Spirits depressed; laziness; traces of faceache; very tired and ill; feet go to sleep. Constant stitches under l. breast. Disagreeable pain in r. thigh as if bruised and lamed; pain in knee at every movement, but worst when sitting. Scraping in throat. Canthi feel gummed up, making her rub them. Oppression of chest; inclination to breathe deeply; feeling as if chest were constricted; heaviness of head, must support it. Inclination to close eyes; stares steadily at one spot. In a brown study, a dreamy state. L. arm feels tense. Drawing in all joints as if they were dislocated. After dinner uncommonly gay, inclined to sing and dance, joke, and laugh as if intoxicated. Trembling of hands, which are powerless. Desire for wine and coffee. (*Ibid.*, 35.)

8. A man, æt. 20, suffering from caries of bones of foot, nearly cured, otherwise well, took 1st d., 10 dr. Mez. 1. No effect.—2nd d., 15 dr. No effect.—3rd d., 20 dr., and so on, every d. 5 dr. more, till he took 40 dr. Then all of a sudden he complained of drawing and tearing in the long bones of all the extremities, with chilliness and rigors, was very sensitive to air. An itching eruption like flea-bites came out all over body, which went off after 3 d., but lasted longer on head, and then assumed a scurfy appearance. He complained of the teeth being on edge and feeling too long, especially on l. side, with boring and shooting in them, though he had never before had toothache and his teeth were all sound. These symptoms lasted a week. (*Ibid.*, 42.)

9. HIRING. [Dr. C. Henning contributes the following symptoms from himself, Harimann, and an unnamed prover. No information given about the provers and the doses taken or the time of the occurrence of the symptoms.*] Very discontented with himself and his work for several weeks, followed by mental comfort and content. Great irritability and sensitiveness. Disposed to scold others for trifles; everything annoys him, and he is inclined to say insulting and annoying things to everybody. He stares in front of him without thought. Headache after moving and much speaking, especially in temples and both sides of crown. The long hairs annoy him, they seem to be rougher; after some weeks the hair seems looser and to grow sparser. Quivering of scalp on r. side of crown, ceasing for a short time when touched. Small painless pustules size of milium seeds on forehead at edge of hair. The scales on head

* This is a revised and supplemented list of the symptoms communicated to the pathogenesis in the *Chronic Diseases* by "H. and W., two medical students in Leipzig."—Eds.

MEZEREUM.

are more plentiful, whiter, drier than formerly. Small red pimples on forehead, which sometimes itch. Itching of eyebrows. Constant itching behind ears; after scratching small lumps rise, which are scratched raw and are painful,—for several weeks. Swollen, dry, chapped, desquamating and painful under lip. Disgusting taste, like what sometimes come from carious teeth, in fauces, and a similar smell at back of nose. Burning pressure in stomach, spreading across at times, worse when pressed on. Burning in stomach. Large pappy, greasy stools, after violent rapid urging, followed by smearing in anus. Dark wine-yellow coloured urine, becoming turbid after 3 d. The urine after a time has floating flakes and red sand in it. On stooping and when sitting chest is very tight, he must undo his clothes, breathing slower and shorter. Above l. knee a movable half-hard swelling. When walking tends to go with upper abdomen hanging over in front, to walk quick and sing, but all that is done with difficulty and forced. Many very vivid remembered dreams towards m. (*Ibid.*, 43.)

10. HARTMANN. Stupefying pressure pain through r. half of brain from occiput to forehead. (*Ibid.*)

11. W. (No name of prover given.) Nose seems to him to be bigger and shining. Smarting like mustard in nose. Small plugs easily picked out of nose and cheek, others form. Great itching on border of lower jaw (after 5th and following d.). Scraping and burning feeling in upper part of fauces, soon after taking med., going off after drinking milk and eating bacon. Easy hawking up of granular transparent mucus. After speaking feels throat affected. Great desire for fat bacon. Eruption of air, with burning and sweat of anxiety. Feeling in stomach and lower part of oesophagus as if after fasting too long, but without longing for food, after eating this feeling goes off, but returns after a few h. The burning in fauces, oesophagus, and stomach relieved by swallowing food, as also the anxiety and diarrhoeic feeling. Great derangement of stomach, much tension and spasmodic pain, especially before food, for several weeks. Many short, very fetid discharges of flatus, especially before stool. Constipation after 8 d. The stool is very quickly passed, and is followed by great relief. A feeling of diarrhoea extends from rectum, then a rigor passes over body, and the feeling goes off. Single violent menses, during which granular mucus flows out of throat. On inspiring a wherling in nose. Nasal mucus increased and thicker, with great noise on blowing nose. Breathing full, not free, and less easy than usual. Larynx feels narrower, he hears and feels the air going through larynx when he takes a deep breath. On taking a mouthful of water and leaning forwards, he suddenly lost his breath, so that he must quickly spit out the water. On breathing deeply small stitch below heart. Burning around both outer ankles in circumscribed spots after working long with hands in cold water, lasting half the d. Pain in frontal bone extending down to foot. The toes are painful, as from hard, tight boots. Cutaneous ulcers came on the prominences of the bones. Sometimes longing for, sometimes horror of, the open air. He is best when walking in open air. Veins of hands are blue, skin soft and smooth, p.m. and e. In e. the room feels too hot, and his face perspires. (*Ibid.*)

12. a. Dr. WATZKE, June 2nd, 1863, 1 p.m., took 4 dr. tinct. on sugar. Immediately, violent burning on posterior surface of palate and uvula, lasting till after dinner (3 p.m.). At same time flow of saliva, sickness, and contraction in stomach. After eating, the palate and uvula felt as if they had been scalded with hot soup. This lasted all afternoon and recurred the following m. All next d. there was in those parts a feeling of roughness, scraping, and dryness, which continued during the following days, always worst in m. Dull, shooting pains in cardiac region, apparently seated in intercostal muscles, with sharp stitches when coughing or sneezing, came on on the 4th in the m., and lasted more or less for 12 to 14 d. They were worst e. and m.

b. June 21st, 1 p.m., 5 dr. tinct. in water. The burning pain was again very severe and lasted till 3 p.m., till after dinner. The

discomfort, the inclination to vomit, the feeling of contraction or rather constriction of stomach and throat, were much worse and more tiresome than in the first trial. Next d. there could be heard and felt a distinct rubbing sound in the cardiac region where the pain was felt on the first trial. During d. on movement this was scarcely perceived, it came on almost exclusively after lying down in e., and then when lying on l. side and when breathing deeply. Chest felt too narrow, as if he could not take a full breath, and it lasted nearly all next d. This rubbing sound lasted till the middle of July; a not very easily describable sensation of weight and obstruction in cardiac region, and a feeling on breathing deeply as if chest were too narrow, was felt for 8 to 10 d. longer. (*A. h. Z.*, lxxiv, 46.)

13. Dr. ETTERLIN, æt. 50.—Aug. 15th, 1864, 8.30 a.m., 3 dr. tinct. on sugar. Immediately, burning and scraping in throat, on tongue, and palate, later feeling of malaise not easily describable. On coming into a warm room there occurred nausea, which went off on going into open air, but the pain in throat lasted some time longer.—16th, 8.30 a.m., took 4 dr. in a teaspoonful of water. The same burning in throat, but not so severe. The malaise was greater, some pressure in cardiac region, head confused, anorexia, which lasted 2½ h.—17th, 9 a.m., 6 dr. in water. Again the pains in throat, some vertigo, pressure in gastric region, less malaise.—19th, 10 dr. tinct. in water. At first slight pain in throat, but after 10 m. violent burning and scraping in fauces and palate, then nausea, worst in room, confusion of head, later pain in temples and forehead and above eyes. Then pressure in scrob. cordis, hard pulse. Later, flickering before eyes, furred tongue. These symptoms lasted 3 or 4 h., the flickering before eyes continued next d. Two d. later slight epistaxis. L. leg for several c. swollen down to ankle.—Sept. 1st, 8.30 a.m., 14 dr. In ¼ h. burning in throat, pressure in gastric region, malaise, weakness of knees, heat in mouth and throat, eructation, pain in forehead and temples, astringent and rough taste, ill-humour, laziness, no feeling of hunger or thirst, some salivation. Slight swelling of l. (varicose) leg.—18th, 8.30 a.m., 20 dr. in water. After 10 m. scraping in throat, palate, œsophagus, and tongue, increasing for 2 h., continuing at same degree for 2½ h., with heat and hot breath. From the first nausea, pressure in scrob. cordis, pain in temples and supra-orbital region. Eructation, yawning, weariness of legs, drowsiness when sitting and reading. All symptoms gone by 3 p.m. On standing for a considerable time l. leg down to ankle swollen, especially c.—24th, 8.45 a.m., 21 dr. in water. Immediately warmth in mouth, 5 m. later heat and scraping in fauces; fell asleep in another ¼ h. Tendency to nausea, temporal and frontal headache, pulse hard, slight salivation. Noon, the pain in throat better but there is great roughness in throat, confused head, vertigo, much pale urine, some flatulence. Swelling of l. leg c. (*Ibid.*, 53.)

14. Dr. WÜRSTL, æt. 30.—Sept. 5th, 10 a.m., 10 dr. tinct. At first agreeable coolness on tongue. After ¼ h. prickling at back of palate and base of tongue, then feeling of warmth in the parts and dryness of tongue, which increased to heat and burning. The burning

increased so that it felt as if he had been chewing pepper, not relieved by drinking cold water. Later the burning involved the tip of the tongue, the inside of lips, cheeks and gums. The skin, especially of face, perspired. Later, heaviness of head, frequent eructations without taste, frequent discharge of flatus, weariness of lower limbs all d. After 3 h. the burning and dryness of mouth went off. When eating feeling of soreness of the affected parts. E., confused head.—6th, 10 a.m., 10 dr. Same symptoms as yesterday.—7th, 10 a.m., 10 dr. In addition to burning in throat and mouth, after 1 h. great anxiety, nausea, empty eructations, moist cool forehead, oppression, rigor, trembling of hands and urging to stool at an unusual time. Little appetite for dinner. These symptoms continued till 6 p.m. N, restless.—10th, 10 a.m., 10 dr. The same burning feeling in throat. Noon, recurrence of the oppression and anxiety.—11th, 10 a.m., 15 dr. 3 p.m., heaviness of head. The burning in throat to-day was more severe. E., headache increased, extraordinary weariness and anxiety, trembling of limbs and great restlessness. Appetite bad.—12th, 10 dr., same symptoms as yesterday, tongue felt swollen and as if its papillæ were corroded by some acrid substance.—13th, 14th, 15th, m., 10 dr. Always the same symptoms, occasionally confused head, vertigo, tinnitus aurium, hardness of hearing.—20th, 21st, and 22nd took 10 and 15 dr., which caused precisely the same symptoms. (*Ibid.*, 54.)

15. a. Dr. LEMSKA, Dec. 30th, 1867, 8.30 a.m., took 2 dr. 1st dil. No effect.—Jan. 3rd, 1868, 8.30 a.m., 5 dr. No effect.—4th, 8.30 a.m., 10 dr., and 3.30 p.m., 10 dr.—5th. Five liquid stools, preceded by pain in umbilical region and straining.—6th, 4 p.m., 10 dr.—7th. Several soft stools during d.—8th and 9th. Soft stools m. and noon.—9th, 4 p.m., 10 dr. To-day and on 10th and 11th 2 soft stools daily.—12th, 8 a.m., 15 dr. After every dose there was long-continued burning in fauces. When the subsequent larger dose was taken this burning lasted sometimes about 2 h.—13th, 4 p.m., 15 dr. Two soft stools. No further effects from this dil.

8. Jan. 16th, 8.30 a.m., 10 dr. 1st dec. dil. Smarting on tongue and lips. Constant scraping and burning in fauces and warmth in stomach; painful drawing in shoulders and knees.—17th, 3.30 p.m., 15 dr. Immediately, long-continued dull pain in stomach. Pressure in l. wrist.—18th, 8.30 a.m., 20 dr. Severe smarting and burning in tongue; pressure on r. scapula, above r. ear, in l. wrist. 3 p.m., 20 dr. Pain in pectoral and dorsal muscles of r. side, e.—19th, 9 a.m. and 8 p.m., 20 dr.—20th, 6 a.m., 20 dr. Two soft stools. 8 p.m., 20 dr. Repeated tearing in l. side of head; pressure in r. foot and in scapula. Dull pressure in stomach lasting 2 h., with nausea and flow of saliva. At 11.30 a.m. and again at 5 p.m., soft stool. Continued pain in r. shoulder-joint, felt again on waking next m., unaffected by movement or rest, sometimes worse when at rest.—21st, m., soft stool; tearing in forehead and ankles. Noon, soft stool. 5 p.m., pressive pain in dorsal muscles; r. shoulder-joint painful all d.—23rd, 3 p.m., 20 dr. Tearing in r. side of forehead, over head, and in face below l. eye. 5 p.m., 20 dr.—24th, 6 a.m., 20 dr. Tearing in knees and l. side of back. 8 a.m., 20 dr. Tearing above eyes, in r. toes, in

tibiz.—25th, 6 and 8 a.m., 20 dr. Tearing in muscles of l. upper arm, above r. and l. knee when walking at 9 a.m., in r. elbow. Repeated feeling of heat in stomach, boring in r. sole, in calves. 3 p.m., 20 dr. Boring in l. side of frontal bone, in r. shoulder, repeatedly. 5 p.m., tearing in toes, chilliness in back, cold hands, constant boring in wrists and ankles, in r. shoulder, worse when at rest.—26th, 6.30 and 8 a.m., 20 dr. Pains as yesterday in shoulders, upper arms, wrists. Tearing in forehead, occiput, knees. 3 p.m., 20 dr. 5 p.m., tearing in elbows and calves.—27th, 6 a.m., 20 dr. 7 a.m., pressure in shoulders, wrists and ankles, tearing in forehead when sitting, repeatedly. 8 a.m., 20 dr. Frequent tearing in tibiz, fingers and toes. Up to now 2 soft stools daily. Drawing in nasal bones, dorsal muscles, l. scapula, wrists. All d. violent pain in tibiz, even when walking. 2 p.m., soft stool. 4 p.m., 20 dr. The same feeling all d., not at n.—28th, 7 a.m., 20 dr. Tearing in l. tibia, forehead, l. wrist, l. knee, shoulders, toes, nasal bones, head, fingers, lumbar muscles. 8.30 a.m., 20 dr. Same symptoms. 2 p.m., copious liquid stool.—29th, 6 a.m. In bed, tearing in tibiz, not at n. 6.30 a.m., 20 dr. Tearing in toes, lower jaw, shoulders, legs, lumbar muscles, knees when sitting. Drawing on both sides of nose, wrists and fingers. 8 a.m., liquid stool. 8.30 a.m., 20 dr. Drawing in above parts. The worst pain is the tearing in tibiz. 9 a.m., liquid stool and discharge of fluid blood without pain (is not subject to piles). 4 p.m., 20 dr. Same pains.—30th, 6.30 and 8.30 a.m., 20 dr. Same pains. 3 p.m., 20 dr. The worst pains are those in tibiz, both sides of nose, heels, forehead.—31st. Tearing in head in bed, m. 8.30 a.m., 20 dr. Tearing in l. side of nose, in arms, knees. 4 p.m., 20 dr. During all this d. there was a short dry cough, with rickling in larynx, both n. and d. To-day this cough was very frequent, but the symptoms in legs were less frequent. 5 p.m., 20 dr. 10 p.m., severe boring in tibiz and nasal bones. At n. pain in l. shoulder and much dry cough.—Feb. 1st, 6.30, 8 a.m. and 3 p.m., 20 dr. The former pains, 2 loose stools.—2nd, 6.30 and 8 a.m., 20 dr. The same symptoms in limbs and head, dry cough. 4 p.m., 20 dr. Same symptoms.—3rd, 6.30 and 8, 20 dr. The same symptoms, also smarting in edges of eyelids. No stool to-day. 4 p.m., 20 dr. On awaking at n. severe tearing in r. side of head several times.—4th, 6.30 and 8 a.m. and 4 p.m., 30 dr. Same symptoms all d. A firm stool.—5th. Woke at 6 a.m. with constant pressure and drawing in sinciput. 6.30 a.m., 30 dr. Severe drawing in legs when standing. 8 a.m., 30 dr. 9 a.m., great chilliness and very cold hands, pains in limbs as before. A firm stool. 3 p.m., 30 dr. All d. the former symptoms; especially severe was the boring in tibiz, particularly l. Also some boring-drawing pains in temples, fingers and their joints, ankles, bones of feet. Cough less.—6th. On waking at 6 a.m. the same headache as yesterday. Took then 30 dr. 6.30 a.m., boring and drawing in toes, knees, forearms. Constant pressure in stomach. 8 a.m., 30 dr. Boring and drawing on l. side of forehead, l. temple, repeatedly. 9 a.m., drawing in legs, near nose, great pressure in knees when at rest. Great boring above ankles, tibiz, in shoulders, above knees, in l. lower jaw. Firm stool. Drawing in muscles and skin of

thighs. Pressure in stomach repeatedly. Pains felt when walking. 3 p.m., 30 dr. Above symptoms and boring in l. upper maxilla and dorsal vertebræ when sitting.—7th. After waking, in bed, boring in l. upper arm, r. thumb-joint, l. ankle-joint, r. temple. 6.30 a.m., 30 dr. Frequent boring in dorsal vertebræ and head in several parts. Above pains in wrists and fingers. 8 a.m., 30 dr. Pains as yesterday in thigh-muscles, boring in shoulders. Itching and smarting in border of eyelids, on skin near nose. 8.30 a.m., chill over back, cold hands, boring in ankles, l. lower maxilla, shoulders, tibiæ. Firm stool. Burning and itching in l. eyebrow. When walking boring in l. shoulder-joints and wrists, weariness in legs. Boring above l. eye and in nasal bones. 8 p.m., 30 dr. Boring in knees and bones of head. All former symptoms recur. Burning in skin of r. cheek and l. calf.—8th. In bed pains like yesterday. 6.30 a.m., 30 dr. Same symptoms. 8 a.m., 30 dr. Firm stool. Jerking boring in cranial bones, especially on top of head. 4 p.m., 30 dr. Same boring in skull. Repeated severe shooting in pectoral muscles on inspiration, while sitting, the same under l. short ribs near spine. Very frequent boring in knees, wrists, behind ears, when walking and sitting, all d. Burning and shooting in skin of r. axilla at 10 p.m.—9th, 6.30 a.m., 30 dr. Same symptoms. 8 a.m., 30 dr. Firm stool. Persistent pressure in stomach. 3 p.m., 30 dr. Stitches under l. false ribs. Same symptoms as yesterday. 8 p.m., persistent burning and smarting at back of nose. 9 p.m., pressure in knees when sitting. Persistent burning in upper lip and below l. eye. Great boring in r. side of cranial bones at 10 p.m.

2. Feb. 10th, 7.30 and 8 a.m., 3 dr. tinct. in water. 8.30 a.m., severe and persistent burning in skin of r. cheek. Recurrence of previous symptoms in limbs, face, and head. Firm stool. The burning in cheek frequently recurs. 3 p.m., 3 dr. Similar burning in alæ nasi. E., slight drawing in urethra.—11th, 6.30 and 8 a.m., 4 dr. Much boring behind r. ear. Firm stool. 3 p.m., 4 dr. Return of same symptoms, especially boring in r. hip-joint, bones and toes of l. foot, r. tibia.—12th. Before taking the med., boring and pressure in l. ankle-joint, forehead, cranial bones, knees. During n. for a long time dull pressure in stomach. 6.30 a.m., 4 dr. 7.30 a.m., the symptoms in cranial bones, shoulders, foot-bones, stomach, continue. Burning in r. cheek and l. calf. 8 a.m., 4 dr. Same symptoms. 3 p.m., 4 dr. Same symptoms. 5 p.m., great burning in skin of l. cheek as from a hot body.—13th, 7 a.m., 5 dr. Boring in tibiæ, wrists, hip-joints, burning in r. side of nose, dry cough, pressure in stomach, pressing above ankles. Burning in skin of r. temple, extending to r. cheek. 8 a.m., 7 dr. Recurrence of burning in r. cheek. Severe and persistent drawing and pressure in r. forearm and l. toes. Tearing in cranial bones, r. side. Burning near alæ nasi, on skin of r. shin, upper lip. Drawing pressive pains in dorsal muscles, in different parts of limbs, especially bones of feet and hands, fingers; boring in various parts of hand, worst when at rest.—14th, m., in bed boring in shoulders. After rising, same symptoms, and burning in r. cheek and l. palm. Pressure in knees, boring in tibiæ and shoulder-joints. Pressure in muscles of thighs, in foot-bones, fingers, toes, and ankles. Burning in

parts of skin as yesterday, also in skin of nape. Great burning in l. trochanter.—15th to 19th Feb. The same symptoms continued with varying intensity, though no med. was taken. On the 22nd all symptoms were gone.—23rd, 3 p.m., 6 dr. After 1 h., drawing boring pains in arms, knees, ankles, bones of head, and feet. 5 p.m., severe boring above ankle and wrist. 7 p.m., burning in r. cheek and l. tibia. Boring and tearing in l. side of forehead towards temple repeatedly, then the same in occiput. Burning and shooting in skin of inside of l. upper arm. Great pressing in lower part of l. forearm, in knees. Boring in tibia, ankles, and bones of foot. 10 p.m., severe boring in cranial bones, also in bed. No pains at n.—24th. On rising, m., boring in l. ankle, toes, shoulders. 8 a.m., 10 dr. Boring behind r. ear. Wandering pains in lumbar region and occiput, shoulders, back of thighs, various parts of head. Burning in skin of legs in several places. Smarting in borders of eyelids. Noon, persistent pressure and drawing in r. elbow-joint, relieved for a short time by moving joint. Later, same pain in r. wrist and finger-joints. 3 p.m., 10 dr. 4 p.m., constant boring in l. side of forehead and in knees when sitting. Burning in skin of forehead. Drawing and pressure in usual places all d. more or less. Drawing pains in various places of soft parts of arms and legs.—25th, 8 and 12 a.m. and 3 p.m., 10 dr. Repetition of almost all the previous symptoms.—26th, 6 and 8 a.m. and 4 p.m., 10 dr. Similar symptoms, and in addition severe cutting in orifice of urethra after urinating at 9 a.m., and also later. Soon after 4 p.m. dose, severe and protracted burning in skin of r. cheek, on tip of nose, and nasal partition. 5 p.m., burning and boring in l. cheek and tip of tongue.—27th, 8 a.m. and 3 p.m., 15 dr. All d. much the same effects. Two stools, with the stool in e. much bright blood. Some cutting in end of urethra.—28th. On rising, m., boring in dorsum of feet, tibia; drawing in legs, cranial bones, arms, and loins; boring in forehead. 6.30 a.m., 15 dr. Most of previous symptoms, and, in addition, at 7.30 persistent prick in tip of l. big toe as if a needle were bored in. Great drawing in knees and legs while sitting, with bruised and tired feeling. Pricking in various parts of skin of l. palm and in finger-tips as with needles. 8 a.m., boring in bones of occiput, and superior maxilla and shoulders. Discharge of fluid blood with stool. Shooting below l. axilla betwixt ribs. Burning in skin on inside of r. thigh and scrotum with slight itching. Burning in alæ nasi. 3 p.m., 15 dr. Most of previous symptoms. 6 p.m., 15 dr. Besides former symptoms, there was shooting in end of urethra and frequent call to urinate, though he had just passed urine. Occasionally when sitting some irregular heart's beats, repeated at n. when lying on back.—March 1st, 9 a.m., insufficient stool with bright blood. All d. the usual symptoms except the pain in urethra. (*N. Z. f. A. Kl.*, xiii, 35.)

16. The preparation employed in provings 16—19 was a tincture made of one part of the juice of the bark with 4 parts of spirits of wine. P—r, M.D., æt. 23, took in the beginning of May, 6 dr., then after 4 d. 18 dr., and observed the following symptoms during 12 d. *Digestivæ ægææ*.—Roughness and burning pain in œsophagus (after a few m.), aggravated when expiring with mouth open. Burning all through

mouth, relieved by eating, but frequently recurring (1st d.) After a second larger dose, same pain but less severe, going off after 1 h. Burning in œsophagus when water is swallowed. Nausea and eructations after $\frac{1}{2}$ h. Dislike to meat, otherwise good appetite. Great thirst (from 1st to 4th d.). Distension of abdomen. Cutting and twisting in bowels. *Urinary and genital organs.*—Pale urine, passed only once or twice a d.,—usually 6 or 8 times (from 1st to 4th d.). Viscid, transparent fluid adheres to orifice of urethra (forenoon of 9th d.). Pressive pain towards inguinal ring, frequently. *Respiratory organs.*—Pressive pain in l. side of chest. *Skin.*—Brownish military rash on chest, upper arm and thighs (3rd d.) Vesicles full of clear serum on back of nose; inflamed skin under burst vesicles; a brown scab forms. Roughness of skin, here and there desquamation. Extremely tiresome itching in a wound soon after it has healed. *Fibrous structures and bones.*—Tearing pains deep in both arms as if in the bones. Increased warmth and pulsation in r. shoulder. Pressive pain in r. heel-bone. Pain in a carious tooth, m. *Vascular and nervous systems.*—Vertigo (after $\frac{1}{2}$ h.). Boring pain in l. half of forehead. Pallor of face, considerable collapse of face and extremities. Extraordinary paresis of flexor muscles of fingers (from 3rd to 5th d.). White shining spots before eyes. *General sensibility.*—Chilliness, especially e. Great laziness and exhaustion after deep sleep. *Disposition.*—Cross humour, disinclination for work. (*A. h. Z.*, xiv, 113.)

17. E—d, M.B., æt. 23, took, middle of February, 1st d. 1, 2nd d. 2, 4th d. 3 dr. in a large quantity of water; secondly, middle of March, 1st and 2nd d. 4, 8th d. 12 dr. on sugar. *Digestive organs.*—Burning pain in œsophagus for some h., increased by inspiration. Difficulty of swallowing with sensation as if a foreign body stuck in œsophagus (from 7th d., lasting several d.). Increased secretion of saliva, and afterwards alkaline, salt taste, with metallic, fetid odour from mouth. Constant desire for food. *Respiratory organs.*—Inflamed state of windpipe with violent burning pain between tongue-bones and thyroid cartilage, somewhat relieved by eating (from 6th to 9th d.). *Skin.*—Almost everywhere on skin great itching, now in neck, now on chest, now on extremities, compelling scratching and then jumping to other parts, especially towards e., for several weeks. Burning itching and tension on posterior aspect of lobe of l. ear; on scratching the epidermis comes off in shreds $\frac{1}{2}$ inch in size. *Fibrous structures and bones.*—Formication in big toes (for 8 d.) recurring every n. and disturbing sleep. Once a similar sensation in phalanges of fingers, as if proceeding from surface of bones. Tearing pain in thighs and tibiae. *Vascular and nervous systems.*—Confusion of head. Pressive pain in region of r. parietal bone, as though the brain were pressed against the skull, the pain increased by leaning head towards r.; this pain frequently recurred and was the most constant symptom, and was still occasionally felt after 8 weeks. Pressive pain in eyeballs as if they were too big. Shocks through whole body when waking and sleeping. *General sensibility.*—Chilliness and shivering towards e. Dreamful, restless sleep, disturbed by formication in fingers.—*Disposition.*—Crossness. (*Ibid.*, 115.)

18. G—r, medical student, æt. 27, troubled with rheumatism, took

in March 5 dr. and observed symptoms for 8 d. *Digestive organs*.—Burning in œsophagus, rising upwards, immediately; nausea, shortly afterwards amounting to inclination to vomit; tasteless eructations. Increased flow of saliva of sweet taste. Constant hunger with feeling of emptiness in stomach. *Urinary organs*.—On urinating slight itching in urethra. *Vascular and nervous systems*.—Shooting pain over r. eyebrow (after ½ h.). *General sensibility*.—Constant chilliness, desire to stretch. Restless sleep full of dreams. *Disposition*.—Crossness. (*Ibid.*, 116.)

19. T—c, M.B., æt. 24. In the end of March took daily increasing doses up to 24 dr. *Digestive organs*.—Burning pain in fauces, extending to angles of mouth and lips, where the skin desquamated. Increased flow of saliva of salt taste, carious odour of mucus on lower incisors. Teeth sometimes feel on edge and too long. Slight nausea and pressure in stomach. Rumbling in bowels whilst and after eating. Itching in anus, like tenesmus (from 1st to 4th d.). *Urinary and genital organs*.—Frequent pale urine, also n. (from 3rd to 8th d.). Pressive drawing pains in spermatic cord, frequently; pain in both testicles when pressed. *Respiratory organs*.—Frequent sneezing (5 d.). Nasal catarrh with discharge of thin mucus, which makes nostrils sore, and sometimes in the m. has streaks of blood. Cough, at first dry, with feeling of soreness under sternum and tensive headache, afterwards copious expectoration of mucus. *Skin*.—Burning itching, especially in nape and calves. Burning, red, miliary pustules on thighs. Burning vesicles surrounded by red areola on sides of fingers, rather sticking in the skin than raised above it. They dry up, and leave behind them either bright red spots or the epidermis scales off in round flakes. Shooting pains in a cicatrix on tip of r. middle finger, in which there had been no sensation for 2 years. *Fibrous structures and bones*.—Shooting pains in scapulae, especially p.m., for several d. *Vascular and nervous systems*.—Pressive pain in temples (after 2 h.). Headache, as if the brain, hanging loose in skull, knocked here and there on the walls of the skull when the head is moved (from 8th to 12th d.). Pressive pain in eyeball and eyelids, especially in bright light. Frequent twitching and gnawing in muscles of zygoma on r. side. *General sensibility*.—Shivering, c. (*Ibid.*, 116.)

20. I took at various times some dr. of 1x, 3x, and 7x dil., and once some drops of tinct. Many M. symptoms were confirmed. I will at present mention only those of the skin: Oft-recurring severe itching, compelling to scratch, now here, now there, on almost all parts of body, and very soon after taking drug; especially on scalp above forehead, in one or other eyebrow, also under eye; and especially persistent and frequent in l. external ear. It often extended over whole body, so that I felt it simultaneously on back, abdomen, and scalp, impelling to scratch, and relieved by scratching. I could perceive no difference in the time of d. The later the itching began, the greater the inclination to scratch. Smarting in eyes, compelling to rub them. Violent itching and burning itching on outer aspect of r. shoulder, as if in flesh, as though an eruption would appear there. (*GERSTEL, Trans. of World's Hom. Convention*, i, 163.)

II. *Poisonings*.—1. A girl of 14 rubbed juice of leaves upon her

cheeks and the adjoining parts. There followed burning pains; swelling of face, especially of nose, eyelids, and forehead, like an erysipelas bullorum (on cheeks the blisters became confluent); continual, violent, and painful sneezing, and complete closing of nostrils; delirium; dull, intolerably pressive pains in forehead; disagreeable dryness in fauces, and irritation causing dry fatiguing cough; febrile pulse; burning and red urine. After cooling and emollient applications burning and swelling subsided, and epidermis peeled off. Then set in weakness, low spirits, and listlessness, to such an extent that she was almost imbecile. (She was later attacked with typhus, followed by hectic, of which she died.) (PLUSKAL, *Oest. Wochenschr.*, 1844.)

2. A robust farmer who was affected by hæmorrhoids swallowed, for obstinate constipation, 40 ripe berries of *M.* Next m. the doctor found him quite prostrate, in violent pain, with vertigo, embarrassed feeling in head, pale, cold, and sunken countenance, dilated pupils, unquenchable thirst, violent burning in mouth, fauces, œsophagus, and stomach, which, with whole abdomen, was exceedingly painful on slightest touch. During n. he had vomited unceasingly, and had almost continual evacuation of bowels, stools at last consisting of bloody mucus. Voice was altered, weak, and trembling; breathing oppressed, laboured, and short; sweat abundant and cold; extremities cold; urine acid and blood-red; pulse very frequent, unequal, hard, and tense. It was 4 weeks before he could apply himself to any work. (*Ibid.*, 1843.)

3. An otherwise robust man took *M.* internally for some complaints that he had. But as, after the disappearance of these, he still continued the use of this drug, he became affected with an intolerable itching over the whole body, which did not allow him an hour's sleep. He left off the medicine, came to me 36 h. afterwards, and assured me he could no longer endure the itching, which increased every h. It went off gradually under camphor. (HANNEMANN, *Lesser Writings*, p. 381.)

MILLEFOLIUM.

Arnica Milifolium, L. Milfoil, yarrow. Nat. Ord., *Compositæ*.

1. *Proving*.—1. Dr. HERING took ʒ dr. of tinct. on m. of Feb. 22nd, 1851.—Everything that crosses him at dinner, or in evenings, when he wishes to be at ease, makes him violent and irascible; great aversion to all business; it constantly seems to him as if he had forgotten something, does not know what he is about or what he wants to do, head confused and dull, especially in e., worse after wine or coffee—for weeks; headache in forehead (1st d.). Shedding of eyebrows, but not hair of scalp, during 1st week. Ringing in r. ear, frequently without any cause (1w and 2nd week); frequent pain in l. ear, not pinching, but a darting in lengthwise. Within lower lip, ʒ, side, an elevation, with pressive sore pain, on r. of 2nd d.; next d. it is a flat ulcer, well covered with the whitish epithelium, slightly painful; had disappeared by next d. Dull piercing pains, keenly felt, shifting here and there on l. side of throat near larynx (1st d. towards e.). Very offensive flatus, especially afternoons and e., for weeks. High up in r. upper arm violent piercing pressure (2nd d.); pain in bones of l. arm (1 h.); going to sleep, pricking in l. arm (2nd d.); pain above l. wrist (3rd d.); pressing throbbing pains in metacarpal joint of l. index finger and

thumb (4th d.); very violent yawning, without any weariness, especially evenings (1st week). (*Amer. Dispens.*)

2. Dr. RAUB took ʒ dr. of tinct. in r., and repeated dose after some h. and again next m. and on 4th and 5th d.; on 4th d. he took r̄ss dr. — Without feeling unwell, no inclination to do anything; dull headache, more in occiput (and towards l. shoulder) in e. (and d.); wakes up with headache in occiput (4th d.); ears seem stopped after dinner and all afternoon; at 4 p.m., pain in l. throat when swallowing, with later doses alcohol burns in same spot that is painful on empty swallowing; sore-throat from 9 to 10 each e., a stool in forenoon and 1 in e. (5th d.); sore sensation under nail of r., then of l. thumb, as if crushed (4th d., disappearing 14th); e. of 4th d., r. buttock painful as after falling upon it, next m. same, worse when pressing on it and on retaining clutch, felt more on r. at inversion of gluteus major into sacrum; drawing sensation in leg when lying down. (*Ibid.*)

3. O.—, a friend of Raub's, took ʒ dr. of tinct. Sensation as if a band were drawn across forehead while contracting the skin; drawing pain in l. ear, and sensation as if moisture were flowing out of ear; twisting and stretching, with a prick-ant sensation afterwards. (*Ibid.*)

4. BEARDS, after ʒ dr. of tinct. taken in afternoon, observed vertigo, with inclination to fall towards r. and backwards, while walking, but not during violent motion, with nausea, especially on stooping, none on lying down; it lasted till following noon, when it ceased after 8 a.m. ʒ. (*Ibid.*)

5. NENNING (see Vol. 1, p. 30). Immediately empty eructation. Soon—rough, new in throat, lasting a long time. Full feeling in stomach, lasting a long time. After ½ h. contractive feeling in front part of tongue with burning. After ¾ h. violent tearing in upper part of r. parietal bone. After ½ h.—burning in stomach, extending up into chest. Sleepy; the jaws occasionally. After 1 h.—prick in r. side of head. An obtuse shoot on l. parietal bone, and at same time a blow in opposite side, and after ¼ m. a shoot there too. Undulation in head on stooping, relieved by rising up. Painful fine twitching in l. side of lower maxilla. Burning in stomach, on bending body together worse towards r. hypochonder, where it became a drawing and burning pain. After ½ h.—painful tension in upper part of r. parietal bone. Tearing and shooting in whole r. side of head. Painful shoot on r. side of occiput. Creeping in l. shoe eastward as from a horse feather. Crawling in l. ear, going off by boring in with finger. Violent tearing in r. maxillary joint, going up to top of head. Tearing in r. side of lower jaw, going quickly sometimes towards ear, sometimes into teeth. Some pricks before l. ear. Pricking on upper lip. After 1 h.—hiccup. Violent twitching first in l. hypochonder, then on both sides, extending to heart, with anxiety, going off after rising from chair. A prick on outer border of r. hand behind little finger. A prick in l. thigh. After 2½ h.—twitching and tension in l. upper eyelid. Coarse shootings on lower r. ribs. Pricking in l. crista ilii. Shooting and burning externally on r. elbow. Yawning and stretching as though she had not slept enough. After 3 h.—peculiar sensation in r. side of head, as if scrawled in, very painful. Transient shoot in crown. Feeling like mist before eyes in the distance, but not near at hand. Itching in r. ear not quite removed by boring in it. A fine twitch in l. scapula during inspiration when standing; after stretching and again crouching together a violent twitch in r. scapula. A violent twitch in middle of l. scapula. Shooting in sacrum. Foecivation in fore part of r. foot as if after it had gone to sleep. After 3½ h.—redness of face without hot feeling. Pricking and cutting sensation in palate. Burning and like a flexine on inner surface of r. little finger. After 4 h.—tearing in l. frontal protuberance. Shooting in l. side of occiput. The eyelids stuck together an m. In l. ear a fluttering as of a bat, so that she started with affright, then on laughing feeling as if cold air escaped from it. A jerking stitch on a false rib. Painful coarse stitches on l. side of chest, under arm, nose affecting breath. A stitch on l. shoulder. Shooting and burning in forepart of l. shoulder. Two successive shoots on inner surface of r. forearm, then itching there going off by scratching. and d.—Distension of abdomen, with frequent discharge of flatus, p.m. Tearing downwards in r. tibia, when walking, p.m. 3rd d.—Increased feeling of hunger. Rumbling and cutting in belly, then two diarrhetic stools, followed by tenesmus. Very soft stool, with some soreness thereafter. Constant urging to urinate, with copious discharge. Some leucorrhœa. Frequent drawing in back. Tearing and tension in l. nalis, when at rest and when moving, but worst

when walking, a.m. 4th d.—Tearing in l. side of face to temple, frequently, e. Feeling in stomach as if fasting, on waking m. Painful gnawing and digging in stomach as from hunger. Frequent discharge of fecal matter. Stool rather soft. After 7 d. itching in back and itching pimples there. *No time stated*.—Several times empty eructation after taking soup. Burning in stomach and belly. Such a violent obtuse stitch in l. side of abdomen that she weaned, when eating. A rough sensation on inner aspect of l. forearm, on a spot the size of a hand, as from a large brush. Frequent going to sleep of r. foot when sitting, nose going off on rising up, after dinner. (*Annal. d. Am. Klin.*, iv, 344.)

6. SCHWITZER. a. *No time stated*.—Feeling as if all the blood rose to head. Tearing int. knee. After 1 h.—painful throbbing in head. Sensation as if stomach were filled with astringent earth. After 1 h. spasm in stomach with sensation as if a fluid were in it which went from stomach into bowels and towards anus. and d.—Pricking or shooting pain in eyes towards root of nose and sides of forehead, when reading, e. Pressure in stomach, like a peg in it. (*Ibid.*)

8. Ebullitions in head on stooping, lessening when rising up (1 h.); jerking wireb on one of l. false ribs (4 h.); coarse stitches on last r. false ribs (1½ h.); cold limbs, with headache; does not sleep till 3 a.m. (3rd d.). (*Amer. Arzneigpr.*)

7. July 13th, 1854. Took at noon 1 cupful of infusion made with ʒij of dried plant in 2½ pints of water. Soon, secretion of phlegm in larynx. 5 p.m., another cupful of infusion. Some phlegm in larynx, and rough feeling there. Slight dull pain in crown. Increased feeling of heat in face, as though blood mounted to head. Feeling of congestion of blood in eyes and nose. These symptoms lasted some time.—14th, 7 a.m., noon, and 5 p.m., 2 cupful. Headache on stooping. Other symptoms as yesterday. Transient shooting in r. side of chest. 5.30 p.m., transient obtuse shooting in l. side of chest. 5.45 p.m., pricking in l. side of head, momentary.—15th, 7 a.m., 2 cupfuls. Soon, quickened pulse. Later, shooting pressure in l. hypochonder. 8.30 a.m., drawing in l. tibia lasting several seconds. Bruised feeling in chest, dull headache, noon. 3.30 p.m., shooting-drawing pains close under l. scapula, when sitting for a couple of seconds. Fine shoots in brain. 9.45 p.m., 1½ cupful. After 10 p.m. in bed feeling of rush of blood to head, pulse quick. Sleep disturbed by dreams.—18th, between 8 and 8.30 a.m., 4 cupfuls of infusion of ʒij fresh plant in 2 pints water. 8.45 a.m., slight throbbing in arteries of head and face, pulse quick, full, strong. Increased feeling of warmth, especially in face. Oppression and restlessness. Shooting, sometimes, in r. side of chest under 4th rib; feeling of contraction in skin of forehead, better after a glass of wine. After dinner transient drawing in occiput, indescribable sensation in l. hypochondrium, soon afterwards the same in pit of stomach. Urine darker than usual.—19th. Took no med. Occasionally during d. dull headache especially in occiput. E., the same but more severe.—20th. After dinner dull feeling in head. Transient slight stitches in r. lumbar region near spine. 2.45 p.m., 2 cupfuls. Hammering in arteries of head. Quick pulse. Thirst. Dryness of mouth. Some fulness in chest. Feeling of something before ears. Headache coming and going, lasting ¼ to ½ h.—21st. Took no med. P.m., sound sleep, afterwards fulness in head. Stitch between scapulae. Some of former headache, which gets worse towards e. (*Keil, Zeitsch f. h. Kl.*, iii, 140.)

MOSCHUS.

Inspissated and dried secretion of preputial follicles of the musk deer, *Moschus moschiferus*, L. Musk.

1. *Provinge*s.—1. HAHNEMANN, *Mat. Med. Pura*, vol. i of original, vol. ii of translation. Contains 2 symptoms from self, 11 from three fellow-observers, and 39 from authors.

2. GÜNTZ, on Feb. 9th, 1824, at 9 a.m., took 5 gr. of musk mixed with 1 oz. of water. The only symptom produced was a slight pressing headache in frontal region which came on after 11 a.m., and vanished a few m. later. (*Jorc, Materialien.*)

3. KNESCHKE, on Jan. 4th, at 9 a.m., took 4 gr. mixed with 20 gr. of sugar and 1 oz. water. Towards 10 a.m. pulse was 74 as against 71 before taking dose; pulse also appeared fuller than usual. These symptoms disappeared towards 11 a.m. Same results followed from dose of 6 gr. On taking 10 gr. felt after $\frac{1}{4}$ h. slight confusion of frontal region, changing after 15 m. into dull frontal headache, most perceptible on r. side; after 1 $\frac{1}{2}$ h. this spread towards parietal and occipital regions, and was here also more severe on r. than on l. side. Whole head now felt somewhat empty and confused, and power of concentration was somewhat affected. This condition of head lasted till bedtime. Pulse all through was 2 or 3 beats quicker, and fuller than usual. Repetition of dose caused same train of symptoms, but lasting only 6 h. (*Ibid.*)

4. MARTINI took 5 gr. at 9 a.m., on Feb. 10th. After 1 h. there was moderate quickening of pulse, increased feeling of warmth with some sweat and distension of veins of hand; these lasted hardly 1 h. One h. after 10 gr. pulse rose for short time 8 beats per m. On going into open air noticed suddenly feeling of heat in r. cheek spreading to r. side of forehead, lasting barely 1 m. (*Ibid.*)

5. OTTO, after taking 2 gr., felt slight confusion of head, which did not last long. After dose of 8 gr. felt moderate confusion of head passing on after 1 h. to slight headache, and accompanied by absent-mindedness, which prevented his working for several h. After taking 10 gr. confusion of head followed, but was exceedingly slight. (*Ibid.*)

6. SYBENHAAK took 10 gr. Only symptoms noticed were some quickening of circulation and rush of blood towards head, lasting hardly 1 h. (*Ibid.*)

7. JORG, on Jan. 31st, at 9 a.m., took 10 gr. rubbed up with same quantity of magnesia and suspended in 1 oz. water. After $\frac{1}{4}$ h. felt slight oppression of whole head, bordering on pain, becoming better and worse by turns, and lasting till nearly midday; at same time feeling of fulness in region of stomach came on, accompanied at 10 a.m. by upward pressure towards thorax and stabbing in l. shoulder-blade. Pressure and stabbing ceased midday, but fulness in stomach lasted longer and interfered with enjoyment of dinner. During same period (10—12) pulse was quickened several beats per m. At 6 p.m. felt burning in

chest in direction of diaphragm. He then took 15 gr. After 1 h. was seized with slight vertigo, changing at times into moderate parietal headache, and accompanied now and then by painful pressure over both orbits and outwardly over both eyelids. At midday these changed into sleepiness, which was relieved by dinner. At 5 p.m. same feeling of pressure in forehead came on, lasting till nearly 7 p.m. (*Ibid.*)

8. Frau C. — took 3 gr. in a tablespoonful of water on July 19th, at 8 a.m. At 8.30 slight confusion of head came on, changing for 5 m. into vertigo, then into pressure in frontal region, which passed off at 10 a.m. Pressure in forehead returned p.m., and lasted till towards 5 p.m. From 9 till 12 a.m. pulse was several beats per m. quicker than usual. At 5 p.m. on same d. she took 6 gr. in a tablespoonful of water. Soon afterwards felt pressure in region of stomach, coupled with sinking feeling. This pressure increased during 1 h., and was felt not only forwards but backwards to spine as if right through body; it lasted uninterruptedly till midday following. At 5.20 head became confused, and later almost giddy, so that at 6.30 the meshes of her knitting appeared to run one into the other; there was besides troublesome pressure in frontal region, increased by movement, and lasting also till next midday. There was also dryness in mouth and oesophagus noticeable for 26 h. Between 7 and 9 p.m., pulse was six to eight beats quicker than usual. 1 h. after dose was overpowered with sleep, and yawned deeply and often. Next m. felt very unwell; head still affected, trembling all over body, weight and pressure in stomach. At noon most of these symptoms passed off, but she was very sleepy all p.m., and slept from 1 till 3 p.m. On July 21st, at 7.30 a.m., took 6 gr., experiencing same symptoms. At 10 a.m. had confusion of head, slight giddiness, moderate trembling and shaking through whole body, and quickening of pulse. Appetite at noon was very slight, but pressure in frontal region, which came on forenoon, was all the more severe, and lasted until e. During p.m. had also nausea, sleepiness, and frequent yawning. Sleep was not so good as usual, and on awaking next m. had confusion of head, pressure in frontal region, trembling and lassitude of body, pressure at stomach, and dryness of gullet, lasting till noon. (*Ibid.*)

9. Fraulein C. — took 3 gr. During next 2 h. said it appeared to her as if she had not slept properly, head feeling heavy and empty, and yawning occurring frequently. On same d. at 5 p.m. took 6 gr. After $\frac{1}{2}$ h. pressing sensation in stomach, pressure in forehead, and oppression in whole head came on; frequent yawning and sleepiness soon followed, and all lasted till 10 p.m. On repeating dose at 7.30 a.m. after 2 $\frac{1}{2}$ h. felt heaviness of head, passing after another $\frac{1}{2}$ h. into genuine pain, perceptible especially in forehead, lasting till 10 p.m. From 10 a.m. till 1 p.m. pulse was somewhat quickened, strong and full. From 10 a.m. was obliged to yawn frequently; this increased during p.m., when lassitude and sleepiness were superadded. (*Ibid.*)

10. Th. J. took 3 gr. Noticed only hardly perceptible heaviness of head lasting 4 h. On same d. at 5 p.m. took 6 gr. After $\frac{1}{2}$ h. felt confusion of head, with slight frontal, alternating with occipital, headache, both lasting till 9 p.m. On repeating same dose at 8 a.m.,

after $\frac{1}{2}$ h. felt confusion and heaviness in head, passing on to pressing pains, especially noticeable in frontal region and spreading downwards towards eyes and nose. Towards 9 p.m. remarked that gullet was unusually dry. These symptoms lasted till 10 p.m. (*Ibid.*)

12. Mrs. — had been married a year, but had no pleasure in sexual intercourse; otherwise perfectly well. Took 4 dr. of M. (strength not stated) every n., and had same quantity injected into vagina following n. Quantity swallowed later reduced to 3, 2, and finally 1 dr. On 2nd or 3rd d. from 1st dose, dull pain in bones of l. knee, afterwards extending up to hip, and down to great toe; still only in bones; ease found in lying on painful side. This ceased a few d. after leaving off med. On resuming it 3 d. later—3 dr. *per vaginam* and 1 by mouth—same symptoms returned, exactly as before, only on r. side instead of l. No change in sexual organs. (BERRIDGE, *N. Y. J. of Hom.* ii, 308.)

12. a. Miss — took 30 dr. 6th cent. at 2.45 p.m. At 2.55 sleepiness, stupid feeling in head. 2nd d.—In afternoon sleepiness with slight aching in forehead. 6th d.—Ever since, sleepiness with yawning when not actively employed.

b. Same prover took 3rd trit. It caused inability to sleep. (*Ibid.*, *Am. Obs.*, 1875, p. 307.)

13. a. Miss —, 1st trit. Oppression of breathing; anxiety as if something were about to happen. Creeping on top of brain. Pricking in body and "fidgets," preventing sleep.

b. Same prover, 10—20 dr. 6th dil. Tingling all over body; low spirits; very nervous. (*Ibid.*)

14. Mrs. —, 3—4 dr. 2nd dil. Made her feel quiet and self-possessed; no fear of any kind; is usually nervous and timid. (*Ibid.*)

15. Miss —, 3 dr. 2nd dil. In 15 m. a stupid feeling in forehead. (*Ibid.*)

16. E. W. BERRIDGE, M.D., 30 dr. 6th dil. In 5 m., flat taste in mouth, lasting some time. In 35 m. paroxysm of slight chilliness over body. (*Ibid.*)

17. a. A man, æt. 52, triturated for 1 h. 1 gr. Mosch. with 100 gr. milksugar. In the first 5 m. a kind of rush of blood to head, with staring eyes and spasm in mouth, so that he could not answer when asked what was the matter, though he understood what was said. In the 7th m. he began to speak, and spoke so rapidly and so confusedly that it was impossible to write down what he said, and he would not stop when asked. Till the 10th m. he was as pale as a corpse, and his hair dripping with perspiration. Vertigo as if intoxicated, he could not walk alone. Headache as if a weight lay on head, aggravated by movement. Roaring in both ears as from a strong wind. No memory, yet he answered every question, but when the first question was repeated, he seemed to be endeavouring to remember something, and then gave a wrong answer. Both eyes distorted upwards. Movement of lower jaw as if chewing something. Vomiting of phlegm 3 times successively. Severe pressure in stomach, followed by eructation smelling like a goat. Some rumbling in bowels, with discharge of flatus of like smell. Stiffness of penis and urging to urinate. Fingers of r. hand quite stiff. He was taken into the open air, and in $\frac{1}{2}$ h. all the sym-

ptoms were gone, and he then recommenced his triturating and continued it for $\frac{1}{4}$ h.

b. He was suddenly seized with trembling of whole body and profuse clammy sweat all over. Facial muscles distorted so that he was unrecognizable; eyes staring, projecting beyond eyelids; mouth half open, out of which white mucus flowed. After $\frac{1}{4}$ h., when sitting in open air, began to talk nonsense, spoke very low, and as if he would not disturb someone, saying "Bst! Bst! Bst!" Then he commenced to sigh deeply, and at same time played with the buttons of his waistcoat as if he would button and unbutton it. This lasted 20 m., then he recovered his consciousness. During the trituration he felt a sort of stupefaction, and all the objects in the room seemed to be big black figures, which sought to press on to him; otherwise he knew nothing. Vertigo, with a kind of loathing, not nausea; a kind of pressive headache, combined with throbbing in whole back part of head, and some drawing as with a thread into the spine (down the cord to 1st lumbar vertebra). The whole head pains as if sore, worse when touched. Much sweat on forehead. Pressure in both eyes as if sand were in them. Black points before eyes. Severe tickling in nose, going on to burning. Swollen upper lip, dry mouth, little thirst. Mouth very dry, longing for brandy, which he is never accustomed to drink. Burning in oesophagus as if a coal were there. Loathing at all food, and when he sees food he gets nausea and, if he does not go away, vomiting. A painful sensation as if something hard lay on stomach, aggravated by drinking. Distension of abdomen with violent urging to stool, but without being able to evacuate. Urine very scanty and turbid. (HROBADA, *Journ. f. hom. Arzneimittelehre*, i, 101.)

18. A woman, æt. 45, after triturating 1 gr. of musk with 100 gr. of milk sugar. In 4 m. eyes began to stare, face became pale, she complained of heaviness of head, pressure in nape, coldness all over body, a kind of nausea. In 9 m. lost her sight, pupils extremely contracted. Lost her equilibrium. The r. hand, which was using the pestle, became stiff, the fingers stretched out and quite stiff. Taken out into open air in 5 m. recovered her senses and complained of vertigo in the first moment. Before the loss of consciousness, all seemed to go round in a circle, at first slowly, then always quicker and quicker, and at last it seemed as if she was hovering in the air, stupefied, and when in this state it seemed to her that she fell from a great height. Vertigo as if intoxicated, everything seems to move that she looks at. Pressive headache in interior of brain. Head very hot, and back part of head perspiring profusely. Above both eyebrows a small red spots like flea-bites. Eyes dim, pupils dilated, tears flow out of l. eye. In l. ear a rustling and sensation as if a flea were in it. Nausea. Mouth very dry. Great thirst for beer, which she did not usually drink. Much eructation smelling of musk. Much flatus of a garlicky smell. Great diarrhoea, with retraction of abdomen. Urine clear as water and copious. The menses came on next d., a fortnight too soon. Very soon fluent coryza, with peculiar burning, first in r. then in l. nostril. Very viscid mucus in chest without cough, which seems to take away her breath, because she cannot bring up the phlegm, relieved

by drinking. Stiffness of hands and feet. Cold feeling from soles to knees. Blue spots all over abdomen and thighs. Very anxious disposition. After 2 d. quite well. (*Ibid.*, 102.)

19. From triturating musk (no information as to numbers, sexes, ages of provers, or how, when, and where they triturated). After 3 m.—violent vomiting, difficult breathing with shooting in chest, which makes his breath short. He had great fear of death, and said, "Now I am dying," became deathly pale and fell into a faint for 10 m. After 5 m.—vertigo with rush of blood to head, lasting 2 h., better in open air. Eructation with after-taste of garlic. Sneezing and prurive pain in nasal bones. Cold feeling of thigh and leg, more externally than internally, not perceptible to touch. She thought she was going to faint, then called out, "I am falling!" but remained sitting quietly. Fell fast asleep. Very sleepy, and on lying down cannot sleep; when walking in open air can hardly keep his eyes open, he is so sleepy. After 10 m.—vertigo as if everything moved. Vertigo to unconsciousness. Spoke only of dying. Very violent scolding, cannot be appeased; continues to scold all his mouth is quite dry, lips blue, eyes staring, face deathly pale, and falls to the ground. After 13 m. she was in thought, speaks aloud, but unintentionally, to herself, and fights with her hands, then suddenly exclaims "Ah! Ah!" After ½ h.—menses, which had ceased for 2 year in a woman æt. 48, reappeared every time she triturated musk, but disappeared in a few h. Pains in ankle-joint as if dislocated, with shooting in 2 first toes of l. foot. Very profound sleep, but when woke up spoke quite rationally with open eyes, but on waking in m. knew nothing about this. After 23 m. dreadful itching between shoulders, he must rub against the walls. After 25 m. numb pain in joints of lower extremities and great distraction of mind. After ½ h.—eruption on inside of 2. concha, with smarting, and, after unitating, burning. Eructation with taste of musk. Inclined to be sick all d. Swelling of hands with shooting pain. After ¼ h.—violent eructation with nausea. Complaints of horrible pains, but when asked where, begins to complain still more, but cannot tell where the pains are. Sleep very restless, wakes every ¼ h. and must throw off bedclothes, she felt too hot, but does not perspire. After 1 h. headache, as if something were driven into occiput, when the pain spreads to forehead. After 2 h. very good-humoured, cannot say anything when insulted, and yet feels as if he should scold. After 2½ h. pinching in bowels, so that he calls out, relieved by crouching together. After 3 h.—headache as if a fine string were drawn several times and tightly over head. Sexual desire excited in a woman, aged 60, who never in all her life had had such a sensation. Great desire for coitus, and after indulgence nausea and vomiting. Pain in nape, so that she could not turn neck. After 4½ h.—pressure in chest, often taking away his breath, for 3 successive d. Drawing pain in spine, extending down into hip-joint, and so severe he is like to cry out. After 5 h.—sensitive pain in abdomen, as if it would burst. The menses came 6 d. too soon, with an unaccustomed drawing pain deep in abdomen. Involuntary roaming about hands and feet, in which he has severe pain. After 5½ h. very cross, he jumps up wildly in a rage, and does not know what to do for passion, until he smashed a jug near him, when he grew better. After 6 h.—small red pimples, with purulent heads, on upper lids. Forcing downwards in l. side of belly, with constipation. Outwardly cold feeling and inwardly burning feeling on thighs and legs. After 7 h.—pains as if both femora were dislocated, preventing her getting out of bed. Transient shoots in both ankle-joints from within outwards, with dread of walking. After 8 h.—cutting pains in r. forearm, followed by burning. Alternately shivering and hot all d., with prostration, so that he must lie down. After 10 h. pain in r. thigh as if flesh were torn loose. After 11 h.—so forgetful that he did not know where he was; this occurred daily and went off after 3 d. Pressure on chest, so that he could not lie, he thought he should suffocate and gasped for air. After 13 h. upper eyelids swollen, and prurive sensation in them. After 15 h. all n. no sleep, but there were moments when she lost consciousness; when she came out of this state, which was neither sleeping nor waking, she was very exhausted. After 16 h. pain in toes of both feet as if they were squeezed by short boots, when they burnt and hurt. After 17 h. very excited sexual passion in both sexes, with constant tackling. After 23 h., drawing pain from bough to calf. After 24 h.—pressive pain on l. concha, as though ear were pressed into head. Much rumbling and urging to stool, excrements firm hard, then

soft, then normal. Frequent violent sneezing, and every time a few drops. Twitching and drawing pains in spine, which are fixed in upper parts of both thighs and hinder walking. She sits lost in thought, claps her hands together, and makes many grimaces, so that it is feared she has lost her senses; this lasts $\frac{1}{2}$ h. After 2½ h. tearing-shooting pain in l. shoulder, the whole upper part of arm feels heavy, and movement of it is difficult. After 30 h.—r. cheek red without heat, l. cheek pale and hot. Diarrhoea during sleep at n. After 31 h. nausea and vomiting of food just swallowed, followed by violent eructation. After 32 h. on rising, m., much retching, but not vomiting. After 33 h. intolerable cramp pain down tibia, so that she could scream, with general perspiration. After 34 h. drawing pain from nose and cervical vertebra to r. shoulder. After 4 d.—red face. Discharge of much wax from l. ear. What the ear has nasty taste, except milk. After 7 d.—throbbing and pecking pain in occiput. Vomiting with constant pressure and distension of stomach. Diarrhoea, with the most violent cutting in abdomen. The stool looks as if he had been eating sepiæ. Sexual desire, with 2 involuntary emissions. Shooting in chest with red swollen face, dilated pupils, dry, bright red tongue and violent thirst. Shivering all over body, and yet, on account of heat rising up, cannot rest in the room, better in open air. After 4 d. a pressive pain in forehead indicated by a red spot; about 3 drops of wax came out by r. ear, only at n. *No time mentioned*.—Dizzy in head like vertigo, with pressure on crown. Vertigo, nausea, and vomiting all at once. Vertigo and at same time feeling as if he whirled round so quickly that he felt the air in his face. Vertigo and dazedness. Vertigo so that she fancied she was falling low down. Vertigo as if she stood very high and was rushing down. Vertigo as if intoxicated, he must hold on to something in order not to fall. A vertiginous stupefaction, he thought he could not hear or see, and yet he heard and saw everything. Vertigo with sudden fainting. Sudden loss of memory with pressive sensation in crown. A kind of complicated pressive and boring headache, sometimes all through head, sometimes behind ears, sometimes in forehead, sometimes in crown, sometimes in occiput. A stupefying headache, making the eyes close. Headache as if the half of the skull were cut through, better in open air. Tearing pain in r. half of head. Tensive pressive headache, with feeling as if something moved in brain. Furious headache. Headache, with nausea and vomiting. Sudden dimness of both eyes, she thought the was going blind. Hardness of hearing. A frightful noise in r. ear as if a cannon were fired off and some drops of blood came out. Eructation, with hot saliva in mouth. For several d., whether he had eaten or not, must always vomit at 11 a.m. Pressure under scrob. cordis, relieved by stooping. Constipation, relieved by coffee. Diarrhoea nearly all n., with great forcing and pressive pain in anus. Sexual desire during virgination, thereafter great relaxation. A man, æt. 46, had lost all sexual power for 4 years after a chill; by continuing music he quite recovered his power. Menstrues very irregular for 3 months. Twitching from r. shoulder-joint to thumb. Dull pain combined with drawing in gluteal muscles, extending to groin. Tearing pains in all joints of feet, with sensation in muscles as if they were pressed firmly against bones. (*Ibid.*)

30. From taking 6th dilution of Moschus (no mention made of number of provera, nor of their sexes or ages, nor yet of the number or time of doses taken). After 5 m. in navel 2 peculiar sensation and in chest a burning. After $\frac{1}{2}$ h. swollen sensitive feeling and twitching in both hypochondria. After $\frac{1}{2}$ h. lips scale off. After $\frac{1}{2}$ h. forcing down in abdomen, as if menes were coming on. After 1 h. 4 m. involuntary movement of fingers as if picking or counting with fingers. After 1½ h.—vomiting with heaviness on chest as if a heavy weight lay there, but breathing free. The chest is much affected, painful all over, with violent dry cough. After 2 h.—a kind of vertigo on moving eyelids, better in open air. Stupefaction with vertigo, must sit down, and still while sitting felt as if he must fall and held on to chair. Headache as if heavy weight lay on top of head, better when moving in open air. Ashy pale face. In l. ear sensation as if a mild wind blew. Throbbing in gastric region. Compressive pain in thighs as though tendons were too short. Three or four pimples with much itching in various parts of body. She complains all d. of cold, though the weather is warm. After 2½ h. prostration of whole body with pressive pains, especially in joints, itching in back of both ears. After 2½ h. vomiting with burning pain in whole of sternum from below upwards. After 3 h.—giddy and uncomfortable. Vertigo so that he could not walk alone, staggers from one side of room to other,

Roaring in ears as in syncope. Little wish for food. Violent contractive pain in umbilical region, a deep pit is formed there. Very anxious, she starts up when the door is opened and trembles. After 1½ hours sick after every meal. Itching between toes of both feet, scratched till blood came. After 4 h. noise in both ears lasting 1 d. Twitching pain in all parts of body, especially at n., it wakes up. Itching in l. upper arm, she must scratch till blood came, then burning came on. Here and there little papules with itching. After 5 h.—transient whirling vertigo. Vertigo on stooping, going off on rising up. Pressure pain in r. temple. Roaring in l. ear as if a flea were in it. Painful sensation in thigh and leg, relieved by movement. He sits doing nothing, then runs about to and fro; finds fault with everything he sees. After 6 h. sudden vertigo with dimness before eyes so that he cannot move. After 8 h.—frequent sneezing with tickling in nose, followed by burning. Here and there on thighs and legs painful points as though he had been beaten. After 9 h. on dorsum of r. foot small papules, which itch much and burn after being scratched. After 11 h. much burning in urethra, especially when penis is erected. After 12 h. dulness of mind for whole hours, and on coming to himself he complains of shooting in finger-joints. After 15 h.—desire for coitus with tense pain in penis. Shooting pain, now in neck, now in both shoulders. After 16 h. itching pain in both outer canthi, rubbing does good. After 17 h. stiffness of r. fingers, lasting 3 d. After 18 h.—menies, which had only ceased 1 d., returned. She is extremely busy, but hardly has the begun to put things in order when everything falls out of her hands from weakness. After 21 h. pain in hips as if muscles were nipped with pinners. After 22 h. eyes dim, with pressure pain in inner canthi. After 23 h. eruption and disagreeable feeling in r. ear. After 24 h.—headache with drawing in r. ear. Dull pain in whole head, especially c. On rising, m., vomiting, and all he eat is vomited, all d. Fine stitches with rumbling in abdomen, feeling of anxiety all over body. A kind of pulmonary spasm, beginning with irritation to cough, gradually increasing and making him desperate, went off in 5 m. After 28 h.—face very hot but not red. Vomiting with tense pain all over chest, relieved by compression. After 31 h.—soreness of head to deep in brain. Twitching in r. arm with cramp-pain and goose-sleep fingers. After 32 h. pressure pain in chest, now on r., now on l. side, then through chest to spine. After 35 h. pressure pain in l. side of chest as if the pain would pass out through the nipple. After 36 h.—pressure-shooting pain in forehead. Finching pain in abdomen with tenesmus and pressure on bladder, relieved by pressing on it with fist. After 42 h. pressure pain in cerebellum. After 1 d.—pressure pain all over head. Very unwell, must lie in bed all d. Unusual drawing pain on occurrence of menses. Pain in cervical muscles as if they were torn from their ends above and below. Painful sensation all over body with a kind of shivering, but feels warm to the touch. After 3 d.—pressure headache with coldness, as if a cold compress lay on head. Pains in calves so that he cannot touch them roughly, they are quite cold on their outer side. In 1st toe-nail of l. foot twitching pain as if they were suppurating, he cannot bear anything on them and walks barefoot on his heels. After 4 d.—external headache as if all the hairy scalp were sore, aggravated by touch. On waking, m., bitter taste. Great forcing in abdomen with call to stool, but nothing comes. Short breathing with shooting in r. side, better when at rest, but not quite ceasing. 6th d., painful emissions without erection. *No time stated.*—Headache as if brain would fall out. Rush of blood to, and heaviness of, head. Pressure pain in forehead from between eyebrows down to nose and both malar bones. Small burning pimples on face. Pale face with perspiration. Tension in facial muscles as if they were too short. From l. eye tears flow abundantly with pressure. Pressure with spasmodic pain in scrob. cordis. Feeling of tension in stomach as if he had eaten too much. Very violent stitches in hepatic region, increased by inspiring. Diarrhetic motions; he had 3 or 4 liquid stools mixed with faeces every d. Severe stitches in aëus which extend to bladder. Shooting on r. side down to liver. Pressure pain in muscles of upper arm, extending from shoulder-joint to elbow. Pressure pain in hips, must lie down. Pain in r. knee so that he cannot endure bed. Pain in r. big toe like dislocation, aggravated by movement. Great prostration of whole body with watering of eyes, so tired he cannot move. Sudden loss of senses; in this state he thinks someone is cutting off his fingers and toes, and he seeks to defend himself with such a rapid and confused torrent of words that one can make no sense out of them. He walks about but sits down again immediately, lays his hands on his head,

and complains of great pain without being able to tell where the pain is. The slightest contact of the air causes a shiver all through body, must be put to bed, where he gets warm. Cold feeling, chilly in spine, with drawing pain. Very cross, inclined to weep. (*Ibid.*)

21. SUNDELIN took, m., $\mathcal{D}\mathfrak{j}$ musk. After a few m. slight excitement as from wine, with quick, full, soft pulse, and perspiration. These symptoms lasted 2 h. Breath, perspiration, and urine exhaled, even next d., a strong odour of musk. (*Horn's Archiv*, 1824, i, 417; in *Wibmer*.)

22. MRS. CH— took 3 gr. Soon pressure in stomach; after 1 h. confusion of head, pressure in forehead for 1 h., recurring after dinner, pulse quick. Took 6 gr. e., pressure in stomach lasting till noon next d. After $\frac{1}{2}$ h. confusion of head, vertigo, pressure in forehead till noon next d., dryness of mouth, drowsiness. Again took 6 gr., pressure in stomach, eructation, dryness of oesophagus. After 2 h. confusion of head, slight vertigo, slight trembling, quickened pulse, loss of appetite, pressure in frontal region till e., sleepiness, yawning. Next d. confusion of head, pressure in forehead, eructation, till noon. (*Wibmer*, iii, 301.)

23. An unmarried lady, of about 40, mentioned to me that she was extremely sensitive to the odour of musk. She would faint if she merely opened a note highly scented with musk. A doctor, who was unaware of this peculiarity, prescribed for her a pill containing $\frac{1}{2}$ gr. of musk. Soon after taking this she became unconscious, was violently convulsed, and this state lasted nearly a week, with short intervals of consciousness. She said her life was despaired of. (*DUNGBON*, communicated.)

MUREX.

Murex purpuræ, L. The (dried) juice contained in an organ near the head, which constituted the Tyrian purple dye of the ancients.

1. *Præpar.*—*r.* A woman of 46, of nervous constitution and very impressionable, but in good health, save for some leucorrhœa and weight at stomach, proved a sol. of 2 decigr. of the 4th trit. in 6 spoonfuls of water, of which she took a spoonful each e. Jan. 6th.—Sleep quiet. In 12 h. after dose, sharp pain in *r.* side of uterus, which extends to *l.* breast; extreme weakness of voluntary movements; giving way of legs and irresistible desire to remain sitting; confusion of ideas, repugnance to conversation, profound sadness. 6 p.m., palpitation of heart and throbbing of arteries in neck; later, excessive fatigue, somnolence, heat in hands, pulse 80; pain in knees, sense of excoriation and burning in breasts; bruised feeling in chest. N. good. 7th.—Burning, pungent pain under *l.* false ribs, towards spine, increasing constantly; drowsiness and sadness; difficult evacuation, requiring lavement. Pain in side continued all d. E., painful tension in *r.* hypochondrium; dry cough, not frequent; dyspnoea; voice hoarse. 8th.—After a good n., woke feeling very well. Pain in side had gone. Sense of dryness and constriction in uterus, but weight much less since yesterday, and no leucorrhœa since first spoonful. No further symptoms till 11th, when

she had feeling of heaviness, and enlargement in labia; urine had white sediment. (PATROZ, *Essays*, ed. Cretin, 1864.)

2. A woman of 38, of sanguine temp., sound mind, and good health, save for some leucorrhœa, took same as No. 1. 1st d.—Towards midday pain in occiput and in forearms. 2nd d.—Headache on awaking, which goes off on getting up. During d., pairs in l. temple, coming and going; dulness of head from time to time without mental clouding. Towards e., tightness in occiput, when it passes from l. to r. she involuntarily raises opposite hand to head, bending head back seems to relax nerves and relieve. Constant desire to urinate during d.; at 3 p.m., strong desire to sleep. 3rd d.—Headache as on previous e.; has had troublesome dreams during n., she fled from a stormy sea, and found herself in a meadow with water; during d. momentary dulness of head; at 5 p.m. r. cheek was burning; in e., twice, a very violent stitch on l. side of abdomen, low down, it went straight up, lasting only a m.; at 9 p.m., strong drowsiness. During d., pains in legs from time to time; tightness of head on each side above the ears; pains in breasts. 4th d.—Distressing dreams. On waking, headache, going off as on previous days about 10 a.m. Pretty severe colic; hunger during d., but little appetite at dinner time; pains in breasts. 5th d.—Almost uncontrollable sexual excitement. 6th d.—L. cheek burning; hunger during d.; in e. painful headache for about an h. 7th d.—Dreams as before; woke with a start, frightened. In m., leucorrhœa, which had ceased from 1st d., returned, scanty, but greenish. In e., flatulent griping and frontal headache. She had been constipated since 2nd d., and to-day had no stool. During first days of proving, she coughed several times before breakfast, and had wheezing on inspiration in e. During later days, occasional attacks of anxiety, with restlessness and dread. (*Ibid.*)

3. A woman, æt. 39, sanguine-lymphatic temp., has leucorrhœa, with some pains in loins and thighs. Took drug in same manner. 1st d.—At 2 and 4 p.m., sharp but transient pains above cerebellum. Less leucorrhœa, but always mixed with blood. 2nd d.—Since noon, head embarrassed and a little heavy; not much aptitude for work. At 2.30, humming in ears and increased dulness of head; latter went off about 4. At 6.30, sharp pain in l. abdomen, involving whole, but as it were at painful points only; l. side remained painful all e. Leucorrhœa less copious and unmixed with blood. 3rd d.—Less dulness of head; leucorrhœa as yesterday; abdomen also, but felt less. 4th d.—Towards 3 p.m., severe pain above r. temple; in e., return of blood from uterus; to-day and yesterday, pain in breasts. 5th d.—No blood. 6th d.—No blood, and but little leucorrhœa. Breasts had been very painful, and she had violent shootings in them while in bed. 7th d.—Woke during n. with a start, and violent desire to urinate, which she did very copiously. Heaviness of head, and even dizziness. Since taking med. failure of memory; she cannot remember words. Her pains had rather been increased than otherwise since taking med., and on 8th d. they were very bad; blood also had returned with the leucorrhœa. She felt as before period, which was not due for another fortnight. Next d. she was much better. (*Ibid.*)

MYRICA.

Myrica nerifera, L. Bayberry. Nat. Ord. Myricaceæ.

1. *Proving*.—1. Dr. H. L. CHASE proved solution of alcoholic extract of bark of root, 10 gr. to ℥j of alcohol. October 18th, 1864, at 6 a.m., took 5 dr. 10, very severe pressing pain in l. side of nose, lasting about 10 m., then shifting to l. axilla, where it was sharp and lancinating. 11, sharp pain in l. forehead, smarting in l. eye; dull aching in lumbar region. All d. sharp darting pain in r. maxillary joint; trembling and aching in calves, so that walking is unpleasant; great depression and irritability, does not want to speak or to be spoken to.

Prover took drug at four different times, but could obtain no further symptoms. The depression of spirits in the last proving (in March) was followed by very marked irritability, lasting 3 or 4 d. (*Proc. of Mass. Hom. Med. Soc.*, ii, 397.)

2. d. Dr. CHARLES COLLIS, æt. 32, sanguine-nervous temp., at 10 p.m. took 10 dr. of same. In 15 m. dull heavy feeling over eyes, soon followed by constriction across nose. Passed restless n., tossing about; woke in m. with dull frontal headache; great and unusual depression of spirits all m.; after dinner, loose stool, with pain and tenesmus; dinner caused distress; grumbling pain in bowels all afternoon. 10 p.m., head has ached all d.; feel gloomy, terribly depressed. This depression of spirits continued for 3 d., and to such an extent that it was impossible to write; he did not care about anything or for any friends, and was wretched beyond description.

3. Three mos. later took same dose at 10 p.m. Slight headache soon followed. Severe gripings in bowels during n.; at 6.30 a.m., loose stool with pain and tenesmus. Headache still and depression of spirits. Eyelids were heavy and swollen; and at 8 both eyes felt quite sore, and face was hot and flushed. 8.30, acidity of stomach (breakfast had been eaten with appetite); headache was severe just over eyes, increased by motion; nausea. 8.45, pain in l. upper arm. 9, pain in 3rd and little finger of r. hand; sharp pain in l. eye; no inclination to move. 11, head ached severely, particularly over l. eye; great despondency. 12, pain in back of neck. 8, head better, but depression continued; pain in l. lung. Next m. l. eye was sore, and looked inflamed. Depression continued, with some constipation; former lasted 3—4 d. (*Ibid.*)

3. Miss E—, æt. 30, bilious temp., 9 p.m., took 10 dr. of same. In 5 m. pain at back of l. ear and in r. occiput. In ¼ h. nausea; feeling of coldness; severe pain in l. shoulder-blade and arm, extending to end of little finger. In 1 h. sharp shooting pain in r., then in l. thigh, followed by dull pain in l. shoulder. N. good. Next m. at 7, took 10 dr. In a few m. fulness in l. eyelids, approaching to soreness. 10, dull pain under both shoulder-blades. 10.30, pain in hollow of r. foot. On following d., at 7 a.m., 10 dr. more. In ¼ h. severe pain in bowels. Not feeling any other effects of med., repeated dose at 11. Immediately slight pain in l. side; heaviness in back of head; pressure in nose. At noon, severe pain in stomach. (*Ibid.*)

4. Mrs. H.—, æt. 31, nervous temperament. April 2nd, at 7.30 p.m., took 10 dr.; soon felt severe pain in head on both sides, near temples, which settled into heavy grinding feeling in vertex. 3rd.—At 11 a.m., 10 dr. In 5 m., severe nausea, followed by heavy headache. 11.40, sensation as of fermentation towards vertex, very perceptible for 10 m., then gradually subsided; drowsiness followed; nausea continues. 7th.—At 11.40 a.m. took 11 dr. In 10 m., cold chills running over vertex, with tightening of scalp, and slight nausea; these symptoms increased, and in $\frac{1}{2}$ h. settled into dull grinding headache. Drowsiness followed, and she soon fell sound asleep in her chair. At 7.40 p.m. took 10 dr. In 10 m. strange feeling in stomach, no nausea; in $\frac{1}{2}$ h. was again sound asleep in chair. (*Ibid.*)

5. a. Dr. C. WESSLINGHOFF took, Oct. 25th, 1864, 5 dr. at 10 p.m. Had slight feeling of nausea in stomach, and sweetish taste about palate for $\frac{1}{2}$ h. after. 26th.—5 dr. at 7 a.m. In $\frac{1}{2}$ h. weak sinking feeling and pressure in epigastrium, sometimes approaching nausea, increasing after breakfast, and lasting very perceptibly all d., passing off towards e. after rapid walking.

b. Nov. 12th.—At 11 a.m. took 10 dr. of a tinct. Immediately after taking it, stinging cramp-like sensation in l. præcordial region and under ribs. In 10 m., while walking, slight stinging and pressure in epigastrium. 2 p.m., colicky pain in umbilical region, in small spot, with accumulation, rumbling, and frequent passing of very offensive flatus. (Two peats had been taken in forenoon, and these always cause flatus with him, but it is inodorous and painless.) In afternoon and e. frequent sensation as of approaching diarrhoea, but without result save in a slight costive evacuation in e. Gripping continued at intervals all afternoon. At 10 p.m. 10 dr. Good n. 13th, 7 a.m., 15 dr. Slight heat and burning in stomach just after taking it, soon changing into painful gripping pressure from l. epigastric region straight to l. of navel. Soon after, drawing sensation in vertex and empty feeling in head; 2 h. later, on stooping, dizziness and rush of blood to head and face; in afternoon and e., until bedtime, dull oppressive headache in r. forehead, at juncture of parietal and frontal bones, with fulness in head. At 10 p.m. 25 dr. Slept well all n., and had no symptoms following d. save slight colicky pressure in stomach, which would hardly have been noticed had not attention been drawn to it previously in the proving. (*Ibid.*)

6. Dr. F. H. KAZIS, Nov. 9th, 1864, at 11 a.m., took 5 dr. of tinct. In 7 m., sensation of warmth along whole spine, especially between shoulder-blades, followed by slight chill and gentle perspiration, mostly perceptible over dorsal vertebrae. 1 p.m., slight nausea, pain in stomach, heartburn, with increased saliva, which had to be frequently expectorated; pain in occiput; tearing pain in l. arm, principally between shoulder and elbow, but sometimes extending to forearm, with darting pain in middle and ring fingers. 4, again took 5 dr., and felt same symptoms, only somewhat less marked. 10th.—Awoke in a gloomy state of mind—an unusual one for him; felt very irritable, and had constant desire to find fault; everything went wrong; looked upon this world as a place not fit to live in any longer; considered

himself better than the rest. At noon took 5 dr. Symptoms of d. before returned, but nausea and pain in stomach were less marked. In afternoon felt very low-spirited; condemned himself for various imaginary faults. Towards n., a severe attack of coryza appeared, and the miserable feelings in general prevented the taking of any more med. Some of the above symptoms lasted for 4 weeks. In Feb., 1865, took same doses with same results. Proving was continued for 2 d., when another attack of coryza obliged him to omit the medicine. (*Ibid.*)

7. Dr. J. E. LINNELL, æt. 42, nervous temp., subject to occasional rheumatic and neuralgic pains, now suffering somewhat from influenza. Oct. 18th, 1864, at 9 p.m., took 5 dr. of tinct. Almost immediately slight dizziness, with repeated yawning; frequent itching and stinging in various parts. In $\frac{1}{2}$ h. smarting in l. conjunctiva, followed by aching in r. eyeball; quivering sensation in l. upper lid; dull pain in r. eyebrow; feeling of pressure in both malar bones; dull pain in middle of r. lung for a few m.; dry sore feeling in pharynx, as when one has taken cold, succeeded by difficult deglutition. 10, smarting with dryness in both eyes, and feeling as of sand in them, making it difficult to close lids; smarting in larynx and trachea; pressure and dull pain in forehead and vertex, with throbbing synchronous with the pulse. When lying upon l. side in bed, feeling of constriction in chest, with increased impulse of heart, so that its pulsations were audible; symptoms were increased by warmth of bed, disturbing sleep; burning in soles. 19th.—Woke at 6.30 with dull pressure in forehead, headache, and feeling as though he had not slept enough. Took 5 dr. at 7 a.m. Same evanescent itching, like flea-bites, occurred in a few m., followed by smarting in eyes, dry throat, slight dizziness with nausea, ringing in l. ear, and aching excoriated feeling in posterior nares as if a fresh cold had been taken. General chilliness on going out of doors, with slight lumbar aching; dizziness all n. with feverish acceleration of pulse, reaching its height about 4 p.m. At 9 p.m. took 10 dr.; same itchings 10 m. afterwards in different localities; fulness about face and head, with throbbing; heart's impulse increased, but pulse, ordinarily 75—80, now 60 only; hot feeling in eyes; slight griping about umbilicus, with rumbling; empty eructation; the itching of the face gave way to formication; repeated yawnings. 10, excited feverish feeling, alternating with chilliness; pain in back, lumbar region. 20th.—Sleep disturbed by bad dreams, and broken by frequent wakings; did not feel refreshed in m.; lassitude, with pain in back; indescribable bad taste in mouth, with fulness about head. Took 10 dr. at 7 a.m. Appetite for breakfast considerably impaired; pain in umbilical region immediately after. 8, general malaise and feeling of unfitness for duty; heaviness of head and confusion of intellect, could not concentrate thoughts; depression of spirits; frontal headache; nausea; shifting pains; bruised pain in l. heel. Felt through forenoon as though diarrhoea would occur, but nothing came; general languor and depression; burning about face and head, especially after being in open air; feverish feeling, yet pulse (at noon) was 60. 3 p.m., 10 dr. Soon, 3 or 4 sharp plunging pains in l. renal region; heaviness and pressure in head; ringing in ears; dull heavy pain in umbilical region; flatulences and

eructations; soreness and pain in l. tendo Achillis, worse upon pressure and when in motion. 21st.—Slept very soundly until towards m., when sleep was interrupted by frequent wakings; felt dissatisfied with amount of sleep, desiring more. No stool for 48 h., very unusual. At 7 a.m. 25 dr. In $\frac{1}{2}$ h. pressure in all parts of head, nausea, dryness of mouth and fauces, smarting in eyes; felt irritable and easily provoked. 10, copious soft stool, with tenesmus and crampy sensation in umbilical region; much lassitude; weak, sick feeling; every kind of exertion was irksome, and required a special effort. 4 p.m., face and head felt hot; eyes burned, and tired easily on reading; fulness in digestive organs, as if food were lingering there. 22nd.—Sleep much disturbed by ugly dreams; woke withpressive frontal headache, bruised pain in back, and feeling as if a severe illness had seized him; mental state as yesterday; nausea; thick yellow coat on tongue; indifferent appetite. Took a dose of nux vomica. At 9 p.m. 20 dr. 23rd.—Same state at n. and in m. At 7 a.m. 25 dr. In 1 h. pressure with dull pain in head, worst in r. temple; ringing in ears; slight vertigo; exceedingly irritable, the slightest thing put him out; throbbing of cerebral vessels; dulness of intellect, loss of energy; dull pain in stomach. At 8 p.m. 30 dr. 24th.—Frequent waking during n., and could not sleep after 5; bruised feeling of head. At 7 a.m. 40 dr. In a few m. nausea and dizziness. In 1 h. severe pain midway between knee and ankle, outer side; it was contractive, occasionally burning, worse on movement; soreness to touch. Noon, general lassitude, with soreness of muscles of both thighs; r. arm felt lame and heavy, especially about wrist; in afternoon muscular lameness and soreness had become quite general, affecting chiefly, however, lower limbs. Stool about 11 a.m. (50 h. since last); excessive flatulence in afternoon, with frequent rumbling, as though diarrhoea would set in, and urging to stool, without result save in flatus. 7 p.m., pains about limbs now centred in muscular part above knees; continual soreness there, with occasional darting pains. Took 60 dr. at bedtime. 25th.—N. as last, and in m. head, back, and thighs the same. At 7 a.m., 60 dr. Symptoms to-day as yesterday, though perhaps less intense. In addition there was severe chill, with quivering sensation in l. calf, also numb feeling in r. temple, as if some hard substance was strongly pressed against it. At 9 p.m. a teaspoonful. In $\frac{1}{2}$ h. pleasant exhilaration, followed by excited state of nervous system, precluding sleep for several h. This was accompanied by restlessness, requiring frequent change of position. Pain in back; sleep disturbed by dreams; difficulty in urinating, bladder seeming to lack expulsive power. 26th.—At 7 a.m. a teaspoonful. Same exhilaration as last n., succeeded by depression and pressure about head. In afternoon quite severe frontal headache; semi-torturing pain in r. throat, near tonsil. 27th.—Irritable, worried by little things, everything seemed to go wrong; soft stool this m., with effort. 10.30 a.m., 120 dr. Noon, severe griping at stomach, followed by empty eructations; weak faintish feeling about bowels; copious flow of limpid urine; ringing in ears, with pressure about head. 28th.—Whole buccal cavity, including roof of mouth, was lined with an adhesive coating, very difficult to detach. Offensive breath and foul taste,

Pressure about head much increased, causing confusion of thought and staggering gait. Bowels loose; appetite very much impaired. 29th.—Same symptoms as yesterday, though less in degree; 2 or 3 loose stools. Nov. 2nd.—Several pimples in different parts, one quite painful on nose; symptoms generally have disappeared. 3rd.—Restless towards m. No other symptoms. (*Ibid.*)

8. a. Dr. LELAND WALKER, in good health, nervo-bilious temp. Nov. 25th—27th, 1865, took \mathfrak{z} dil. several times daily in doses rising from 10 to 60 dr., without appreciable effect; but on 28th woke with dull heavy pain in forehead and through temples, worse when stooping or moving about; pulse 51, feeble and irregular. This d. took 4 doses of \mathfrak{z} tinct., 20—30 dr. 29th.—Slept well; in m. pulse 60. At 7.30 took 50 dr. 12.50, has felt dull and drowsy for last 2 h.; dull heavy pain through front part of head, worst in l. temporal region; increased appetite; unpleasant fulness in stomach and upper abdomen; felt better in open air. 6, constant hunger, yet sensation of fulness, as after a hearty meal, though he had not eaten since 1; pulse 70, full and strong. 11, pulse same; dull pain in head and eyes all e., and drowsy stupor feeling, save when walking in open air. Took 60 dr. before retiring. 30th.—Sleep unusually sound; woke with same headache and hunger, pulse 56 and feeble. At 8 a.m. took 60 dr. 3.30, dull aching all through head and in neck; aching in upper and lower extremities, several times during last 2 d. sharp piercing pain on inner side of l. knee, passing off quickly. 9.40, craving hunger, fulness of stomach and abdomen; head symptoms less severe. Took 100 dr. Dec. 1st.—Pain as before in head, with pain and stiffness in neck; dull pain in all extremities; pulse 52. Restless n., much dreaming. Took 140 dr. 11, pain all through head, quite severe in temples, with throbbing in superficial veins, attended with semi-stupor; pulse 75. 1, symptoms somewhat mitigated; dull dragging pain in small of back, quite severe at times; increase of urine during last 3 d.; constant craving appetite, with fulness as before; pulse 66. 10.30, symptoms continue; pulse 62. 2nd.—Woke with same pains in head and back; pulse 72. 12.50, same drowsy stupor as yesterday. Symptoms continued all d. 3rd.—Woke with usual pains; pulse 78. 6 p.m., has had drowsiness attended with vertigo most of d., and hunger with fulness as before; pulse 76 (before eating). 11, pain in back and under l. scapula; head same; pulse 65. Passed 31 oz. of high-coloured urine during last 24 h., sp. gr. 1020. 4th.—Same symptoms; eyes felt swollen and had yellowish tint; stool (hitherto quite normal) lighter-coloured than usual; sharp pain once in region of heart, lasting a few m.; pulse 71 in m., 56 at noon, 61 in e. Passed 43 oz. of urine during 24 h., colour nearly normal. 5th.—Same state; stool as yesterday; pulse before breakfast 54, after 71. 12.50, coldness of lower extremities, with pain from knees down. Passed 36 oz. of urine to-day, colour nearly normal, sp. gr. 1013, light-coloured sediment after standing. 6th.—Woke feeling (for first time since beginning proving) quite well; but stool and urine as yesterday in appearance, sp. gr. of latter 1028. 7th.—Well save for sediment in urine. On 8th this had gone; but on 9th sp. gr. was 1035, and on 10th 1029. After this it became normal.

8. Having taken no M. since Dec. 1st, and being now quite well, Dr. W. began, Dec. 14th, to prove the pulverised bark, of which that d. he took 5 gr. without effect. 15th.—Took 10 gr., but felt nothing save some dull aching in small of back. 16th.—Woke with same, and also frontal headache as before. This went off during d., but back continued to ache, and throat was somewhat sore. 17th.—Besides aching in head and back, hunger and fulness have returned. At 8 a.m. took 20 gr., and put some moistened with water on posterior part of forearm. Throat sore still to-day, and urine dark-coloured. 18th.—As yesterday; throat feels swollen, and stool is rather light. 19th.—Woke in same condition; took 40 gr. at 7 a.m. Nausea and gagging soon after dose; light stool, and dark urine with pinkish brown sediment. 20th.—Same. Stool loose and light. Took 80 gr. Constriction and much stringy mucus about throat; drowsy stupor and deficient concentration of mind; urine same (21 oz. only), and sp. gr. 1030. 31st.—Woke tired; scalp sore to touch; head more dull than painful; eyes heavy and weak. At 9 a.m. took 160 gr. Symptoms much as before; no stool; urine dark, 1032 (20 oz.). 22nd.—Restless n. till 2, then slept till 7; woke with dull pain in head and eyes, latter congested and yellow; back and throat same; no appetite, tongue furred; bad taste in mouth and nausea. Pappy stool; urine high-coloured and frothy, with considerable sediment, sp. gr. 1031 (19 oz.). 23rd.—Restless n.; symptoms of head, throat and back continued and increased; passed this m. 3½ oz. of very high-coloured urine, looking like strong beer, with large amount of froth of yellowish tint, sp. gr. 1032. Left home, feeling miserable and dejected; and returned in same state on e. of 27th. Urine had been very scanty, high-coloured, and frothy. 28th.—No appetite, could eat no breakfast; dullness and heaviness of head and eyes; pain in back and hepatic region; felt sick and weak all over; conjunctivæ congested and yellow, face and neck yellow; frequent eructations of flatus, relieving pressure in stomach for a short time only. 29th.—Woke from unrefreshing sleep with exacerbation of all symptoms; bad taste in mouth; tongue thickly coated, dirty-white or yellowish; throat and nares filled with offensive tenacious mucus; whole surface of body has yellowish tint; loathing for food, strong desire for acids; soft clay-coloured stool; chilly when out in air; aching in limbs and all over body; urine same. Continued same up to Jan. 5th; since 1st took medicines for the jaundice, but without effect. On 5th began digitalis 1, 3 dr. every 3 h.; improvement began next d., and continued till 20th, when he was well but weak. [Prover mentions that during some part of the time in which he was experimenting a sort of jaundice was epidemic in his city; but justly points to the other symptoms and their occurrence in both trials as evidence that his whole illness was caused by the drug.—Eds.] (*HALL'S New Remedies*, 2nd ed.)

9. I have taken 1 dr. of the 1st dil. n. and m. for the last 7 or 8 d. During this time my bowels have been rather more active than usual, and the colour of the excreta much lighter, i. e. of a brighter yellow than usual. I have noticed no other effects which might not be incidental. (*SHAFF, M. Hum. Rev.*, xx, 740.)

NAJA.

Venom of the *Naja tripartita*, cobra de capello, hooded snake.

1. *Proving*.—*r. c.* Dr. STOKES, æt. 37, stout and robust, made a paste of the $\frac{1}{2}$ trit. with some (soft) water, and introduced on a clean vaccine point some of this preparation into 3 punctures made by a lancet in front of l. forearm; also rubbed some of the trit. into one of the wounds. (This was on Nov. 7th, 1852, at 9.30 a.m.) There followed indefinable sensation of "all-overishness" with lightness in head, slight, lasting about $\frac{1}{4}$ h. 11.15, slight aching in ring and little finger of r. hand, followed by peculiar sensation as of thumping in middle of triceps of l. arm. 12.30, inoculated poison into a new wound in upper l. arm. There followed, fine tingling in legs and feet while standing; slight aching in backs of thighs; burning pressure at a point in back of throat, for several h. in afternoon; pressive and drawing sensation at points on lower limbs and feet, several times. There was tired feeling in cervical and dorsal vertebræ, with the peculiar burning often attendant on exhaustion, all d. 8th.—Hard pressure on chest just above r. nipple, p.m. 9th.—Rheumatic drawing in l. shoulder, m. At 10 a.m. inoculated well a puncture in l. upper arm with the poison paste, and felt immediately the all-overishness as at first, lasting $\frac{1}{4}$ h.; then dull shoots up occiput and very fine pricking in l. eyebrow. Since 7th and till 14th easily affected by alcohol, and sleep broken and disturbed.

b. 14th.—Mixed 6 dr. of 2nd dil. in $\mathfrak{z}\text{ij}$ of water, and took $\mathfrak{z}\text{ss}$ in forenoon without effect. 15th.—Took 2 doses. In e. felt momentary pain dart from l. ilium forward into abdominal muscles. In r. chest, dull warm pricking at a great multitude of points, over lower anterior half from 5th rib downward, with heat extending up bronchi to larynx; a hard cough came on immediately, lasting for $\frac{1}{4}$ h., ending in expectoration of a little thick mucus. 16th.—Sadness or serious disposition this d. and two following ones. 17th.—Took $\mathfrak{z}\text{j}$. 18th.—Mixed 6 dr. of 3rd dil. in $\mathfrak{z}\text{vj}$ of water; took $\mathfrak{z}\text{j}$ in e., and felt pricking in stomach soon after. 19th.—Took 2 doses of $\mathfrak{z}\text{j}$ each. E., from 6 to 8, very chilly, could not stay away from fire; after that better. In m. uneasiness and pressure in bladder. Sadness and irresolution. 20th.—Pricking pain in stomach after dinner. Took $\mathfrak{z}\text{ij}$ to-day. 21st.—E., asthmatic constriction of chest for $\frac{1}{4}$ h., ending in mucous expectoration.

c. Feb. 24th, 1853, smelled at 1st dil. Soon after, pressure on upper part of r. sterno-mastoid, extending to angle of jaw, for 5 m. E., melancholy; began to form images of possible wrongs and misfortunes, over which the mind broods; very wretched at times. 25th.—Feeling of large stool in rectum, which when voided was but small. 11.30 a.m., 8 glob. of 2nd potency. Very soon after, burning of ears. E. while walking, sudden prostration of strength in limbs, for $\frac{1}{4}$ h. 26th, 27th.—Each d. 12 glob. of same; no symptoms. 28th.—One dr. of 2nd dil. March 3rd.—For 3 d. sense as of something wanting about præcordia. Tried to sing, but had no power to throw out voice. Yesterday and to-day very wretched; a slight cause sets him

in a perfect agony of mental suffering on another's behalf; there is feeling of depression and lowness about heart; mind broods over imaginary troubles. Craving for stimulants, which aggravate the condition; memory confused; shoots down legs and tingling in feet. Better in e. For several d. itching in cicatrix of an ulcer. 4th.—2 dr. of 2nd dil. on tongue. No symptoms. 5th.—3 dr. Makes himself imaginary troubles, and frets over them (2 h.). A small boil-like swelling on back of r. little finger; fades in 3 d. 6th.—Little inclination for sleep, brain appearing irritable. Great desire and power for walking yesterday; to-day reaction. For 10 m. in m. pressure and gagging in throat. Decided pressive pains in l. pectoral muscles for a few m., a.m. 12th.—Yesterday and to-day r. nostril is extremely sore; feels as if ulcerated. Took 6 dr. of 2nd in water. Pressure as from stones in stomach after each meal, with acidity.

In August, mark of principal puncture on arm was livid yet. (*Brit. Journ. of Hom.*, xi, 95, 596.)

2. A. ROSA, æt. 19, robust and sanguine, was inoculated by same, Nov. 8th, in r. upper arm. Great aching all up arm to shoulder all d.; temper quicker than usual; face flushed in e., and burning hot. 9th.—Throat dry on waking; face red on rising, and covered with hard knots as in erysipelas; this disappeared after washing. Appeared at breakfast with small papules on inflamed base at point of nose, which was tender; they did not go away till 14th.

b. 14th.—Took 1 dr. of 2nd dil. Next d. a pimple appeared on upper lip, and in m. eyelids were puffy. On 18th, another pimple on l. ala nasi.

c. Jan. 17th.—Took 3 glob. of 4th three times a d. for a week. After 1st dose, dragging and weariness in limbs while walking, with slight frontal headache. Nothing else save on 20th, when neck and body broke out in small white blisters on an inflamed base, very itchy; passed off in an h. From 27th took 6th dil. for a week, but without effect. (*Ibid.*, p. 96, 598.)

3. J. McS—, æt. 38, commenced taking cobra poison, Aug. 4th. Dose, grt. iij of 2nd potency in ℥j aquæ. In e. felt tired and sleepy, had to retire at 9 p.m. Slept directly after going to bed. 5th.—Thermometer at 62°. Awoke with troublesome tickling in larynx with nausea, sneezing and coughing. 2 p.m., took grt. iij as before. Continuance of tickling with scanty expectoration of tasteless mucus. 6th.—Thermometer 69°. Gasping for breath all this d., yesterday, and the d. before, but particularly so to-d., with several deep-drawn inspirations. At 10 p.m. took grt. iij as before. 7th.—Awoke early with hawking of viscid mucus. 2 p.m., took grt. iij. Tickling continues, but less. 8th.—At 1 p.m. took grt. iv, and felt immediately afterwards increased tenderness over trachea. Gasping for breath both yesterday and to-d. (therm. 66°); for several h. feeling as if there were a hair in trachea. 9th.—Ther. 66°. 2 p.m., took grt. v, and soon afterwards felt increased tenderness of throat and over sternum, lasting all d. 10th.—Therm. 66°. To-d., an ulcer on frenum of tongue. This m., on awaking, expectorated freely a whitish viscid mucus. Soon after noon took 12 dr. Almost while taking med. felt all above sym-

ptoms greatly increased, added to which, feeling of hollowness over entire head, which continued several d., and caused him to leave off further provings. (*M. Hom. Rev.*, iii, 162.)

4. a. Dr. RUTHERFORD RUSSELL, Jan. 31st, 1853, in bed at 6 a.m. took in a little water 1 gr. of 1st trit. In 6 m. uneasiness of stomach, soon passing off. While dozing was roused by sudden sense of choking, a sort of grasping at throat; a few m. later felt sudden jerking of l. masseter. In about $\frac{1}{2}$ h. had unusual beating of heart, audible to himself. No other effect that d. Feb. 1st.—At 7 a.m. took same dose. Soon after, slight palpitation of heart, and uneasy dryness of fauces. 2nd.—Took same at 6 a.m. In 10 m. uneasy constriction or irritation of larynx, giving rise to desire to cough; this returned several times. On previous d. had felt rather dull in spirits, without obvious cause, and to-d. had great depression; also occasional whizzing in l. ear, with insipid, almost nauseous, taste in mouth, and now and then tearing pain in abdomen. 3rd.—At 6.30 a.m. took same dose dry on tongue. Soon felt sharpish prick in larynx, with desire to cough. In about $\frac{1}{2}$ h. drawing painful sensation in r. jaw; at spot of tongue where powder fell there is sense of rawness, as if it would rise to a blister; occasional pains in bowels during d.; very low spirits. On next 2 d. took same dose, but no effect was observed. A catarrh here supervened, which caused discontinuance of proving.

b. May 3rd, resumed daily morning doses of 1 gr. of 1st trit., continuing them till the 7th. Soon after dose of 3rd, griping in l. abdomen for about 10 m., and a few stitches in l. temporal region. During 6th and 7th, especially latter, had considerable pain in forehead, waking him at n., and he awoke with this on m. of 8th. Pain was attended by fluttering of heart; was dull, with occasional stitches in frontal eminences. Tongue was coated with thick yellow fur. On 8th, while walking in country, was suddenly seized with most urgent desire to evacuate bowels; matter discharged was of light colour, and rather watery, coming with great force, as if he had taken a strong cathartic. On 9th again loose stool, with slight pain. On 10th diarrhoeic condition continued, and on 11th he was still uneasy. For last few d. he had felt languid and indifferent. On 12th and 13th he had no stool; and felt great languor and loss of appetite. On 14th and 15th motions were partly costive, partly loose, and attended with slight pain in abdomen. Was told he looked pale and ill, and felt out of sorts, without any special complaint.

c. Oct. 1st., 1853, at 5.30 a.m., took 1 dr. of 1st dil. on sugar of milk, washing it down with water. In a few m. uneasiness about umbilical region, and in a short time slight pain in front of r. thigh, which soon passed off; also slight pain in l. frontal eminence. Slight nausea and empty eructations during forenoon, and occasional twinging pain in umbilical region. Took another dose at n., and a third next m., without noteworthy effect. Repeated same on n. of 2nd, and m. of 3rd.; $\frac{1}{2}$ h. after latter slight fulness and pain in upper forehead, and in 2 h. slight shooting pain in l. tonsil. 3 p.m., slight headache, dulness of spirits, tormina in lower bowels with desire to evacuate them. Continued same doses up to 7th. In m. of 5th slight pain and fulness

of upper forehead and peculiar stringent sensation in pharynx; also nervous sensation about heart; and several times in course of d. clogging up of larynx and trachea with thick tenacious mucus; frequent sharp griping about umbilicus. After m. dose of 7th rather severe and steady pain in l. frontal region, and slight nausea.

2. Nov. 11th—14th, took 1 gr. of 1st trit. n. and m. Soon after 1st dose slight pinching sensation in stomach and slight pain in forehead. After 2nd, peculiar oppression about heart, and slight pain in one tonsil; also darting pain running across forehead. After 3rd slight spasmodic pain in stomach and sense of scraping in throat; next m. on waking pains between shoulders, which continued all d. Nausea after last 3 doses, with same feelings in throat and stomach, and slight frontal headache. Pain between shoulders increased all 14th, and continued till 16th; it was worse on moving arms. For last 2 d. urine in m. thickly loaded with red sediment, which gathered like a cloud at bottom of vessel, and seemed mixed with mucus. Repeated dose n. of 17th and m. of 18th. After 1st dose griping in stomach, and after 2nd return of pain between shoulders. Dec. 7th—21st.—Took this dose every m. Soon after 1st dose, nausea and pain in brow, audible beating of heart, and sense of depression. In course of d., while busily occupied, attention was arrested by heavy dragging sensation in spine between shoulders; it lasted about $\frac{1}{2}$ h., and caused much uneasiness. During whole d. nausea and depression of vital energy to unusual degree. 8th.—After dose, while warm in bed, several fits of coughing, with peculiar sensation about fauces and larynx; slight nausea. Thereafter, slight frontal headache was a constant symptom; on 2 m., cough with taste of blood in m. Large painful pimple on brow. Much scurf on head. Pain as before between shoulders. (*Brit. Journ. of Hom.*, xi, 593 and xii, 244.)

5. A. G. E. STZWART, æt. 24. Took, Oct. 1st—6th, 1853, 1 dr. of 1st dil. m. and c. In $\frac{1}{2}$ h. after 1st dose, felt irritation in larynx, as from inspiring acrid vapour, with warmth and rawness, causing hoarseness and tickling cough; this continued till 1 p.m., and returned about 4 for some h. 10.30, sensation for some time on small spot about l. palate as when aconite has been chewed; head heavy, with dull confused mental state; frequent yawning—these last continued till 1, and at 4 headache returned, with numbness in hands and crampy pains in l. palm, also shifting aching, specially felt in shoulder-joints. 2nd.—After retiring last n. much troubled with flatulent colic; and both then and this m. for 1 h. after rising stinging, aching, somewhat burning pain along r. side of penis, as if immediately under skin. Mouth dry this m. on waking. Same sensations in larynx and head followed m. dose, but less strong and lasting; also, tightness in upper chest; pains as yesterday, drawing and shooting in l. elbow-joint being severe; occasionally during d. transient stitches in hypochondria and aching round loins; for 1—2 h. after dinner anguishing pain in l. hypochondrium and loins, and flatulence. This pain, in loins and abdomen generally, came on again for about an h. after going to bed. 3rd.—Laryngeal symptoms very slight; occasional colic and flatulences, not so

bad; once or twice considerable uneasiness in upper chest, not lasting long. After e. dose pain in l. lumbar region, with occasional stitches, spreading over whole abdomen and to r. groin, eased by bending forward; dull itching in r. face for a few m., and same in upper chest, ankles, and lower third of thighs (not in knees); transient vertigo, followed by "stounding" pain in r. head. Went to bed with these pains in head, loins and abdomen; but woke on 4th free from them. After m. dose, almost immediately irritating, raw, rough pain in wind-pipe, which increased rapidly and was very annoying, giving rise to frequent, severe, hard cough, which made him quite giddy, and caused noise in head and pain in chest; slight hoarseness; severe dull frontal aching, with stoundings, not increased by cough; dull pain in r. hypochondrium and loin. These feelings continued pretty severe for 1½ h., then gradually decreased till 2 p.m., when he felt well, save for dulness in head, and occasional dull pains in abdomen during d. After e. powder (7 p.m.) laryngeal irritation returned, but with little cough; dull aching contractive pains in chest; chilly creeping over l. foot and leg; usual slight headache; occasional crampy pains in thighs, shoulders, and nape; numb pain in hands. 9—12, heaviness and dull pain in eyes, with suffusion, then tired aching, though they had not been much used; severe frontal headache; hot sore feeling of lips; creeping itching in various parts of body from time to time; aching in loins. 5th.—Few and slight symptoms to-day, which was much warmer than any since commencement of proving. 6th.—Same, in spite of raw chilliness in air, during d.; but all symptoms recurred in some force in e., with momentary but very violent shooting pain in r. side and dull aching in many joints. 7th.—Woke with laryngo-tracheal irritation, which continued for an h. or more, with hoarseness; much flatulence; aching in loins.

5. Took 3rd dil. in same way for a week in Nov. There was a recurrence of all the previous symptoms, but only to a slight degree; irritability of larynx, especially on exposure to cold air, being most marked. (*Ibid.*, xii, 215.)

6. A. M. C., woman, æt. 38, proved drug under superintendence of Dr. Stewart, and in same way. After 1st dose, taken 15 m. before breakfast, felt sickish from feeling at pit of throat; nausea, with disagreeable sensation about stomach, headache above eyes, belching up of water, and flatulence, continued till midday. P.m., began to feel pain in throat again, also severe throbbing headache (frontal). In e. acute pain in small of back for 2—3 h., hot skin, and pain in a small cyst she has in neck. and.—Clammy mouth in m. and horrible taste. After m. dose feeling in pit of throat as if skinned; burning heat in face at different times in d., with flushing; headache all d., but very slight save for a short time about 3 p.m., when it was severe and throbbing. 3rd.—No symptoms during d.; but after e. powder severe gnawing pain in lower part of back, worse after going to bed, and keeping her awake some time. 4th.—Took dose at 8.30 a.m. Soon after breakfast very bad headache, especially acute over l. eye, for an h.; rawness in throat for several h.; frequent yawning; hot pain at back of eyeballs; pain shooting through from l. scapula to front of chest. After

c. dose, recurrence of all these symptoms, with burning in face, especially l. side, and slight flushing. Thought of giving over taking drug, on account of the violence of the headaches caused by it. 5th.—Woke this m. with very bad headache, and great noise in the ears as if a mill were going in the head; slight pain in loins. By 9.30 aching and noise were almost gone, and little effect was produced by the day's doses. On 6th, however, after m. dose, headache was very bad, and there was disagreeable feeling in stomach.

d. Nov. 1st—5th M. C. took 1 dr. of 3rd dil. m. and e. Beyond slight headache on first and last d. there was no effect. 12th—15th, took 1 dr. of 1st dil. (a new preparation) m. and e. During these d. some of the old symptoms recurred, but only slightly in comparison. Dec. 12th—17th, took 1 dr. of 6th dil. in same way, with still less effect. (*Ibid.*, p. 248.)

7. a. Dr. CRAIG began Aug. 12th to take 1 gr. of 2nd trit. at 7 and 11 a.m. daily. Little effect was observed till 15th, when he had, 10 a.m., uneasiness about heart while walking; 12, dull pain to r. of sternum, immediately behind 3rd rib, passing under sternum—the spot tender to touch; chest tight across upper part; 2, after a moderate walk heat and uneasiness in l. chest, with aching pain, felt particularly about 2 in. below middle of l. clavicle. 6, dull heavy pain over lower half of r. chest, with stabbing on inspiring deeply, which causes short cough, but no aggravation by movement; in bed could not lie for a m. on l. side, but pain and breathing were much relieved by lying on affected side. Took dose of bryonia 3. 16th.—Chest much easier, but cannot expand it without considerable stabbing pain; dullness on percussion distinct as high as r. nipple. Noon, chest comparatively easy; took a dose. 17th.—8 a.m., r. chest quite easy, some aching in l. chest in front. Noon, aching sticking in l. side much worse, seems more diffused and external. 4, cannot ride and can scarce walk for the pain; has to press l. side with hand and bend that way; on attempting to walk fast it is as if there was a broken rib tearing lung; on attempting to breathe deeply there are horrid lacerations in all directions through chest, and short puffing cough, which also recurs spontaneously every m. 8, chills and partial heats, and general feeling of being unwell. 11, considerable fever with partial chills; l. side as before; resp. 34, pulse 98; again can lie only on affected side. 18th.—Slept well, and felt much better in m., though there was still cough and considerable pain in l. side. 19th.—Chest much better, can take breath and cough without much inconvenience. 20th.—Quite well.

b. Oct. 3rd—8th, took 1 dr. of 1st dil. once or twice daily. On 7th, 10 a.m., distinct dull shooting in various localities in l. chest, and slight pricking pain in l. pharynx. 8 p.m., chest better, but throat much worse. 8th.—L. side of throat is red, with considerable pain on swallowing. 8 p.m., throat very painful; took dose of belladonna. 9th.—L. tonsil inflamed and painful. No further record. Nov. 7th—18th took same (new preparation) in same way. On 7th, at 2 p.m., while writing, sudden attack of fluttering at heart, with rising in throat. On 12th, extreme coldness of feet, and on 13th same of hands also; on 14th, same of feet, with aching at vertex capitis. On 15th, c.,

uneasy aching about chest, particularly l. side; and on 16th, e., same with heat. 17th, quite free from any symptoms during d., but uneasiness about heart again in e. 18th.—Woke with soreness of l. throat. 8 p.m., after riding some distance considerable pain in heart, extending through to l. scapula, not affected by deep inspiration; lasted some h. and was very marked. (*Ibid.*, p. 221.)

8. W. R.—, æt. 37, took 1st dil. in Oct., 3rd in Nov., and 6th in Dec. There was so much amiss with his health on commencing proving, and so little fresh occurred, save some catarrh and a gingivitis which may well have been accidental, that no record of his experiences need be given here. (*Ibid.*, p. 223.)

9. Mrs. R.—, wife of above, æt. 23, proved 3rd dil. in usual way during Nov. Was suckling an infant 4—5 mo. old, and at same time had profuse menstruation, with much leucorrhœa during periods; also liable to congestion of head. She became ill while taking drug,—feverish, thirsty, diarrhœic (as was infant also), and colicky, with frequent sick turns; but the detailed symptoms are so blended with those of her previous far from healthy state that they cannot here be given. (She did not enjoy very good health after taking the medicine, but the leucorrhœa she formerly suffered from entirely disappeared.) (*Ibid.*, p. 246.)

10. a. WILLIAM GILLOW, æt. 27, affected with pityriasis of scalp, hæmorrhoids, and frequent severe attacks of flatulence; otherwise healthy. Oct. 1st—6th, took m. and e. 1 dr. of 1st dil. 2nd.—Passed a wakeful n. (very uncommon, and no reason for it); dreamed vividly, and woke up very frequently with very dry mouth. 3rd.—On going to bed peculiar headache, dull constricted feeling across forehead, with heaviness of eyes; slight nausea, dry mouth and very cold feet, though he had been sitting in a warm room. This m., after dose, had some slight headache, with dryness of mouth and cold feet. 7.30 p.m., very sudden and relaxed motion, with return of m. symptoms. On 4th no symptoms, and none on 5th till after e. dose, when on going to bed he felt peculiar morbid condition of body and mind; constant violent sexual desire, with little physical power. Thus n. was passed most miserably,—frequent waking, with vivid imaginations and most painful state of mind. [No. 8 notes unusual excitement of genital instinct and power more or less throughout proving.—Ems.] There were involuntary emissions, followed by great prostration and distress. He never felt these symptoms in the same way before. 6th.—Felt prostrate and miserable in body and mind; dulness about head, heavy aching over eyes, dry mouth. This continued more or less all d. In e. felt better, and (though n. was restless) continued so till e. of 7th, when symptoms came on which eventuated in a severe cold.

b. Nov. 14th—22nd took same, at first m. and e., later at noon only. Was then in his usual health. 15th.—M., mouth very dry, and headache over eyes, peculiar oppressive and constricted feeling; went off after breakfast. 16th.—Same. 17th.—Peculiar distress about generative organs, with great depression of mind; sexual desire morbidly strong, yet no physical power. 18th.—In 2 h. after (midday) dose, return of dry mouth and headache. No moral symptoms to-day.

19th.—One h. after dose slight heaviness over eyes, with constricted feeling and dryness of throat. 20th.—M. stool for some d. getting scantier, and to-day less than ever. 21st and 22nd.—Same costiveness. No further effects. In Dec. took several doses of 1st, 2nd, and 3rd trits. without effect. (*Ibid.*)

11. a. Dr. Pozz, ser. 23, took, Oct. 1st—7th, 1 dr. of 1st dil. m. and e. On 2nd slight aching in both temples for 2—3 h., and on 3rd similar pain all d., and tightness in larynx on getting into bed. He felt this again on waking next m., and it continued all d., with slight headache. On 5th same, with cough, and oppressive aching in temples. On 6th and 7th felt tightness in larynx immediately after e. dose, and in m. of 7th aching in temples and across forehead recurred.

b. Nov. 6th—12th took same (new preparation). 8th.—Severe aching across forehead, particularly over each temple, and weight over eyelids. Tightness over vertex. Depression of spirits, inability for exertion, everything seemed going wrong. Pain lessened as d. advanced, but was aggravated by motion or exertion of any kind. 9th.—Pain in head of same kind, but less severe; was at once dissipated by a very little alcohol or tobacco. 10th.—Headache like that on 8th came on after m. dose, and remained for 2 or 3 h. 11th.—Slight headache over r. eye and in r. temple; spirits better. 12th.—Same.

c. Dec. 4th—10th, took 1 dr. of 6th dil. m. and e. On 6th slight headache and great restlessness; on 9th slight headache and great depression of spirits; on 10th, aching over whole head and depression of spirits, continuing during following d. without any more medicine.

[The foregoing is Dr. Pope's revision, in his present lights, of the record of his proving. To latter he adds the following remarks:—"On reviewing the abnormal symptoms which have succeeded my taking the N. poison, I find that the most persistent and best marked have been severe headache, usually accompanied by intense depression of spirits. The headache was very severe, at times almost unendurable, and the melancholy equally distressing. The headache was most marked, and usually began, in the r. temporal region (also occupying the l., though in less degree), and involved the eye of the same side. The pain was a deep-seated, severe aching, occasionally shooting; it gradually extended to a sense of dull aching over forehead and vertex, but always remaining most severe in each temple. The least motion aggravated it intensely. It was relieved by going into the open air, though but slightly; smoking procured more marked relief, and alcoholic liquors completely dissipated it. This pain was present whenever the poison was taken, though most severe on Nov. 8th and 9th. It was, as before remarked, accompanied by great depression of spirits. This melancholy was of a peculiar kind. I felt that everything that was done was done in a wrong way, and could not be rectified. If I felt that I had some duty to perform, I had at the same time a strong impulse not to do it, and was extremely restless in consequence. These moral symptoms were not present at all during Oct.; they were very distressing while taking the Nov. doses, and, though present, were much less severe in Dec." He goes on to say that he only once felt this headache and depression before, viz. when—some

6—7 years previously—residing in the relaxing atmosphere of Torquay.] (*Ibid.*, p. 234.)

12. a. JOHN LANDELL, æt. 26, took 2 dr. of 1st dil. n. and m. Oct. 2nd—8th.—Had coryza at beginning of proving, and had had rheumatism of shoulders 6 weeks previously. This last recurred after 1st powder. The usual frontal headache of N. began on 3rd, and continued all d. on 4th. On e. of 5th felt sick, almost to vomiting; irritable, restless; frontal headache, throbbing of temples, and disagreeable fullness of head when lying; feeling of weariness and frequent yawning. On m. of 7th tearing pains in abdomen for 2 h.; still headache, weariness, and yawning; chilblains have appeared on feet last 3 d., very painful, cannot put boots on, has not had them before for 3 or 4 years.

8. Nov. 1st—7th, took n. and m. 1 dr. of 3rd, and, 17th—17th, 1 dr. of 1st dil. From first, no effect save slight headache and transient though sharp abdominal pains. On 12th, sharp shooting pains from one temple to the other; nausea with pain and beating in stomach, and feeling of prostration; all relieved in open air. On 15th, chilblains, which had been better, were worse; with usual headache, there was forgetfulness and prostration. On 17th, gum of l. canine inflamed, and opposite to it an ulcer of under lip, which did not disappear till 12 d. after finishing med. In Dec. took 6th dil. in same manner for a week, but without result. (*Ibid.*, p. 241.)

13. Dr. DRYSDALE took 1st dil. for a week in Oct. without result, and the same may be said of his trial of the 3rd dil. in Nov. In Dec. he took the fresh preparation of 1st dil., without noticing any deviation from health save that on 6th, while driving, he felt a sudden pang of pain through l. side of head, from behind forwards, lasting only 2 m. or two. (*Ibid.*, p. 243.)

14. I was giving it to a very intelligent lady, a physician's wife, for organic disease of the heart. She experienced no benefit from its use, but complained that it occasioned a symptom altogether new to her—a violent crampy pain in the region of the l. ovary. (HOLCOMBE, *U. S. M. and S. Journ.*, i, 234.)

II. *Psismings*.—1. A woman was bitten in the small of the leg by a cobra. I saw her about 10 h. after the accident. She had lost her hearing and feeling; and deglutition was much impeded. A torpor and listlessness pervaded the whole system, and from the moment of the bite had gradually increased. She took three Tanjore pills at 3—4 h. interval, and in about 8 h. gradually recovered feeling and sight, and could swallow more freely. She remained weakly for 8—10 d. (PATRICK RUSSELL, *Brit. Journ. of Hom.*, xi, 84.)

2. A Dubash was bitten in the toe by a snake, which from his description appeared to be a cobra. A few drops of blood issued from the part, and he was sensible instantly of pain. When he came to me, about $\frac{1}{2}$ h. after, the pain had advanced as high as the knee-joint; I gave him a Tanjore pill. In 20 m. more the pain had got to the top of the thigh and had become much more severe. I then gave him two more pills and some hot wine—part only of which he retained. Patient now complained of severe pains in his belly, which upon examination appeared

tense and much swelled. Sense of tightness spreading fast to heart, and respiration becoming extremely laborious, an attempt was made to induce him to take two pills more; but deglutition being impeded a part of them only reached the stomach and was immediately rejected. From this time the stricture of the oesophagus increased so much that nothing could be forced down the throat; he foamed at the mouth; his eyes stood staring and fixed; his pulse and breathing became hardly perceptible, and in short every vital motion seemed at a stand. I now applied spirits of hartshorn to his mouth and nostrils, by which in a few m. a strong sneeze being excited, he immediately began to breathe and soon pronounced the word "better." After he had recovered a little, he told me he felt the pain descending retrograde in the same track in which it had risen, and expressed a strong desire to sleep. He slept for $\frac{1}{2}$ h., and upon awaking vomited plentifully. He had now recovered his senses, and said he felt only a little pain in his foot, which at last descended to the toe. In the course of 2 h. he was able to walk home, but did not recover the fatigue for some d. (*Ibid.*)

3. A sepoy was bitten on the ankle by a large snake, believed to be a cobra, and was brought to Capt. Gander's house within $\frac{1}{4}$ h. after. His jaws were locked, his eyes fixed, and very little sign of life remaining; four large punctures were visible on the ankle, and on each side being applied to these the man gave marks of sensibility by drawing up his leg. Two bottles of warmed wine were poured down his throat during $\frac{1}{4}$ h., the jaws being forced open so as to introduce a funnel; and the ammonia was constantly applied for 3 h. Patient was then without any sense of feeling whatever; and had it not been for a gentle heave of his breast every 2 or 3 h. he would have been thought dead. He remained in this torpid state 40 h., and then began to show signs of returning life. It was 12 h. more before he recovered his speech, and he continued many days in a very languid state. (*Ibid.*)

4. A serpent-catcher was bitten by a cobra in the fleshy part between the thumb and forefinger. He felt instantly a sharp pain in the part bitten, which soon spread over the palm and upwards on the arm. He felt also sickness at stomach, but did not vomit. In less than an h. hand and wrist considerably swelled, pain extended nearer shoulder, he was sensible of confusion in his head and a strong disposition to doze. From this time he himself was for several h. ignorant of what had passed; but those about him said that he at times showed much inquietude without making any specific complaint; at other times he lay moaning and dozing. Towards midnight startings about his throat were observed, his breathing became laborious, he could not speak articulately, and seemed not to perceive objects though his eyes were open. They had applied a poultice of herbs to his arm, and administered a secret antidote internally, but finding he grew worse and worse, Dr. R— was sent for. He did not see patient till next m., when he found hand and arm monstrously swelled, but senses perfectly recovered (they had returned about 2 a.m.); the man complained only of confusion of head, languor, and pain in arm. The parts about the punctures mortified. The gangrene spread over back and palm of hand and part of wrist, laying tendons bare, and forming an ulcer of

considerable extent, which, however, healed favourably under the usual treatment. He recovered his health in 8—10 d. (*Ibid.*)

5. E. H. G—, æt. 31, keeper in reptile-house of Zoological Gardens, went one m. to his charge partially intoxicated. At 8.10 a.m., while playing with a cobra, it made a dart at him, and inflicted a wound on the upper nose. After 20 m.—having previously shown no symptoms save agitation at what had occurred—he began to stagger in walking and to speak unintelligibly; at same time movements, apparently convulsive, of mouth and of limbs were observed. He made no complaint of pain or other sensation. He was taken to the hospital, and during transit was observed to grow very rapidly worse. When seen by physicians (8.45) he moaned, grasped his throat with some eagerness of action, tossed his head from side to side, and moved his arms and legs in an uneasy, restless manner, not apparently convulsive. When asked in a loud voice if he felt pain, he made no reply, and gave no evidence that he heard or understood the question. He was unable to support himself in a sitting posture. His face generally was slightly livid; his eyes fixed; his pupils acting sluggishly to light. Skin was of natural temperature and moisture; pulse 120, regular in rhythm, but unequal in force, most of the beats, however, being tolerably full and strong. On upper nose were a number of small punctured wounds, from one or more of which a small quantity of blood had flowed. L. eyelids, especially upper, were swollen and livid, lividity extending to r. side of nose but not to l. There appeared to be no swelling of tongue.

6. These observations were made rapidly as patient lay on a couch in the casualty room. He was immediately transferred to the ward, undressed, and put into bed. The interval that elapsed between his being first seen and his being put to bed, though certainly not exceeding 5 m., witnessed a material change in his symptoms. Just prior to being lifted into bed, respiration was 20 per m., very shallow, without ræctor, and free from any sound indicating obstruction. By this time the movements of the extremities had entirely ceased, the lividity of the face had very markedly increased, free perspiration had occurred over surface generally, and pulse continued tolerably good. As it was evident the man was rapidly dying from respiratory failure, preparations were immediately made for artificial respiration. Before it was begun, natural breathing had ceased, and pulse was 32 only, remarkably irregular both in rhythm and force, some of the beats being remarkably full and bounding. When artificial respiration had been continued 2 m., pulse was 70 and less irregular. It was persevered with to 50 m. Pulse continued of fair power and volume, maintaining, however, its characters of irregularity and inequality. On two occasions it was 104, and once 73. At no time was there any indication of recovery of natural respiration, but there was felt throughout, till within $\frac{1}{2}$ h. of the cessation of the pulse, a clonic contraction of the sternomastoids, very irregular in rhythm. At 9.40 pulse ceased, and artificial respiration was discontinued. Skin had continued moist and, for the most part, warm till near the close. Lividity of face continued, but no other part was discoloured or swollen.

c. P.M. (30 h. later).—Bloody fluid had continued ever since to

ooze from highest and largest wound on nose, others being closed by coagula, and from mouth and nostrils a considerable amount of frothy blood had issued. There was livid discoloration of dependant parts, both externally and in lungs, whose posterior aspect was gorged and almost black. Air-tubes throughout were filled with black frothy fluid, such as exuded on section of lungs; and their lining membrane (including that of lower trachea) stained with similar colour. Heart healthy; l. side contracted and empty; r. filled with dark fluid blood, in which was a little very loose coagulum. Alimentary canal healthy, save that stomach showed patches of pale colour alternating with patches of red—latter formed by aggregation of minute red spots (? alcohol). Liver and kidneys dark, but otherwise natural; spleen enormously congested, almost black, substance very soft, exuding on section very dark blood. In brain and spinal cord scarcely anything abnormal. During the dissection, it was noticed that the body exhaled a peculiar sour odour. (*Lancet*, 1852, ii, 327.)

6. A woman, bitten by a cobra, was found sitting on the ground suffering from a succession of swooning fits. She had had 8 before my arrival, 2 h. after the bite, the marks of which were seen on the ankle. While with her another swooning came on; she fell forward from sitting posture insensible. After some time, with convulsive gasps, she came to herself. She took a native antidote, and had only one more fit, 2 h. after the last. (*FAYREB, Ed. Med. Journ.*, 1869, p. 425.)

7. Mr. F. BUCKLAND had skinned a rat which had been killed by a cobra-bite. "I had not walked a hundred yards," he writes, "before all of a sudden I felt just as if somebody had come behind me and struck me a severe blow on the head and neck, and at the same time I experienced a most acute pain and sense of oppression at the chest, as though a hot iron had been run in, and a hundredweight put on the top of it. I knew instantly from what I had read that I was poisoned; I said as much to my friend, a most intelligent gentleman, who happened to be with me, and told him if I felt to give me brandy and eau de luce, words which he kept repeating in case he might forget them. At the same time I enjoined him to keep me going, and not on any account to allow me to lie down. I then forgot everything for several minutes, and my friend tells me I rolled about as if very faint and weak. He also informs me that the first thing I did was to fall against him, asking if I looked seedy. He most wisely answered, 'No, you look very well.' I do not think he thought so, for his own face was as white as a ghost. I recollect this much. He tells me my face was a greenish-yellow colour. After walking or rather staggering along for some minutes, I gradually recovered my senses and steered for the nearest chemist's shop. Rushing in, I asked for eau de luce. Of course he had none, but my eye caught the words Sp. Am. Co., or Harishorn, on a bottle. I reached it down myself, and pouring a large quantity into a tumbler with a little water, both of which articles I found on a soda-water stand in the shop, drank it off, though it burnt my mouth and lips very much. Instantly I felt relief from the pain at the chest and neck. The chemist stood aghast, and on my telling him what was the matter, recommended a warm bath. If I had then fol-

lowed his advice, these words would never have been placed on record. After a second draught at the hartshorn bottle I proceeded on my way, feeling very stupid and confused. On arriving at my friend's residence close by, he kindly procured me a bottle of brandy, of which I drank four large wine glasses, one after another, but did not feel the least tipsy after the operation. Feeling nearly well, I started on my way home, and then for the first time perceived a most acute pain under the nail of the left thumb; this pain also ran up the arm. I set to work to suck the wound, and then found out how the poison had got into the system. About an hour before I examined the dead rat, I had been cleaning the nail with a penknife, and had slightly separated the nail from the skin beneath. Into this little crack the poison had got when I was scraping the rat's skin to examine the wound. How virulent, therefore, must the poison of the cobra be! It had already circulated in the body of the rat from which I had imbibed it second-hand." (*Curiosities of Natural History*, 2nd ed., p. 225.)

III. *Experiments on animals*.—1. June 1787, dog bitten on inside of thigh by a species of *N.* howled at first as if in much pain. After 2 or 3 m. he lay down, and continued at intervals to moan and howl. After 20 m. he rose, but stood with difficulty, and was unable to walk; his whole frame seemed greatly disordered. He soon lay down again, and in a few m. was seized with convulsions, in which he expired, 27 m. after bite. (*P. RUSSELL, op. cit.*)

2. July, a large very stout dog was similarly bitten. In 2 m. or two thigh was drawn up, which is generally first symptom of poison having taken effect. He continued, however, nearly an h. walking on three legs, seemingly not otherwise disordered; he then laid himself along, showed great inquietude, but did not howl; purged once. About this time he became in an uncommon degree convulsed about head and throat, and made several vain efforts to rise, both hind legs being now paralytic. In this state he continued above an h., and then died, 2 h. after bite. (Similar results followed in 3 other cases.) (*Ibid.*)

3. A cobra de capello was made to bite a very large stout dog. At first the dog complained loudly, though neither was the thigh drawn up, nor for $\frac{1}{2}$ h. did any symptom of poisoning appear. About this time, breaking loose, he was pursued, and after a chase of $1\frac{1}{4}$ h. was brought back, extremely heated and fatigued. After resting $\frac{1}{2}$ h. water was offered to him, but he would not drink, though he ate some morsels of bread thrown into the water. About $\frac{1}{2}$ h. after eating the bread he grew sick, vomited, and began to howl and show much inquietude. After 10 m. he vomited a second time, and became extremely outrageous, struggled to get loose, snapped desperately at the stake to which he was tied, and howled incessantly. He then lay down, and was much agitated about belly and stomach; muscles of face also were convulsed. Being made to rise, he walked without any serious impediment from the hind legs. At end of 3rd h. he still continued extremely ferocious, so that it was necessary to tie his legs. From this time his howlings and strugglings grew gradually weaker, and the convulsive motions of his face increased. In this state he lingered about an h. longer, and

then expired. Bitten part was black for size of half-a-crown around. (*Ibid.*)

4. A solution of 1 gr. of the poison in 3j of olive oil was slowly injected into the facial vein of a large rabbit. The operation did not occupy above a minute, and before it was complete the animal was quite dead. On dissection, it was found that the oil had passed freely through the lungs, as it was found in the liver and abdominal vessels; and so it is not probable that it was merely the pressure of the oil in the heart that had caused the death. The heart was found distended in all its cavities with dark blood, as if it had been wholly paralysed. (R. RUSSELL, *Brit. Journ. of Hom.*, xi, 592.)

5. A guinea-pig had injected into its peritoneal cavity a solution of $\frac{1}{2}$ gr. of cobra poison in 10 dr. of distilled water, at 1.56 p.m. 2, sluggish; does not twitch as another did, which received similarly a dose of crotalus poison. (See Crotalus, iii, 6). 2.4, started and squeaked slightly, as though in pain. 2.5, slight twitching general. Paralysis and ataxy commencing; drags legs with difficulty. 2.9, sharp twitchings of head and neck. 2.12, subsides on to belly; head fallen over, crawls with difficulty; is very feeble, almost paralysed. Eyes (it is an albino) have heavy dull look; they have lost their bright pink. 2.14, convulsed. 2.15, reflex action ceased; apparently dead, but heart can still be felt beating; occasional convulsive twitching of lower lips. 2.17, all movements have ceased,—those of heart also, save for slight flickering contractions of auricles. 2.20, electrodes in cord showed this and its nerves paralysed; muscles contract freely to direct stimulus of current. Heart distended with blood, which, when removed, formed rapidly a firm coagulum. Intestines, peritoneum, and subperitoneal areolar tissue congested and ecchymosed; sanguinolent effusion into peritoneum, but not so well marked as in the crotalus poisoning. Peristaltic action of bowels ceased rapidly. (BAUNTON and FAYAZ, *Report on Sanitary Measures in India*, 1873—4.)

6. Same dose was injected into jugular vein of a large rabbit at 2.55 p.m. Rabbit passed at once into violent convulsions, and was apparently dead before it could be removed from the board (1 m.). Cord was immediately exposed, artificial respiration having also been begun; electrodes applied, with strong current, induced no reaction, cord was completely paralysed. Thorax examined 2.59. Heart had ceased to act; ventricles moderately contracted, auricles distended with blood. Phrenic, on being irritated, gave no response; diaphragm, when directly excited by current, contracts very faintly, but neighbouring muscles vigorously. Peristaltic action goes on; electrodes applied to vagus appear to accelerate it, to splanchnic diminish it. 3.7, ventricles have now contracted firmly. 3.15, blood taken from heart and large vessels has coagulated, but not firmly; clot is small, and serum very red; under microscope, blood shows no aggregation in rouleaux or crenation of corpuscles. (*Ibid.*)

NATRUM CARBONICUM.

Sodic carbonate, $\text{NaCO}_3, 10\text{H}_2\text{O}$.

I. *Protrings*.—1. HAHNEMANN, *Chronic Diseases*, part iv of original, vol. of translation. Contains 1082 symptoms from self and 5 others.

2. While large and continued doses induce anæmia and asthenia, small quantities, given for a moderate time, help to saponify fatty food, aid its oxidation and that of carbonaceous material generally, improve digestion and raise temperature. . . . The carbonate, according to the majority of observers, diminishes the excretion of uric acid; and as this acid results from insufficient oxidation, its diminished excretion implies improvement in oxidation. The reported increase of excretion of carbonic acid requires proof, but is rendered probable by the increase which follows injection of lactate of soda into the veins (Husemann). . . . Under daily 5 grm. doses of the bicarbonate urea is diminished, and anæmia and prostration induced (Rabuteau). . . . According to Pavy, the carbonate not only increases the bile, but also the percentage of fat in the liver; and when introduced into the portal system, causes the disappearance of hepatine, without formation of sugar (*Guy's Reports*, 1861; *Proc. Roy. Soc.*, x, xi; *Med. Times and Gaz.*, 1865, i.); also the saccharine urine which commonly follows certain lesions of the sympathetic does not occur if much soda be previously introduced into the blood. . . . It is an important difference between potash and soda, that the former is an active cardiac depressant and poison, while the latter has no definite effect on the heart-muscle or the circulation. . . . Münch found, in 5 subjects, when perspiration or diarrhœa did not occur, increased excretion of urine is the principal effect of 3 to 6 or 9 grm. doses of carbonate, but Rabuteau and Constant could not verify any increase with 5 grm. doses, given daily. (PHILLIPS, *op. cit.*)

II. *Poisonings*.—1. It is well known that animals fed wholly upon sugar are subject, among other accidents, to a softening of the cornea and destruction of the eye. It seems that soda produces similar effects on those engaged in its manufacture; it appears to dissolve the fibrin of the blood and cause an excessive fluidity of it, produces a kind of leucoma, and finally ulceration of the cornea. The workmen who have to pound the crude article are the most exposed to its influence. All day long they are covered with soda suspended in the atmosphere in the form of a fine powder. It is among them that the greatest number of cases of keratitis with ulceration occur. The workmen engaged in drying the refined soda by agitating it continually on heated plates of iron, and those engaged in packing it, are also among those most exposed to its action. The pernicious influence of the soda is usually manifested by the following general symptoms: earthy, wan complexion; slight puffiness of the face; swelling (generally painful) of the glands of the throat and axilla; œdema of lower extremities (seldom); anorexia; constipation or diarrhœa; sometimes palpitation, and a well-marked bellows sound. As regards the ulcer of the cornea, it is always large and deep, and as often precedes as follows the other symptoms.

NATRUM CHLORATUM.

The "Liquor Sodæ Chloratæ" of the British Pharmacopœia, Labarraque's solution (of chlorinated soda).

1. *Proving*.—1. COOPER. Pathogenetic effects observed in persons taking the drug.—Very low-spirited and depressed, could cry all d. Rapid emaciation (in a girl of twenty-one). Aching in every limb and feeling as if bereft of all power, and as though she would faint upon slightest movement. She becomes quite overpowered (from $\frac{1}{2}$ dr. 3 times a d. in woman of 65). Vertigo caduca, — a very common and characteristic symptom along with aching across forehead. Momentary indescribable sensation all over head. Swimming feeling, as though top of cranium were about to float off, worse when looking upwards. Pain across forehead, extending down nose and up over entire head, with great tenderness of scalp, and a thumping noise in ears, which is worse by lying on either side; has to place back of her head against the pillow in order to gain sleep. Pain in r. side of head, going from behind mastoid process to upper part of orbit "across the eye;" causes eye to feel stiff and weak; aggravated by having sleep, but continuing by d. as well as by n. Pain darting from one temple to the other, coming and going with equal suddenness. In a woman, aged 52, great depression, and feeling in head as though cranial bones were being crossed one over the other, and as if she must fall forward, a sort of silly feeling; with a nasary taste, just as she used to have after taking iodide of potassium, but without the iodine coryza. Paralyzed feeling of her brain, with similar sensation in all limbs, and numbness of tips of fingers, and recurrent faintings. Throbbing headache in l. temple, coming on immediately after her midday meal, and going off after tea. Much pain across small of her back, worse on getting up in m., existing along with want of appetite for breakfast, but fair appetite for supper. Pain in both hip-joints and in calves, with tingling extending to toes. Both hands are swollen every m. (observed in 3 cases). Extreme weakness in her ankles and knees. Pain under r. ear when swallowing, with much pain, tenderness, and swelling up side of head, followed by a most painful garbeting, which bursts and discharged strongly. Sore, irritable spots form in throat and along both sides of tongue. His teeth become brittle. Sores, angry looking and moist, break out about mouth. Sore pimples come on inside of lower lip, at the commencement of a cold. Sores on inside of her cheeks, which began on l. side, and gradually spread over mouth, with nasal discharge and influenza. His throat invariably becomes sore (observed in several cases). Neuralgic pain in l. side of face, from lower jaw, extending to upper, and across eyes and nose to forehead, coming on irregularly and lasting from 1 to 1½ h. (produced after taking the drug for 4 d.). Sore-throat, with difficult deglutition; a flat ulcer form on tongue far back to some after taking drug for a week, and goes away immediately it is discontinued. Swelling upon r. upper jaw, close upon gum (gumbull), very painful to touch. The throat becomes red and sore (in a man aged 25, whose health was quite good except for a nasal polypus). Swelling, affecting upper and lower jaw of l. side, with swelling on inside of the jaw between gum and tongue, throbbing in part and shooting pain extending up to temples and down l. side of neck, relieved by cold applications, increased by worry, not interfering with appetite. Tongue is furred in m., and there is constant putrid taste throughout d. The tongue is white and shrivelled at sides, and there is taste as if she had been sucking alum; appetite for meat fell off. Epistaxis; blood comes away both by n. and d. in clots, and is dark coloured (in a pregnant woman). Cough, with white tasteless phlegm and tightness across chest as from a weight, which keeps her from sleeping, and constricted feeling on inspiration at pit of chest (along with general feeling of weakness following a miscarriage). Cough distressing, with a little phlegm, continual during d. (in a woman 21, 35). Pain unites heart, with catching inspiration. Pain across upper part of chest, off and on, and pain with fulness across hypochondria, with pains extending down from both sides of waist to womb, causing a phlegmy discharge. Pain under l. axilla and l. mamma, aggravated by lying down, with weakish giddy feeling; when walking about, is obliged to keep sitting down. In a delicate anæmic woman suffering from uterine weakness, the N. chl. caused a pain to appear in l. infra-mammary region, which affected l. side of chest, shoulders, and top of head; shoulders became

stiff and painful, and top of her head and side felt tender to touch, and ached, an unbearable pain; felt drowsiness after meals; L. hand much swollen one m. after waking, and next m. r. was similarly affected; bowels became confined and less urine was voided. She is unable to sit down without falling asleep, her appetite falls off, but bowels are regular and tongue clean. In a girl, *æt.* 21, aching pain in L. side at waist, preventing her from sitting upright. Swelling low down in abdomen, going up to her chest, and causing dyspnoea, worse after eating, with a good deal of flatus. A weight seems to fall from across pit of her chest to pit of abdomen, and an aching, dull sensation, indescribable, but different from an ordinary headache, occurs on top of head after each dose and lasts for $\frac{1}{2}$ h. Nausea and sick feeling; she becomes drowsy during d. and wakeful at n. Loss of appetite for breakfast, but fair appetite for supper. When taken while the patient is recumbent, the *N. chl.* gave rise to a feeling of sickness. In a decidedly consumptive girl, *æt.* 16, its continued use made her feel drowsy and lazy, as if she could lie in bed all d., and her skin became covered with pimples that smarted after washing, and upon going into open air; the slightest drop of cold water as a drink irritates these pimples. Confinement of bowels for 3 d., and then passage of large, hard, offensive motion (in a girl of 18). Great exhaustion as if about to die before bowels act; sudden and forcible expulsion, with consequent complete relief. In a woman, *æt.* 42, cutting pain like knives in the anus, which comes on every s. between 6 and 7, and goes away during n., but not at any stated h. In a little girl, *æt.* 3, scalding when urinating, with soreness, itching, and smarting of vagina. Violent metrorrhagia. The monthly period comes on at once, a week before its time (in a perfectly healthy woman, after taking a dose of ʒ *ss.* in water). In a woman suffering from prolapsus from injury, *æt.* 25, it brought on frightful vaginal pruritus, just inside lips of vagina, getting better and worse, and obliging her to tear herself to pieces. Uterine bearing down, severe backache and headache, affecting temples and back of head, making her feel light-headed and sickish, generally worse at n. She cannot take the *N. chl.*, as it causes feeling of opening and shutting in womb (in a healthy woman, *æt.* 65). The monthly period delays a week over time, and during 1st d. she has more than usual aching in the back (in a fairly healthy girl, *æt.* 25). Great sexual excitement after each dose in a man, *æt.* 45, of impressionable temperament. Almost unconquerable sexual desire after each dose, with priapism. Heavy sleep, with much disinclination to get out of bed in m. Drowsy during daytime, wakeful at n. Drowsiness after meals. The child when asleep has a ghastly look as if dead; his sleep is quiet. Much diarrhoea, laughs, cries, and talks in her sleep; keeps her husband awake. Small gasterbergs form on fingers of both her hands. Pimply rash appears on the face, which is very irritable, especially at n. In a woman, *æt.* 31, from a drop, diluted, red smarting rash on face and neck, worse after meals or after warm drinks; a uniform redness with tendency to blister, "as if from a mustard plaster." Its painful parts feel hot. (*Brit. Journ. of Hom.*, xxiv. 340.)

NATRUM MURIATICUM.

Sodic chloride, NaCl. Common salt; purified by solution in distilled water and recrystallization.

1. *Proving*.—1. HAHNEMANN, *Chronic Diseases*, part iv of original, vol. of translation. Contains 1349 symptoms from self and 6 associates.

2. (Austrian provings, made with Hahnemann's preparation, as above.) Dr. ARNETH showed an almost absolute unimpressionability to the action of common salt. He proved first, for three weeks, the dilutions from the 30th to the 1st (from $1\frac{1}{2}$ to 2 table-spoonfuls each time); and took afterwards of the raw material from 10, 20, 30 gr. to 1 oz., the latter every d. at 11 a.m., in a glass of water. Beyond an unendurable salt taste and inclination to vomit after the large doses

he noticed during the time of the proving no action; yet for almost six weeks after he had taken the last dose his stools were hard, and for several d. after he had no evacuation at all. (*Ort. Zeitich. f. Hom., iv.*)

3. Dr. BÖHM merely tried the 1st trit. (5 to 95). In spite of this his proving furnishes several characteristic salt symptoms. He took the remedy each time dissolved in more or less water. On taking, Nov. 5th, 5 gr., he experienced soon after pressing in temples, and for an h. copious flow of saliva into mouth. The following d. he had little appetite, frequent eructations of air, and feeling of nausea in stomach; he was ill-disposed, and slept uneasily through the first n. On the 3rd d. he was well. Nov. 8th.—10 gr. soon excited eructations of air; half of next d. salt taste of saliva, feeling of weakness, unusually frequent emission of watery urine, urging to stool, which continued for a long time, with burning in anus subsequent to a pappy stool. 10th.—20 gr. were followed by exactly similar phenomena. 16th.—After 50 gr., taken in e., B— became soon sleepy; was obliged, in spite of his sleep being sounder than usual, to rise frequently to micturate, and each time passed much pale urine. At the same time there was tightness and distension of abdomen, with dryness of palate, increased thirst, and frequent eructation. The urging to urinate was united sometimes with pressing in rectum. These urinary symptoms were repeated the two following n. 22nd.—10 gr., 8 a.m., were followed by profuse secretion of saliva, pressing in temples, frequent eructation, nausea, painful contraction in umbilical region, relieved by emission of flatus; little appetite at dinner, after dinner sleepiness, frequent urging to urinate with only scanty emission of urine; at n. frequent erections with emission of an adhesive fluid, uneasy sleep, many dreams (lascivious or of ghosts). Next m. prover was weak, dejected, ill-humoured. No stool for 2 d., very unusual with him. The same phenomena appeared after doses of 100 gr. on Nov. 27th and Dec. 5th and 7th. The pappy evacuations which now followed brought relief to the abdominal symptoms and quieter nights. 130 gr., Dec. 10th, e., created pressing pain in forehead (for $\frac{1}{2}$ h.); after two stools colic, violent yet ineffectual urging to stool, pinching in umbilical region at n., in m. two fluid stools with burning in anus; this and following d. morose humour, total loss of appetite, prostration in limbs, continual dampness of orifice of urethra, with drawing in spermatic cords. After 150 gr., which B— took in m. of 12th, an h. before breakfast, he was first seized with transient drawing pain in both sides of the inferior maxilla, $\frac{1}{2}$ h. later pinching in umbilical region with urging to stool without any result. Breakfast was not relished, in forenoon frequent empty eructations, with feeling of discomfort in stomach. After dinner a pappy evacuation of an orange-yellow colour. In e. indisposition to mental occupation. Sleep extremely restless, not refreshing, interrupted by many vivid unpleasant dreams. In m. on waking, feeling of weariness and prostration. These phenomena showed themselves, only less intensely, also during the two following d. On both d., however, there was no stool; and that which followed on the 3rd d. was hard and insufficient. (*Ibid.*)

4. Dr. FRÖLICH took at first (March 24th to 31st, 1843) daily

early in m., fasting, 3 dr. of the 6th dilution, but noticed no morbid phenomena afterwards. Just as little result followed a second attempt, in which he took for 10 d. early in m., fasting, 10 gr. of r_2 trit. with water. A third attempt began with drinking, Nov. 10th, early in m., fasting, 3j dissolved in water. In afternoon, feeling of fulness in hypogastrium, lively grumbling in l. groin and frequent emission of flatus occurred. On Nov. 11th he again took 3j. In the succeeding n. he had a vivid dream. On the 12th, $\frac{1}{2}$ h. after taking a similar dose, feeling of nausea, soon passing off. In afternoon for 5 m. continued sticking corresponding exactly with spot against which apex of heart strikes (not influenced by breathing). In e. transient nausea with feeling of fulness and tension in hypogastrium. In n. vivid, connected dream. A similar dream occurred in following n. after taking in e. 3j. On 23rd, at 11 a.m., he took again a drachm. An h. after a moderate dinner he was seized with very painful stitches in cardiac region lasting for some m. After a similar dose on 24th he had in n. very lively and connected dreams. On 25th took 3ij, thereupon painful sticking in cardiac region coming on after continued loud speaking. 26th and 27th.—No medicine and no symptoms. 28th.—Again took 3ij. In e. on walking in the street, violent stitch in cardiac region so that he stood still with fright and instinctively pressed painful spot with hand. Nov. 30th and Dec. 1st, once more 3ij. The evacuations appeared during the time of the last experiment very irregularly and of varying consistence. (*Ibid.*)

5. Dr. HAMPE communicates to us by letter the two experiments which he made with common salt. We keep to the words of the original:—"I am 40 years old, of sanguine, choleric temperament, powerful, thickest frame, and enjoyed to my 23rd year excellent health. About this time I was attacked, in consequence of a chill, with rheumatism, which recurred ever after for many years on the most trifling occasion and in the most varied forms, once even the cause of paralysis, of 8 d. duration, of the facial muscles of the l. side. For 4 or 5 years I have been quite free from this, and, moreover, with the exception of an herpetic affection (which will be more fully described below) perfectly well. Fifteen years ago an intermittent fever, which attacked me in Banat, and accompanied by which I was obliged to travel for two months in the mountains of that region, reduced me very much, inasmuch as it frequently returned during a period of nine months.

a. "Proving with 6 gr. doses of 6th potency. April 2nd, 1843, took a dose at 10 a.m. No symptoms. 3rd.—7 a.m., soft, copious stool and again at 8.30 another profuse and more fluid evacuation with smarting in anus. 10 a.m., a dose, which I took every subsequent d. at nearly the same h. No symptoms except a remarkable diminution of sexual desire. 12th.—A very deep and unusual sleep after dinner on a chair. In e. ticking in l. ear as if from a watch for 10 m. 13th.—6 a.m., pain in r. ear as if one were pulling something out of it with a hook, for $\frac{1}{2}$ h. In e. at 9.30, urging to stool with copious evacuation. 14th.—7 a.m., copious evacuation of half-fluid feces with smarting in anus. 15th.—11 a.m., pressive pain in forehead and eyeballs, so violent that I could raise the eyelids only with effort and pain, and was obliged

to cease reading. After dinner pains increased to that extent that I was obliged to lie down. After $\frac{1}{2}$ h. I was better, but eyes were suffused with tears. After 2 h. same phenomena returned in same way. From 4 to 7 p.m., continued slight internal shivering. At 8.30 p.m., I enjoyed my supper and pipe quite well. Slept through n. quietly and felt perfectly well next m. 16th to 20th.—Took nothing. 21st.—8 a.m., took another dose. 22nd to 24th.—No symptoms. 25th.—Another dose; no symptoms. 26th.—Painfulness and swelling of gum behind l. upper middle incisor; sensitiveness of teeth in brushing them. 27th.—Same symptoms; stool more consistent.

6. "28th.—One scruple of pure crystallized salt. Gum about the first affected tooth is healthy, but same condition shows itself in gum of l. neighbouring tooth. Sensitiveness of teeth has ceased. 29th.—To-day gum of l. eye-tooth is similarly affected. After dinner, without previous fatigue, and contrary to habit, great sleepiness, so that I again slept for an h. in the chair. 30th.—Gum of last affected tooth gapes and is painful, but at noon is again normal." [Proving was now interrupted, but before its resumption in November, H— found that a prurigo papulosa of legs, of 6 to 7 years' standing, had disappeared.]

c. "Took, Nov. 12th, at 12.45 p.m., 2 scruples. 13th.—11 a.m., itching on hypogastrium for 5 m. At 11.15, 2 scruples. 14th.—Again 2 scruples. Usual stool in m. did not occur. At noon itching of short duration in r. calf, $\frac{1}{2}$ h. later on l. inner ankle for 10 m., then for some m. in l. calf. At 4 p.m., after scarcely noticeable warming and with much trouble, inasmuch as rectum did not assist, a very scanty semi-consistent evacuation. 15th.—In m. usual easy stool. At 11 a.m. 2 scruples. 16th.—10.30 a.m., again 2 scruples. In e. at 8 violent itching on inner surface of l. forearm near wrist for some m. As I examined it, two red herpetic spots showed themselves, of the size of a small lenzil. 17th.—About 5 a.m. I was awakened by pains in abdomen, especially in stomach, with dryness and burning along oesophagus up into throat, which, however, did not prevent me from again falling asleep. When I awoke at 7 a.m. my eyes were quite gummed up; at same time sticking and prising in l. eye. No redness, however, showed itself. One of the spots which appeared in the e. had gone; the other, examined with a lens, showed itself to be a cracked or torn vesicle, whereby the whole, examined by the unaided eye, had a rough, vesicle-like appearance. At 10.30 a.m., 2 scruples. After $\frac{1}{2}$ h. pinching around navel. 5 p.m., sticking in r. side of chest for $\frac{1}{2}$ h., which returned again an h. afterwards, and then lasted more than an h. 18th.—Took no med. 10 a.m., intermittent drawing from nape of neck towards occiput for $\frac{1}{2}$ h.; cramp-like pain in r. hip-joint, which became rather troublesome in walking. The drawing in nape of neck recurred in e. at 7 for $\frac{1}{2}$ h. 8.30 p.m., dulness of head, oppression in chest for $\frac{1}{2}$ h.; violent long-lasting stitch in l. knee, feeling as if a hair were lying lightly on inner edge of l. thumb towards wrist. From 20th onwards I took no med. The second red spot had quite disappeared by the 24th. On the 22nd I was seized with a fluid-coryza, which attacked on the 24th the eyes, the throat, and the larynx, and was united with dulness of head and great prostration; the chest

affection of which—short dry cough with feeling of dryness and soreness—has not yet quite disappeared. 28th.—It is remarkable that I had given no particular occasion for the above, and that the secretion from the nose ceased without its having assumed a yellow colour and thicker consistence." (*Ibid.*)

6. *Dr. ADALBERT HUBER*, surgeon in Reichenau, Bohemia, æt. 28, sanguineo-phlegmatic temperament, leading a simple life; was never seriously ill; as a child often troubled with an eruption on the head, latterly with a catarrhal affection of the throat every year, and when that omitted with inflammation of the gums; began his proving November 10th, in m., with ʒj of 30x dil., after which, however, he noticed no change in his health. The following d. he took ʒj of 25th dil. The same d., and particularly next m. in preparing a trituration, he noticed a sudden weariness of l. wrist and r. arm.* After 20th dil., taken on 13th, he was confused in his mind during whole d., and felt pressing pain in forehead. After 15th dil. (Nov. 15th in m.) there came on in n. great heat of body, followed by sweat, especially in head. 11th dil. (m. of 17th) excited during whole d. a kind of colic, which was relieved by emission of flatus. After 8th dil. (20th) prover observed in course of d. single stitches in hepatic region, sensitiveness of liver to pressure, stitches in penis towards glans, weakness of l. arm (felt particularly in shoulder-joint) so that he was not able to lift a pound weight with the outstretched arm. Weakness of arm continued during two following d. 23rd.—6th dil. was followed by pressure at præcordia, sensitiveness of latter to contact, painfulness of l. arm, especially in region of deltoid muscle and shoulder-joint. On being pressed, arm pained as if bruised, and joint would not bear least movement without pain. The phenomena disappeared gradually during 3 following d. After 4th dil. (27th) troubles occurred during urination. Urine was emitted in a weak stream and only during strong pressing. After a normal evacuation he got a troublesome dribbling of urine and pressing pain in rectum, as after a very hard knotty stool, so that he could not sit.

4. Dec. 1st, A. H.—took 15 gr. of 3rd trit. Soon after appeared inclination to vomit, weakness in e., trembling of limbs after slightest exertion, with more frequent pulse. 2nd.—ʒj of 2nd trit. caused throughout d. frequent micturition and much emission of flatus. ʒj of 1st trit. on 6th had same result. The frequent micturition lasted for next 2 or 3 d. The urine looked pale and clear, yet smelt strong and tasted sweetish. 10th.—A. H.—tried 10 gr. of pure salt. The following n. he was troubled with frightful and anxious dreams of murder and imprisonment. On awaking he found himself bathed in profuse perspiration and felt in m. very weak. The succeeding 4 d., excepting frequent pressure above r. nipple, he noticed no symptom. Repetitions of same dose on 15th and 20th remained totally without result. (*Ibid.*)

7. *Dr. A. H.*—further proved salt on 3 girls and a boy. A scrofulous girl of 7 began with 27th dil., which was reduced 3 stages each time as far as the 2nd and 1st trit. Frequent sticking and burning in

* Was this phenomenon not the natural consequence of the (perhaps unaccustomed) exertion during the operation?

forehead, tearing in canthi with darkness before eyes, and solitary stitches in hepatic region, were the few symptoms which ensued.

b. A healthy girl of 12 was seized whilst she took 30th to 20th dil. with violent vertigo as if intoxicated and stitches in region of liver. These symptoms frightened her from any further attempts at proving.

c. A scurvy boy of 12, who frequently suffered from bellyache and diarrhoea, on taking 28th dil. got bellyache again; after 23rd dil. distension of abdomen and burning around navel; after 13th dil. sticking in hepatic region lasting for 6 to 7 m.; lastly, after 3rd dil., sticking and burning in forehead, and burning, especially in fossa navicularis, during urination.

d. A girl of 19, sanguine, has menstruated three years, always healthy, took 30th down to 16th dils., but perceived nothing important. After 15th dil. she got pain in belly and giddiness. The latter recurred every moment. She was as if drunk, and during whole d. could not take a single step with certainty. The stool from that time forward was harder, rarer, and scantier. 10 gr. of 3rd trit. caused tearing in teeth up into temple, sticking in forehead (c.), pressing in stomach, a firm dry stool like sheep dung with violent stitches in the rectum, increased emission of urine (she was obliged frequently in the n. to micturate). After 10 gr. of 2nd trit. there followed next d. cough with tickling in chest, pressing in forehead, burning coryza, sticking in middle of chest, a soft stool twice. 10 gr. of 1st trit. produced on 1st d. heat in head, sticking in the forehead as if with needles, weakness of the stomach, nausea to fainting. On 2nd d. sticking in region of sternum at each respiration, shortness of breath, stitches in præcordia, worst during motion, cough with tickling in chest. The catamenia were delayed about 5 d. During this time she felt weak and prostrate, and her feet heavy. Ultimately the catamenia appeared, accompanied by violent pain in the hypogastric region, nausea, and inclination to vomit. (*Ibid.*)

8. *a.* WENZEL HUBER, surgeon, in Kleinzell, in Upper Austria, proved salt on himself, his wife, and three children. He began his experiments on himself Nov. 11th, 1843; he took the drug always early in m., fasting, diluted with water. 30th to 25th dil. showed no noticeable influence. After 24th dil. (17th) throughout whole d. there was slight pressing pain above eyebrows. 23rd and 22nd dils. (18th and 19th) were also without result. 21st, 20th, 15th, and 14th dils., which he took 20th to 23rd, made themselves noticed by a salt taste on the lips. So soon as the moist tongue touched the lips, it was as if it had touched salt water. Nov. 24th to Dec. 1st he tried a series of dils., the 13th to the 5th. The symptoms which he noticed thereupon were certainly in number but few; they, however, have distinctly the N. mur. character. The intense salt taste after the higher dils. (13th—10th) gave place in the lower ones to a clayey, insipid taste; tongue was coated white; hard palate for some d. is as if scalded, and pains on contact; sometimes he noticed an offensive smell from mouth; beer tasted bitter (in spite of this appetite remained tolerably good); stool either entirely failed or was firmer than usual and evacuated with trouble. At same time there developed itself on edges of eyelids a

regular catarrhal affection. They became red, burned, especially in e., when reading, and secreted mucus, which in m., on waking, gummed up eyes and formed into crusts. The 4th, 3rd, 2nd, and 1st trits., which prover tried on different occasions from Dec. 2nd to Jan. 4th, commencing with 10 gr. daily and increasing each dose by 10 or 20 gr. as far as 100, produced only a few new symptoms; feeling in anus as if a small, rough, pointed plug stuck in it, or as if anus was full, which was followed by frequent, but ineffectual, urging to stool; itching in scrotum, or between scrotum and thigh, obliging him to scratch; fulness and distension of stomach and bowels; heartburn; increased secretion of saliva; uneasy nights full of dreams; late in falling asleep, early awaking. The eye affection continues. During 1st trit. stool was very irregular, sometimes hard, sometimes soft. Diarrhoea appeared a few times. The taste showed itself occasionally saltish again.

4. Salt in substance, in doses of 10 to 40 gr., 5th to 15th Jan., did not enrich list of symptoms. Only the eye affection became worse, edges of eyelids and canthi (especially external) burned violently throughout whole d. and secreted much acrid fluid. He felt pressing pains in eyes as if they were inflamed. In reading he sees as it were through a fog. Was not disposed to work, especially to study. A drachm, on 16th, excited, soon after taking it, nausea and burning and fulness in stomach, subsequently offensive smell from mouth, and offensive flatus, hard inefficient stool, itching in scrotum and prepuce, unquiet sleep. After 1½ dr. there came feeling of burning heat and fulness in stomach, nausea, and inclination to vomit with accumulation of water in mouth. Nausea recurred frequently during d. He had moreover the whole d. pain in forehead. He felt himself weak. At the thought of the saline solution a shudder ran through him, with loathing and inclination to vomit. The burning, lachrymation, and secretion of mucus in eyes increased. He was frequently seized with contractive (spasmodic) pain about navel. After first dose of 1½ drachms (Jan. 17th) anus was swollen; the feeling of a plug sticking in it caused constant desire to stool; after 2nd dose on 19th diarrhoea came on twice. The majority of these symptoms appeared, although less intensely, throughout the subsequent 8—10 dr. The most obstinate symptom was the affection of the eyes. In the m. he perspired generally profusely, the sweat smelt sour. Throughout the whole duration of proving the sexual desire was remarkably diminished. (Wzl. H— is 43 years old, powerfully built, melancholic-phlegmatic temperament. Except the usual diseases of childhood, he was never seriously ill. He led, as country surgeon, a very active life, and exposed himself at all seasons of the year to every change of weather with impunity. His mode of living is very moderate. He takes nothing but soup as breakfast. His dinner consists of soup, veal or smoked meat, and vegetables. In the e. takes soup and potatoes. He drinks neither coffee nor wine nor beer. He smokes tobacco, however, almost the whole d.) (*Ibid.*)

9. The wife of the last prover proved common salt during a period of more than two months from the 30th dil. to 40 gr. of the raw material. She is forty years old. Descended from healthy parents, she was attacked as a child soon after vaccination by an inflammation

of the eyes which lasted for years. The catamenia appeared in the sixteenth year without any trouble. In her eighteenth year she became affected with the itch. Although the latter was cured partly by internal, partly by external remedies (especially sulphur), still the prover was not from that period perfectly healthy. Up to her twenty-fifth year, when she married, she had nozing nipples, which symptom disappeared during her first pregnancy. She recovered afterwards easily and successfully from nine pregnancies. After each confinement, however, there appeared on the back of the hand near to the roots of the fingers an herpetic eruption, which often lasted a year and a half; generally so long as until she was again pregnant. Also during the time she proved the salt it was present. Her diet is simple, without coffee, or spirituous drinks, or seasoned dishes.

a. The 30th to 20th dilutions—a lower dilution taken each day—from Nov. 11th to 21st induced no action. On Nov. 17th the catamenia ought to have appeared; they, however, remained away, most probably in consequence of becoming pregnant. 22nd.—15th dil. On touching the lips with the moist tongue there was a sour taste; uneasy sleep; frequent waking. 23rd.—14th dil. The same phenomena; sensitiveness of the gums to contact. During the 3 following d., in which the 13th, 12th, and 10th dils. were taken, the above symptoms gradually disappeared. 25th.—The stool which otherwise regularly occurred was absent. After 9th dil. (27th) the herpes was aggravated, with violent smarting and burning. After 6th and 5th dils. (Nov. 30th and Dec. 1st) a salt taste developed itself on lips and palate; the stool was hard and insufficient. After 4th trit. (Dec. 2nd to 8th), repeated in doses of 10 and 20 gr., and after 3rd trit. (9th to 14th) in doses of 10, 20, and 30 gr., the above salt taste disappeared again; stool harder than usual; nights continuously more or less uneasy, she awoke frequently and fell asleep again with difficulty. Nausea was felt during n. of 6th. Of 2nd trit. she took, Dec. 15th to 17th 20, 18th, 19th, and 20th 40 gr. On 15th chilliness in e.; cutting pain around navel at intervals at n.; towards m. pressure on chest, a soft stool, chilliness. On 16th during d. frequent intimations of contractive pains around navel. In n. these pains increased very much, and ceased only after a loose stool. Pains and looseness were repeated in course of n. 8 times. Chilliness even in bed and on getting up. Early in m. dulness in head and vertigo, so that she was obliged to lay hold of something. 17th.—The menses remained away for the second time. During d. chilliness, stupidity in head, heaviness and pressure in occiput. In n. again flying contractive pain in bowels around navel, with oppression of breathing. If the pain ceases, then single stitches occur from sacrum into thigh. Towards m. pressure on chest; it is as if cavity of chest were too narrow. On 18th, chilliness throughout whole d.; in n. pressure on chest, which towards m. became so violent that she was obliged to sit up in bed in order to be able to breathe. 19th, 20th, 21st.—Continued chilliness; conjunctiva and edges of eyelids became red and burning; throughout d. frequent attacks of vertigo; periodical pressing on chest, aggravated at n. and towards m., united with dyspnoea, and compelling her to sit up; at same time constant pain in abdomen in region of

navel, of contractive kind; sometimes stitches from sacrum into thigh, a kind of ringworm of the size of a penny piece showed itself on thighs, belly, and arms. From Dec. 22nd to Jan. 8th, she took 1st viz. in doses rising from 10 to 30 gr. daily. The above phenomena, which continued throughout whole time with more or less intensity, were accompanied with feeling of great weakness, early before rising, disappearing after getting up during first days of proving, but at last continuing whole d.; swelling (knotty) of breasts, so that the least contact was painful; tip of nose became red, hot, and painful,—subsequently there appeared on nose a group of vesicles size of a pin's head, which filled with transparent lymph; at last these united and formed a scab. The ringworm increased from day to day. The breast symptoms on 21. were so violent that in order to breathe she was twice obliged to rise out of bed. On last d. of proving (Jan. 8th) she had a peculiar sensation in the hip-joints; it appeared to her in moving and turning the body as if the heads of the bones came out of the sockets.

8. Jan. 9th.—Prover began with salt in substance. She took on this and the following d. 5, from 11th to 16th 10, on 17th 20, and on 19th 40 gr. On 9th, throughout whole d., chilliness and weakness; only with trouble remained out of bed; cutting in belly around navel; difficult evacuation of a soft stool, she was obliged to press violently at the time; sensitiveness of breasts; transient attacks of palpitation of heart; difficult falling asleep; frequent dreams. 10th and 11th.—Same phenomena. 12th.—There was added increased secretion of mucus in genitals. 13th.—Early in m. on rising from bed spasmodic pains proceeding from navel, becoming of drawing character in sacrum, and terminating as stitches in hips and thighs. 14th.—The yellow thick scab fell from the nose without leaving any cicatrix behind. Otherwise phenomena of d. before. Mucous discharge from genitals increased up to 19th. It was white. At same time frequent tickling in anus and stitches through rectum, so that she was forced to cry out. The catamenia remained away for the third time. The herpes disappeared, and arose again in other places, most numerously between the breasts. The spots are from size of a lentil up to that of a penny piece, and itch, particularly on becoming warm. 40 gr. produced, soon after taking, flow of water in mouth and loathing,—symptoms which were repeated next m. without medicine. At same time great weakness, which forced her to lie down. The symptoms in breasts and abdomen disappeared towards 22nd. On this and following d. she complained of coldness of feet; little finger and ring finger, likewise whole of l. foot, were for 1 h. as if paralysed, gone to sleep, and numb. The discharge from the genitals gradually diminished, and by 30th had almost entirely ceased. The sexual desire was during the whole of the proving suppressed. Up to Jan. 21st the herpes had spread over the whole body. It had at the end of the month, at the conclusion of the report of the proving, not yet disappeared. (*Ibid.*)

10. Wsl. H.—his three children took the dilutions, the triturations, and the raw material of common salt in the same order as himself, only each of them each time 50 dr. of the dilutions and 5 gr. of the triturations and of the raw salt.

2. CARL, æt. 9, melancholic, dark, strong, large-boned, plump, hardened to heat and cold, never seriously ill, was affected neither by the high nor the low dilutions; even the raw salt, which he took sometimes exceptionally also in 10 and 20 gr. doses, produced not the slightest disturbance in his feelings.*

3. EMILIE, a lively, fair-haired, blue-eyed, delicate girl of 5, always healthy, showed no indications of the action of salt from the 30th to the 13th dil. (Nov. 11th to 24th). After the 12th dil. (25th) she complained of smarting and itching in different parts of the skin, which lasted till Dec. 7th, on which d. solitary herpetic patches appeared all at once on several parts of the body. (She took from Dec. 2nd the 4th trit.) These disappeared after scaling off generally by the 8th or 12th d., only to give place to others, and this continued through the whole period of the proving. On the 13rd there were thirty of them present. Jan. 9th (5 d. after she had begun to take crude salt) edges of eyelids became red, eyes in m. adhered together with scabs. This symptom continued till 16th. The ringworm totally disappeared by Feb. 3rd.

4. GUSTAV, æt. 4, resembling in temperament and constitution his sister, healthy with the exception of an herpetic eruption about l. eye,† had similar ringworm on the body to Emilie while taking the dilutions, only they were in his case much more numerous. Dec. 8th.—He received of the 4th trit., instead of the usual 5, by way of exception 10 gr. He was indisposed the whole d., easily offended, and cried on the least provocation. 15th (2nd trit.).—He complained much of smarting and itching at anus. He was at same time very ill-humoured, and cried readily. In e. he ened out that there was a needle in anus. Examination showed a living worm (oxyuris). On the following d. there were several more live worms discovered. The smarting and itching continued till 20th, only in less degree. On Jan. 3rd he complained again of violent sticking. Another worm was found. He had up to the end of the proving frequent twitching in anus, although no more worms showed themselves. None were found in the stools during the whole time. The ringworm had not completely disappeared 4 weeks after. (*Ibid.*)

11. Dr. WILHELM HUBER began Nov. 5th, 1843, with the 30th dec. dil. He proved on two consecutive occasions (the second time reducing by fives) the whole of the dilutions down to the first, and then began with the raw material itself; and after he had repeatedly

* Six weeks after the termination of the proving Carl showed ringworm over the whole body, so that he appeared to his relations just as if he were pickled.—Wzt. H.

† This eruption had appeared on the boy a year before. The skin round about the eye was red. On this basis appeared many small, somewhat pointed vesicles. These filled at first with a transparent, thin, yellow fluid, burst or were scratched, and formed on drying scurfy scabs. After falling off the skin below showed new vesicles. By-and-by the skin commenced in the middle of the eruption to crack; from out of the cracks water oozed, which thickened into scurfy scabs. The lower eyelid was swollen, its conjunctiva slightly reddened. The eruption disappeared after the use of several doses of sulphur in the course of six months, but four weeks prior to the commencement of the proving again appeared. G. remained unchanged during the whole of the proving, only towards the end of it he appeared to diminish somewhat in bulk.—Wzt. H.

tried the latter up to half an ounce a d., he terminated his proving Jan. 19th, 1844.

a. The first 10 d. trial, during which W. H.— took the 30th, 20th, &c., according to their order, as far as the 14th dil. daily, once or twice in m., or m. and e., produced either none at all or very few symptoms, viz.:—“Frightful dreams of people being murdered (after 30th); extreme liveliness in m. after waking unusually early (20th); cramp-like tension in inferior maxillary joint (19th); transient thread-like stitch behind sternum (26th); dryness of mouth, increased thirst, pressing heavy scraping feeling like commencement of heartburn in stomach, nausea, disposition to vomit, flatulent distension, rumbling in bowels, frequent yawning (23rd, 22nd, 19th, 16th, and 15th).” “The time of the appearance of these phenomena varied from $\frac{1}{2}$ — $\frac{1}{4}$ h. to half a d. Generally they rapidly disappeared in a few seconds or minutes.” “From the 14th dil. down to the 1st trie, the symptoms increased and gained, though not in exact proportion, in durability and in characteristic distinctness. After 3j of the 13th there appeared (in $\frac{1}{2}$ h.) dryness of mouth; tension and digging deep in r. hypochondrium as far as back, for some m.; $2\frac{1}{4}$ h. after, pressing in stomach as if from stone, with much yawning; an h. later painful stiffness in nape of neck, worse on moving head, with simultaneous fine stitches in first and second molar and painful drawing in a hollow of upper jaw left by a tooth. 3j of the 12th taken in e. of the same d. caused (2 h. after) crawling, drawing and fine sticking in tip of r. index and thumb; $2\frac{1}{4}$ h. after, strong distension of abdomen; 3 h., cramp in l. calf, after which, along with loud rumbling in abdomen, pressing and tension in region of r. hypochondrium as far as back, relieved by emission of flatus; * $3\frac{1}{2}$ h., fine electric-like stitch in hepatic region, and $\frac{1}{4}$ h. later pressure in stomach and distension of abdomen. After 3j of the 11th (Nov. 16th, m.), first a cramp-like drawing in r. forearm towards joint of the radius, after which colic-like flatulent movements in region of lower ribs for 3 m. As these went off the distension diminished or became less. An h. later fine piercing stitches darted through sphincter ani. At same time hypogastrium, and particularly r. inguinal region, was painfully tense. 5 m. after, 5 or 6 fine pecking stitches deep in region of r. kidney. In e. of the same d., W. H.— took 3j of the 10th. An h. after he felt whilst sitting as if r. inguinal region was swollen. In coughing it was as if a portion of bowel pressed firmly on that part. Later there appeared pressing in stomach and frequent loud rumbling in belly. After 3j of the 9th (m. of 17th) digging and crawling in tip of r. thumb as with fine point of a needle (for 20 seconds, returning in a few m.); $\frac{1}{2}$ h. after nausea and heartburn with pressing in stomach. The pressing extended to the spinal column and was increased by inspiration. After 3j of the 8th (in e. of same d.), drawing and tension underneath l. great toe, returning several times at short intervals; $\frac{1}{4}$ h. after, sensation of pressure and fine needle-like stitches deep in region of r. kidney (as after 11th dil.); violent stitch along urethra; $\frac{1}{2}$ h. after, stitch in tip of r. index; 5 m. later

* This last phenomenon continued $1\frac{1}{2}$ m., ceased several m., and frequently returned.—W. H.

extremely painful stab as if from a knife in fossa navicularis; almost simultaneous itching in inner l. canthus, obliging him to rub it, and feeling of hardness in r. hypogastric and inguinal regions. (This latter symptom lasted the whole e.) An h. after, stitch in r. inguinal region; drawing boring pain in r. half of forehead; 7½ h., slight heartburn, feeling of distension in stomach; prickling crawling in tip of r. thumb; 2½ h., nausea, heartburn, pressing in stomach as if from stone, inclination to vomit, distension of belly, frequent yawning. The symptoms last named lasted ½ h. whilst sitting quietly, and ended with emission of flatus, to which loud ringing in ears was suddenly added. The following n. proved slept well, woke, however, contrary to his habit at 4 a.m., quite lively and as if he had slept enough. A few m. after waking, he felt a gentle sticking and digging in tip of r. thumb and ring and index fingers, followed by threatening heartburn; he then slept again quietly till 7 a.m. 3j of the 7th, which he took directly after waking, remained totally inactive with the exception of a beating cramp-like pain above l. external ankle towards tendo Achillis (during the siesta).

3. At 4 p.m. took 15 gr. of 6th trit. In ½ h. crawling in tip of r. thumb; lips and mouth became dry; 2½ h., pressing and scraping in stomach as if spoiled; then heartburn, as from a red-hot cinder, lasting ¼ h., and a few transient tearing stitches in r. index. Next m. (19th), as he repeated same dose same phenomena appeared in same order. The pressing in stomach, which oppressed the breathing, was accompanied with rumbling in epigastrium, dull pressure in back close to last dorsal vertebra, transient threadlike stitch below sternum running along its edge, and subsequently painful distension below navel (like flatulent colic), relieved in ½ h. by emission of flatus. On e. of same d. he took 15 gr. of the 5th. Thereupon appeared in course of 6 h. these symptoms in the following order:—Distension of abdomen; hard pressing in the hypogastric region; on breathing deeply feeling as of tense band around hypogastrium; cramp in calf returning regularly at short intervals; transient stitches in r. groin; painful tension of tendons on l. side of popliteal space while sitting quietly; frequent fine stitches here and there in skin as if nettlerash were breaking out; bursting as of small bubbles, creaking and crepitation in r. ear, lasting 1½ h.; at last violent contractions of heart with intermittent pulse and feeling of oppression in lower portion of pectoral cavity, as if lung had not sufficient space to expand itself (½ h.). The same dose repeated on m. of following d. (20th) caused only feeling of nausea as if from an empty stomach; later, pressure in stomach and pinching (aggravated at intervals) in r. groin. 15 gr. of the 4th (taken on e. of 20th) produced dryness of hard palate and slight heartburn, repeated on m. of 21st, with painful pressure in stomach which at times oppressed breathing and continued 1—2 m., then ceasing 4—5 m., and again returning, was troublesome whole forenoon. This (cramp-like) affection of stomach returned in following e. after W. H.—had taken in same way 15 gr. of the 3rd, only more violently. Pain extended across region of inferior r. ribs as far as back and shoulders. It returned again 10 times with frequent yawning; even after he had slept quietly, on awaking

next m. (22nd) it occurred again several times. W. H.—again took 15 gr. of 3rd. The affection of stomach just described soon returned again, and once more 2 h. later. Besides this, yet independent of the affection of the stomach, at all events not simultaneous with it, there appeared after this dose:—Itching gnawing inclining to rub in tip of r. thumb; distension of abdomen with feeling of nausea; stitch through pectoralis major in direction of shoulder-joint; transient stitches at first in inner ankle, then in r. tendo Achillis; violent stitch over symphysis pubis towards r. groin. The above dose was repeated at 4 p.m. The following symptoms appeared in the 3rd and 4th h. after its exhibition:—Crawling in tip of r. index; pressing pain below sternum, immediately after which the stomach cramp of yesterday and early to-day (4 periodical attacks, which though longer were less violent than previous ones); transient stitch in region of r. eyebrow horizontally through brain; after which again stomach cramp for 2 m. The following n. W. H.—slept well; awoke however in m. (23rd, 4 a.m.) much too lively, and felt at once itching sticking in r. great toe, then 18 painful stitches below r. clavicle (from before backwards); several fine gnawing itching stitches in r. heel, and at last a very sensitive stitch deep in r. nostril. He tried this m. the 3rd trit. once more. Sensitiveness of r. spermatic cord; sticking as if from a fine splinter in palmar surface of r. thumb; transient stitch in r. ankle—were the symptoms which he afterwards noticed. 3ss of the 2nd, which he took towards e. of same d., resulted only in feeling of nausea with frequent yawning, and transient stitch in r. shoulder-joint. After repeating same dose next d. (24th) he felt pressing in stomach, with fits of nausea and loud rumbling in belly lasting 5 m.; then for ½ h. cooling burning in the stomach, which gradually died out; lasting cramp-like tension in tendons of back of l. wrist. In this way the prover at last came to the 1st trit. He took in m. of 25th 3ss. (An h. before taking it he suddenly felt an extremely violent stitch in 2nd phalanx of r. index; it seemed as if part would be torn off.) Beyond a transient stitch in hepatic region (after dinner) and several extensive stitches in front and middle of r. thigh and below nail of l. thumb he noticed on this d. no symptoms. They appeared so much the more numerous, however, on the repetition of the same trit. (26th and 27th, 3ss, 28th, 3j). They are summed up as follows:—Feeling of dryness in mouth; mouth is moister than usual whole d.; mouth is suddenly filled with tasteless fluid; in e. when masticating a fine stream of clear saliva spouted out of his mouth;* pressing in stomach; rumbling in epigastrium; after dinner and a walk in the open air nausea, proceeding from stomach, lasting an h., with frequent yawning, thirst, increased flow of saliva in the mouth and prostration of body and mind,—at same time transient stitch in tip of l. thumb and cracking in l. ear, with feeling as if tenacious moisture were flowing out of latter; weakness of

* In the home of the prover—the Austrian frontier of the Budweiser district in Bohemia—the country-people are in the habit of applying kitchen salt as a remedy for nausea, when accompanied by water-brash (they call it *Merzkrampf*), and with good results. W. H.—himself has once in his youth instantly removed the evil with one single dose.

memory; great distraction; fine stitches in *r.* meatus auditorius; tension in *l.* sterno-mastoid, with simultaneous roaring in ear, after a walk; in *m.* in bed, violent drawing tearing pain in tendons above the inner *l.* ankle, immediately followed by a quite similar pain in tendons above wrist joints; cramp-like drawing in *l.* arm, just above the processus anconæus (resting) and on inner surface of radius above both wrist-joints; sticking drawing in *r.* tendo Achillis; in *n.* of 29th—30th very violent drawing tearing pain in region of *l.* ischiatic notch, and immediately afterwards similar pain below head of *l.* fibula. The sexual inclination was throughout the entire proving unusually small.

r. So early as Dec. 3rd of this year W. H.— began a new series of experiments with the attenuations. From 3rd to 6th Dec. he took daily *m.* and *e.* 20 gr. of 30th trit. The result was (3rd and 4th) drawing sticking pain, frequently recurring, on palmar surface of tip of *r.* thumb, and especially of *r.* index, during rest; sometimes a similar pain below nails and at their roots; (5th) after same, pressing in stomach, as if from a stone,* with feeling of nausea, accompanied with an extensive stitch above the symphysis pubis towards *r.* groin; same *e.* a drawing pain in region of *r.* inferior ribs towards back, as if from a round but rough body, lasting several *m.*; (6th) in *e.*, drawing bearing pain as if from commencing suppuration in tip of *r.* index, with frequent emission of flatulence. 7th to 9th, 30 gr. daily *m.* and *e.* of 25th. 7th.—Half an h. after *e.* dose fine stitches at measured intervals, occurring simultaneously with pulse deep in region of *r.* kidney (comp. 16th and 17th Nov.); followed by drawing sticking pain, repeated at short intervals, in metacarpal joint of first phalanx of *r.* thumb; 3 h. later great distension of epigastrium, with pressing and pain in stomach, as if from fine needle-points, which appeared to penetrate from stomach to below breast-bone in taking deep breath. 8th.—Taking of *m.* dose was followed $\frac{1}{2}$ h. after by loud grumbling and rumbling in *l.* side of breast close to stomach; subsequently drawing sticking pulsating pain in metacarpal joint of *l.* thumb, and fine flying stitches here and there in skin, particularly in middle of anterior surface, of *r.* thigh, like electric sparks, leaving behind unpleasant feeling of coldness (comp. Nov. 19th). 9th.—In forenoon, violent stitch in abdominal wall $\frac{1}{2}$ in. from navel on *r.* side; cramp-like drawing sticking on inner surface of *l.* leg followed by a few violent stitches in first phalanx of *r.* index along with strong electric shock of whole of *r.* arm. During dinner he felt on inner surface of *r.* cheek an open blister in which the warm food caused a burning pain. Afternoon, frequent prickling crawling in 3rd phalanx of *r.* index. 10th—12th daily, *m.* and *e.*, 30 gr. of 30th. 10th.—During whole d. scratching in stomach, as if he had eaten something indigestible. 11th.—Sensation in rectum, as if a foreign body or rough hard faeces were lying in it, with uninterrupted looseness of bowels. 12th.—No symptoms. 13th to 15th.—Twice daily 30 gr. of 15th. 13th.—Throughout d. much accumulation of saliva in mouth. Next *m.* he awoke suddenly from intolerable

* Remarkable is the connection between the affection of the stomach and the tip of the index finger and the thumb of the *r.* hand, which showed itself throughout the whole of the proving.—W. H.

itching in anus, which extended as far as neck of bladder and prostate gland and continued 7—8 m. 14th.—During d. mouth unusually moist. At n. woke suddenly with violent urging to stool; it resulted in a thin pappy stool, followed by painful distension of abdomen above symphysis pubis, as if from flatulence. At same time he felt very weak; tongue was stiff and, like hard palate, uncommonly dry, pulse accelerated, small and weak. In tip of r. thumb he experienced a prickling crawling sensation. In $\frac{1}{2}$ h. he fell asleep. Next m. he had another diarrhoeic stool. 15th.—Throughout whole of d. scraping feeling in stomach with white-coated, dry, stiff tongue, without thirst. Toward e. cramp-like drawing in r. femoral region; looseness of bowels. 16th and 17th, m. and e., 30 gr. of 10th. 16th.—Forenoon, prickling itching in tip of r. index; fine stitches in r. tonsil; twitching in anus. In e. in walking stitch from horizontal ramus of pubes through r. hip-joint; 10 m. afterwards, sitting, similar but weaker pain in same place in l. side. About 11 p.m., diarrhoeic stool. About 3 a.m. he awoke with urgent desire to go to stool; latter was yellowish brown and pappy, and smelt strong, followed by distension of abdomen, with loud grumbling and feeling of hardness. In turning over he noticed a sound proceeding from stomach resembling croaking of a frog. At same time he felt weakness and inquietude in whole body; tongue and palate were stiff and dry. On attempting to fall asleep half r. side of body was shaken as if by a violent electric shock. An h. after he quietly fell asleep. At 7 a.m. there again occurred urgent desire to stool, and diarrhoea with much flatus in long streams, grumbling and feeling of hardness in belly. 17th.—About 11 a.m. a diarrhoeic stool; after dinner pressing in stomach, dryness of mouth, frequent loud rumbling in epigastrium. 18th and 19th, m. and e., 30 gr. of 5th. 18th.—In course of d. two diarrhoeic evacuations. E., flying stitches in r. spermatic cord as far as testicle. At n. again diarrhoea, followed by prickling crawling in tip of r. index, alternately with itching in anus, as if an insect were creeping out; sticking in tendo Achillis first of r. then of l. foot; at last colicky pain in hypogastric region, as if from flatulence. 19th.—Towards e. stitch in r. pectoralis major, as if from an electric spark; an h. later similar pain in r. nipple, followed by feeling of tightness, as from a band, in lower third of chest, with difficult breathing; tension and sensation of stiffness in l. sterno-mastoid; frequent yawning; cramp-pain in metacarpal joint of r. thumb; fine stitch in abdominal integument $\frac{1}{4}$ in. to left of umbilicus, alternating with a similar one in middle of anterior surface of thigh; drawing pain in r. ear. 20th.—In m. 60 gr. of 4th, in afternoon 60 gr. of 3rd. In forenoon, in course of 3 h. much accumulation of saliva in mouth; pressure in stomach; distension of belly; loud grumbling in l. side of abdomen; pain in hypogastric region, as with flatulent colic; frequent yawning; cracking in l. ear on swallowing; sensitive stitches deep in root of nose towards r. frontal sinus; stitches below nipples; drawing sticking pain in metacarpal joint of r. thumb; after dinner diarrhoea. Afternoon (1 h. after dose) sticking below l. nipple; $\frac{1}{4}$ h. later, fine stitches in l. external canthus, as if there were sand in it; 2 h. after, diarrhoea; at last feeling of soreness in l. nostril with difficulty in inhaling air

through it. Throughout whole d. he had sensation in tongue, as if he had eaten something astringent which blurred sensitiveness of papillæ.

d. Dec. 21st, 9.30 a.m., took ʒ scruple of kitchen salt. 5 m., feeling of scraping and pressure in stomach, loud rumbling and grumbling in l. side of abdomen and about stomach, with loathing and frequent yawning; 3½ h., frequent painless twitching in muscles of l. side of chest, below axilla; 5 h., sensation in anus, as if small air-bubbles were passing through, one at a time; ¼ h. later, in lying, tension in cardiac region, followed by a sudden extremely violent concussion of whole l. side of body; prickling and crawling in tip of r. index; and such weakness in thumb, index and middle finger of r. hand that he could scarcely hold the pen (lasting 10 m.). In e. great relaxation of body and mind, distraction, dull absence of thought, accompanied with pressive pain in stomach and frequently repeated fits of nausea. Slept well during n. till 4 a.m., when he had very violent contractive pain in hypogastric region, lasting several m. and returning (every 15 m.) 3 times; tingling, as if asleep, in thumb, index and middle finger of l. hand (they were as if dead for 5 m.); thereupon painless twitching in l. pectoralis major and fine stitches below skin in hepatic region; lastly emission of stinking flatus. About 6 a.m., call to stool and evacuation of a pappy, yellowish-brown, very offensive stool, mixed with little whitish-grey lumps (almost like masses of tubercle). 22nd.—9 a.m., another scruple. 15 m. after, grumbling in epigastrium (often during d. and always returning with yawning); during whole d. frequent crawling in tips of fingers and fine stitches here and there in skin. 23rd.—9.45 a.m., 3ss. 5 m. after, tension in l. groin, with rumbling in belly; ½ h., gentle drawing in l. tonsil, simultaneous cramp pain and roaring in l. ear (for 10 m.); 2 h., drawing tension in middle of anterior surface of l. thigh, hindering walking; 2½ h., pressure in stomach and in hepatic region, with contraction of chest and frequent flow of saliva in mouth; yawning; an itching stitch in heel; 2½ h., thin, almost diarrhetic stool, thereupon loud grumbling in belly, heartburn, and pressure in stomach (lasting several m., frequently returning at short intervals). The pressive pain extended from stomach as far as back, and caused slight contraction in pharynx; at same time head was dull and clouded, and prover was overpowered by a very peculiar irresolution even in regard to the most indifferent things. 3¼ h., pressure and tension on spot size of a thaler, below r. false ribs, for 3 m.; 5¼ h., transient stitch from nape of neck into occiput and two very penetrating stitches in l. thigh in neighbourhood of scrotum; digging pain above l. eyebrow deep in brain; 6½ h., thread-like sharp stitch penetrating from below upwards in r. edge of scapula (comp. Nov. 8th); 7 h., transient stitch in l. internal canthus, alternating with a similar one in the ramus of r. ischium; twitching in inferior orbital ridge of r. eye. In e. tension in nape; stitch in l. great toe; prickling itching in orbital ridge of l. eye (towards external canthus); digging pain deep in hepatic region. In sitting sticking, cutting, extremely violent and lightning-like pain shook whole body, which began behind the anterior spine of r. ilium and spread partly downwards over trochanter towards anterior and external surface of thigh, partly upwards across

back as far as neighbourhood of scapula; a few m. afterwards there appeared an itching and crawling in first phalanx of middle finger. In m. after waking, a similar sticking cutting pain as on previous e. shook body, which, however, proceeded from l. hip; $\frac{1}{2}$ h. later, fine sticking in back of thumb close to root of nail coming with each beat of pulse and frequently returning, thereupon (after a very thin stool) a similar itching sticking on dorsum of l. foot. 24th.—Took in m. another ʒss. Immediately after taking it, shaking, loathing, with rumbling in the belly and frequent yawning; an h. after feeling of chilliness in whole body, with frequent shivering, and accompanied with loathing and yawning; prickling itching in r. ridge of lower jaw; 2 h. after burning in stomach, with oppression of chest; frequent yawning; 7 h. after stitch as if with a needle in root of nail of r. great toe; 13 h. after similar stitch in r. patella; spasmodic pains in l. side of belly, lasting 1—2 m., relieved by emission of flatus, frequently returning at short intervals. On following m., 25th (without medicine), prickling crawling in tips of several fingers; violent stitch extending from l. clavicle down side of breast; in course of d. and even next, 26th, great sensitiveness of teeth (particularly in lower jaw) whilst inhaling air; raw place in inner surface of r. cheek, causing burning pain in contact with warm food; irritability of edges of eyelids and their mucous membrane. 27th.—In m. ʒj. Soon after taking it strong rumbling in l. side of belly. Little appetite at noon. In afternoon stitches in l. heel. In e. painful pressure in stomach with oppression of breathing and feeling as if diaphragm were pressed against lungs and thereby hindered their expansion, with frequent yawning, and rumbling in belly. 28th.—In m. ʒiss. 2 h. after, loathing with shuddering, which recurred repeatedly even at the thought of the medicine taken; towards noon diarrhoea, with loud rumbling in epigastrium; later, pressure in stomach and hepatic region with constant rumbling in epigastrium; dull pressure in occiput and nape (l.) continuing $\frac{1}{2}$ h.; squeezing, drawing, sticking pain in l. groin; diarrhoea again in e. with subsequent strong rumbling in belly. From Dec. 29th to Jan. 13th medicine was suspended. The diarrhoea came during the next 4 d., each d. a few times. On the 5th d. the urine (which had hitherto been quite clear and normal) showed a dark green colour (as of an infusion of marsh mallow); during its emission it caused slight burning. The whole d. proved was troubled with pressing pain in stomach and liver. The pressure was aggravated periodically, and was felt as far as the back. These symptoms increased in intensity during the 2 following d. The pressure in the liver and back close to the spinal column became very painful; the urine became as black as a saturated infusion of roasted coffee and perfectly opaque (*urina ictericorum*); the colour of the skin, however, showed no alteration; at night he frequently awoke on account of repeated accumulation of saliva in the mouth. Only 8 d. after did the urine become again clear and of a natural colour. The hepatic symptoms were accompanied temporarily by pains in separate circumscribed parts of r. side of chest.

c. Jan. 14th, 1844, took ʒss. Throughout d. frequent loud rumbling in r. side of chest. In e. (after a short walk) great weakness in all limbs, especially in arms, with feeling of faintness in stomach and great

inclination to sleep; constant grumbling in l. side of belly; pressive sticking in the back close to spinal column corresponding to part of posterior surface of liver. The stitches appeared periodically every 4 h. and extended as far as below r. scapula. Thereupon frequent yawning; fine stitch in tip of r. index; chilliness, as if from taking cold, over whole body; great sensitiveness of teeth, especially on r. side, to air. Next m. much accumulation of saliva in the mouth with frequent spitting. 15th.—In m. took another ʒss. In e. frequent emission of flatus with odour of rotten eggs. 16th and 17th.—In m. ʒj. On 16th frequent loud rumbling in l. side of belly, with flying stitches below l. scapula. 17th.—Pain as if strained in r. pectoralis major in moving; 1 h. later, p.m., drawing-sticking below upper part of sternum; looseness of bowels; at n. flow of water out of mouth. 18th.—In m. ʒij. In ½ h. loathing, inclination to vomit, increased flow of saliva, shivering; 1 h., pappy stool. The whole forenoon shivering, absence of thirst, increased flow of saliva and frequent spitting; at same time unfitness for mental labour, want of ideas, stupidity. In e. prickling itching in back of r. index, and on lower edge of r. orbit, shivering, frequent yawning, rumbling and croaking in belly (continuing whole e.). 19th.—In m. took ʒss. With this dose W. H.—concluded his proving. Although the action of this dose, on his assertion, extended over an entire month, yet we find only those symptoms furnished which appear immediately after taking the medicine and during the 4 following d. They are as follows:—Shuddering and loathing, with burning at stomach and increased secretion of saliva (½ h.); pressure on chest, repeated shuddering, itching in r. external canthus, rumbling in abdomen, urging to stool, diarrhoea (an h. after); want of ideas, dulness of intellect. In e. pressure in back on l. side close to spinal column (corresponding to posterior part of l. lower ribs) as far as scapula (comp. Jan. 14th); pressure in stomach and in hepatic region. 20th.—The pressure in back and stomach was troublesome whole forenoon, accompanied by increased flow of saliva in mouth, rumbling in belly, and frequent yawning. In e. the same phenomena. Besides this, itching and fine stitches between acetum and l. thigh; sticking itching in l. internal canthus; several violent stitches in r. hip. 21st.—In m. painful spasm above symphysis pubis, appearing repeatedly; cramp-pain in r. temple extending into the teeth; urgent call to stool, which threatened to overpower the sphincter against the will of the prover. However it resulted merely in a pappy, dark brown, very offensive evacuation. Dryness in mouth. At n. after the usual draught of beer, painful colic in hypogastrium as from wind. 22nd.—Feeling of hardness in hypogastric region. At n. much flow of saliva. 23rd.—In m. thin pappy stool. In afternoon flying stitch from l. pectoralis major towards clavicle. In e. another thin pappy stool. 24th.—At n. much flow of saliva out of mouth and another thin pappy stool. (*Ibid.*)

12. Dr. REISINGER began his proving with the ʒx trit. After he had taken daily for 8 d. 25 gr. without the appearance of the least alteration in his state of health, he proceeded to a similar dose of the 2x trit. This appeared to him just as little productive as the former. He now took the 1x, fasting, 1 drachm daily. Beyond an insipid salt taste,

which continued for some time after its exhibition, slight griping in belly and pappy stools, he noticed nothing from this saturation also. All experiments with the dilutions, which he took in the course of 6 weeks, beginning with the 15th down to the 1st, in doses of 50 dr. daily, remained without result. At last he determined upon trying a saturated solution (of $\frac{1}{2}$ oz. kitchen salt in $\frac{1}{2}$ pint of water). He had scarcely swallowed this disgusting draught when he was seized with such a violent loathing that he immediately vomited it all up again. He felt indisposed the whole d., had pressive pains in head, insipid sour taste, accumulation of water in mouth, nausea, and inclination to diarrhoea. After a few d. of rest, during which his previous good health returned, he repeated the last experiment. The same phenomena reappeared. After he had subjected himself to a third proof, he experienced an unconquerable repugnance to the saturated solution. He consequently returned to weaker solutions, which, however, like all the previous small doses, evinced no action on him. Rg—therefore holds that he is insensible to the dynamic action of salt, and ascribes this to his habit of eating his food much salted. (*Ibid.*)

13. Dr. SIMON REISS proved salt on himself and his housekeeper, Marie E.—. Both provings deserve our respect in a high degree, even if accident should have supplemented the copious array of symptoms furnished by them. According to the character which R— sketches of himself, he is 33 years of age, melancholic-sanguine temperament, with black eyes and hair, pale brown complexion, big-boned, middle height, with inclination to corpulency; in childhood and early youth healthy, suffered from frequent pollutions in his adolescence, and became affected (probably in consequence of mercurial treatment after a chill) with rheumatic swelling of joints of wrist and fingers, which was followed, after twelve weeks of partly successful allopathic treatment, by hæmorrhoids that disappeared in a month. Only from time to time slight return of rheumatic symptoms showed themselves. Since his 30th year he has been, with the exception of a periodical almost monthly recurring discharge from the ear which lasted 1 to 2 d., quite healthy. His appetite is good. He drinks after dinner and supper wine and water, coffee twice a d.; smokes tobacco; has an evacuation every d. after dinner; sleeps well generally from midnight till 7 a.m., and has not subjected himself in his mode of living to any restrictions during the time of proving.

Nov. 14th—18th, 1843, took 3 times a d. 100 grt. of 30th dil. 15th.—11 p.m., call to stool with feeling as if rectum were forced out; hard friable stool; after stool shooting in anus, especially in walking; after midnight, sleeplessness. 16th.—Frequent emission of flatus throughout whole d. In e., 10 m. after taking dose, fine shoots in different parts of body, particularly in tip of r. thumb, l. side of navel, and thighs. 17th.—Frequent emission of flatus through whole d. Towards 11 p.m., pressure in r. eye; feeling as if a mist were before both eyes, returning 3 times in quick succession. 18th.—Frequent emission of flatus during whole d. About 1 p.m. unusually hard, dry, friable stool, without pain; copious micturition during stool; micturition every 10 m., with sensible shoots along urethra from behind

forwards. 19th—24th.—Every d. 100 gr. m. and e. of the 19th to 23rd dil. 19th.—After dinner hard, firm, unusual stool with tenesmus; less frequent micturition than on previous d., yet more than usual. 20th.—In forenoon, on walking, flatulence, with feeling as if looseness would come on. 3 p.m., urging to stool; stool scanty, hard. 21st.—Uneasy sleep, strong palpitation during sleep which awoke him. (It was better after a glass of water.) In m., while walking, itching in anus. Frequent emission of flatus, with feeling as if moisture escaped with every emission. Afternoon, feeling as if looseness would ensue; call to urinate, and six emissions of urine at intervals of $\frac{1}{2}$ h. soon after dinner. 22nd, 23rd, and 24th.—M., headache (after smoking), which continued whole forenoon, and only disappeared after dinner and drinking coffee; no stool. In e. particular appetite for fish; at first mouthful such loathing that it was impossible for him to eat more of it; on the contrary appetite for white bread, which was very tasteful. The loathing of fish first disappeared after drinking black coffee. 25th.—In m. 22nd, afternoon 21st, e. 20th dil. Tobacco is not at all tasteful 10-d. (the last few d. this was more or less the case). 3 p.m., stool with tenesmus, first hard dry stool, then soft; afterwards burning in anus in walking. On 26th, the 19th, 18th, 17th, 16th; on 27th, the 15th, 14th, 13th dil. 27th.—After dinner easy, very scanty, soft evacuation. On 28th, 12th, 11th, and 10th dil. Forenoon, frequent emission of flatus; pinching in belly as if before looseness of bowels; after dinner no stool; frequent micturition. On 29th, 9th, 8th, and 7th dil. After dinner soft stool. In e. in bed, 10 m. after taking med., burning in the scrobiculus cordis (this seemed to lie between stomach and external integument); immediately after feeling of weakness, like paralysis, of r. leg, so that he believed he could not move the limb; burning coldness (*sic*) in r. parietal. Dec. 1st, 2nd, and 3rd, the 3rd, 2nd, and 1st dil. 2nd.—E., burning in stomach (apparently in external coat); spasmodic contraction of stomach; paralytic heaviness in both hands as if asleep; in ring finger of l. hand, on side of middle phalanx, shooting pain, lasting about 10 m.; fine shocks in various parts of skin of whole body (resembling pricks with a needle), soon ceasing. Disinclination to coition (since 8 d.) 3rd.—Frequent micturition whole d.; frequent emission of flatus, particularly in forenoon. 4th.—20 gr. of 3rd trit. 5th.—In walking squeezing shooting obliquely through base of bladder, continuing several m.; soon after, shoots in rectum; frequent emission of flatus, especially in forenoon. For 2 h. after dinner every $\frac{1}{2}$ h. urging to urinate, with emission of clear pale urine, later at rather longer intervals, lasting on until e.; frequent chilliness in different parts of body throughout whole d. 6th.—Sour taste in mouth, continuing till e.; frequent micturition after dinner. On same d. in e. took 20 gr. of 1st trit. 7th.—In m., in bed, weakness and heaviness in limbs, disappearing after rising; cheerful humour; frequent micturition after dinner.

8. Dec. 8th.—Took 15 gr. of the raw material. 9th and 10th.—Took 3 drachms of same. 8th and 9th.—No symptoms. 10th.—Frequent micturition after dinner; stool loose, with tenesmus; thereupon shooting in rectum. 11th.—E., 4 drachms. 5 m. after taking the above

frequent yawning, recurring every m., which up till 9 o'clock became much more violent and ultimately spasmodic. After drinking wine it ceased. During the yawning constant nausea; weakness of hands; itching over whole head; fine stitches in different parts of body; frequent shuddering over body; pale complexion and lips; loss of appetite. Food has no taste whatever. After drinking wine several times taste returned, and appetite also was aroused; only there remained still great weakness and sleepiness, so that he was obliged to go earlier to bed than usual. 12th.—In m. hoarseness, without pain. 11 a.m., fine painful shoots through tip of r. thumb; in second phalanx of thumb pain as if dislocated. Distraction while conversing. 13th and 14th.—In e., about 7 p.m., 3 drachms, 15th.—Took same dose about 10 a.m. A few m. after that nausea and vomiting, with dryness in mouth and burning feeling in stomach; loathing of food; very great thirst for wine; after wine more appetite. After dinner call to stool; the latter was consistent. 11 p.m., again 3 drachms. Soon after, fine shoots in various places in body, rapidly passing off; shouting in sleep. 16th.—Frequent urination whole d. Urine pale, clear. 6 p.m., 4 drachms. 5 m. after yawned 8 times at short intervals; then accumulation of water in mouth and spitting of same; after that hiccough, alternately with yawning; ultimately hiccough only, lasting $\frac{1}{2}$ h.; all this time nausea and inclination to vomit, with total relaxation and weakness of body; contraction of skin in vertex; in l. half of forehead pressive pain; some h. after, great dryness of mouth; uneasiness in whole body, which allows no rest anywhere. He was morose, went to the theatre, but was obliged immediately to come out again on account of inquietude and discomfort; thereupon great weakness, particularly in legs. Desire for wine; he could scarcely wait till it was brought to him in the hotel; in a few m. he drank a pint with two pints of water. Unquenchable thirst; loss of appetite; loathing of animal and other food; avidity for bread. He ate four small loaves of white bread, with constant drinking and involuntary movement of muscles of mastication, and great appetite. Distension and swelling of abdomen, which prevented further eating. He still had good appetite, but only for bread, after which great sleepiness. He slept soundly. He was awakened about 1 a.m. On awaking, pappy taste in mouth, with much thirst. He drank 2 glasses of water, went out, came back, and slept quietly till m. 17th.—Frequent micturition whole d., especially after dinner. After dinner, in sitting, cramp pain in l. index and thumb (first phalanx), particularly if he leaned arm upon anything; soon after that same pain in r. thumb; weakness of hands. He was quite unable on account of weakness to play on the piano. Stool small, although there was feeling as if he should have an abundant one; shoots in skin in different parts of the body; frequent emission of flatus, offensive in m. but not after dinner; pale lips; dissolute look. Tobacco is distasteful. 18th.—After supper obtuse shoots in r. hand, especially in thumb and index. He could not keep hand still; it moved involuntarily as in chorea, at same time it was so weak that he was unable to hold cards in playing. Stool insufficient. 19th.—10 a.m., burning shooting in anus and feeling as if it were raw,

especially in walking. In e. he could scarcely sit on account of painful protruding piles. 11 p.m., 3 drachms. In bed yawning, hiccough, nausea; late falling asleep, early waking. On awaking r. leg was weak, as if he could not raise it, from knee downwards particularly. 20th, 5 p.m., tickling in larynx and short dry cough. Weakness during whole d. Was awakened towards 2 a.m. Whilst awaking, cough from tickling in larynx. Each time he expectorated a considerable quantity of frothy saliva. The inclination to cough was increased by lying on back. Yawning alternately with coughing. 4 p.m., cutting in abdomen, quickly passing off, with urging to stool, as if looseness would come on; however, there came only 2 consistent lumps; after that tenesmus; dull shoots below r. nipple, likewise in belly to r. of navel; squeezing pain in second phalanx of l. thumb. About 6 a.m. all the symptoms ceased, and he slept on quietly. 21st.—17 p.m., great inquietude in legs, beginning at knees, which would not allow him to sit. He was compelled to rise and walk about, on which the uneasiness always went off. 22nd.—Made a journey into the country. About 6 p.m. in the carriage frequent fits of yawning one after another, thereupon hiccough six times; tickling in throat, which provoked coughing; dry cough for an h. 11 p.m., heat and uneasiness in legs, which scarcely allowed him to remain in the carriage. As soon as he arrived at the end of his journey the uneasiness and heat also ceased. 23rd.—On the road home, throughout whole forenoon, nausea, frequent inclination to vomit; loathing of tobacco, wine, and beer; absence of appetite. Not until following d. at dinner did appetite return. The frequent emission of urine and flatus ceased after a few d.; there only remained a disinclination to tobacco smoking. The loathing of the medicine was so great that he could not think of salt without feeling sick. Dislike to society. 24th.—Before going to bed at n. took 4 drachms. Directly after, inclination to vomit; repeated yawning; compression of the scalp and of the head, beginning at the temples; pressive feeling from stomach upwards into pharynx. Awoke at 5 a.m. quite lively with much thirst. Jan. 1st, 1844.—In forenoon emission of flatus, with feeling as if soft stool would follow. After dinner, urging to urinate, with frequent emission. Before going to bed again, 4 drachms. At 5 a.m. awoke in a good humour. 2nd.—Forenoon, much emission of flatus. After dinner frequent micturition. When he puts his hands into his coat pockets, prickling with painful feeling as if asleep in hands (during whole d.). 12 p.m., uneasiness in the lower limbs which will not allow him to sit, especially strong when laying the hands on a hard body; cramp-like pain in r. thumb. 3rd.—Before going to bed 3 drachms. Awoke at 5 a.m. perfectly refreshed. In riding in a carriage into the country, each time he exposed his nose to the open air much watery secretion of mucus, now in r., now in l. nostril. 4th—9th.—No medicine and no symptoms.

1. Jan. 10th.—M., afternoon, and e., 20 gr. of 1st trit. Pain as of dislocation in r. wrist-joint and in last phalanx of index, with weakness and feeling as if asleep in both hands, especially when he laid them on a hard object or put them in his pocket; throughout whole d. fine aches, which rapidly disappeared, in different parts of general integu-

ment, with itching obliging him to scratch, especially on toes, *r.* index, lips, glans penis, and prepuce, and in axilla; much appetite. 11th.—5 a.m., wide awake and completely refreshed. Took 3 doses each of 20 gr. of 2nd trit. Fine shoots in various parts of body, especially lips and through whole length of urethra; feeling as if asleep in *l.* hand and arm; painful weakness in arms; tension above knee, with feeling as if lower limbs were too short, in going upstairs; constipation; sour taste of saliva; frequent accumulation of water in mouth. 11 p.m., much thirst. 12th.—Fine shoots in various parts of the body, quickly passing off. 9 p.m., took $\mathfrak{z}\mathfrak{i}\mathfrak{j}$ of the raw material. Directly after, inclination to vomit; yawning, with lively humour, is disposed to make nonsense; in sitting, great uneasiness in lower limbs; burning shooting on back of toes; in standing, feeling as if net were before eyes, not lasting long, recurring three times; feeling as if *l.* eye were smaller than *r.*; fine shoots in skin, especially of lips, in axillæ, on breast; scraping feeling in pharynx; pressive pain in *r.* half of head towards vertex, of short continuance; much thirst, particular desire for wine; involuntary movements with *r.* hand; shooting in rectum, feeling as if raw in same part, so that he cannot sit; redness round about anus. 13th.—In m. on going out much secretion of mucus from posterior nares obliging him to hawk constantly; much hawking of watery mucus; emission of much offensive flatus. After dinner, urging to stool; hard friable stool; burning in rectum in walking throughout d. 14th.—M., in bed, feeling of weakness, as if paralysed, in both hands and *r.* foot, disappearing after rising; emission of much offensive flatus in forenoon; frequent micturition whole d.; urging to stool as if looseness would come on, all d.; after dinner, consistent stool. Very much appetite; ate almost twice as much as usual. 10 p.m., great uneasiness with shoots in feet, so that he cannot remain seated and is obliged to keep moving the feet backwards and forwards. In going about this is relieved. Much thirst, particularly for wine. He has become during the last few d. remarkably stout and looks very well. Great desire for coition. 15th.—Emission of much flatus; frequent micturition, particularly after dinner. Bread tastes the best; he can scarcely eat enough of it. Much thirst for wine. All wines appear sour to him, although others do not confirm this. 16th.—In m. in bed feeling of weakness of *r.* inferior extremity as if it were lame; relieved by standing up. 17th.—Boil on lobe of *l.* ear, which pains very much, burst in 6 d. and discharged pus and blood. In consequence of taking cold was seized with influenza, which confined him to bed. From this period all the salt symptoms ceased. For the subsequent 8 d. he had still constant soft evacuations. From time to time there showed themselves, even after four weeks, many of the previous phenomena, particularly weakness of *r.* hand in holding an object, and uneasiness in legs about 10 to 11 p.m. (*Ibid.*)

14. MARR E—, housekeeper for Dr. Reiss, is 24 years of age, vaccinated, brown hair with black eyes, bright complexion, choleric temperament, active mind, strong constitution, menstruated in her thirteenth year. Through suppression of the catamenial flow by a cold bath she became chlorotic and affected with leucorrhœa, which disease

continued up to her 18th year. From that time till now she has been perfectly healthy. During the proving she has not made the least alteration in her mode of living. She took salt only from 13th to 26th Jan., and always about 10 p.m.; ʒi on 13th and ʒij on 14th, 18th, 20th, 21st, 24th, 25th, and 26th. The following symptoms are given in her own language.

α. " 13th.—Soon after taking dose much thirst. 14th.—M., after rising pinching in belly, as if looseness would come on; a few m. after twitching and quivering of r. upper eyelid; much emission of flatus whole d.; uneasy sleep full of dreams; frequent micturition during n. 15th.—M., heaviness and dull feeling in head, as if she were downright sleepy; strong shooting in r. temple towards front; feeling as if upper r. eyelid would fall down; heaviness and weakness of arms; in r. wrist-joint, when attempting to grasp anything tightly, shooting; sometimes she cannot grasp firmly on account of weakness of hand; weakness of the legs; much emission of flatus, whole forenoon. After a breakfast of coffee, pains in belly, as if a double-edged knife were being worked about there, continuing $\frac{1}{2}$ h.; towards e. chilliness over back; later much thirst. 16th.—M., after rising, heaviness of head, though less than yesterday. After a breakfast of coffee cutting pain in belly and two loose stools; feeling of weakness in hands and legs. When she stands her legs double under her, so that she would fall. Frequent micturition, in forenoon. After dinner all the symptoms were relieved. 17th.—After drinking coffee cutting pain in belly and two loose stools; less emission of flatus than yesterday; frequent micturition, forenoon. E., feeling of weakness in whole body; the longer she remains up, the weaker she becomes. 18th.—M., after drinking coffee pains in belly without looseness; frequent micturition, forenoon; urine turbid, with strong smell,—it seems acrid. 19th.—Uneasy anxious sleep; frequent waking, with dread of something which she cannot describe; after rising no desire for coffee.—After coffee cutting pain in belly with straining and stool, frequently recurring during forenoon.—Afternoon, cutting in belly, not so violent as in forenoon; in l. foot above and around ankle pain, as if sore; weakness in hands and feet. 20th.—M., after coffee, violent cutting in belly. This is repeated frequently during d., but not so violently as in m. 21st.—M., on rising much thirst, also during whole d. 3 p.m., cutting pain in whole head. In r. side it abates somewhat at intervals, though not entirely; then each time it is worse in l. side (increased in open air). On l. side pain extends like drawing from forehead over l. eye, from zygoma down as far as angle of inferior maxilla, lasting only a few m. (This pain, unlike the former, comes each time she enters a room from the open air). E., before taking dose trembling over whole body. There is a flush of heat up to head, with anxiety and feeling of nausea till she becomes unconscious. The objects around her appear quite different. The vertigo is relieved by keeping still. After taking the dose uneasy sleep. 22nd.—On awaking, in bed, shooting pains in whole belly, especially in hepatic region below last ribs on r. side; at same time chilliness over whole body lasting $\frac{1}{2}$ h. After drinking coffee pain in belly, not violent. At 10 a.m. weakness in hands, more marked in

feet. The pain in hepatic region comes on frequently throughout d., as well as the nausea and vertigo. About 3 p.m. same cutting pain, to and fro, in head as yesterday, but only in r. half and not lasting so long. 23rd.—M., after rising, cutting pain in belly, especially below ribs on r. side, lasting $\frac{1}{2}$ h., also after drinking coffee, yet shorter and slighter in character; at same time urging to stool, without result. After dinner cutting pains in whole belly, more violent than in m., lasting an h.; bitter taste in mouth and inclination to vomit. After 5 p.m. sleepiness so that she could not sit upright. She fell asleep while sitting. After $\frac{1}{2}$ h. sleep she felt better. 24th.—Pain in hepatic region in walking; it goes through liver from before backwards, is relieved by bending body forwards and to r. and lasts several h. No evacuation; urine since 8 d. turbid; for some d. lately melancholy humour, she likes best to be alone. Pale, faded look. She is notably thinner. E., after taking dose, chilliness. 25th.—On awaking and subsequently shooting pain in r. side below last ribs, continuing whole forenoon, improved after dinner. E., is returned on going out; on coming home again it disappeared. Stool with exertion, hard; headache, undefined, through whole d.; at same time, although she was in a bad humour the whole d., yet she felt obliged to hum and sing to herself, she had scarcely left off when she had to begin again. {Never sings otherwise.} E., in bed, 5 m. after taking medicine, violent cutting pains in belly, frequently returning, round about navel. She fell asleep and was awakened. After awaking, in bed, much thirst. On rising she had no pains; as she got into bed pains returned. She again fell asleep and was again awakened. On getting up she felt well, only she had much thirst. As she again got into bed she became giddy, had pains in belly, with nausea. She was awakened once more, and had again much thirst on rising. As she again got into bed pains around navel directly returned. She was unable to sleep soundly any more. 26th.—In m. on rising hot twitching (?) on back of both hands and passing out by tips of all toes, with weakness of the feet, less of the hands. After rising very violent cutting in belly continuing for $\frac{1}{2}$ h. as if everything were being drawn from behind forwards towards navel, with anxiety. The cutting was renewed after drinking coffee, after dinner, and in e. She had very little relish for the coffee. Much thirst throughout whole d., neither for water nor beer, but only for wine; loose stool in forenoon; frequent micturition whole d.; urine turbid and dark; much appetite at dinner; dulness of head whole d., as if too heavy. She does not see so distinctly as usual; the eyes seem all d. as if veiled. In afternoon great appetite for cold things (ices). Between 6 and 7 p.m. chilliness over whole body; sleepiness during chilliness, she had to force herself to remain awake. The sleepiness was kept off by rising and walking about. She talks more and more pleasantly than usual, yet does not like it when she is spoken to. If she has nothing to say she is pensive and melancholy. Of late she has become remarkably thinner and looks pale and sunken, particularly in m. and after dinner. In e. directly after taking medicine (to-day she took the last dose) chilliness, which lasted until she fell asleep. 27th.—She was unable to sleep any more after 5 a.m. She was anxious. When she fell into a slumber, she

dreamed, and was soon awake again. At same time she felt heat in the head internally and pains in belly, as if looseness would come on. In rising cutting in belly; thereupon great looseness, without straining. After the looseness violent cutting pains in whole body, especially around navel and in hepatic region. About 10 a.m. heaviness and dulness of head with vertigo in stooping; there appears to be a thick fog before eyes, lasting till 3 p.m. 5 p.m., hot twitching (?) in whole body, alternating with chilliness. She was hot all over and yet she felt starved. Yawning during chill. After 7 p.m. she was better, only legs were still heavy, so that she believed she could not rise. After lying down, chilliness. She slept well, but had a heavy dream. 28th.—M., after rising nausea with vertigo and empty eructations; heaviness in head; pressive pain in forehead. She can scarcely open her eyes from heaviness of the lids. Difficulty in breathing; quick breathing whilst standing, still more in walking; appetite for coffee; surly and ill-humoured, particularly when she addresses anyone; melancholy; whatever she looks at puts her in a bad humour. Thinking becomes difficult to her. When she exerts herself to think, or when she must talk much, she has sensation on both sides of forehead directly above arch of eyebrows, as if one beat with the finger on the part. On scalp where hair is parted, itching, also so much itching in both eyebrows that she was compelled to scratch these places the whole d., but chiefly in m. Taste in mouth as if she had eaten tallow; all kinds of food appear to her bitter. In first upper molar, r. side, twitching pain as if one pulled something sharp in and out. In forenoon pain in same tooth for $\frac{1}{2}$ h.; when she presses corresponding part of cheek opposite tooth with finger, it seems as if something cutting shot through root of tooth. Frequent micturition; urine pale. Difficulty in breathing less than on previous days. Afternoon, on going out, chilliness over whole body (she is, however, not cold to touch) lasting an h. During the chilliness pulse seemed to her to beat quicker; at same time ill-humour and indisposition to talk, even with her lover. She did not relish the beer she drank (only $\frac{1}{2}$ pint). Loss of appetite; fulness in belly, as if blown up, as if she had eaten and drunk a good deal; lazy, weak, and sleepy. E., sees things as if through a veil. Pulse 92 at 10 p.m. The last week in going upstairs palpitation of heart; uneasiness in feet, she was obliged to move them constantly, on walking it was relieved. She went to bed early; slept, however, uneasily. 11 p.m., was awake with vertigo, nausea, weakness, trembling of limbs, and relaxation of all nerves. At 12 it drove her out of bed. In rising she became giddy as if she would fall, with inclination to vomit. She returned to bed again. In a few m. after, in bed, vertigo with unconsciousness and three times vomiting of food. What was vomited tasted like red wine (claret). After vomiting chilliness over whole body. She fell asleep about 2, dreamed much, and disputed and quarrelled in her dreams. 19th.—Awoke at 5 a.m. with pain in belly below ribs on l. side, as if she would be loose in her bowels. At same time vertigo with nausea. The vertigo was relieved by lying higher. It returned on rising, particularly on bending forwards. It lasted, although relieved by applying cold bandages, through whole d. In afternoon it was so bad that she nearly fell from

her seat. Loss of appetite; no desire for coffee, but, on the contrary, for wine-soup; emptiness in stomach; obtuse pain in head whole d.; shooting pain in both halves of forehead directly above eyebrows. Forenoon, urging to stool; stool with exertion, although it was quite normal; much emission of flatus and frequent micturition; urine dark. Good appetite at dinner. Between 4 and 6 p.m. slight chilliness; at same time itching on skin, especially in l. breast, on head, arms, throat and thigh. On latter there came at times during d. sensation as if flesh were being scraped off bones. Difficulty of breathing, especially great between 5 and 7 p.m., even when she kept quiet. Pulse appears to beat more rapidly. Weakness in hands and feet. At 7 she lay down in bed. She was awakened twice. In rising strong chill over whole body. When alone to-day, she felt as if she could always cry; she did not, however, know why. If anyone were with her, she was disposed to quarrel. Moreover she was ill-humoured the whole d. (particularly in e.), laconic, sensitive, and sleepy. 30th.—Awoke early. She felt giddy, even when in bed. The giddiness became worse after rising, but was relieved by applying cold bandages. Heat of head internally, especially in front; no desire for coffee. When, in spite of this, she had drunk coffee, cutting pain on l. side in region of spleen. Trembling in whole body, especially in hands and feet. In going upstairs feeling as if someone struck her in the bend of the knees. Trembling of knees when she puts her foot on a stair. (This trembling lasts whole d.). Difficulty of breathing whole d., aggravated by walking. Good appetite at dinner. Afternoon, so weak that she could not carry a basket of wood. Itching whole d. in both nostrils; paleness of face; sorrowful humour. Lately dislike to men. From 4.30 till 7 p.m. great chilliness, especially in warm room. When she went into open air she did not feel chilly. At 11 p.m. she was awakened out of sleep. On rising trembling of hands and feet; she cannot hold anything steadily from weakness in hands. As she got into bed again a chill went through whole body (except head). At same time heat in head, and skin all over warm to touch. Soon after burning heat in hands, less in feet. It was an h. before she fell asleep again, was obliged to turn over and over in bed, and slept at last very uneasily with constant dreaming of quarrels and contentions. 31st.—M., in waking, pinching pain in belly, as if before looseness of the bowels. She had hunger, and coffee was agreeable. After a while contractive pain in belly with urging to stool; hard and painful stool. Forenoon micturated 6 times; urine pale. After dinner shooting pain in l. half of forehead immediately above arch of eyebrows, lasting until e. About 6 p.m. when she looked at an object for a long time, particularly in sewing, it became suddenly dark before her eyes, and she saw nothing until she fixed the eyes on another object; at same time sleepiness. She went out. On returning home shooting pain in r. side below last ribs, with frequent yawning. When she goes into open air her cheeks become very red, so that people speak to her about it. At home she is pale. General weakness, yet less than usual, as is also the trembling of hands and feet; cheerful humour. Uneasy sleep with much dreaming; frequent waking; she is obliged constantly to turn over and stretch herself.

8. Feb. 1st.—M., on waking, dulness in head; feeling of emptiness in stomach; no desire for coffee. After drinking coffee inclination to vomit. About 10 a.m. immoderate appetite and longing for something very tasty. She received a letter containing unpleasant news. After reading it violent trembling in hands and feet. Strong appetite at noon. Afternoon after coffee feeling over whole body as if one poured boiling water over her, lasting 10 m.; thereupon burning heat in r. ear, whole of r. ear was scarlet red for $\frac{1}{2}$ h. Towards 5 p.m. chilliness over whole body, only in warm room, at same time frequent yawning. If she went into open air she had no chilliness. In returning home between 6 and 7 p.m. shooting pain around navel. In r. side below ribs fine shoots, continuing $\frac{1}{2}$ h., then call to stool. During stool shooting pains around navel and in both hypochondria, as if the parts were being screwed together; stool first hard then soft; feeling at same time as if the rectum had protruded; feeling as if stupefied after stool, with nausea; soon after that vertigo; everything turns round with her, and she almost loses her consciousness at the time. Sleep full of dreams of evil things. 2nd.—M., on rising, headache. In church yawning lasting $\frac{1}{2}$ h., with shooting in r. side below last ribs; dulness of head, inclination to vomit and empty eructations, with difficult respiration and trembling of hands and feet. In going upstairs difficulty of breathing; palpitation of heart; drawing pain internally in bones from thigh to ankle, most violent from knee downwards. It seems to her at the time as if someone would pull her backwards in ascending. After breakfasting off coffee, cutting pain, with audible grumbling and rumbling in belly, particularly at rest. During d. fine shoots in different parts of integument, especially on chest, scrobiculus cordis, both wrists and thigh. Good-humoured whole d. In e. heaviness and uneasiness in legs, which increases after drinking moderately of beer. (Before the appearance of the catamenia, which are due on the 9th, she always suffers from heaviness and uneasiness in the legs.) Before going to bed vertigo with inclination to vomit and trembling of whole body; pressive pain in forehead; heaviness of upper eyelids. She was awakened about 12 o'clock. In rising dulness of head, as if stupid; stomach as if too full; at same time feeling of weakness and trembling in stomach; dryness in mouth; trembling of fingers; she cannot hold anything fast in the hand, or even close it, for weakness. 3rd.—Awakened about 4.30 a.m., in rising shooting pain in the shoulder-joint, and from mastoid process of r. temporal bone as far as anterior part of the throat, lasting $\frac{1}{2}$ h., increased by motion; at same time constrictive pain in stomach, then cutting and rumbling in belly. Ill-humoured in forenoon; sleepy in afternoon; chilliness in back. 4th.—M., in church, empty eructations; frequent yawning; shooting in scrobiculus cordis; pressive pain in stomach, as if something heavy lay in stomach, with trembling of hands and feet; difficulty of breathing, even when she keeps herself quiet. In going upstairs palpitation of the heart. Afternoon, she could not bear to be anywhere. She was sorrowful, as if mortified. Between 4 and 7 p.m. in warm room chilliness in whole body; she felt warm to touch, only not in face. Repugnance to beer and wine, although she was

thirsty; beer had a watery insipid taste. In going home heat in head, with redness of face and ebullition of blood to head; cutting pain around navel, which ceased after pressing on belly, throughout whole d.; stool hard and dry; sulky, pensive; dulness of head. (Since she commenced the proving the head has never been free from pain.) 5th. —Frequent micturition throughout d.; after urinating each time burning in vagina, as if it were raw, lasting a short $\frac{1}{2}$ h.; urine turbid, yellowish red; shooting pains from r. lumbar region downwards towards uterus, more violent and constant in forenoon, frequently intermittent in afternoon; insufficient stool; lazy and quarrelsome. 6th.—M., shooting from region of kidneys towards uterus, ameliorated by sitting bent forwards, pressing on belly, or sitting down, increased by walking. Whilst drinking coffee grumbling in belly. After coffee above pain ceased, but returned from 9 till 11.30 a.m., and again, more violently than before, after dinner. Urine scanty; ill-humoured. 7th. —In m. in bed menses appear more profusely than usual; blood darker; vertigo in stooping. Boring pain in umbilical region, and violent palpitation of the heart throughout d. Feeling of weakness in whole body. Urine scanty, acrid, corrosive, dark, like brown beer, deposits a red sediment which adheres to the vessel. 8th.—Menses as profuse as yesterday. Great restlessness during sleep, with frequent dreams which she cannot recollect, and frequent waking. She is generally restless in n. during catamenial flow, though not so much so as now. After coffee pinching in belly; desire for sweet mucilaginous things (otherwise at that time always for beer, which to-day is repugnant to her). 9th.—Restless sleep full of dreams; she dreamed that she pulled a very fine tooth out of her mouth. Menses as yesterday. After coffee, loud grumbling in belly. Forenoon, nausea, so that she believes herself scarcely able to sit up. Pressive headache now in r. now in l. half of forehead. After dinner trembling and twitching of l. upper eyelid. Feeling as if flesh were being scraped or torn off bone from below upwards, beginning from lower jaw, over zygoma to r. temple, lasting about 10 m., returning every 5 m., and always becoming more violent from 4 till 7 p.m. Much thirst, particularly for beer; trembling of hands; frequent micturition; urine pale, not acrid; menses less profuse than in forenoon. 10th.—M., menses have ceased. Throughout d. extremely sensitive and peevish. In e. after violent vexation reappearance of catamenia. 11th.—M. and forenoon, dulness of head. Throughout whole d. and also in n. frequent micturition. The catamenia have again ceased to flow. 12th.—In m. urine milky, as if milk had been added, later with white sediment. After going out, still more on returning home, shooting pain now in r. now in l. side of forehead. Cutting pain as if with a sharp knife from l. half of forehead to occiput; weak dim eyes; little appetite; taste bitter; cutting pains in bowels, slightly intermittent; two loose stools; shooting in acrobiculus cordis; cold and hot flushes over body; trembling in whole body; general weakness; difficulty of breathing in walking, and in going upstairs also palpitation of the heart. All these phenomena lasted whole d., and alternated frequently one with another. Towards noon she became so sick that she was obliged to lie down in bed. In

falling asleep twitching in limbs as if she were electrified. If she closed eyes she saw many people, large cities, great waters pass before her. After rising she did not improve, pulse quick and full. In e. it was long before she could fall asleep. When she tried to sleep she was seized with twitching in limbs and electric shocks of whole body. Once it appeared to her as if her knees and chin would be knocked together. Slept well after midnight. 13th.—In m., after rising, pinching in belly; fine shooting in forehead; trembling of hands. Subsequently there showed itself for an h. slight leucorrhœa; loathing of animal food; even bread is not relished. After dinner shooting pain first in r. then in l. half of forehead, lasting for hours. Towards 4 p.m., after she had drunk a very little coffee, nausea, inclination to vomit with empty eructations; trembling of stomach; yawning for 1½ h.; internal chilliness during which she was quite pale. Pulse very quick and intermittent. Also the headache became at this time more violent, and if she took hold of her forehead she had the feeling as if there was a hammering in head. Difficulty of breathing; tearing pain in spinal column from above downwards; during whole d. frequent urination; urine turbid. 14th.—Headache; leucorrhœa, a few times in d.; tearing in different teeth, now in r. upper, now in l. lower jaw; tearing pain in spinal column whole d. She could not for a long time fall asleep on account of pains in back; sleep was restless. 15th.—In forenoon shooting in chest from xiphoid cartilage of sternum through to back, worse afternoon; loss of appetite; much thirst; shooting in r. side of cavity of chest, during which she was obliged to sit with knees up to stomach, increased by walking. No pain in taking a deep breath. After midnight sleeplessness. 16th.—In m. two loose stools without pain; shooting pain in temples. In afternoon it appeared to her as if there were a gauze before eyes. She could scarcely see to knit. Heaviness of the legs. 17th.—In m. during breakfast (coffee) screwing cutting pain in belly with grumbling. Laterally remarkable forgetfulness. (*Ibid.*)

15. Dr. SCHWAB made repeated experiments with the 1st trit. and with salt in substance.* The trit. showed sometimes none, sometimes only a slight and transient action. Pinching, grumbling in belly, sleepiness with frequent yawning, heaviness and weakness of limbs, indifferent or sorrowful state of mind, indolent hard evacuations, frequent micturition without having drunk much,—were constant symptoms. More transient and only sometimes present were sensitiveness of scalp, heaviness in head, stitches through head into nape of neck and chest, roaring in ears, heartburn, eructations, unusual hunger alternately with loss of appetite, sensitiveness of teeth, vesicles on tongue,

* SCHWAB—100k: (a) From March 3rd—14th, 1849, daily 5 gr. 1st trit. (1:100); (b) same dose daily from March 13rd till April 1st; (c) From April and till May 1st of same trit. daily 10 gr.; (d) Just as many gr. of 1st trit. (10:90) daily from Oct. 6th—19th; (e) Oct. 24th 1, 25th 2 scruples; 26th 1, 27th 2½, 28th 1, 29th 3, 30th 4, Nov. 1st, 6 drachms of crude salt; (f) from Nov. 6th—13th, 5, 10, 10, 10, and 120 gr. of 1st trit. (10:90), daily, every and d., or every 7th d.; (g) From Nov. 13rd—30th and from Dec. 9th—14th, the same 1st trit., beginning with 10 gr. daily, increasing by 10 gr., and from Dec. 14th onwards diminishing in same way back again to 10 gr.

distracted, irritability, starting of limbs, particularly of muscles of thigh. Salt in substance excited:—Scraping in throat, very violent thirst, loathing, loss of appetite, much eructation of tasteless and odourless gas. All these symptoms, however, disappeared always a few h. after taking it. (*Ibid.*)

16. Schwarz induced a weakly woman 7 months advanced in pregnancy, between 20 and 30 years of age, to prove common salt. She noticed after 10 gr. of 1st trit. under a strictly regulated mode of living the following symptoms:—The sleep, otherwise usually interrupted by frightful dreams, particularly during the first 3 d. sound and composed; after a previous disposition to constipation, a regular easy stool daily; thirst, which had formerly been quite absent; sorrowfulness, tearfulness without cause; prostration, weakness, trembling of limbs; sensitiveness of body to contact; sweat induced by least exertion. Besides these, dulness of head, pain in temporal region; burning in eyes with increased secretion of mucus; eyelids adhere together in m.; great sensitiveness to light of lamp; violent roaring in ears; spasmodic constriction on chest, very troublesome in taking deep breath; stitches in abdomen; cutting in belly, relieved by emission of flatus; grumbling and rumbling in bowels; very frequent micturition. (As the last symptom continued long after the other symptoms had quite disappeared, Schw— ascribes it to the pressure of the uterus on the bladder.) (*Ibid.*)

17. Dr. WACHTEL describes a series of four provings of salt.

a. Feb. 21st, 1843, I took, early in m., 10 gr. 1st trit. (10 : 90). No symptoms. 22nd.—10 gr. Towards 11 a.m. ringing in ears, which continued whole d., and only at intervals alternated with feeling as if air were blowing into l. ear. In e. heaviness of lower extremities. 23rd.—10 gr. The roaring and ringing in ears continues. At noon during dinner, pulsation in scrobiculus cordis, which lasted some m. In afternoon in walking, cramp-like pressive pain on r. shin-bone near ankle. It seemed to me as if the drawers were too tightly tied at this part. On sole of l. foot towards middle toe there appeared a white spot about the size of a sixpence, not elevated above the surrounding skin, very painful in walking. In e. swelling of lower extremities from half way up the leg downwards, with feeling as if the feet were loaded with lead. 24th.—10 gr. The feeling of heaviness in lower extremities continues; the pain in r. foot extended further upwards towards middle of tibia. In n. itching in l. leg, obliging him to scratch. 25th.—10 gr. The pain in r. tibia has considerably diminished, but there came on in walking a feeling as if in one spot the bone were loosened, so that I commenced to walk with anxiety. In afternoon itching in r. palm. In e. dull pain as if bruised in r. zygoma and in coccyx, causing feeling on being touched as if he had fallen on that part; the former pain soon went away, the latter continued whole d. In e. the white spot above described had almost disappeared, but further forwards a vesicle the size of a pea had formed, which discharged bloody serum. 26th and 27th.—I took no med. and perceived beyond a burning in urinating nothing worthy of notice. After 10 gr., which I took 28th and on Mar. 1st, I felt, particularly in getting out of bed, very tired and pros-

trate. On 2nd to 7th March I took no med. The symptoms which appeared during those d. may be summed up as follows:—Constrictive pain in stomach; feeling of heat in rectum; colicky urging to stool; chills down back; prostration of limbs; vivid pleasant dreams, so that I could recollect after waking perfectly connected conversations. On 8th, early in m., 10 gr. Soon after, frequent sneezing, shooting in uvula. About 11 a.m., pain in l. half of head, which extended into eyeball and produced feeling as if a nerve were tightened and suddenly relaxed again (a kind of springing pain). Before dinner constrictive and cutting pain in stomach, lasting several m. and frequently returning, which terminated in e. with feeling of pressure. 9th.—10 gr. The pain in stomach previously described appeared again towards noon, but lasted only a short time. In e., itching in hair on pubes; slight swelling of inguinal glands; pressive pain in r. testicle; urging to stool, but without result. Very restless n. On 10th to 14th took no med., and could note nothing particular excepting hard evacuations and uneasy nights. 15th.—10 gr. In course of forenoon there appeared dulness of head and pressive pain in temples, which was twice interrupted, but only for a moment, by springing pain in l. half of head. After dinner these symptoms disappeared; on the other hand, I was seized by a very painful rhythmical pulsation, shooting, lasting a few m., in one of the cervical muscles on r. side. Quiet n., dreams vivid. 16th.—No med., and so also on 5 following d. The pain described above appeared to-day, yet in a slighter degree, in deltoid near its point of insertion into arm. In afternoon frequent emission of flatus *per anum*. In e. there appeared a regular pulsating shooting in glans, with transient solitary fine stiches in orifice of urethra. There flowed probably also a drop of sticky mucus from urethra, as I found the shirt stuck together. Sleep tolerably quiet excepting being awakened 3 times, when I perceived feeling in rectum as if I had taken cold, with involuntary emission of a small quantity of slimy fluid. 17th.—In forenoon, with exception of feeling of coldness and emptiness in stomach, nothing particular to relate. Directly after (a plain) dinner I noticed a considerable distension of abdomen, violent constriction of stomach, call to stool, yet without result, and after frequent ineffectual efforts 7 to 8 thin fluid evacuations with colic. Thereupon all pains ceased, and I felt again quite well. Quiet n., vivid but not pleasant dreams. 18th.—Prostration in limbs; rumbling in abdomen; feeling of coldness in stomach, and 4 diarrhoeic painless stools. In e. distension of the abdomen; painful sensibility of whole linea alba; distended navel, sensitive to the touch. Restless n. 19th.—The whole forenoon remarkable weakness of body; heat of head with roaring in ears; oppression of chest and shortness of breath; feeling of coldness and emptiness in stomach; 3 thin fluid evacuations; loss of appetite. Afternoon, extraordinary sleepiness, so that in the moment of sitting down I already began to slumber. About 6 p.m., frequent chills, followed by heat and sweat, which lasted until 7.30 p.m. 20th and 21st.—The thin fluid stools continue. Vibration in muscles of back, r. arm, and calves. Restless nights. 22nd.—10 gr. After dinner distension of abdomen with emission of flatus. Towards 5 p.m. colicky urging to stool, without result; pre-

sive feeling in stomach. About 7 p.m. 3 evacuations rapidly following one another, without relief. The whole n. feeling of soreness in bowels; constant waking out of very vivid unpleasant dreams. 23rd. — Flying stitches in r. knee-joint; drawing pinching pain in l. carpal joint, increased by contact, diminished by heat. No evacuation. Quiet n. Up to the end of the month, the flying stitches in joints, as well in upper as lower extremities, frequently appeared. The above-mentioned pinching and drawing pain in l. carpus continued incessantly for several d. On the 5th d. for the first time occurred evacuation, with straining and chills. The costiveness lasted for 3 weeks.

b. My second proving with pure salt, of which I took, April 19th and every succeeding d. up to 30th, 5 gr. dissolved in half a glass of water, furnished but a thin harvest. The phenomena subsequently observed were the following:—Shooting and tearing in shoulder and knee-joint; beating in pit of stomach, particularly after a meal; pinching pain in l. forearm; in region of navel sensation as if abdominal wall were pressed upon by a solid body from within outwards; costiveness; restless nights with vivid dreams.

c. After more than 3 mos. I commenced my third proving with 10 gr. of 1st trit (10:90). Symptoms: In m. great hawking up of mucus; in urinating flying stitches in bladder, which after complete evacuation of the urine disappeared again; towards noon startingshooting in muscles of l. arm, in region of elbow, lasting 10—15 m. and returning in afternoon. After dinner distension of abdomen, with frequent emission of flatus; a mucous evacuation, with straining and burning in anus. In e. repugnance to beer and tobacco. In o. flying chills in sacral region, and involuntary emission of a few drops of slimy fluid from anus. 11th—14th.—No symptoms, with exception of thin fluid mucous stools, and nights full of dreams. On the 15th, 10 gr. Feeling of heaviness in lower extremities as if after a long tour on foot; frequent sneezing. In afternoon sudden call to urinate, with emission of a considerable quantity of pale urine. This urging was repeated 3 times at short intervals, whereon much urine always followed. In e. violent stitches in l. instep, as if with a red-hot needle. Two slimy evacuations. 16th, 17th, and 18th, daily 10 gr. Except heaviness in legs no medicinal action. On 19th, external meatus of l. ear was swollen and painful to contact. On following d. these morbid phenomena remained unchanged. 21st.—Pressive pain in root of nose; great flow of mucus, with occasional stoppage of l. nostril. In e. on l. tibia pressive pain, as if a band were bound round it too tightly. On 22nd and 23rd no medicinal action. On 24th, 10 gr. In course of forenoon four tenacious mucous stools. In n. tearing and drawing pains in wrists and ankles, so that I was aroused out of sleep. Although perfectly awake, yet I could open the eyes only with effort. On 25th, 26th, and 27th, no symptoms. On 28th, 10 gr. Appearance of a vesicle the size of a pea filled with bloody serum on nape of neck near hairy scalp. Four diarrhetic stools. On 30th the vesicle had dried up, and there remained only a scab. Although I took no more medicine, yet phenomena appeared up to Nov. 15th which I was obliged to ascribe to the action of salt; tickling cough, with hawking up of mucus, especially in

m., long-lasting swelling of glands on l. side of neck; irregular evacuations, so that for several d. I had 2 to 3 stools daily, then afterwards suffered from constipation. One constant symptom I noticed, namely, frequent urging to stool, but without result; besides occasional appearance of drawing and paralytic pains in almost all joints, easily tired and inclined to sweat.

2. On Nov. 18th I took $\frac{1}{2}$ oz. of salt dissolved in a glass of water. About 3 p.m. violent pressive pain in sternum, along with sensation as if that place had been struck. This feeling was not increased by taking a deep breath, but certainly was by contact, and also by movement in open air. Towards e. it totally disappeared, but returned next m. and lasted till e. of 20th. On 21st I swallowed, an h. after breakfast, a whole ounce dissolved in water. Soon after, accumulation of saliva in mouth, with inclination to vomit; feeling of chilliness in whole body, with heat of forehead and pressure near root of nose; great thirst. In e. itching and smarting on lower extremities, as after a mustard bath. 22 p.m., 5 or 6 violent shoots rapidly after each other in breast, crossing one another from without inwards, with oppression of breathing. Next m. on awaking paralytic pain, extending from nape of neck over shoulder as far as middle of arm, and continuing with short remissions till e. Extraordinary weakness of upper part of body, less in legs. In n. in urinating burning along whole of urethra, as after new not properly fermented beer. 22nd.—Pressive pain in sacrum, with desire to assume the erect posture. Towards e. in open air twitching pain in l. temporal bone, which extended towards external canthus and ultimately spread over eyeball. Later, pressive pain in l. knee-joint, rendering walking difficult. On 23rd and 24th no phenomena worthy of remark. 25th.—I took in afternoon again $\frac{1}{2}$ oz. I noticed afterwards the following phenomena:—Pressure in region of stomach and forehead; pulsation in æscrobiculus cordis; slight drawing in l. fibula. Frequent waking in n. On 26th, in afternoon, slight chilliness, and in e. burning heat in hands. 27th.—In course of forenoon twice shooting in region of spleen, increased by walking. 28th.—In e. twitching-tearing in l. eyeball; in abdomen feeling of burning, increased by pressure. 29th.—Thumb of l. hand feels as if sprained, and often paralytic drawing with simultaneous obtuse shoots in os coccygis. In e. heat of head, with subsequent sweat. In n. feeling of burning in vertex; restless sleep. 30th, and Dec. 1st and 2nd.—No remarkable symptoms. 3rd.—In afternoon dulness of head, with great pressure in temporal bones and root of nose; sensation also as of reeling in brain, with fits of urging towards forehead, continuing till e. In n. these symptoms somewhat relaxed; returned, however, next d. with renewed violence. 5th.—I felt for a few h. in forenoon quite well, yet about 11 the sensation of reeling and urging in brain towards front commenced so violently whilst I was walking down some steps that I was obliged to hold on by the handrail; at same time lower limbs trembled, and there was feeling as if feet were swollen and without sensation. This condition went off almost totally in $\frac{1}{2}$ h., but returned about 3 and 5 p.m., although in less degree. In e., after previous feeling of anxiety, heat in whole body and sweat, which lasted 1 $\frac{1}{2}$ h. 6th.—Drawing pains in

joins. At 6 p.m. again anxiety, with heat in head; afterwards great sweat. 7th.—Sweat recurred in e. at same h. 8th, 9th, and 10th.—No symptoms. Involuntary emission of a small quantity of urine. This symptom was repeated also on 13th in walking. Up to end of January of the next year morbid phenomena appeared, which I must ascribe to the action of salt. To these I add: prostration of whole body; easy inclination to sweat; constipation, and restless nights full of dreams. (*Ibid.*)

18. Dr. WAGNER confined his provings exclusively to 1st and 2nd trits. After a gr. of 2nd, which he took March 7th, 1844, about 9 p.m. after having fasted since dinner, he dreamed after midnight of offensive things (especially of diseases) and slept uninterruptedly. Next m. his head was dull, heavy, dizzy; he felt pressure in forehead, in temples pressing from within outwards. A sensation of heaviness and fatigue extended itself along posterior surface of thigh downwards towards bend of knee. At same time unusual urging to urinate, and on protracted retention of urine troublesome drawing along ureters and feeling of pressure and heaviness in l. side of forehead. On following e. at 10 Wg— took 5 gr. of same trit. Next m. dulness of head and weakness of lower limbs, especially of knee-joints. These symptoms disappeared, however, towards noon. After taking 10 gr. of 1st trit., on 11th and 12th, no indications showed themselves excepting increased urging to urinate. Wg— now returned again to the small doses, and took on 13th 2 gr. of 2nd. The following n. he dreamt vividly and remembered them accurately next m. (which was unusual with him). Throughout d. limbs were prostrated, chest heavy and oppressed; sometimes slight stitches darted out of depth of chest towards back (particularly in taking deep breath). For a few h. of the forenoon unpleasant pressure in scrobiculus cordis. When Wg— had rested five weeks he began a fresh experiment 20th April at 10 p.m. with 5 gr. of 2nd trit. During n. and on following m. he remarked besides increased urging to urinate no phenomena. In forenoon whilst walking transient stitches, running deep through l. half of forehead, spreading towards temple and ear, alternately with pressure and feeling of heaviness above orbital cavities. A few times peculiar pressure on posterior wall of larynx and pharynx, running along Eustachian tube and towards tonsils. Towards e. there gradually formed itself a pain in face which occupied whole of l. side, particularly region of eyes, nose, and temple. Wg— closed his proving next e. (21st) with 10 gr. of same trit. Thereupon, about $\frac{1}{2}$ h. after he was seized with peculiar feeling of heat, which spread itself from stomach at first over chest, later towards abdomen, but fixed itself particularly in region of navel. Besides this flying stitches, and fulness and heaviness in r. hypochondrium; rumbling and feeling as of air-bubbles which ascend and burst in intestines; increased urging to urinate, with very clear limpid urine. After midnight he awoke with considerable pressive pain in l. half of forehead; subsequently profound sleep full of dreams. The following d. unusual prostration, especially felt in thighs, arms, and shoulder-joints; periodical pressive shooting in brain. The whole of the above symptoms were relieved by walking. (Wg—, according to

the character he has sketched of himself, is upwards of 29 years old, nervous venous constitution, with prominent bilious disposition, rigid fibre, strong muscular system; for the most part healthy, deducting the diseases of children, up to the period of adolescence, subjected in later years especially to diseases of the nervous system (affections of the liver with great sensibility and easy excitability of the nervous system). Hardened in his youth, he is not easily affected by physical influences, whilst moral ones act rapidly and continuously upon him. A chill, for instance, never induces a cough in him, but vexation very soon, and the cough bears then generally a violently spasmodic character. Further, he has the peculiarity of being affected in a scarcely noticeable degree by powerful drugs, even poisons, with which he made formerly some experiments, whilst he offers a not inconsiderable impressionability to small doses of medicine, such as the homœopathic potencies. He has also a particular idiosyncrasy towards various things, for instance, strawberries, which always produce an eruption and nausea in him.) (*Ibid.*)

19. Dr. WATZKE made 7 provings with salt.

a. The first I began on March 2nd, 1843, at noon fasting with 12 globules of 30th attenuation (prepared according to Hahnemann's directions). 5 h. later, as well as the following d. (3rd), I took early in m. and in e., 20 of such globules. I repeated same dose fasting early on m. of 4th. During these 3 d. I observed the most rigid homœopathic diet. On the 3rd, afternoon, I noticed, as I walked over a stone bridge, a very transient fit of giddiness. It was as if the stones beneath my feet were sinking down. On same d. a few h. later, I was seized, while walking in the street, with some long stitches in r. knee (which came and went slowly). I had, moreover, during these 3 d., each d. a few small more watery than puppy evacuations. I am, however, not inclined to bring these phenomena in causal connection with the medicine exhibited, because they bear a stamp foreign to that of salt, and may be explained partly—the vertigo and the stitches in the knee—as the result of the intense observation paid to myself, partly—the evacuations—as the consequence of the unusual mode of living induced by the strict regimen. On the 9th I took at 4 and 8 p.m. each time a teaspoonful of the 3x trit. I repeated same dose following d. m. and e. No trace of any medicinal action whatever appeared thereafter. Just as fruitless in results was the third experiment, with 5 dr. of the 21st dil. taken on m. of 11th. On the 13th, 8 a.m., I took 3 drachms of crystallized salt, dissolved in a tumbler of water. I repeated the dose on 14th at 8 a.m. and at 3 p.m. On the 13th and 14th, in forenoon no other phenomena showed themselves besides increased thirst and somewhat more frequent micturition. On the 14th in e. a fluid evacuation without straining and pain in belly occurred. 15th.—Feeling of roughness in throat, not lasting long; in m. and after dinner two small fluid evacuations, also without straining or pain in belly; after the stools smarting in anus, which continued whole afternoon. Pressive pain in vertex, which likewise occurred after dinner, must not be ascribed to the salt, as I am frequently affected in a like manner after a disturbed n. and continued exertion of the brain.

The 16th and 17th I took each m. a teaspoonful of the 6th trit.* I perceived afterwards no trace of any drug symptoms. The same result followed after I had taken on 18th, 19th, and 23rd on each occasion a teaspoonful of the 5th trit. Also after 3 teaspoonfuls of the same trit., 24th, &c., no indications of medicinal action were present. On the 1st April at noon, shortly before dinner, I took 3 drachms of salt dissolved in a glass of water. Soon after dinner, preceded by borborygmi, two watery stools quickly succeeding each other, without straining and almost without griping in belly. When out walking shortly after that painless pressing outwards (lasting 5 m.) occurred in middle of belly a few fingers' breadth to r. of navel, resembling that which pregnant females complain of sometimes, as if some part of the foetus pushed against the place. Also, whole abdomen was extraordinarily tense and distended. In riding in a carriage I was seized with frequent painful stitches in l. thigh. In e. of same d., sensitiveness of external wall of chest, great prostration, indolence of mind, unconquerable sleepiness. I was, contrary to custom, at 10 p.m. no longer able to read. In lying in bed considerable painfulness of spinal column, which was increased when I lay on my back. On following m. about 4 o'clock, in driving, a few stitches in l. maxillary joint. On same d. (2nd) I took at 8 a.m. 1 drachm of common salt in half a glass of water. In afternoon, on walking, tense pain in r. popliteal space, as if tendons were too short, lasting several m., almost obliging me to limp; thereon on sitting suddenly a few very sensitive stitches in r. great toe. On 3rd, early in m., again ʒj. In course of forenoon frequent violent stitches from back and partly from chest towards middle of arm, as if produced by drawing sparks from an electrophorus. In e. troublesome distension of abdomen, which occurred also, though in a less degree, on previous e. Restless n., full of vivid exciting dreams, with frequent tossing in bed. On 4th, 9 a.m., again ʒj. In forenoon faintness, slight pressure in stomach, tension in abdomen as if I had eaten too much, threatening of retching in throat, inclination to vomit. On same d., ¼ h. after dinner, another drachm. In afternoon, a scanty fluid evacuation with some straining; in e. tension in inguinal region. At bedtime (10 p.m.) again ʒj. 5th and 6th.—I took each m. ʒij; on 7th, shortly before dinner, ʒiij. With exception of slight tension in bowels and a few loose stools no symptoms showed themselves during these 3 d. On 8th, 11 a.m., I again took ʒiij in a glass of water, this time, however, with almost invincible loathing. Immediately thereon, inclination to vomit, with eructations of air and some accumulation of water in mouth. The inclination to vomit continued ¼ h., and it was only with effort that I could keep from vomiting. It was better after a plateful of clear soup. Thereon, commotion, gurgling, rumbling, and griping in belly, hasty call to stool, and an evacuation, which during the several m. that it required, brought away a great quantity of a thin, fluid, almost watery, stuff, with noisy violence and great flatulence. An h. later there followed a similar, only shorter and less violent stool, with

* I purposely interrupted the experiment with the unsuccessful dilutions by interposing instead the raw material, in order to ascertain whether it were possible to create a sensibility to the smaller doses by means of previous large ones.

burning in anus; it returned to a slight extent once more 4 h. after. No other phenomena showed themselves. On 9th, 8 a.m., I tried again 3j. In afternoon I was seized in l. calf and l. natis with sensation as if I had fallen on those parts. On following d., on which no med. had been taken, there occurred tension in the bend of r. elbow, as if arm had been exerted too much. April 15th, 16th, and 17th, each d. 3j. The first drachm created (an h. after) urging to stool accompanied by slight griping and commotion in belly and almost fluid evacuation. The other 2 drachms caused no more looseness.

4. The phenomena developed in me during the proving by common salt led me to believe that its action upon me is just as transient as superficial. I deceived myself, however. It proved to be more permanent and powerful than I wished.* Soon after my last proving there appeared remarkable weakness and prostration of the body. I was not able to make my usual rounds in the suburbs on foot. The painful tension, already noticed in the former experiments, here and there in the joints as if the tendons were too short, or as if I had been struck there, occurred now more frequently. The tenative pain in the groin and popliteal space was sometimes so great that in walking in the street it was with trouble that I could get on for a few m. The irregularity in respect to the time and repetition, and with regard to the quality of the evacuations, which I observed during the whole course of my proving (with the larger quantities), continued far into May. I had, namely, now no evacuation, now only one in the d., now two, three, even four. These were sometimes soft, sometimes quite fluid, sometimes hard. Frequently they were followed by smarting in anus. At same time I had continuously rather a small appetite, no quiet sleep, very vivid connected dreams, looked badly, got much thinner and was unusually depressed. The indifference to the absence of salt in my food showed itself in a strongly pronounced manner long and continuously. For some weeks my food could scarcely contain too little salt. Strongly salted things suited me remarkably ill. A very small portion of salted herring which I ate one e. resulted in commotion in the bowels, distension, loss of appetite, and a very uneasy sleep interrupted by frequent drinking. Towards middle of the month of May a peculiar very troublesome periodical affection of the urethra and rectum developed itself, for which I knew no other cause than the considerable quantity of salt which I had taken. There occurred frequently during the d., though irregularly, often several times in an h., often at intervals of 5

* My proving of common salt does not furnish exactly a particular support to the hypothesis that a medicine requires another special impressibility (disposition) than that of general human frailty, in order to unfold its actions on the organism. At the same time it provided me with the key to the secret how to become drug-diseased. It could not be easy for anyone to show themselves less susceptible to small as well as large doses of common salt than I showed myself at the beginning of my experiments. The small doses made none or almost no particular impression; the larger were ejected by the organism in the shortest way and in all possible haste. And yet the medium doses, used continuously for a longer period, developed the salt-disease in me almost to complete cachexia; and of all the medicines which I have hitherto proved, none created ultimately such a deep penetrating tenacious action in me as common salt.

and 10 m., often only in 2, 3, 4 h., sensitiveness of urethra not increased by external pressure, contractive pain in the part and in rectum, with urging to urinate and to stool. The urine was clear, in sufficient quantity, and passed without pain. After micturating, as a rule, the urging to stool disappeared. The latter could in general be suppressed, but still threatened several times in the course of the d. The stool was soft, more fluid, without previous griping, not accompanied or followed by straining; moreover there was no kind of discharge from the urethra and no affection of the sexual organs present. The affection just described disappeared completely by the end of May with the use of colocythin. Whether the sensibility and swelling of the testicles which appeared subsequently from June 7th to 10th, and the tension in the inguinal region connected therewith—this tension was aggravated by movement and was accompanied with stitches from sacrum towards groin—whether these symptoms be further effects of salt I will not take upon me to decide positively. (*Ibid.*)

20. Dr. F. C. WEINKE undertook three experiments. He has furnished the following report thereon.

a. 1, *trit.*, March 4th to 8th. Every d. in forenoon 10 gr., without any noticeable effects. 10th.—20 gr. Half an h. after dull pressure in l. half of thorax, which ceased after walking for $\frac{1}{2}$ h. 3 p.m., a few dull stitches in r. half of chest. At n. (after much walking) considerable cough with scraping sensation in chest in m. 12th and 13th.—20 gr. No particular effect except weariness and ill-humour (perhaps ascribable to the annoyances incidental to our profession).

b. 6th dil., April 12th, 9 a.m., 6 dr. without water. Hereupon dryness of mouth, particularly of tongue, lasting more than $\frac{1}{2}$ h. 13th.—Same dose. Weariness and flatulence throughout whole d. 14th.—Awoke in m. in very bad humour, which became angry irritability. The latter disappeared at the commencement of my visiting. At 7 p.m. prickling pain and feeling of coldness in *scrobiculus cordis*, from which stitches extended backwards and up into chest. Half an h. later (whilst walking) prickling feeling in under surface of 2nd toe of r. foot. 10 p.m. (after having taken wine), very violent sneezing followed by shaking dry cough. A good sleep $\frac{1}{2}$ h. after. 15th.—6 a.m., 10 dr. At 1 p.m. on inner side of l. knee, stitches from within outwards as if a fine nail had been driven in there. 16th.—9 a.m., 10 dr. Shortly after transient pressure in l. half of chest. 18th.—7 p.m., 10 dr. Hereon considerable dryness of tongue for $\frac{1}{2}$ h. At 2 a.m. awoke in perspiration and with feeling of painful anxiety as if I were enclosed in a deep dark cellar, which feeling first disappeared when I perceived the first streak of light through my window. Hereafter sound sleep. 26th.—11.30 a.m., 20 dr. Half an h. after while smoking tobacco, gnawing feeling in a carious tooth in l. lower jaw. At same time feeling of sinking in stomach and several times empty eructations. In spite of this had excellent appetite at dinner. Afternoon, unusual cheerfulness; heart-elevating consciousness of physical and mental power; unmitigated assiduity during very far excursions in the most unremunerative parish practice. 7 p.m., whilst walking, at each time of raising l. foot very sensitive, pressive shooting, at same time convul-

sive pain from knee upwards along axis of thigh. This pain disappeared after about 3 m. further walking. Later an extraordinary longing for wine, increased still more by partaking of Italian sausage. After drinking half a measure of wine excellent sleep. 28th.—11 a.m., 10 dr. without water. After 7 p.m., in walking electric shock from r. hip-joint downwards and inwards. 29th.—At n. very vivid dream of burning thirst which was not quenched by beer drunk wholesale (of course only in the dream). On awaking dry tongue.

r. Dec. 6th.—10.30 a.m., 2 drachms of salt in a glass of water. Directly after, burning in stomach, and at same time shivering in periphery of body; feeling of sinking in stomach; constant spitting. Half an h. after shivering in a well-heated room. An h. after that diarrhœic stool, followed by inodorous eructations, which disappeared some time after, but which again returned during dinner. The appetite, hitherto excellent, considerably diminished. 2 p.m., a second fluid evacuation. 3, after partaking of black coffee, giddy fullness of head, which continued $\frac{1}{2}$ h. 5, 1 drachm in water, without any effect except faintness in stomach. 7th.—10.30 a.m., 2 drachms in water, soon after which coolness and slight pinching in belly, flatulence, indisposition to mental exertion, sleepiness. In an h. a sufficient evacuation, partly watery, partly pappy. At noon tolerable appetite. About 2 p.m. a small fluid evacuation. At 5.30 3 drachms in 2 tumblerfuls of water, which dose was borne remarkably easier. No other effect than very confused yet vivid dreams in n., whose chief content was the proving. At 3 a.m. awoke quite lively, which has not happened to me for years. Towards 3 I fell asleep again, and was only with trouble awakened about 7.30. 11th.—At 9.30 a.m. $\frac{1}{2}$ oz. in a tumblerful of water. Immediately thereon feeling of coldness and pressure in stomach; general coldness; inclination to vomit. An h. after tolerably copious, fluid, dark-brown evacuations. At 11.30 a.m. a second copious watery stool, coming away tumultuously; immediately after it a strong erection, without any sexual provocation.—At noon tolerable appetite. At 2.30 p.m. a third watery copious stool. At n. a very vivid long dream (correctly remembered next m.), respecting a dangerous journey by water in a small boat. During the whole time of the proving with large quantities of salt I noticed a frequent easy expectoration of grey, globular, compact mucus. (*Ibid.*)

21. Dr. J. N. WÜRSTL, æt. 40, sanguineo-choleric temperament, strong constitution, troubled frequently in early life, particularly after a chill in the feet, with gouty-rheumatic affections of the extremities and diarrhœa, but at time of proving perfectly well. He undertook four experiments, and exclusively with the dilutions. His report on the results of the same is literally as follows:

a. March 2nd, 1843, at 9 a.m., 5 dr. of 9th dil. In $\frac{1}{2}$ h. after taking it, I noticed in region of stomach, for about breadth of hand, a pressure, which continued almost $\frac{1}{2}$ h. and again disappeared, during which eructations of wind occurred several times. Two h. later I had feeling as if stomach hung by a thread, which feeling, however, lasted only a short period, but the emptiness of the stomach only first disappeared towards noon. About 3 h. after dinner head suddenly felt

very dull, with slight pressure from forehead towards temples and stoppage in ears, which, however, again disappeared every time he yawned. 3rd.—M., 5 dr. The emptiness in stomach returned an h. after taking medicine, but ceased $\frac{1}{2}$ h. afterwards with emission of flatus, more downwards than upwards. Head was frequently dull in course of forenoon, with giddiness. In afternoon again the troublesome feeling of stoppage in both ears. 4th.—M., 5 dr. In forenoon I noticed, with exception of feeling of emptiness in stomach, no phenomena; towards noon great desire for food, which increased almost to bulimy. Appetite very good; after dinner, however, great weakness and sleepiness. Towards e. incarceration of flatus and frequent rumbling in the hypogastrium. In n. frequent frightful dreams. 5th.—6 dr. Directly after walking I felt great looseness of bowels, which was followed in $\frac{1}{2}$ h. by a pappy stool, with emission of much wind, without the feeling as if diarrhoea would come on ceasing. After the evacuation I took the 6 dr., whereupon soon constant and great borborygmus followed, and 2 h. after that a second copious almost watery evacuation. Throughout whole d. great weariness, and in afternoon great inclination to sleep. 6th.—As the rumbling and threatening of diarrhoea continued till this m. I took no medicine; subsequently the feeling of emptiness was less remarkable, and the yawning seldomer. Appetite good. In afternoon again great sleepiness, and about 7 p.m. great dulness of head, with vertigo. There also showed itself after waking a large vesicle in red part of upper lip, which already began to dry towards e. 7th.—Early in m., fasting, 6 dr. Half an h. after breakfast I felt great distension of bowels, which, however, abated after a loose motion and emission of much flatus of a strong, almost putrid odour. To-day I noticed the lower lip greatly swollen and rather burning, after which again a large vesicle showed itself, that formed next d. into a scab and scaled off all round. In afternoon great sleepiness and profound sleep with vivid dreams, as during n. At 7 p.m. strongpressive frontal pains, with threatening of vertigo and great weariness. 8th.—Early in m. 6 dr. An h. after its administration I had again that pressive sensation in stomach; later frequent yawning and eructation of mere gas, which symptoms disappeared towards noon, when I had a very good appetite. In afternoon slight propensity to sleep; towards 5—7 p.m. frequent returns of giddiness. On lower lip a second vesicle, which contains much lymph. Although I took no medicine, still the same pressive sensation in stomach, with emptiness and frequent yawning, recurred about same h. as on previous d., and disappeared towards noon. In afternoon head was less dull and giddy. Stools became again more regular, firmer, and only once a d. The scabs on both lips began to dry up; at same time epidermis cracks, lip bleeds easily, and causes burning. 10th.—6 dr. The abdomen feels tense, but loses this tension in about 3 h.; in afternoon great weakness, with great dulness of head. 11th and 12th.—No medicine. Inclination to constipation, inasmuch as the evacuations first occurred in afternoon, and are more solid than usual. In course of these 2 d. frequently during d. slight drawing in both legs, in l. arm and thumb. Scabs on lips are falling off, the epidermis cracks and bleeds easily. 14th and 15th.—Each d. 30 dr. An h.

after each time of taking medicine I noticed fulness in stomach, and soon afterwards below that organ slight tension, which disappeared again 2 h. after; at same time I had constantly a very good appetite, which bordered almost on bulimy. From 5 to 6 p.m. head was dull and giddy. 16th, 17th, and 18th.—Without medicine. The forenoon passed without any remarkable phenomena, yet no afternoon came without the head being dull, with ringing in ears, beginning at 5 o'clock, but only lasting an h. 19th.—15 dr. Even in an h. after taking them I felt region of stomach greatly distended and whole abdomen tense, with rumbling therein, which, however, again disappeared in ¼ h. About 4.30 p.m. I suddenly felt violent pressive pain in frontal region above both eyes; whole of head felt dull; heaviness in occiput, with pulsation and stiffness in nape of neck; chiming and ringing as of bells in both ears, with feeling as if I would fall to the ground in attempting to stand. These phenomena continued alternating for about 2 h., and a cup of coffee seemed to aggravate the pains. Although I took no medicine for 5 d., I felt still every afternoon at same hour the above phenomena, which, however, became daily weaker and less troublesome, until they ceased entirely on May 25th. 26th.—15 dr. In forenoon I observed nothing particular, but in afternoon phenomena similar to those of March 19th appeared, and were repeated daily for 4—5 d.

b. From 15th to 17th April, each d. 5 dr. 5th dil. Excepting frequent yawning and incarceration of flatus with feeling of tension in the abdomen, I remarked in course of forenoon no phenomena. From 5 p.m. slight threatening of pressive headache, which, however, continued only a short time. 20th—23rd.—Daily 10 dr. Abdomen was during these d. more distended. The pressure in stomach returned again frequently, during which for sake of relief I was obliged to yawn frequently. Stools certainly regular, yet looser. In afternoon great inclination to sleep; fits of giddiness. Subsequently head was more dull. Pressure in r. forehead, sensitiveness of eyes, pulsation and stiffness in neck upwards towards occiput, which symptom first began to abate in about 2 h. Even the nights were more restless and disturbed by vivid dreams, so that on awaking I felt head still very dull and heavy.

c. The 13th, 14th, and 15th Nov., 5 dr. of 4th dil. In forenoon I was troubled with fulness and tension in abdomen, with the feeling as if an emission of flatus would follow constantly; if an emission did take place, or an empty eructation was repeated a few times, then tension soon abated. Evacuations became daily scantier, and it was only with trouble that I parted with very dry stools. The 17th, 18th, and 19th, 15 dr. The difficult scanty stool passed into actual constipation, during which a hard stool followed only every 2nd d.—an extraordinary phenomenon in me for years; at same time I felt very well and had a particularly good appetite. I was attacked on 20th with a catarrhal fever that lasted 4 d.; on which account I took no medicine. During this time the constipation ceased again, and the stools appeared daily as usual. The 27th, 28th, and 29th, 10 dr. 3rd dil., daily. A couple of h. after each administration of the above I noticed repeatedly congestion

and heaviness of head, which became more violent every d., and in afternoons degenerated into severe, semi-lateral, shooting headache in r. forehead, with transient painful shooting in eyeball, recurring in three attacks of 2—3 h. and first disappearing completely towards 9 p.m. Even the nights were more restless than usual, and on awaking I felt still heaviness and dulness of head.

d. The 2nd, 3rd, and 4th Dec., 5 dr. of 2nd dil. daily. With exception of slight dulness in head, with vertigo and emptiness of stomach, I perceived during forenoon nothing; in afternoon, however, head was duller, with beating in occiput. 5th, 6th, and 7th.—10 dr. daily. As the ordinary stool did not appear, abdomen was distended whole forenoon, and tension first commenced to abate in afternoon after several emissions of offensive gas. Frequent tickling in rectum. Frequent urination; urine seemed hotter; also I experienced slight itching in orifice of urethra. Frequent erections during n., and dreams that he had gonorrhœa. 8th and 9th.—Without medicine. The stool certainly appeared again daily, but with greater effort. The itching continued in rectum, and was relieved by scratching; I also perceived itching in legs, particularly inner side of calves. 10th, 11th, and 12th.—25 dr. of 1st dil. m. and e. daily. In course of d. I perceived no troublesome phenomenon; instead, however, the sleep was very uneasy, and disturbed by frequent waking and constant vivid dreams. In spite of taking no more medicine for 7 d., the irregularity of stools, which were always difficult, the dulness of head, the periodical attacks of giddiness, especially in forenoon, the beating in occiput and the itching and burning in rectum continued. 20th.—Early in m. 20 dr. of 1st dil. Two h. after taking dose head became very dull and giddy, with sparkling before eyes. At same time frequent yawning, which always relieved head. Towards afternoon frequent eructations of empty gas without any odour. Nevertheless appetite was excellent. After the meal I was seized with great sleepiness, which I could scarcely keep off. These suddenly occurred at 5 p.m. an exceedingly violent presive headache proceeding from r. temporal region towards half of forehead and r. eye. At same time ball of eye was very sensitive. The slightest touch aggravated the pains, and made them almost unbearable; light also was extremely troublesome. These attacks continued alternately for about 4 h.; after drinking much water became somewhat better, but first ceased completely after a full supper which I thoroughly relished, and which was followed by a good n. Since 20th I took no medicine, and yet for 3 d. the above phenomena returned always at 5 p.m., in less degree every d. (*Ibid.*)

21. Dr. WURMS proved first the dilutions, then the raw material, and then returned to the dilutions. He took on each occasion 10 dr. of the dils.

22. The 30th dil., taken Feb. 24th, 1843, in e., on 26th, 27th, and 28th, and March 2nd, 3rd, and 4th, m. and e., showed itself on n. of 24th by vivid dreams, on 25th in forenoon and 26th by dulness of head, accompanied on 3rd during whole forenoon by rumbling in belly and four pappy diarrhetic stools, in e. by chilliness even in neighbourhood of warm stove, and accelerated pulse (100). Usual evacuation

failed on 4th. From March 6th to 10th a dose of 27th dil. daily m. and e. produced no symptoms, excepting that on 7th the stool did not appear as usual in m. but first towards e., and insufficient, loose, with much straining; but on 8th totally failed,—a phenomenon which the prover believes he may ascribe with so much the greater certainty to the medicine taken, as he has every m. (punctually) immediately after rising a proper evacuation of the bowels. The 24th dil. was taken on 11th and 12th, m. and e., without any effect whatever. But much more powerful effect had the 21st dil., which he took on 13th, 14th, and 15th, and after omitting on 16th continued for 3 d. further m. and e. On 13th he had in m. an insufficient evacuation, but felt quite well rest of d. About 7 p.m., however, he had feeling of chilliness in arms, thirst, accelerated pulse, repugnance to food. The feeling of chilliness spread itself gradually over whole body, and disappeared first 4 h. after, followed by heat with shooting in integument of whole body. The heat continued 1 h. During that time he sneezed frequently. Sweat now appeared, which had a sour smell and lasted till 2 a.m., at which hour the attack of fever terminated instantaneously. He was fetched at 2 a.m. to a patient, but felt himself, in spite of previous fever, quite well. About 3 he returned to bed, and soon fell asleep. The sleep, however, was not composed, but disturbed by vivid fearful dreams, by frequent waking, and constant tossing about in bed. The following d. head was dull, he felt weary, but only in sitting, had now chilliness, now heat or sweat. The pulse was accelerated the whole d. (a few beats in m.). After dinner frequent emission of flatus. At 4 p.m. an insufficient evacuation appeared after much straining. In e. he frequently sneezed; he had sensation as if cold in head would come on. He was frequently awakened out of his sleep at n. by vivid dreams. On 15th in m. he had an insufficient stool with much flatulence. The 16th and 17th passed without any symptoms. On 18th felt a few times painful pulsation in l. temple towards occiput; indisposition to mental exertion (want of ideas); forgetfulness; no evacuation that d. In e. in walking feeling of heaviness in feet; sleep disturbed by vivid unpleasant dreams and frequent waking; each time he awoke dull pain in head, and sweat. On 19th in m. in spite of violent urging to stool only an insufficient evacuation, accompanied with much emission of gas (which was repeated after dinner). The 18th dil. was only tried for 3 d. (20th, 21st, and 22nd). On 21st d. no symptom showed itself. On 2nd, delay of stool till e., when an insufficient evacuation with loss of blood from the hæmorrhoidal vessels followed. Thereupon pain as if bruised in sacrum. On the 3rd m. dulness of head, as if from impending coryza; an insufficient evacuation with shooting in anus. The pain as if bruised in sacrum showed itself alternately weaker or stronger, and lasted whole d., particularly when sitting. The 15th dil., taken from 23rd to 26th like the previous dilutions, was followed on 23rd by sensation in l. popliteal space as if tendons were tense; during whole d. troublesome gnawing in l. os calcis; in afternoon in sitting, chilliness, which disappeared when he went out at 5, but returned in e., though weaker, in sitting; before falling asleep pressure in sacrum. At n. vivid dreams and frequent awaking. At midnight

profuse sweat, especially on chest. On 24th short cough, dry, returning during d. frequently, now at shorter, now at longer intervals; pressure in middle of sternum and in back below l. shoulder; dulness of head, troublesome pulsation at base of skull; constipation; the gnawing in the heel occurs again for a moment in e.; at n. vexatious dreams and frequent waking. On 25th no symptoms showed themselves. On 26th constipation. After the prover had omitted several d. on account of a violent cold he commenced in the above manner on March 31st till April 2nd with the 12th dil. The first n. he had again vivid dreams and awoke often. On 2nd he had in m. an insufficient evacuation, distended hæmorrhoidal veins, painful to contact, pappy taste in mouth. In second half of n. vivid dreams and frequent awaking; on 3rd d. the same hæmorrhoidal troubles as on previous d., slimy, bitter taste in mouth, with proper taste of food; in e. frequent hawking up of bitter mucus. The 9th dil. was proved from 3rd—6th, and after an interruption of a week from April 14th to 16th. 3rd.—In m. scanty opening of bowels; slimy, bitter taste in mouth; white-coated tongue (particularly at base); frequent hawking up of phlegm; towards e. cutting in belly (flatulent colic), call to stool and a pappy evacuation, whereupon abdominal symptoms disappeared; in e. a scraped, raked condition of throat. 4th.—Constipation; tongue, taste and hawking up of mucus as yesterday; sensation of heat in anus and l. testicle; pressure on sternum, in afternoon; in l. popliteal space and in 3rd, 4th, and 5th toes of r. foot, feeling as if tendons were too short; at n. anxious dreams, so that he cried aloud; frequent awaking. 5th.—Constipation; at n. frequent erections; at the same time burning in fossa navicularis of urethra. 6th.—Burning in urethra in early m. in urinating; scanty stool; throughout d. frequent threatening of headache; night's rest disturbed by painful erections; towards m. a seminal emission. 14th and 15th.—No symptoms. 16th.—Constipation, distension of belly, emission of much flatus. The 6th dil., taken from April 17th to 21st, like all the previous ones in doses of 10 dr. m. and e., effected on 1st d. no remarkable change; on 2nd unusually frequent micturition; on 3rd d. constipation; on 4th in m. a hard insufficient stool after much straining and violent pains, as if rectum would burst, followed by bleeding from hæmorrhoidal vessels, and the whole forenoon pressive pain in rectum and frequent urination; in afternoon tension in l. foot, particularly on inner side of thigh, and some very sensitive shoots in l. popliteal space; on 5th, almost whole d. through, pressive bearing pains in head, particularly in l. region of forehead, failure of usual stool in m., after dinner contractive pains in belly, hereon emission of much flatus and a hard scanty stool with burning in anus, which continued almost whole e.

♁. The 3rd, 2nd,* and 1st trits., prepared in the proportions of 1 of medicine to 99 of sugar of milk, and taken from 3 to 4 d. m. and e. in doses of 10 gr., produced partly none, partly only very few symptoms; the 3rd trit. on 1st d. induced delay of stool till e., when a hard, scanty evacuation appeared after great discharge of flatus; on 2nd d. constipation and frequent micturition. The 1st trit., on 2nd d., caused slimy

* Between the provings of the 3rd and 2nd trit. comes an interval of 6 months.

taste in mouth, scraping in throat, and in e. an attack of tickling cough, which lasted almost $\frac{1}{2}$ h., and terminated with coughing up of tenacious mucus. Not much more productive was a seven days' trial with the first trituration prepared in the proportion of 10 : 90. On 1st and 2nd d. (after 55 gr. at 9 a.m.) he had towards e. a profuse, pappy, and $\frac{1}{2}$ h. later a fluid evacuation, although he had in m. his usual normal stool. On 2nd d. he had, prior to the appearance of the fluid stool, cutting in hypogastrium. On 3rd and 4th d. (after 55 gr. m. and e.) stool did not make its appearance; the appetite was considerably increased. On later d. in e. attack of tickling cough came on, which ended after 10 m. with coughing up of saltish phlegm. On 5th d. (after a similar dose) the (scanty) evacuation was retarded until afternoon, and occurred only after much straining. In e. several attacks of tickling cough appeared. The same attacks were repeated in e. of the 6th d. (after 110 gr. in m.). Tonsils, soft palate, and uvula greatly injected. The 7th d. (after another 110 gr.) passed without any symptoms. A further trial of 3 d. with the 1st trit. prepared in proportion of 1 : 5 was likewise without results.

c. Wm—now proceeded to the proving of the raw material. He took of it on Nov. 10th, 11th, and 12th every m. \mathfrak{zj} ; from 13th—18th \mathfrak{zij} ; 20th \mathfrak{zij} ; 22nd $\frac{1}{2}$ oz., which he repeated on 25th, 26th, 27th, and 29th. The 30th he increased the dose to $\mathfrak{z\mathfrak{v}}$, and concluded on Dec. 1st with 1 oz. The salt for this purpose was on each occasion dissolved in water (4 table-spoonfuls to 1 drachm). These large doses enriched the sphere of action of salt by only a few symptoms. The results are comprised in the following: 10th.—Increased desire for food; sensation in l. popliteal space as if tendons were too short, returning frequently in course of luncheon, most frequent in rising from a seat; in e. cutting in hypogastrium; frequent attacks of dry tickling cough; stoppage of nose, sneezing; frequent urination (also during n.). The latter phenomenon continued also the following d., 11th. After 2 a.m. he was frequently awakened out of sleep by vivid dreams. 12th.—Constipation; frequent micturition. The n. from 13th to 14th was sleepless from 2 o'clock. 14th.—The stool failed; following d. was insufficient. The 16th was completely void of symptoms. The 17th he had again constipation. In n. prior to 18th he awoke about 3.30 and lay wide awake for an h. When he fell asleep after that he was tormented with anxious dreams. From 10th to 18th the sexual instinct was unusually active. The \mathfrak{zij} of the 20th created soon after their administration nausea, accumulation of water in mouth, vomiting of a watery fluid with subsequent great thirst, which first ceased after drinking much water. In course of d. secretion of urine was diminished, stool constipated. Sleep was disturbed from 3 a.m. by vivid dreams and frequent awaking. He was also obliged during n. to rise once to micturate. 21st.—Frequent urination. The following n. the phenomena of the previous d.; besides these, great sweat. 22nd.—After $\frac{1}{2}$ oz. no stool for 2 d., then the 3rd d. an insufficient stool, e. 25th.—Same dose caused constipation, frequent micturition, sensation of shortened tendon in hough, night's rest broken by vivid dreams and frequent waking. Similar

nocturnal disturbance occurred after same dose the 2 following n.—27th. M., a scanty stool; noon, a copious pappy stool; n., liquid stool; abdomen much distended. Frequent hawking of salt-tasting phlegm, violent, almost unquenchable thirst, frequent and copious micturition. On 29th after $\frac{1}{2}$ oz., and on 30th after 6 dr., immediately violent thirst, slimy, bitter taste, hawking of salt phlegm. All symptoms went off after breakfast. On 29th repeated feeling of shortened knee-tendon, a.m. On 30th cutting pain in hypogastrium, with violent urging to stool, followed by copious pappy stool, and after 1 h. watery diarrhoea. Dec. 1st.—1 oz. in $\frac{1}{2}$ pint of water. This caused immediately flow of saliva into mouth, inclination to vomit, cough, frequent blowing of nose, scarcely quenchable thirst, disgusting pappy taste. After 2 h. cutting in hypogastrium, frequent urging to stool, and very copious evacuation, partly pappy, partly watery. After dinner quite well except tensive sensation in legs, especially houghs. Next 4 d. no or very scanty stool, and (3rd) increased secretion of urine; heartburn and frequent hawking of salt mucus, e.; on going to sleep violent itching in both calves. Frequent waking n.—4th. After dinner very exhausted, as after great exertion, but only when sitting. From Dec. 10th to 18th took 10 dr. of 30th and 27th dil. n. and m., and had very similar symptoms, and in addition cramp-like contraction in calf-muscles for several h. (*Ibid.*)

23. Prof. v. ZLATAROVICH proved drug on 11 of his students.

a. AB—, æt. 22, took from Nov. 7th, 1843, to Jan. 18th, 1844, every m. 10 gr. 1st dec. trit. During all the proving his digestion was deranged, he had little appetite, very furred tongue, insipid pappy taste, increased saliva, much flatus smelling of sulphuretted hydrogen, occasional purging. Urine diminished, yellow, causing burning in urethra. Sleep always restless (though very sleepy e.); dreams much, which was unusual. After waking often headache; sometimes transient tearing pain in calves. In the middle of the proving troubled with great itching of skin for 14 d.; after scratching small vesicles appeared.

b. KR—, æt. 21, made a similar proving. During past month experienced nothing but increase of saliva, slight burning in stomach and bowels soon after taking the dose. Afterwards had itching in various parts, especially about l. knee-joint. After scratching nettle-rash-like spots soon going off. Stools irregular, sometimes liquid, sometimes none. N. frequently restless, full of dreams, sometimes quite sleepless.

c. KK— made a similar proving, but had to stop taking the med. from 8th to 26th Dec. on account of bilious fever. From Nov. 7th to Dec. 8th his report is:—In the first days no effect except a moderate headache, to which he was not subject. On 6th d. a diarrhoeic stool, and this happened daily throughout the proving. He had previously been very irregular in his stools. He had also been subject to painful fits of piles twice a month, but had none during the proving. But his sleep, which had previously generally been sound, was often disturbed and broken, and he was often very drowsy by d. In the second period of the proving, from Dec. 26th to Jan. 24th, the symptoms observed during the first period recurred (excepting the head-

ache), and there was an extremely disagreeable itching all over the skin of the body, which was particularly bad at n. and did not allow him to sleep well.

d. M^r—, æt. 21, made a similar proving. During the first week he was much troubled with flatulence, but the digestion was unimpaired. Afterwards he had congestion of blood to head, restless, short, broken sleep with many dreams, often complete sleeplessness, increased sexual excitement, occasional emissions. In the m. he was generally cross. Towards the end of the proving his digestion was deranged, he had furred tongue, bitter flat taste, especially m., sometimes vertigo and stitchings in head. Urine and perspiration rarely increased.

e. P^o—, æt. 23, made a similar proving. The past 5 d. he had, immediately after the dose, shooting in temples, after dinner great drowsiness. Later on increased saliva, flatulence and swelling in bowels, itching all over body, especially on head.

f. P^j—, æt. 25, made a similar proving. He previously suffered from constipation, but since commencing the med. the bowels became regular, he felt stronger, was not so sleepy in e., his disposition became more cheerful. Immediately after commencing proving, there broke out on his back numerous pustules which gradually became small lumps and disappeared after he ceased to take the medicine.

g. R^o—, æt. 22, made a similar proving. Before this his bowels were opened only every 3 or 4 d. and the motions were hard. They now became normal. The symptoms he observed were, low spirits, vivid dreams, which disturbed sleep, especially after midnight, hawking up of much phlegm, after waking, m., subsultus tendinum in thighs, often for several m., itching in sacrum, spreading to belly and hepatic region and thighs, weariness of lower extremities, mostly m.

h. S^x—, æt. 23, made a similar proving. The first weeks he only had great drowsiness, exciting dreams, transient stitches about pylorus. Later great sliminess of mouth, flatulence, rumbling in stomach, uncommon urging to urinate, nocturnal emissions, very hard stool, constipation. The constipation only occurred when he took the dose before breakfast, not if he took it after breakfast.

i. S^o— made a similar proving. He observed diminished perspiration, increased saliva and urine, restless sleep, vivid dreams, seminal emissions. Before the proving his digestion was usually bad, he had pressure in stomach after a meal, usually 2 stools a d. During proving he had good appetite, his digestion was good, and he had one normal stool per diem.

j. S^a—, æt. 21, made a similar proving. He complained at first of flatulence, but his digestion was better than before; increase of mucous secretion in mouth, especially m., occasionally spasmodic contractions in muscles of upper arm. On Dec. 8th he had an attack of hæmoptysis which he ascribed to unusual exertion. But as this attack was renewed more severely and without apparent cause, on the 17th he stopped his proving. On the 11th it was without any effect. (*Ibid.*)

24. POCOCKE examined the blood of a man, both at the time that the usual diet was taken, and whilst 154 gr. of salt were consumed daily. The following are the results:

	During usual meal.	While salt was taken.
Water	779.9	767.6
Blood-corpuscles	130.7	143.0
Albumen	77.4	74.0
Fibrin	2.1	2.3
Fatty matters	1.1	1.3
Extractive and salts	9.3	11.8

(*Comptes-rendus*, t. xxv. 1847).

25. Confirming conclusions already published by Voit (*Brit. and For. Rev.*, ii, 1862), Rabuteau has shown that N. m. increases vital combustion; for while taking an extra daily dose of 10 grms., his excretion of urea was 20 per cent. more and his temp. half a degree higher, than when under a dietary from which salt was excluded. Similarly Knapp found that with taking 1 grm. of salt, the amount of urea excreted was increased 4 centigr., the other soluble constituents of the urine being diminished. An excess of dose causes not only thirst and disordered digestion but also impaired blood conditions. . . . Very large and concentrated doses cause vomiting, watery purging, and even gastritis. (PHILLIPS, *op. cit.*)

II. *Poisonings*.—1. A girl, æt. 18½, of scrofulous constitution, had suffered till her 14th year from various scrofulous affections, such as ophthalmia, tinea capitis and running ears. Before the menses came at 17 she had a kind of chlorosis, pale face, nausea, anorexia, weakness and emaciation. The menses were for a long time of a morbid character, scanty, irregular, pale and watery. During that time, *i. e.* for 1½ years, she had an insuperable desire to eat salt and sugar alternately and she often had voracious hunger for bread and fat things. From this time there appeared on her hand innumerable warts (she had previously only 2 or 3) so that not a pin's head in size of the hands was free from them. She also had for a year slight attacks of spasms in the stomach which gradually increased and were accompanied by spasms in abdomen. She also grew thinner and paler. She only sought medical advice on Dec. 7th, 1832. She presented then the following symptoms, which correspond tolerably to symptoms of Natr. mur. recorded in Hahnemann's *Chronic Diseases*. Very pale suffering appearance with sunken dull eyes surrounded by blue rings. On account of weakness she slips from one chair to another, but feels best when lying, which she does for several hours during d. Her countenance betrays the highest degree of sadness, crossness, irritation of disposition with tendency to anger and quarrelsomeness; she readily bursts out crying. Disinclination for work. She is vexed at having to answer questions. The circumference of her body has strikingly diminished. She has become thin. Heat of mouth; heartburn, sour taste, loss of appetite, constant loathing, nausea, with flow of saliva into mouth. Feels as if a plug were sticking in her throat, with contraction. Sour and slimy vomiting, generally 2 h. after eating, followed by headache; after a meal immediately feeling of fulness and pressure in stomach with contraction; shooting and cutting in bowels; burning in abdomen from below upwards. Chill all over body after vomiting; great chilliness of back; tearing in back from above downwards, worst in afternoon. Menses irregular and scanty. Hands full

of warts. For 2 months she was treated with *nux vomica*, *ipecaeuana*, *veratrum album*, *bryonia*, *arsenicum* and *rhus tox.*, but in vain. On the 31st Jan. the antidote of *Natr. m.*, *sp. mir. dulc.*, was commenced, and in 6 d. almost all the morbid symptoms were gone. She regained her appetite and could retain food. All the warts dried off in a short time. She recovered her former good spirits and cheerfulness and became strong and blooming. (ENGELHARDT, *Deut. Zeit. f. Hom.*, iv, 17.)

2. A big, thin, dark-complexioned man, æt. 32, complained of the following symptoms:—Loss of memory, so that he can with difficulty find the right word, forgetfulness, dazedness in forehead, and loss of ideas; want of sympathy, misanthropy, prefers to be alone, low spirits, sadness, fear of some serious illness, though he is indifferent to life. Pressure and heaviness in occiput, worse after eating; weariness; heat in head when eating; pressure and heaviness of eyelids, so that he can with difficulty keep them open. Itching ulcers in nose; aching in right lower maxilla; yellow spots in face. Burning in tip of white furrowed tongue; white watery saliva accumulates in mouth when speaking; undefined toothache in afternoon. Itching eruption on scrob. cordis. Pressure in stomach after food; many harassing sufferings; stool pappy, followed by exhaustion. Constant irritation in genitals. Intermittent heart-beats with anxiety, in afternoon. Bruised feeling in sacrum, especially m., when standing or walking; lame feeling in sacrum; boring pressure in sacrum when sitting; pricking and formication on skin of sacrum. Tearing in bones, at one time of arms, at another of legs; slight tearing-drawing in hands and feet; pricking in tips of r. fingers and in r. big toe; falling asleep of hands and feet. Great exhaustion, especially m. Itching all over body in different places; dislike to cold air, chilliness in open air. The doctor thought these symptoms had such a strong resemblance to those of *Natr. m.* that he prescribed that as a remedy. But as the patient became worse, he made inquiries and found that he was a great salt eater, so he gave *sp. mir. dulc.* 2 dr. in a tablespoonful of water to be taken during the d. by teaspoonfuls, and in 4 d. the chief symptoms were gone. (NEUMANN, *Ibid.*, 19.)

3. [In the 8th vol. of this journal (p. 435) is described a case of "purpura hæmorrhagica," which the present writer considers one of "scorbutus petechialis." It was curious in that the patient bore venesection to a surprising extent,—16 oz. of blood having been taken (independent of the hæmorrhages) in 18 d.; and that the blood had a thick and firm "buffy coat." The writer goes on:—] "This cupious appearance of coagulable lymph would, at one period of medical opinion, have been thought incompatible with so high a state of scurvy. But I have met with several cases of scorbutus petechialis similarly characterised, and unexposed to any of those causes which are generally considered as alone productive of this malady. In every one of these cases I discovered that the patients had indulged an inordinate inclination to common salt; and there is one expression in the case so well related by Dr. Jeffreys which inclines me to believe that the disease in his patient had a similar origin—'He craved much for his usual diet of salt beef.' . . . I have no doubt that a free use

of common salt during a certain length of time will be capable of scorbuticising the system with the same certainty that mercury will produce salivation." (SHERWEN, *Ed. Med. and Surg. Journ.*, 7, 44.)

4. Mr. T—, suffering from dyspeptic symptoms, prepared, Oct. 10th, a mixture of two table-spoonfuls of salt to Ozs of brandy, of which he took about two teaspoonfuls m. and e., shaking vial before each dose. On m. of 14th, shortly after taking his dose, he noticed slight itching of skin about neck and under chin. He found that scratching did not relieve him, but itching rather grew worse. Upon examining parts affected, he perceived a faint blush of red and very trifling swelling, but no distinct eruption. He now began to experience considerable burning of skin accompanying the itching, and during d. irritation extended down chest and arms, then down body to lower extremities, even to feet. He began to suspect the salt and brandy, but took his usual e. dose. After tea itching and burning began again with tenfold violence, and was almost intolerable. It passed from above downwards as before to soles of feet, where he experienced the greatest suffering. To use his own words,—“I could not have suffered more if I had been walking upon red-hot coals.” His feet felt swollen, but no swelling was perceptible to eye. This intense suffering lasted nearly 3 h., when the irritation went off, leaving him comparatively comfortable. He had slight itching of body during n. Next d. he omitted m. dose, but after breakfast and again after tea he experienced a similar attack to yesterday's, that in the e. being even worse than before. On 3rd and 4th d. he suffered in like manner, but less in degree, being always worse after tea. (BARTLETT, *N. A. J. of H.*, ii, 132.)

5. A child of 6, healthy save for a lameness of r. leg, was for this ordered complete rest. In consequence constipation occurred, and to overcome it she was ordered an enema in which a considerable quantity of common salt had been dissolved. During following n. she became very thirsty, and drank large quantities of water, passing also much urine. These symptoms continued, rather increasing than otherwise, from May, 1868, till November, when Professor Abelin saw patient. The amount of fluid taken in 24 h. at beginning of June was over a gallon, and the quantity of urine voided in same space of time was somewhat under a gallon. Patient by that time had commenced to lose flesh and strength. Her appetite diminished, and sleep was interrupted by need of allaying thirst and voiding urine. Bowels have been regular; no perspiration, skin being generally cold. Temper has become irritable and peevish. Nov. 12th.—Patient is of ordinary size and development for age; face tolerably plump, but body thin. Skin pale, dry, elastic to feel; temp. normal. Thorax laterally somewhat compressed; resp. even, uniform, and calm. Heart normal; pulse full, soft, 92. Tongue slightly coated whitish yellow; appetite indifferent; bowels regular; abdomen somewhat enlarged, but soft and resonant. Urine clear, of peculiar greenish colour and feebly acid reaction; becomes frothy when shaken, its sp. gr. in m. is 1005; p.m. 1004. M. urine shows by nitric acid test evidence of albumen; in afternoon no trace of it. In the specimens hitherto microscopically examined no tubular casts found. At end of 14 years A— heard that

patient's state had not changed, in spite of treatment. (*Brit. Journ. of Hom.*, *xxxi*, 415.)

6. E. A—, æt. 28, having enjoyed almost uninterrupted health until a year ago, since then had been in a very infirm state, and compelled to relinquish the teaching by which she lived. Dr. Hare saw her March 21st, 1854. Her mind seemed hopeless and confused. Her chief complaint was of great chilliness, accompanied by languor; headache and great dyspnoea every m. about 3, followed by great heat with thirst, which terminated in profuse perspiration. It was elicited that just before her illness she began to eat salt as a vermifuge, and in course of time acquired a taste for it and habitually ate it in great quantities. The quantity consumed daily seems to have been about $\frac{3j}{i}$ or $\frac{ʒiiss}{i}$. On further inquiry, the following symptoms were ascertained:—Constant craving for food, but is unable to eat more than a few mouthfuls, immediately after which she feels distended almost to suffocation, and has violent palpitation; thirst constant; great pain at præcordium after eating or drinking; heartburn and waterbrash daily, occasionally empty vomitings; gums are sore and swollen, and bleed easily; breath foul; submaxillary glands swollen, stiff, and painful; tongue red and shining; bloody saliva runs from mouth at n.; voice completely changed, is husky and monotonous, resembling that of a woman addicted to ardent spirits; uvula much swollen and elongated, clinging to tonsil; vessels of throat much congested. Periods very uncertain, at first every 2 weeks, now 6 or 7 weeks frequently intervene. She is generally chilly, but each n. suffers excessively from rigors, followed by heat and profuse perspiration; as the rigors come on, and during their continuance, her languor is excessive, and the headache and dyspnoea almost indescribable. Urine is scanty, but there is constant desire to micturate; it is painfully acid, contains three times its proportion of chlorine, and deposits large quantities of uric acid. She is naturally constipated, but for last 3 mos. has suffered much from constant diarrhoea. She complains of rheumatic pains in arms and legs; feet and ankles are particularly painful and stiff. Her hair has fallen off, and she is occasionally troubled with an itching eruption on her scalp. Her perspiration was so saline as to produce excoriation on parts of body where skin was thinnest. Her mind was much weakened; her once keen sense of honour and of right and wrong seemed blunted; she was in turns vehement and passionate, moody and silent. Omission of the salts effected little change, nor did arsenicum, but sp. nit. dulc. speedily initiated improvement, which under other remedies went on to complete recovery. (*Monthl. Hom. Rev.*, *iii*, 211.)

7. I always suffer when I have eaten anything salted, as bloaters, &c. When salt is used as a condiment I suffer from thirst and a sensation of heat over the whole body, a kind of fever. After having taken much salt I suffer from eructations, even vomitings; flatulency; bad taste in mouth, &c. (LIEDBERG, *Brit. Journ. of Hom.*, *xxx*, 405.)

8. A patient tells me that whenever she eats salt her breath becomes short and chest tight and as if a dry stick of wood were down throat, with cough. (BERRIDGE, *N. Y. Journ. of Hom.*, *i*, 312.)

NATRUM NITRICUM.

Sodic nitrate, NaNO_3 . Nitrate of soda, cubic nitre.

I. *Proving*.—1. WEIDNER, æt. 22, tall and robust, arterial constitution, took from June 25th to July 2nd $\mathfrak{ʒij}$ $\mathfrak{ʒvj}$ without any peculiar symptoms except that whereas the venesection wound before taking the drug healed in 12 h., that made after taking the drug was still suppurating on 3rd d., and that on the last 3 d., when taking $\mathfrak{ʒss}$ daily, large quantities of urine were discharged,—on June 30th $\mathfrak{ʒlxj}$, on July 1st $\mathfrak{ʒxxxij}$, on July 2nd $\mathfrak{ʒxxxiv}$, whilst on same days only $\mathfrak{ʒxxxix}$, $\mathfrak{ʒj}$, and $\mathfrak{ʒiij}$ water were drunk. His pulse, which before the proving was 65, fell on 2nd d. of the proving to 62, on 7th d. to 52, and was always under 60. Soon after leaving off drug it rose again, and on the 5th d. was at its normal velocity. The blood drawn on June 21st and July 2nd gave the following result:

1000 parts blood showed—

	Before taking drug.	After taking drug.
Serum	456.3	442.7
Dry residuum	47.2	48.4
Ash	5.9	6.8
Clot	491.3	500.0
Dry residuum	207.8	168.7
Ash	18.9	14.8
Red sediment	52.4	57.3
Fibrin	3.21	3.14
Water	731.6	801.6
Dry residuum	265.2	195.3
Fat	3.1	1.7

Before taking drug, blood dark red, viscid; few colourless corpuscles, many elementary corpuscles; coagulated in 8 m.; separation of serum very rapid, so that after 1 h. the clot seemed to be not much larger than 15 h. later. Clot very firm, buffy coat. After taking drug, blood in colour and consistency looked like expressed cherry-juice, many colourless corpuscles. Time given to coagulate 3' 33", separation of serum slower, clot firm, buffy coat thinner. During last days face thinner and paler. (*Zeitsch. f. Erfahrungsheilk.*, i, pt. 4, p. 41; in *Frank's Mag.*)

2. A. LÜHR, æt. 29, very robust, arterial constitution, took at same time as W— in 8 d. same quantity. The first bleeding did not affect him. After that of July 2nd, when walking, felt exhausted and weak, especially in knees. Slight derangement of digestion in latter d. of proving. From June 28th tongue whitish, head slightly confused, painless rumbling in bowels occasionally; stool retarded. Little effect on quantity of urine, though more fluid was drunk than before. The sp. gr. increased from 1005 gradually to 1010, 1015, 1020 up to 1025. The colour at first became lighter, but soon as dark as before. Pulse before taking drug rose above 60, once only 54, afterwards never above 50, on 30th only 40. Six d. after leaving off drug it was 54, on 10th

d. 58. Before taking drug the difference of pulse when sitting and standing was 10—15, whilst taking it 4—8 only. Towards end of morning face paler and thinner. Examination of blood on June 21st and July and showed the following result:

1000 parts of blood showed—

	Before taking drug.	After taking drug
Serum	435.5	444.2
Dry residuum	52.7	49.5
Ash	7.5	9.3
Clot	507.4	528.9
Dry residuum	159.6	171.9
Ash	8.7	11.0
Red sediment	56.7	26.9
Fibrin	2.12	2.16
Water	735.8	772.9
Dry residuum	262.1	224.9
Fat	2.8	1.9

Before, blood dark red and viscid, a good number of white corpuscles; time taken to coagulate 8 m., clot hard and elastic. After, blood like expressed cherry-juice, many and large white corpuscles, time taken to coagulate 4' 59", clot pretty firm. (*Ibid.*)

3. C. GILMERSTEK, æt. 23, strong, venous constitution, took in 12 d. from July 10th to 22nd \mathfrak{ss} \mathfrak{iiij} ; in first 2 d. \mathfrak{ssij} , on 3rd d. \mathfrak{ssij} , and after that \mathfrak{ss} daily. The analysis of blood drawn on July 6th and 23rd gave following result:

1000 parts blood showed—

	Before taking drug.	After taking drug.
Serum	403.1	415.8
Dry residuum	44.5	34.1
Ash	5.8	5.8
Clot	492.2	543.7
Dry residuum	200.9	158.6
Ash	24.3	28.4
Red sediment	104.8	40.5
Fibrin	1.5	2.1
Water	680.9	787.4
Dry residuum	317.6	210.5
Fat	3.5	1.2

Before taking drug, blood dark red; many white corpuscles; time taken to coagulate 7' 4"; clot moderately firm and elastic. After taking drug blood like cherry-juice; fewer but very large colourless corpuscles; time taken to coagulate 6' 23"; clot very soft and friable.

General sensations: Afterwards, for some d. occasional extreme exhaustion; from July 21st this became permanent; every d. this exhaustion increased, it was aggravated by every movement, he had the greatest difficulty in going upstairs. At same time great psychological laziness; head confused, appetite lost, the pulse, which was previously large and full, became daily smaller and softer, face paler, features sunken. This state reached its climax on July 24th after a small venesection the previous e.; it was less on 25th; and on 27th only felt after

bodily exertion; head free, appetite restored, but pulse still small and weak. Pulse grew fuller on 28th, when the vein wound made a d. previously was healed. Occasionally during the last 2 d. some pain in bowels. Urine not increased in quantity was, while taking drug, much lighter, sp. gr. increased, sometimes turbid and depositing a slimy sediment. (*Ibid.*)

4. W. DEBET, æt. 20, rather tall and thin, nervous constitution, with tendency to ebullitions of blood, took in 8 d. from July 2nd to 9th ℥ij ℥ij. Pulse fell once to 63, normal pulse 75, diminished in fullness and tension.

General sensations: On 4th d. such exhaustion he could not take a long walk without repeated rests; it increased the following days, and on 9th became so great that he could hardly walk. At same time peculiar painful sensation in ankles and adductors of thigh. On 13th the exhaustion was still so great that after a short walk, c., he had a fainting fit.

Urinary organs: In spite of profuse perspiration in the warm weather while taking the drug more urine was present than fluid drunk, whereas before and after the opposite state occurred. Sp. gr. increased. On letting it fall on paper there remained behind very iridescent, crystalline scales. There was also frequent, often anxious, urging to urinate and increased mucous secretion, shown by turbid urine and copious mucous sediment. The great loss of water was also shown by a tiresome burning dryness in mouth and throat.

Analyses of blood drawn June 29th and July 9th gave following results:

1000 parts blood showed—

	Before taking drug.	After taking drug
Serum	410.7	448.4
Dry residuum	44.5	47.1
Ash	7.2	8.4
Clot	515.6	511.2
Dry residuum	259.5	236.9
Ash	19.8	27.0
Red sediment	73.7	40.4
Fibrin	2.9	2.5
Water	735.7	757.6
Dry residuum	261.4	239.9
Fat	3.6	2.6

Before taking drug, blood dark; a good number of white corpuscles, scarcely larger than the red corpuscles; time taken to coagulate 13' 5", clot firm. After taking drug, blood brighter; many large white corpuscles and very pale red corpuscles; time taken to coagulate 7' 15", clot soft, friable. (*Ibid.*)

5. W. LAMBERT, æt. 20, tall and strong, nervous constitution, very excitable vascular system, very apt to perspire, took from July 10th to 20th ℥iv ℥ij, after a small venæsection on June 25th. Normal pulse between 75 and 80, while taking drug almost always below 75, repeatedly 70 and less, down to 66. Pulse grew softer in latter days.

General sensations: Exhaustion and disinclination for mental and

bodily exertion, increasing quickly the next 2 d., constant drowsiness, sleep not refreshing. Health and strength gradually returned some d. after leaving off drug. No alteration in urinary secretion or digestion; from 14th to 18th the stool, whatever its consistence, occurred with great straining; in the last days there was continual urging to stool.

Analyses of blood of 25th June and 20th July gave following results:

1000 parts blood showed:

	Before taking drug.	After taking drug
Serum	404.8	486.1
Dry residuum	44.5	38.2
Ash	7.5	7.7
Clot	540.5	476.8
Dry residuum	179.3	146.9
Ash	22.6	25.8
Red sediment	54.7	37.1
Fibrin	2.8	1.9
Water	744.8	751.5
Dry residuum	252.4	246.6
Fat	2.9	2.5

Before taking drug, blood bright red; along with deeply tinged corpuscles many white ones; time taken to coagulate 12' 36"; clot firm, elastic. After taking drug, blood like cherry-juice; along with slightly coloured corpuscles, many white ones; time taken to coagulate 6' 50", clot soft, easily broken up. (*Ibid.*)

6. BEUDER, labourer, æt. 43, very strong. Five years ago got severe ophthalmo-blepharorrhœa, treated by 2 blood-lettings and mercurial ointment with extract of belladonna; was able to resume work in 14 d. There remained a thin spot on cornea. Sight generally worst in spring and summer. He got himself bled when his sight was bad and it improved. The last 2 years the sight was good; he was bled no more. The last 24 d. the sight has been weaker, and he had exhausting painful diarrhœa. In 2½ d. he took 6 powders, each containing ½ gr. of opium. After 14 d. he felt quite well.

1000 parts of the blood contained:

Solid matter of the defibrinated blood	205.000
Water thereof	795.000
Solid matter of the serum	88.400
Water thereof	911.600
Blood-corpuscles	113.519
Albumen (dry) of serum	75.140
Extractive matter and salts thereof	13.260
Fat	0.265
Fibrin. a. Moist	7.570
b. Dry	3.081
Coagulum	487.160
Serum	512.820
Sp. gr. of serum	1.026.7

The total quantity of blood taken amounted to 77 grms.; the first examination was on July 28th at 10.17 a.m.

A moderate buffy coat was formed. After 2½ h. the serum was decanted off; it was clear and the colour of urine. Coagulum very black, commences after 4 m. to redden slightly. After 8 m. the colour becomes light brown with some black places. The redness becomes gradually more intense. He took, July 31st, a tablespoonful every h. of the following mixture:—Natri nitrici ʒiiss, Sacch. alb. ʒj, Aq. dest. ℥viij. Soon after commencing this he had pains in abdomen difficult to describe. This was speedily followed by 3 diarrhetic stools, when the pains ceased. Next m. a normal stool. On August 1st at 10.15 a.m., 83.2 grms. of blood were drawn.

1000 parts blood contained:

Solid matter of defibrinated blood	190.500
Water thereof	809.500
Solid matter of serum	83.600
Water thereof	916.400
Blood-corpuscles	103.487
Albumen (dry) of serum	69.305
Extractive matter and soluble salts thereof	14.295
Fat	0.250
Fibrin. a. Moist	8.000
b. Dry	3.341
Coagulum	458.910
Serum	541.090
Sp. gr. of defibrinated blood	1.053
Sp. gr. of serum	1.025.2

The blood had a buffy coat. The serum is clear and wine-yellow coloured. After 2½ h. it was separated from clot. More dissolved colouring matter than in first bleeding. The reddening of the clot went on quicker than in the former case. The black places fewer and much smaller. (BOECKER, *Allg. Zeit. f. Hom.*, Suppl. 7, 44.)

7. CARL SYENBERG, æt. 24, clothworker, of athletic build, rosy colour, dark brown hair. Had been suffering for more than a week from rheumatic pains in limbs. July 11th, 10.15 a.m., was bled to 91.2 gm.

1000 parts blood contained:

Solid constituents of defibrinated blood	203.000
Water thereof	797.000
Solid matter of serum	85.200
Water thereof	914.800
Blood corpuscles	115.908
Albumen of serum	72.420
Extractive matter and salts thereof	12.780
Fat	0.213
Fibrin. a. Moist	3.312
b. Dry	1.892
Coagulum	487.394
Serum	512.606
Sp. gr. of defibrinated blood	1.056.0
Sp. gr. of serum	1.025.1

The serum was turbid and reddish. It was decanted from clot

after 2½ h. The clot reddened quickly, in 5' was already bright red. Very few black spots. Took, July 13th, a tablespoonful every 2 h. of following mixture:—Natr. nitr. ʒij, Sacch. alb. ʒj, Aq. dest. ʒviij. By July 14th the pains were much relieved. During the 2 d. whilst taking mixture the stools were increased. No other symptoms could be observed.—July 14th, 10.15 a.m., 88.7 grms. of blood were drawn. This removed all remaining pain.

1000 parts blood contained:

Solid matter of defibrinated blood	184.000
Water thereof	816.000
Solid matter of serum	70.400
Water thereof	929.600
Blood-corpuscles	111.984
Albumen of serum	58.344
Extractive matter and salts thereof	12.056
Fat	0.176
Fibrin, a. Moist	3.232
b. Dry	1.616
Coagulum	423.730
Serum	576.270
Sp. gr. of defibrinated blood	1.050
Sp. gr. of serum	1.0221

The serum is reddish and turbid but soon clears, and its red matter is deposited on surface of coagulum. After 2½ h. the serum was decanted. As soon as the clot came into contact with the air it became intensely red, very few melanotic spots to be seen. (*Ibid.*, 49.)

8. Dr. E.—took m., fasting, ¼ drm. in substance. After 2 h. no appetite for usual coffee, this lasted 2 d.—1st d. Cold feet up to knees. Occasional rigor all over.—2nd d. Sour taste and sour eructations almost like heartburn for a short time. In-pressing pain on malar bone.—*No time stated.* Confusion of head as after prolonged thinking. Abdominal muscles painfully drawn towards spine. (*Archiv.*, xlii, 179.)

9. Dr. H.—took ½ h. after rising, m., 1½ drm. dissolved in 2 oz. water. After ¼ h. distension and heavy feeling in hypogastrium, with discharge of much flatus. A cold feeling streams through upper part of body and arms followed by increased warmth.—After ¾ h. pressive bruised pain in joints of feet, toes, shoulders and fingers.—After 9 h. flatulent sufferings which cause pressive pains in scrob. cordis and higher up under sternum as if in chest, aggravated by bodily exercise, relieved by discharge of flatus or eructation.—After 48 h. very dilatatory evacuation of large fæces after great straining, leaving behind sensation of more to come, at 2 p.m.—*No time stated.* The whole l. concha becomes burning hot, whilst the r. remains cold; this hot feeling soon spreads over l. temple, and after some time changes into in-pressing pain there; after some time longer, this hot feeling goes into r. side of head, especially the outer ear, and goes thence into general feeling of heat and pressive pain in l. frontal protuberance, p.m. In r. ear, as if in membrana tympani, pain, a kind of cacache, with warm feeling in internal ear, e. Peculiar, almost coppery taste on lips and tongue, all forenoon. When lying in bed, e., some obtuse stitches in back of throat on drawing

in air by nose. On breathing deeply, and at every inspiration when sitting bent forward, pressive pain as if between and on ribs under arm end of r. pectoral muscle. Asunder-pressing pain in first joints of r. index and middle fingers. Icy coldness of l. foot half way up leg, in warm room and when walking. (*Ibid.*)

NATRUM SULPHURICUM.

Sodic sulphate, Na_2SO_4 , 10 H_2O . Glauber's salts.

I. Proving.—r. NERKING. Proving (matter unknown) on self and several women and girls.—Cheerful, happy mood, which she notices herself, particularly after loose stools; 2 m., 1st d., she seems to be in very good humour, is cheerful, this changes into cross, irritable mood on 3rd and 4th d.; nothing succeeds well that she undertakes, and she does not know why; great irritability, she dislikes to speak or be spoken to, particularly in m.; m., very sensitive, and easily flying into a passion, which mood goes off towards afternoon (5th d.); lachrymose, thinks only of sad things (6th d.); music affects her very much, it makes her melancholy and feel like crying, although it was merry dancing music (7th d.); very much disheartened, is tired of life, despairs of getting well. Vertigo, with inclination to fall to r. side, with frequent yawning all d.; vertigo, followed by vomiting of sour mucus, feeling as though brain were loose, and when stooping as though it fell to l. temple, frequently; pressure at forehead, particularly after meals (1st d.); pressure in forehead as of a hard substance; violent pressure in r. side of head, so that she held it with both hands; pressure inwards in r. side of head, after lying down in e., all n.; after a little strong coffee violent pressure in back part of head on entering a room; pressing or squeezing pain in whole back part of head, lasting for hours; headache, pressing from both sides of back of head, 6 p.m., followed by quiet n., but pain returned next m. for 2 h., and then extended all over r. side of face, this repeated for 3 consecutive m.; tearing pain in r. temple upwards to top of head, 4 p.m., continued all n. till next m., accompanied by chill running up back, with chattering of teeth and shaking, without external coldness, but lessened by warmth of stove; violent searing pain in r. temple, towards facial bones; tearing pain in r. side of back part of head, when keeping quiet (1st d.); piercing pain in l. side of head when exerting his arms; violent piercing pain from l. forehead to back of head, 10 a.m., while sitting; fire piercing pain in l. forehead, near protuberance; heating pain in both temples when walking, with indelible pain on top of head, almost like suppuration, as if top of head would split, the same when touched, continuing all d.; not better by pressure, returned next d., disappeared at n. when in bed (during catamenia); violent pulsating headache, continuing all d., somewhat lessened in afternoon; a sudden jerk in head, so that it threw it towards r. side, which frightened her very much, forenoon, while sitting; two little bunches on both sides of back of head, sensitive only to touch. Shuns light for long time during his provings; eyes cannot bear light in m., and burn; eyes weak, objects appear dim to her; eyes seem blurred in m., and often water, without redness or pain; vision dim, with burning and tearing watery in eyes, as if they gave out heat (10th d.); sensation in r. eye as though a small white leaf were before it, through which she could not see plainly, disappearing for awhile by washing, but always returning towards e.; after blowing the nose, hard, small, glistening, yellow pointed bodies appear before eyes; piercing pain in eyes, at same time nausea in stomach; eyes hum in e. for several h., and in m. also when near the fire; burning in r. eye, with frequent efflux of burning water in afternoon, outdoors, for ½ h.; great dryness and burning of eyes, growing worse from afternoon till e., sensation as though her eyeballs were hot; redness of eyes with dryness and burning; pressure as of two fingers above edge of l. eye at noon; on lower edge of l. bulbous tearing sensation in show jerks (1st forenoon). Sound in l. ear as if bells were ringing at a distance; sounds as of a bell in r. ear, fulness of both ears for several m. (4th d.); ringing in r. ear as if near a bell (5th d.); several sharp stiches fly like lightning out of r. ear; suddenly a violent stich into r. ear, which startled her so that she jumped from her chair;

many fine scratches into *r.* ear. Coryza with stoppage of nose, he can draw breath through nose only with great difficulty; epistaxis, a. p. m., while walking, often stopping for awhile and then returning, light red, sometimes also while sitting, even while lying in bed (during catamenia); tearing pain in *r.* side of nose as if an eruption were about breaking out. Tearing pain in *r.* side of face, afterwards tearing and beating along neck; frequent itching in face, now here, then there (3th d.); tearing pain in l. cheek-bone, not relieved by either rubbing or pressure; during a pain in neck, and worse afterwards, tearing pain in l. cheek-bone, which is stopped by hard rubbing, but soon returns, lasting 10 m.; tearing pain in l. cheek-bone, afterwards grasping and raging pain in root of an upper tooth, l. side, generally in m., particularly when exposed to cold air; in m., after getting up, great pain in maxillary joint, which is stiff, so that she can only open her mouth with difficulty, it seemed to her as though a bone was lying there which made it hard to open her mouth, after repeated and strong efforts it gradually disappeared; two small knots are formed deep in skin, on *r.* side of lower jaw; pimple on chin, with burning remittent pain when touched. A blister with inflamed edges and burning pain on one side of l. upper lip, lasting 5 d.; small vesicles break out on under-lip, which disappear after a short time; dryness of upper lip, and skin peels off; her lips burn in *e.* as though they had been rubbed with pepper. Tearing pain in several decayed lower l. teeth, at n. when out of bed; tearing and piercing pain in last molar, l. side, but only during d.; jerking pain in an upper l. molar, beginning while outdoors, but continuing afterwards in room; raging pulsating pain in an upper molar, l. side, makes her a. m., at same time heavy feeling in head, increased warmth of whole body, and restlessness, so that she did not know where to lay her head, followed by nose-bleeding which did not relieve head; beating headache in upper l. side, in *e.*, after lying down, could not sleep all n. for it, it she dozed awhile pain would wake her up; a tooth in *r.* upper jaw becomes loose, seems longer, and there is drawing pain, cold air makes it better, tobacco-smoke also lessens pain; her gums burn like fire, so that she cannot eat bread; redness of gums and dryness in mouth; a movable painless swelling on outside of gums, l. lower side; a blister on upper gums, which suppurated and then dried up; m., after perspiring, very dry in mouth, without thirst; dryness of mouth with thirst and redness of gums; burning in mouth as from highly seasoned food (3th d.); m., no taste, mouth feels rough and almost insensible; m. and a. l. the forenoon. Slimy taste and tongue covered with mucus; blisters, with burning pain on tip of tongue, disappear soon; tongue burns as if covered with blisters on tip. Whole palate burns as if sore or the skin broken (during catamenia); blisters on palate, which increased daily, so that palate became so sensitive she could hardly eat, anything cold in her mouth relieved it; in m. had to clear her throat several times, irritated by collection of mucus there; in m. after clearing her throat she expectorated salty-tasting mucus, which had collected during n.; dryness of throat as if she did not have enough saliva (7th d.); dryness in throat, without thirst, often extends into oesophagus (32d d.); sore-throat when swallowing, and when not swallowing, l. side, in m. on waking until after breakfast (a few h. before and during catamenia); feeling of contraction in throat, often intermitting while walking, all d. Particular absence of thirst first days of proving; thirst every *e.* without any especial cause; thirst at n., and following m. before rising; thirst for something very cold for 3 d., and dryness in mouth (all 9th d.); want of appetite; she is obliged to yawn, and is thirsty, and m. 1st d. seems to have more appetite for fruit, afterwards (9th and 10th d.) appetite and hunger are wanting altogether, food does not taste well, thirst p. m., hard stool, great sleepiness (14th d.); hunger, but no appetite, while eating she feels disgusted; violent pressure in back part of head after drinking coffee. (Several of the complaints of the m. cease after dinner.) A debilitating hicough, lasting 4 h. towards *e.* in room; hicough lasting a long time, and which could not be stopped after eating bread and butter, afternoon; constant rising in throat of sour water (3d d.); when going downstairs in forenoon, nausea, then vomiting of salty sour water without relief; nausea as if to vomit with water-brash for 5 m. when walking p. m.; with nocturnal headache, and during d., sour water often collects in mouth, which makes her want to spit constantly, also nausea; after vomiting, extreme feebleness and a boring headache; feeling in stomach as with voracious appetite, with boring pain, immediately after medicine, disappears after breakfast; feeling of great fullness in stomach up into chest, with difficult breathing,

in r. in bed, falls asleep at last, feels nothing of it next m. (during catamenia); beating pain in stomach, with slight nausea (and d.); boring pain in stomach $\frac{1}{2}$ h. in m. after getting up, returning in a h. preceded by nausea and soft stools (1st d.); burning and pinching pain in stomach in m. after getting up, disappears after break. fast; trembling and pressure in pit of stomach, with want of breath, feels faint while sitting for $\frac{1}{2}$ m., afterwards also when walking. Very painful sensitiveness to touch in region of liver when walking for $\frac{1}{2}$ m., 2 p.m.; tension and piercing pain in region of liver when walking outdoors; on taking deep breath sharp violent stitch as if in liver and would burst apart there, while sitting, unchanged by pressure, 4 p.m.; piercing and puking pain in region of liver, when walking in m. (and d.); painful contraction in belly up into chest, oppressing her breathing, then soft stool; pinching pain in belly, with feeling as though intestines were being stretched, intermitting and recurring; short pinching pain in belly, now here, now there, often from both sides towards middle, with passing of flatus and empty feeling in stomach; violent pinching in belly into groin, afterwards soft stool (on 3rd d., 4 times); low down in abdomen painful digging, 9 p.m., disappears in bed, with chill followed by thirst (during catamenia); at 5 a.m., she is awakened by bellyache, urging to stool, after which it ceases (2nd d.); bellyache and pain in small of back as if bruised, awakens her in m., 2 a.m., it is so violent she can only get a little relief by lying on l. side, but still cannot sleep, it continued some time after getting up (2nd d.); burning sensation in belly, changing from place to place very quickly, e.; while riding in a carriage much rolling and grumbling in stomach and belly, afternoon; feeling in belly as from a purgative, with scintillating flatus; loud grumbling in upper part of belly, followed by emission of very fetid flatus, e.; soon after taking med. grumbling and rolling in whole belly, with sudden pinches as after a purgative, then soft stool, the same p.m.; constant feeling of fullness in abdomen, as long as soft stool continues, with emission of much flatus; digging sensation from flatus, with pinching pain around umbilicus towards noon, increased until 4 p.m., until flatus began to pass (1st d.); flatus rolls about in belly, and is arrested here and there; burning sensation in bend of thigh, between menstrual periods, in e., disappears when in bed; pain in r. flank as if descended, up into stomach, when sitting in e., and also next m.; he was awakened during n. by violent pain in r. flank, with sensation as if soft body were lying there, for $\frac{1}{2}$ h., after midnight several times; sharp piercing pain in l. flank, which extended into armpit when moving, 5 p.m., when resting it disappeared in $\frac{1}{2}$ h.; piercing pain in l. flank, as if drawn together, when resting or in motion, also at n.; piercing pain in r. flank with nausea, for $\frac{1}{2}$ h., when resting or in motion (1st forenoon); in m. piercing pain in groin, which extends into small of back, as if from flatus or such as precedes hard stool, but it is followed by diarrhoea; feeling of great fullness and tension in r. groin as if it would burst, with intermitting pinching pain here and there in belly, when resting or in motion; piercing pain in both groins, with urging to urinate, p.m., when walking outdoors (1st d.). Seems to promote stool in its primary effect, and to retard it secondarily; first doses make soft stools, later doses more solid ones; 1st d. in m., regular stool, with burning in anus during and after stool, another, p.m., without the burning. Urine increased so that she had to urinate several times during n.; 1st d. more urine than usual, with burning sensation when passing it, at n. burning increased, had to rise twice during n. for the purpose (1st n.); soon after taking the drug less urine, but after 2 h., more, then less again, and less often (1st day, after 12 d. with burning in os sacrum of urethra); violent pinching pain around umbilicus for 3 m., while sitting, into groin, with urging to urinate, urine so burning that it was retained, with pain in small of back; urine of e. left a yellow-red sediment. On acetous troublesome itching that rarely ceases after scratching, which makes place burn; piercing pain in vulva and vagina, p.m., while sitting. Catamenia 3 d. too late, more than usual, and with bellyache, which she did not generally have; catamenia 16 d. too late, with bellyache and constipation or hard stool; catamenia very little, without complaints and at regular time, and d. more; catamenia every forenoon for 5 d., lumps of coagulated blood; during catamenia in m. in bed, pinching pain, and when moving, walking, in forenoon, several times passed clotted dark blood at long intervals; menstrual blood is acrid, makes thighs sore, and only flows much for 2 d.; chill, p.m., without thirst, during catamenia; on 3rd d. of catamenia, in m., white bloody mucus instead of blood. Show breath when walking, gradually relieved by rest, later the want of breath continues

while sitting; tickling in throat exciting a loose cough (m., 5th d.); generally dry cough, particularly in m. after getting up; dry cough with tickling in windpipe for $\frac{1}{2}$ h.; dry cough, with sometimes in chest and rough feeling in throat, particularly at n., she had to sit up and hold her chest to get relief; frequent cough with some expectoration,—if while standing, he feels sharp stitch in l. side of chest, with shortness of breath; pressure on chest as of heavy load; piercing pain in l. side of chest, with cough and want of breath when moving about, 1 p.m., relieved during rest; piercing pain in l. side of chest, with irritation to cough, but pain so violent that he cannot possibly cough; several stitches like flea-bites in l. chest, and then again in r. forehead; piercing pain in r. chest above nipple, 3 p.m., while sitting; near l. nipple a piercing stitch while sitting, soon after a renewed dose several times while standing stitches in l. side of chest (10 d.); piercing pain in l. chest, when stooping to either r. or l. side, continues all the d.; internal trembling or quaking in chest, making her irritable. Intermittent tearing pain and tension in tendons on r. side of neck, while sitting; tearing sensation in veins of r. side of neck, pulsation in the arteries is seen, frequently intermitting for $\frac{1}{2}$ h. at a time, again after a few d.; piercing pain in nape of neck, continuing long time (3rd d. and following n.); indelible pain in r. side of nape to back part of head, so violent that it made her scream, lasted 3 m. and disappeared only after rubbing it a long time, while sitting; piercing pain, as of knives, between shoulders while sitting in e. (6th d.), tearing pain down back, feeling in bones as though dogs were gnawing them, in all positions (5th d.); directly after going to bed at n. she has pain in small of back, as if it had appeared, almost unbearable, it disappeared in m. after getting up; bruised pain in small of back from m. to e., disappeared after going to bed; violent piercing pain in middle of sacrum while sitting. Frequent piercing pain in l. scapula in all positions; tearing pain in bone of r. upper arm, sometimes under shoulder-joint, from time to time; tearing pain as if in bone of l. upper arm; tearing and piercing pain on external surface of humerus in e., disappears after rubbing; feeling of heaviness in r. arm, with tearing pain in middle of upper arm (10th d.); ulcerative pain in r. elbow and in tendons of r. forearm, painful to touch (3rd and 4th d.); transient burning sensation on different places above and below elbow (4th d.); tearing pain from both elbows into fingers, with sensation of numbness, disappearing after rubbing, but recurring in m. in bed; tearing pain in bone of r. forearm on upper side in afternoon, below elbow in e.; itching pimples on inner side r. forearm that burn after being scratched, and disappear next d.; several itching pimples on r. forearm that burn after being scratched and contain limpid water (during the catamenia); twitching of hands and feet at n., particularly during sleep, after midnight; sensation in r. hand as if it were filling with blood, it feels too full and fingers as if stiff (in afternoon, while knitting, until e.); piercing beating pain on back of l. hand when moving it, it stops for a while, but always returns, increased; violent piercing between the metacarpal bones of fore and second finger of r. hand; piercing in middle of palm of r. hand; burning with redness on back of both hands, as of nettles, afternoon till e.; a number of small pimples on inner surface of r. hand, which tempt him to scratch; tearing pain along l. thumb while sitting; tearing in front of r. forefinger, same in last phalanx of l. forefinger towards tip; rise piercing in points of r. thumb and forefinger, as if veins were being pulled out, while knitting, crawling sensation in finger-tips of r. hand as it becomes numb, 1st e. and m.; violent itching between fingers of r. hand, burning after scratching; small itching vesicles between l. thumb and forefinger, piercing ulcerative pain under nail of r. forefinger. Excruciating pain in r. hip-joint on getting out of bed in m., continuing all d. and next, particularly when stooping and from some motions, when stretching or walking feels nothing, when rising from a seat or moving in bed feels it most; violent piercing and tending from os coccygis into middle of l. thigh in bone during motion and rest; bruised pain in middle of thigh and lower part of leg all the d.; painful dragging sensation in hollow of r. knee while sitting, which disappears from motion; great weariness in feet at n., makes her often change their position; legs very weak and as if bruised during rest or motion; drawing pains in legs when standing and walking; tending and drawing in both calves and in tendons, which makes it hard for her to step, during rest and motion, sometimes relieved by hard rubbing; drawing pain upwards in tendons and calves, both legs are quite hot up to knees in e. before going to bed, and next m.; drawing pain in tendo Achillis, then in calves; piercing and stinging in r. heel for a m. while walking, re-

relieved by rubbing; great piercing and rending pain in both heels, so that she can hardly help screaming, while spinning, nothing relieves it; ulcerative pain in r. heel so that she can hardly step on it; piercing pain in side of l. foot so that it made her twitch while standing, relieved by rubbing; burning sensation in sole of l. foot all n.; numbness of r. great toe in m. while sitting, piercing in and and 3rd toe, r. foot, when stepping on it, and in 4th toe of l. foot while sitting; itching on balls of toes, with feeling as if it drew them together, relieved by rubbing (10 d.); rending in little toe, r. foot, and at same time in l. fore-arm. Transient, twitching, rending pain in all limbs, now here and now there, also in face and l. ear-lobe (c. and n.); weary and sore in hands and feet in m. after nocturnal attack of fever; great weakness of whole body, more p.m., so that he had to lie down, felt better when walking. Restlessness at n., which keeps her awake a long time; very restless n., she wakes up at times from violent headache; when she is hardly asleep starts up without waking entirely; dreams often, but does not remember substance of dreams (1st to 4th d.); very vivid terrifying dreams, of falling from a height, of being thrown from a carriage, of circumstances which vexed her, also beautiful dreams of flowers and gardens; dream that he was much hurt and provoked because he had been insulted; dream which terrified him about an operation on a friend, the fear of it awoke him, and he felt violent pain as though knives were sticking in his toe. Chilly towards e., she thinks she will get the fever; chill 9 p.m., $\frac{1}{2}$ h., not followed by heat or sweat (1st, 3rd d.); chilly e. in bed, so that he could not get warm all n. (1x d.); violent chill up back, with chattering of teeth and shaking without external coldness, n.; she awakes, 4 a.m., shaking all over and teeth chattering, with anxiety, 8 m., then falls asleep; in e. he is always chilly without thirst, longs to be near stove; chill, 6 p.m., which ceases after lying down, not followed by sweat; in m., immediately after getting up, chill without thirst but with external coldness; in m., after walking on empty stomach, coldness and violent shacking chill, with feeling of internal heat in head and pale face, she believes her head must also be hot externally, coldness lasts till e., but disappears after going to bed; chill with icy coldness and goose flesh, 4 p.m., increases till 3 p.m., after going to bed it disappears without being followed by hot stage, 4 a.m. sweat without thirst (during catamenia); increased warmth of whole body, and restlessness; dry heat all over body as if perspiration would break out, several afternoons; she often has sudden flashes of heat towards e.; thirst with remission of headache, 2 a.m., 10 p.m., sweat without thirst; profuse sweat, without thirst and without feeling weak after it, during 3 n.; after sweat, very dry mouth. (*Annal. d. Hom. Kl.*, iv.)

2. SCHREYER. Manner of proving unknown.—Very depressed, irritable (5th d.); taciturn, speaks but little, and is generally irritable (1st d.); dull and out of humour in m., when getting up, until breakfast time (7th d.); great fear with dread of a misfortune. Vertigo when getting up, with dulness of head; vertigo after dinner, as if everything were spinning round him, with buzzing in head (1st d.); after vertigo, heat rising from body towards head, becoming more violent until sweat broke out on forehead, after dinner (1st d.); dulness in head, with heaviness; muddled feeling in head, as though he should fall, with darkness before eyes, a few m. (1st d.); stupor feeling in head all d. (4th d.). Pressing headache in r. forehead, returning periodically, 15 to 30 m. (2nd d.); boring pain in forehead, as if it would burst, for 2 h. (2nd d.); violent boring pain in l. forehead, as if it were forcibly closing l. eye (4th d.); boring pain in back of head; grasping pain in middle of forehead, while taking cold footbath it ceased, but returned more violently after 2 h. (2nd d.); breaking pain in middle of forehead immediately after dinner, followed by great sleepiness (3rd d.); headache while reading, made him feel hot and perspire, when he ceased reading and walked about heat and perspiration on his head ceased, but pain continued (3rd d.); feeling like an electric shock on top of head, towards r. side, once during forenoon and afternoon (4th d.); sensation like electric shock on l. head (8th d.); in m., while combing his hair, scalp very sensitive, as though each single hair pained him (3rd d.). Pressing in eyes in e. while reading by lamplight, and eyelids heavy, as though lead were on them (3rd d.); pressure in l. eye, as though a lens had fallen into it (5th d.); itching, in l. then in r. eye, same in r. ear, he had to scratch it (4th d.); itching in r. eye and l. ear (5th d.); l. eye glued together with matter, he had to wash it, at same time aversion to light (3rd d., same in both eyes 14th d.). Ringing in ears as of a small tinkling bell (2nd d.); hissing in l. ear

(4th d.); pressure from ear outward, as of something pressing on tympanum as far as the meatus externus, at same time he hears well (after a h.); pressure in e. ear, worse towards 9 a.m. (3rd d.); piercing pain in r. ear (after a h.). Itching externally on both wings of nose, which makes him scratch and rub (and d.). Some perspiration on face, while sitting at a meal, with slight oppression of chest, r. eye filled with water (1st d.); face pale and wan, immediately on waking in m. very cross and disheartened (2nd d.). Great flow of saliva after meals (4th d.). Sore-throat, an obstacle when swallowing, tonsils and glands swollen and inflamed for 3 d., inflammation worse on m. of 2nd d. (3rd d.). Great thirst in e., slight violent exercise (1st and 5th d.); great appetite, without thirst (1st and 3rd d.). Squeamishness in stomach before meals (and d.); eructations of disagreeable smell and taste, with exacerbation of flatulence, nausea, and flow of saliva, towards e.; pressure in forehead after meals. Dull, piercing, continuous pain in l. hypochondrium when walking outdoors (8th d.); in l. hypochondrium and l. side of belly, piercing pain, while sitting, forenoon, followed by piercing pain in r. chest, but less violent (5th d.); bellyache, such as often precedes purging (5 d.); bellyache without distension (all d.), in afternoon passed wind several times with difficulty, giving relief each time (1st d.); bellyache in m. before breakfast (5th d.); bellyache around umbilicus while sitting at his desk (4th d.); tearing pain around umbilicus, with flatus, before breakfast, after breakfast it was better, but a h. later it returned, only less violent (4th d.); grumbling and fermenting in abdomen after meals (1st d.); rolling in belly, after a h. (9th d.); flatulent colic above umbilicus, flatus will not pass, c. (1st d.); emission of foetid flatus after dinner (2nd d. and m. of 6th d.); p.m., emission of much wind, hard to pass, itching in anus. Great burning in urethra when passing urine (2nd d.); burning in urethra after passing urine (5th d.); urine of a more latentulous sediment (first days); urine of m. has a whitish-yellow sediment (4th d.). Itching on glans, obliged to scratch (6th d.); itching of lower surface of penis, was obliged to scratch, after which it ceased, a.m. and p.m. (3rd d.); itching on scrotum and lower part of penis (7th d.); itching on perineum, he was obliged to scratch (and d.); itching on mons veneris in afternoon (1st d.); sweat on scrotum, while sitting towards e. (5th d.). Oppression of chest in m. on awaking (5th d.); stitch in l. side of chest, when yawning, with pain in nape of neck and in shoulder-blades as if bruised (after a d.); piercing pain as from a splinter in l. chest, when walking fast towards r. (3rd d.); stitch in l. side of chest, as of a dull instrument, after meals (1st and d.); much expectoration of mucus in m. after heavy, anxious dreams (4th d.). Itching on back when undressing in e. (3rd d.). No strength in l. hand, if he takes hold of anything heavy it drops from his hand (1st d.); when clapping hand or grasping anything pain in flexor muscles, from wrist to above elbow, as if they had been too much extended (5th d.); trembling in hands on awaking, later when writing (and d.). Pain as if he had been bruised in muscles of r. thigh in front, chiefly when walking, for 6 h. in afternoon (3rd d.); pain in extensors of l. thigh as if they had been stretched too much (5th d.); weariness in knees, breaking and tending pain in r. shin (6th d.); sprained sensation in r. ankle, could not step well on it until he had walked up and down room several times, in m. when getting up (4th d.); irritating itching on top of both feet, from ankle to toes, which made him scratch, which increased the itching, in e. while undressing (and d.); on outside of l. foot near l. toe, a glow as of fire in afternoon (and d.); alternating itching on sole of foot and toes (4th d.); feet are sensitive, sore, and heavy as lead, in m. when awaking (and d.); itching of all toes, causing him to scratch, which relieved it, in e. when going to bed (1st d.); pain in extremities, as if bruised, or as after a long journey on horse, all m. (8th d.). Weariness of whole body, particularly in knees, that feel as if they could hardly bear him (3rd d.); trembling of whole body, with spasmodic visible motion of muscles, worse on l. side of chest, with great anxiety and fear of a misfortune. Stretching and yawning, with internal coldness; lazy, sleepy directly after breakfast, no inclination to work (5th d.); grew sleepy earlier than usual, 9 p.m., but he also woke up earlier (and d.); restless sleep, he awoke often, had heavy, anxious dreams, and afterwards raised much mucus (4th d.). Internal coldness with yawning and stretching; shuddering chills, with thirst, he drank much water, chilliness did not last long, and was not followed by heat or sweat, but thirst lasted all m. (1st d.). (*Ibid.*, vol. iii.)

J. A. LEMBE. August 11th, 1855, 6.45 a.m., 10 dr. 5th dil.—11th, 11 p.m.

tearing on dorsum of l. foot and r. knee.—14th, 2.30 a.m., same dose, 9 a.m., wandering pains in sinuiput. 10.30 a.m., pressure near nose. 11 p.m., a second soft stool.—14th, 3 a.m., same dose. 2.45 a.m., strong compression above l. elbow. 9.30 a.m., pressing in l. calf when starting. Noon, pressing in l. deltoid. 1 p.m., several stitches under l. ribs anteriorly; soon afterwards jointing in dorsum and outer side of l. foot.—15th, 3 a.m., same dose. About noon and later, a finger's breadth from l. ear, feeling as if skin were drawn up. 3 p.m., stitches in l. short ribs when sitting; tearing in l. ankle, pressing in r. calf, later in l. ankle, aggravated by moving joint and tearing, more persistent when at rest. 7.30 p.m., tearing in back of l. forearm. 9.30 p.m., pain in r. big toe.—16th, 3 a.m., when sitting presave pain in muscles of anterior part of r. thigh, then in l. knee, drawing in l. thumb-joint, later in l. side of forehead.—17th, 3 a.m., same dose. 8.30 and later, presave pain in l. forearm. Repeated shooting in all l. toes; pressure in r. deltoid. 3 p.m., drawing in various parts of r. thigh; pressure in l. shoulder; tearing in sinuiput. 4 p.m., pressure in whole l. arm; severe compression in r. wrist repeatedly. 5 p.m., same in r. elbow-joint; pressure in r. knee-joint at side of patella; drawing and presave pain in occiput with feeling of heat and pain there; drawing in r. toes. 6 p.m., great compression in l. leg followed by shooting in all l. toes; burning on tip of tongue. Though he had drunk less, passed urine often and more copiously; the urine was darker coloured. 9 p.m., boring as with a blunt instrument in r. angle of lower jaw, later in r. side of forehead spreading over sinuiput.—18th, 7.30 a.m., on l. zygoma as if skin were drawn up. 1 p.m., drawing in calves, pressure in l. knee when walking, then in l. shoulder, 4th l. finger, r. wrist, l. zygoma, and l. side of head. 2 p.m., pressure in l. thumb-joint, pulsation in tip of l. little finger for some m. 3 p.m., pressure in r. big toe. 5 p.m., boring pain in r. side of frontal tube; boring as with a blunt instrument in l. temple. 8 p.m., on dorsum of nose feeling as if an insect were crawling there, for $\frac{1}{2}$ h. when walking; pressure in l. knee, then in r. wrist and in r. temple. Later, pressure on r. knee when sitting, also in r. thumb-joint. 9 p.m., shooting in all l. toes; pressure in l. shoulder. Drawing and pressure in both legs when sitting, later in r. knee. 9.30 p.m., pressure as of a peg in r. angle of lower jaw, repeatedly; great smarting on tip of tongue.—19th. On rising, 6.15 a.m., tearing in r. fingers repeatedly. 7.30 a.m., tearing in r. shoulder, l. toes, in muscles of r. thigh, in l. forearm. 8 a.m., compression in r. knee and l. ankle, drawing on r. side of head, in r. ankle. 11 a.m., soil later, tearing in toes and fingers when walking. 1 p.m., boring in l. side of occiput. 3 p.m., compression in r. wrist and l. elbow; drawing in teeth of lower jaw. 9 p.m., severe persistent tearing in r. sole when sitting and standing. 10 p.m., tearing in l. fingers and pressing pain deep in palm.—20th, 3 a.m., tearing on dorsum of r. foot and in l. hand, when sitting; pressure in r. knee, also when walking; compression in l. forearm; transient pain in r. knee when walking; boring in l. shoulder anteriorly; drawing in skin on outer side of l. leg. 9 a.m., drawing below l. scapula, then in nuchal muscles and l. thumb, then pressure deep in head; drawing in r. elbow; tearing in joints of l. little finger. 2 p.m., boring in l. side of head. 4 p.m., tearing in l. thumb; piercing in l. wrist. 9 p.m., shooting in region of l. nipple when sitting; drawing in lower incisors. 10.30 p.m., boring in l. side of head, in l. knee, then in r.; wandering pain in l. side of head, especially behind ear; compression in l. then in r. elbow; drawing in r. palm, in l. ankle, in r. toes, in r. shoulder-joint.—21st, 3 a.m., boring in l. knee, shooting in l. big toe; pressure and heaviness in l. shoulder-joint; boring in joints of r. big toe; drawing in l. fingers and hand, in l. side of nape, in muscles of r. thigh, in r. ankle; pressure and wandering pains in forehead. During d. many of the pains and feeling in l. zygoma as if skin were drawn up.—22nd, 3 a.m., same dose. 9 a.m., drawing in joints of l. big toe; compression in l. wrist. 4 p.m., tearing in outer side of l. leg; pressure in r. knee, then in and above r. elbow repeatedly; tearing in fingers, especially in l. thumb; boring in l. wrist; when walking pressing and tired pain above l. ankle, then same feeling above l. knee, later in r. knee; boring pain in nose behind r. ear. 5 p.m., pressure in both wrists, repeatedly; pressure as from a peg in l. temple, drawing in r. toes and outer border of foot.—23rd. On waking 6 a.m., in bed shooting in joint of l. big toe, worse when pressed on. Soon after rising same pain. In bed, compression in muscles of l. upper arm, also after rising. 3 a.m., tearing between scapula and on r. side of forehead. 9 a.m., pressure in l. ankle when walking, then above l. knee, and tired pain in both knees; tearing

in r. toes and l. thumb. 10.30 a.m., drawing between scapula and boring in l. side of frontal bone; tearing in l. scapula and l. pectoral muscles extending to nape, when walking. 3 p.m., repeated boring on r. tibia when walking. Drawing in r. fingers and in forehead, repeatedly; bruised pain and tired feeling in elbows; pressure and weight in forehead. 9 p.m., tension and pressure in l. fingers and thereafter in r. arm and l. toes; in l. axilla shooting and tearing as if skin were drawn up, shooting in region of middle thoracic vertebra; in occ. part wandering pains, then in both 25 goms. 9 p.m., boring in bone behind r. ear; pressure in r. knee; persistent boring in joint of l. big toe, alternating with same pain in r. and pressure above both eyebrows.—24th, 6 a.m., on bed tearing in l. ankles and toes. 8 a.m., boring in joint of l. big toe. Tearing in r. scapula and l. wrist. Acute shooting in l. knee, then in r. shoulder, drawing in forehead and fingers, in l. little finger and in hand. 4 p.m., drawing in knees and l. toes; stitches down through root of tongue.—25th, 3 a.m., repeated shooting in l. thoracic muscles, drawing and stiffness in r. fingers. Pressing in flexor of both forearms; pressure in r. wrist, when walking, then in r. ankle, in l. pectoral muscles, in l. hand. 2 p.m., pressure in nape extending to occiput for 10 m., aggravated by moving head. 9 p.m., pressing in l. wrist, in finger-joints, cutting tearing in l. little finger to border of hand. Pressure in r. foot and l. shoulder-joint. Tearing in l. side of frontal bone. Cutting pains under r. border of ribs anteriorly. Severepressive pains in wrist easily when walking for some m.—26th. Some of former pains but lighter, worse e. 10 p.m., boring in r. side of frontal bone, when sitting.

27th, 7.30 a.m., to gr. 3rd trit. Before taking med. pressure in l. ankle and r. elbow, r. thumb and index, and third metacarpal bones. Pressing in r. femoral muscles and l. elbow-joint. 3 a.m., pressure in joint of l. middle finger. 9 a.m., pressing in l. shoulder-joint and muscles above r. knee. 10.30 a.m., tearing on inner side of l. upper arm. Pressive pain in joint of r. big toe for ½ h., hindering walking, returns at noon, lasts ½ h., also pressure in nape extending to occiput, aggravated by moving neck. 1 p.m., persistent pressure in joint of l. middle finger, later in joint of r. index. 3 p.m., tearing in forehead. Sudden pressure in r. shoulder for a few seconds, then in r. wrist and l. trachea, in l. trapezius-muscles extending to l. ear, with stiffness and pain on moving head, repeated later. 5 p.m., pressure in l. ankle when walking. 6 p.m., drawing in r. toes, pressing in l. wrist, shooting through l. thumb, in back with pulsation. 7.30 p.m., burning like pepper on tip of tongue; compression in lower part of l. calf, in joint of r. index. Occasional shooting in office of urethra; pressure in r. scapula, gradually increasing and going over shoulder, afterwards in l. knee-joint.—28th, 3 a.m., pressure in joint of l. middle finger and l. nucha muscles, later in r. knee with tired pain. 9 a.m., pressure in l. shoulder-joint, in joint of l. big toe, later in r. big toe. Sudden pressure in r. shoulder, then in l., later in both knees. In e. of 27th occasional stitches in inner canthus of l. eyeball, same on 28th. 4 p.m., pressure in l. knee; drawing in joints of l. fingers.—29th, 6.30 a.m., on rising, boring pain in end joint of l. thumb, drawing in toes. 9 a.m., tearing on inner side of both upper arms, then in joints of l. thumb and outer side of l. leg. Boring in l. temple. Pressure in r. knee, in joint of l. index. Drawing in upper r. teeth. Tearing in r. shoulder-joint and in forehead, 2 p.m. Pain in l. side of nape, at first burning, then with feeling of coldness under skin. 6.30 p.m., when urinating, cutting in neck of urethra, boring in joint of r. big toe and r. shoulder-joint, pressing in r. wrist, then above r. elbow, in l. wrist. Tearing in l. scapula, at same time burning pain going into nape, increased by moving head, on r. shoulder-joint repeated pressure. 8 p.m., pressing above l. wrist, extending into fingers; repeated pressure in and below l. outer ankle. Pulsing burning on l. side of nape-muscles and stiffness for several h. Tearing in l. foot.—30th. Woke at 5 with shooting pain in joint of l. big toe and on l. side of nape. 7.30 a.m., same done. 8.30 a.m., pressure in l. pectoral muscles, in r. forearm. Drawing in l. thumb, in l. little finger and along hand, in r. shoulder-joint. Tearing in r. toes, in forehead, in r. elbow-joint, in bend of l. elbow, in r. hand. Pressure in l. knee, in l. wrist going into fingers, especially l. thumb. Wandering pains in l. thoracic wall, especially under l. nipple. Repeated drawing in flexor aspect of l. forearm. Drawing on l. side of nape with stiffness. Pressure in joints of l. fingers; shooting pains in soft parts under l. axilla extending backwards. Tearing in joints of l. 4th finger, in knees, occiput, wrists, tibia. Pressure and burning in l. side of nape extending to

occiput and clavicle, with stiffness; later, coldness and prickling in skin, lasting 2 h., and not quite gone till 1 p.m. Later, burning on tip of r. big toe under nail for some m.—1st, 9 a.m., boring in l. ankle-joint, drawing in r. knee down leg. 6 p.m., pressure on inner side of l. knee. 7 p.m., tearing in sinicupit; pressure in l. inner ankle; tearing in r. fingers and pain in l. side of nape. 10 p.m., sudden pressure in r. shoulder-joint, then in l. scapula.—Sept. 1st, 6.10 a.m., 30 gr. 8.30 a.m., drawing in forehead and nape. Tearing above both ears and in shoulders. Crawling as of an insect on back of nose repeatedly. 9 a.m., pressure in r. elbow-joint; drawing in arms. When urinating, cutting in orifice of urethra, continuing after urination. Boring in l. elbow. During d. several of former pains; tearing in inner side of both upper arms.—and, 6.15 a.m., on rising pressure in l. thumb-joint and shooting in l. shoulder-joint. 7 a.m., drawing in skin over z. zygoma. Drawing in l. side of nape. 3 p.m., tearing in l. fingers and toes repeatedly. Boring in l. side of tongue. Boring in joints of l. third finger; repeated boring in r., then in l. temple. Stitches under l. ribs anteriorly. Occasional pain in s. trochanter. Pressure on sides of dorsal vertebrae. Pain in l. hip-joint on treading. Drawing in ankles when sitting and walking. 10 p.m., pressure between sternum and r. nipple when sitting, increased by pressure and inspiration. Pressure in r. knee, long continued, when sitting, then boring in bone behind r. ear and in frontal bone; pressure in r. shoulder.—3rd, 8 a.m., tearing on l. side of hand and l. shoulder. Stiffness in l. side of nape; tearing in l. knee down leg. Shooting under l. ribs anteriorly, also at 3 a.m. During d. much tearing in joints, l. side of nape, r. side of head, in r. shoulder and elbow-joints repeatedly, on l. scapula, in knees. Pains worse c. Wake at 2 a.m., and felt tearing in toes and knees.

2. 4th, 7 a.m., 30 gr. and trit. 8 a.m., pressing in l. wrist; shooting pains in region of l. nipple. Pressure round about l. elbow, above and below it, in r. big toe, r. side of head, l. side of nape. 1 p.m., stitches under l. ribs anteriorly for $\frac{1}{2}$ h., increased by inspiration and pressure, when walking. All d. frequent pains in joints named, in cranial bones, in nape. 11 p.m., on going to bed, shooting in tip of r. then of l. big toe, pressure in their joints, in the other toes, and in chest between nipples.—5th, During d. same pains in joints of head, shooting in tips of toes. Burning as from pressure on tip of tongue; stitches under l. ribs anteriorly.—6th, m., in bed, pressure in r. scapula. 7 a.m., same pain in l. elbow-joint, for several m., and in scapula. Drawing in r. toes and sinicupit, repeatedly. Pressure on inner side of both upper arms and on sides of dorsal vertebrae. During d. pressure in joints, especially of knees, shoulders and fingers. Burning on tip of tongue; tearing on r. zygoma and cranial bones.—7th, 6.45 a.m., 30 gr. 8 a.m., pressure in finger-joints, knees, ankles, elbows and big toe. Pain and stiffness in l. side of nape; drawing in inner side of both upper arms; pressure in z. side of forehead. Persistent pressure deep in r. hip-joint.—8th, Same pains in joints, dorsal muscles, knees, shoulder-joints. Burning on tip of tongue.—9th, m., same pain in joints, and in l. nape with burning and thereafter cold fretting. During d. the former pains, but lighter.—10th, m., tearing in fingers, toes, r. sole, repeatedly. Pressure in wrists and knees. Tearing in r. side of head, forehead, ankles. Many pains in joints and tibia, when walking and sitting. At n. on waking pressure in joints of big toe, boring in its tip and under nail.—11th, 7 a.m., drawing in joints of r. fingers and wrist. Pressure in r. knee. Pressure behind l. ear, on r. zygoma, and in other joints. Stitches on r. pectoral muscles, increased by inspiration. When walking a feeling deep in r. leg as if the part were swollen or congested with blood, for $\frac{1}{2}$ h.; this sensation occurs repeatedly. Wandering boring in bones of root of nose. Shooting on l. trochanter, c., increased by pressure, for $\frac{1}{2}$ h.—12th, Much sneezing.—13th, Tickling in larynx and dry cough, also n. Pains as before.—14th, m., pains in big toe and ankle, c. shoulder-joint, then l. During d. the former pains. At same time frequent scraping in larynx and dry cough.—15th, Same pains and cough.

d. 16th, 6.30 a.m., 30 gr. 33 trit. 8 a.m., drawing in fingers, l. side of nape, occiput, toes; pressure in joints of r. big toe, 11 a.m., tearing in l. zygoma and r. forearm. Pains in joints as before, boring in tip of tongue. Many pains in joints of big toe and fingers; tearing in various parts of head. On lying down, c., pain in l. wrist, increased by moving it. On waking, m., pressure in toe-joints.—17th, 3 a.m., pressure in shoulder-joints. 1.30 a.m., 30 gr. Tearing in different parts of head. Persistent pain in nape and stiffness; pressure in shoulder-joints. When walking,

contraction like cramp in muscles of l. calf. E., tearing and pressure in r. side of occiput. Some of these symptoms continued till 4 p.m.

c. 14th, 9 a.m., 20 drops of a solution of 5 grs. of Nat. sul. in 1 oz. water. The accustomed pains in leg toes repeated. Drawing in l. cheek as if skin were drawn up. Drawing in r. finger-joints and knees. 9 a.m. deep pressure on l. side of lumbar vertebrae, increased by moving body and pressure. Teasing in front of r. thigh. Boring in finger-tips. Pains in joints, tearing in forehead. E., drawing in joints and behind l. inner ankle;itches in balls of big toes. 10 p.m., tearing in r. side of crown and in r. instep. Drawing deep in r. hand to fingers and arm with some feeling of exhaustion and internal heat. Boring and shooting in tip of tongue, then further pains in l. arm from shoulder, and in l. ankle-joint—25th, 7 a.m., 40 dr. Immediately shooting in big toe. 8 a.m., drawing in l. finger and wrist-joints, shoulders and dorsal muscles. 9 a.m., pressure in l. little toe, and l. side of nape; drawing in l. side of lower jaw. 8 p.m., frequent pressure in shoulder, knee, elbow and ankle-joints; cutting in fore part of urethra when urinating.—26th, 6 a.m., soft stool at unusual time; itching in tip of tongue, some joint pains. 2 p.m., took a teaspoonful of solution; pressure and tearing in joints & failure. 6.30 p.m., when strong anxious feeling in heart, rapid, short heart's beats, with dimness of vision; wishes for open air, which relieves. 12 p.m., tearing in shoulder and wrists, and soft stool. He took still larger doses of this solution and afterwards 5 and 10 drops of tooth dil. but no fresh symptoms were developed, the same pains in joints, nape and head occurring with greater or less severity. (*N. Zeit. f. Hom. Klin.*, vi, 97, et seq.)

NITRUM. See **KALI NITRACUM.**

NUX MOSCHATA.

Kernel of *Myristica officinalis*, L. Nutmeg. Nat. Ord., *Myristicaceae*.

1. *Proving*.—1. **PURKINJZ.** An entire nutmeg, taken piecemeal with sugar, produced no other effect than a certain dulness of the organs of sense and some heaviness in locomotion. Three of them, however, taken after a moderate meal, caused irresistible somnolence, and a deep sleep with quiet agreeable dreams. On awaking, he went to a theatre. On the way, he lost all thinking power, and fell into a peculiar state of hallucination. He feared he had not taken the right road, felt it impossible to make out where he was, and found the distance and the time taken excessively long—thinking he had been an hour on the way and should miss the beginning of the piece. During the whole performance, dreams and reality contended in his mind, till at last the disorder of mind gradually subsided. There were no other symptoms. Later, P— took 8 grm. of the grated nut in brandy; and this time, instead of quiet somnolence, he was seized with a general agitation of the muscular system, accompanied by vertigo. (*N. Breslauer Samml.*, 1828.)

2. **HELBIG.** Proving on self and 26 others, without information as to subjects or dosage.

a. **AL—**, woman.—1st d. Indifference. She is all d. as if drunk, her head is heavy, there is first pain on l. side through forehead and temple, then it goes into occiput. Blue rings about eyes. Appetite increased, but fell off next d. Movement in abdomen as though colic were coming on. Uncommonly sleepy, eyes always close. As if intoxicated and sleepy, she knows not where she is, her eyes close. As soon as she comes into the cold and damp air she shivers and

becomes pale, &c.—2nd d. Commencement of griping; began on l. side of abdomen and spread to r. and downwards.—2nd and 3rd d. Commencement of pinching under stomach, with feeling as if it would come to actual colic. No stool 1st d., 2nd d. hard and passed with difficulty, 3rd d., instead of flatus some watery evacuation came away. Is easily chilled in cold air.—*No time given.* In m., taste on tongue as after a debauch. She feels no proper call to stool at the usual time, the evacuation is hard and passed with difficulty. (*Herbules*, part i, 1833.)

3. ANT—, woman. After 1 h., feeling as if bellyache would come on. Tickling and pricking in nose, making her rub it.—1st d. Pressure on r. side of head, partly over ear, partly on r. corner of occiput, as if it pressed on the bone internally, transient. (*Ibid.*)

4. C—, a man.—*No time given.* All n., restlessness, dry heat, sleeplessness, dry sticky lips and tongue, without thirst; feeling as if all the blood-vessels were throbbing; a throbbing pressive pain on small spots of head, especially on l. eyebrow. (*Ibid.*)

5. DEXLE, man. After 6 h., pain, especially on temples, when he shakes his head a wagging as if brain struck against skull; temples painful to touch, and head hot. (*Ibid.*)

6. DE—, man. Burning of eyes and lachrymation. (*Ibid.*)

7. DE—, man. After 6 h., hands hot and burning, lasting $\frac{1}{2}$ d.—1st d. Lachrymose humour, with burning and weeping of eyes. He drinks much. Pain like splenic stitches, which drew him together, on r. side, near navel.—2nd d. Slimy, diarrhoeic stool, as when there are worms. (*Ibid.*)

8. GRIMMER, man. Towards e., distension of abdomen and nausea; twitching about navel, which sometimes goes towards heart, sometimes downwards; thread-worms passed by stool. After doing very little, must lie down exhausted. (*Ibid.*)

9. HARTMANN, man. Staggering and great anxiety. (*Ibid.*)

10. DR. HELBIG.—*a. From tinct.* Immediately, confusion and dulness of forehead. Pressive pain in forehead, drawing towards l. eye, with stupefied feeling, for 2 h. After $\frac{1}{2}$ h., warm feeling in stomach. After 3 h., when reading, he gradually sinks into an absence of thought, which is apt to pass into sleep. After 5 h., before answering a question, has to think for awhile; often, in spite of every effort, he is unable to give a suitable answer,—a kind of slow flow of ideas. He staggers when walking, and when thinking he has but one idea, until he wakes up from his loss of thought, and he has then to recall to mind where he is. After 6 h., a jerking shooting in chest anteriorly, coming upwards in a slanting direction and taking away breath. After 7 h., hot stitches on chin. On account of dry feeling in mouth, he constantly presses the tongue against palate; at same time a peculiar taste, something like the after-taste of very salt food, all d. After 21 h., though there was always slight griping, with tendency to flatus and diarrhoea, and a sensation as if diarrhoea was coming on, he must strain to expel a stool of normal consistence, which was bright yellow, and showed undigested bits of fruit. After 24 h., though the feces were not hard, the evacuation was slow, and it felt as if some remained behind. Urine decreased in quantity, but saturated and clear.—1st d. When walking in open

air in e., he staggers greatly towards the l., instead of walking straight. Along with confusion of mind, there is a painful feeling in upper part of brain and skull as though that was compressed from above and from the side and spasmodically affected or contracted, with drowsiness. Dryness of eyes, reading by candle-light is difficult, the eyes close as if from sleep, head and forehead confused, e. Some stitches in ears. The saliva and mucus in mouth seem so thick that the buccal cavity feels quite dry; this makes him inclined to drink, though he is not thirsty; at the back of tongue a feeling as if after taking much salt. Tongue and palate dry, and nose as if blocked up with thick mucus; no thirst, but tongue feels like leather, n. Increased appetite, it has hardly been satiated when it recurs anew. Slight nausea, alternating with increased appetite. Cutting and distension in upper part of abdomen. Cutting from navel extends in 2 rays to either side, down-, back-, and side-wards, n. Pinching in umbilical region, in bed, n. Urging to stool and feeling as if swollen in anus, but nothing comes. Spasmodic pain in penis, going from below upwards. Cannot help falling asleep after dinner, when awakened falls asleep again immediately, the sleep is not very sound.—2nd d. M., pain in forehead. Full feeling in eyes, pupils seem contracted. Pains in ear, as if a not quite blunt instrument were pressed hither and thither in it. A pain betwixt aching and shooting in r. ear, m. Spasmodic compression and contraction from both joints of jaw forwards. Feeling of fulness above and anteriorly in chest prevents deep breathing, which causes pressive pains in jerks under sternum. The posterior muscles of r. thigh are painful when walking or when touched, as if he had fallen on them or been riding, m. Pressive pain in anterior aspect of l. leg, when standing, m.—3rd d. Soreness of skin under chin, as if an eruption of pimples would come there, all d. On moving arm pain in region of pectoralis muscle as from a blow, much increased by touch and pressure. Slight chilliness, bellyache and sacral pain, little appetite, white furred tongue, pressive pain in soft palate, breathing difficult from pressive pain in chest, great drowsiness, e.—4th d. Tenderness and pain in l. upper and lower molars.—5th d. Sacrum and legs as if beaten and very tired.—8th d. Pinching in navel after febrile chill, e. in bed. To the sacral pain there is added, in e., chilliness, which in the cold increases to rigor, but goes off in room. At same time confusion of head, especially forehead; little appetite, slimy tongue; merry humour, disposed to jokes, e.—10th d. Hard pressing pains on top of head, a.m. Stitches in l. ear.—11th d. While driving, e., had a painful feeling, which seemed to go from inner ear to posterior wall of fauces (Eustachian tube), as if a rough body were sticking there and were forcibly pressed out; the sensation commenced first in fauces and then went to ear, and thence to buccal cavity.—12th d. Pain in the parts lain on when he lies on a hard place.—13th d. Tearing pain at l. elbow in extensor muscles, hindering movement.—Several d. He has a difficulty in remembering things he learnt a short time before, his memory seems paralysed for such things. Pain as if a loose tooth were seized in order to be extracted, combined with the feeling as though a shock to the body was the cause of it, and this indeed some-

times causes it (going upstairs, &c.).—*No time given.* A kind of hot pressure on sides of head, especially temples, like pressing out. Single sharp pressures in l. ear, appearing to increase by, and partly to depend on, movement of lower jaw. During most of the proving, tenderness of incisors and anterior molars when air penetrates into mouth; at first warm liquids caused the pain, after a few d. not. Painfulness of chest in front, impeding respiration, sometimes accompanied by a pressive pain in r. side, but more anteriorly, &c. When damp wind blows on him it causes pain in nuchal muscles. On flexor side of upper arm, shoulder- and elbow-joints a shooting pain, which occurs occasionally for several weeks and seems to be seated in the blood-vessels. R. knee feels constricted, as if someone took hold of it.

b. *From tinct. rubbed on abdomen.*—Soon he has a constant flow of merry conceits, and appears gay to himself, sees the ridiculous side of everything. Thirst for 1 h. Considerable hunger.

c. *From mass (oil of kernel).*—After 6 h., when writing, leaves out some letters, writes involuntarily in various alphabets, and goes from one thing to another.—1st d. When writing, he has only half written down his thought, when all at once he forgets what he was going to write, he must make a great effort to recall the remainder, and often he cannot do so, he must first rest; he begins to write again, but cannot write more than a word, must again make a great effort. Under l. eye feels swollen. Feeling in rectum as though diarrhoea would come, a part of it seems forced down, but no stool till next m., and then with slight urging and a kind of tenesmus in rectum, faeces very scanty and rather diarrhoeic. Pain in sides of lumbar vertebræ as if he had got a blow from a fist. All d. looks very sleepy.—2nd d. A forward-pressive pain in a small spot over l. eye in forehead, m. Pressive pain in r. cheek towards ear and maxillary joint, m. Slight prickling in incisors, &c. Tone of voice altered, dry feeling in larynx. Pain as if dislocated in some joints of l. little finger on grasping, m. The r. knee pains as if sprained when moving, especially going upstairs.—3rd d. About the arch of velum and on l. tonsil a pressive pain, or as if he had swallowed a hard body and it had left soreness. When lying, noon, feeling of warmth and throbbing in inner border of r. foot.—13th d. Head compressed from back and front on waking from siesta.—*No time given.* Little appetite, soon satisfied. In whole front of chest, but especially under sternum, feeling of pressure and weight, lasting all d., but is particularly severe on waking up from siesta and on going to bed at n., making him take deep breaths to expand chest. Nausea and flow of water into mouth, with great desire to sleep, though it is m. (*Ibid.*)

11. Dr. HENCKE. Soon, heaviness and compression of head, with feeling as if the l. side of it and of the face were slightly swollen, with prickling sensation as from electric stream. Digging pressive pains in middle of soles, m. Wandering, digging, pressive pains, always on small parts, as if in bones, on forehead, eyebrows, upper arms, tibia; they are like undulating squeezing pains, coming and going. Irresistible sleep, disturbed by vivid dreams. After $\frac{1}{2}$ h. rumbling and gurgling in abdomen. After 1 h. dryness of lips, palate, and velum, with burning

feeling as in catarrh. Nose stopped up, chiefly l. side, with creeping and sneezing; must keep mouth open to breathe, goes off when he moves or gets up in bed. After 2 h. pain in sacrum as if he had been broken on the wheel, especially when at rest (also after 7 h.). Dull drawing pains in periosteum of r. tibia. After 3 h. out-pressing flatulent disturbance in l. flank. After 5 h. flatulent distension of abdomen. Dilatory stools, they are soft but passed with difficulty only after pressing and straining, with feeling of *scæces* remaining. After 9 h. pressive headache on a small spot above l. frontal eminence. L. nostril stopped up, lasts several d. After 10 h. wandering, digging, pressive pains, always on a small spot, not remaining long there, but soon returning, for several d.—1st d. Sleep at n. disturbed by voluptuous dreams.—2nd d. Teeth blunted, feel as if covered with lime. Taste like chalk, m. Scrapy eructation shortly after eating.—*No time given.* Confusion of head. Pustules on chin with broad red borders. Jerking drawing in l. upper molars, from long and continuous speaking, also from entrance of air. Dryness at back of throat, no thirst. Scrapy dryness in throat. Sharp scrapy feeling in throat, especially when swallowing. Chalky taste. Qualmish sensation in distended abdomen, with pain in sacrum. Bellyache; a kind of pinching in hypogastrium for several successive d., after breakfast; goes off by resting. Flatulent distress, e., pinching in bowels with discharge of much flatus with relief. Dilatory, difficult, and yet soft stool, for several d. Constrictive pain in pectoral muscles, with tightness of chest, making him breathe deeply, when moving. Pressive wandering pains on various parts, always only on small spots. Great heat in face and hands, with faintness and hypochondriacal disposition, a.m. (*Ibid.*)

12. KADE, man.—1st d. He cannot comprehend what he reads. The eyes, which feel dry, are as if struck together, so that he can hardly open them; drowsy, and the head drawn to l. side.—2nd d. The tendency to bleeding of gums increases. After pressing down towards pelvis there occur some thin evacuations; he has at same time a feeling in rectum as if some acrid fluid was there, which caused biting; after the stool there remained a sensation as if more was to come. He is chilled when he comes into cold air. (*Ibid.*)

13. КРАЗ—, man. After 10 h. in the region where the diaphragm is attached, from scrobiculus to back and scapulae, a spasmodic pressing pain, like an outward and inward pressure, as from a weight; at same time impeded breathing, and need to breathe deeply and expand chest, with dry cough that seems to come from back and gets loose in m. This lasts several d., and is accompanied by drowsiness and dryness in nose. On 3rd d. there was, besides, pain in middle of back betwixt shoulders. (*Ibid.*)

14. LCK—, woman. Immediately, heat and redness of cheeks. After 5 m. eructation like pine oil. After 1 h. tickling and pricking in nose, making her rub it.—1st d. Sour taste. Stool delayed, next d. early and diarrhoeic.—*No time given.* She staggers. Pressure in eyelids as if sleepy. Some carache. (*Ibid.*)

15. КОЗМЯК, woman.—1st d. Very tired all d., gasps for breath, felt as though she should faint. (*Ibid.*)

16. LD—, woman.—*No time given.* Jerking here and there in abdomen. Menses 4 or 5 d. too soon, with forcing from navel downwards and drawing in limbs; on the next occasion also they came too soon, and were irregular. Painful drawing here and there in thighs. (*Ibid.*)

17. LDN.—1st d. Slight oppression in scrobiculus. Transient palpitation. Jerking drawing in arms, and sometimes boring out in elbow. Slight rigor followed by heat, m. and e. Agreeable warmth of hands and feet, e. (*Ibid.*)

18. LINN.—, man.—1st d. He is as if intoxicated, and staggers.—*No time given.* Almost irresistible desire to sleep. (*Ibid.*)

19. M—, woman. Immediately, pain in forehead. After $\frac{1}{2}$ h. pressure in head betwixt vertex and occiput. Shooting in throat, making her hawk. Griping in umbilical region, relieved by pressure. After $\frac{1}{2}$ h. pressing-in on r. side of chest inferiorly, it then ran up to throat and mouth, into which bitter water flowed, with dry cough. After 1 h. headache when stooping, pressure from vertex to forehead. Constriction in r. upper abdomen when walking. After 24 h. dry feeling in fauces and choana towards front, with desire to swallow but no thirst.—1st d. Much urging but little urine passed, n. Sleeps restlessly n.—2nd d. Dry feeling in mouth, but it feels slimy, especially n.; at same time thirst, the palate feels floury and the nose dry. Two thin stools in 1 d. (in a child æt. 6). Sleeps restlessly, m.—3rd d. After drinking cold water peculiar jerks in molar, and cheek becomes red. (*Ibid.*)

20. OK—, woman. Immediately, heat rises up to crown, with feeling of constriction and pressing-in on top of head. After 18 h. tension round r. eye, especially in lower lid, as though she could not open it, and pressure in eye; must contract the eye, when it seems to her as if she could expand it.—1st d. Tension and dryness of lids. Discharge of fetid flatus.—*No time given.* Thinner stool than usual, Menses delayed 2 or 3 d., preceded by pain in sacrum as if a piece of wood lying crosswise were forced out, with headache on top of head, exhaustion, pressure on stomach, with watering of mouth and pain in liver; the blood was darker and thicker, and after drying more gluey than usual. At the time when the menses were due there was only a slimy discharge. Dazed, as if intoxicated and sleepy. (*Ibid.*)

21. OS—, man. After 24 h. stool so hard that it can only pass through rectum with a great effort, and on doing so caused pricking as from needles there, painful contraction in rectum and anus during and after stool.—*No time given.* Increased hunger, with navel and belly very distended. (*Ibid.*)

22. SCHM—, man. Immediately, very much increased appetite. (*Ibid.*)

23. SCHULZ, man.—1st d. Contrary to habit, several loose and easy stools in 1 d. (*Ibid.*)

24. SH—, man.—*No time given.* Pressure and drawing in spermatic cord from above downwards, where the testicle had had a squeeze some years previously. (*Ibid.*)

25. SSC—, man. After 1. h. throbbing in l. calf as though he had

burst a blood-vessel, for 20 m. After 2 h. on r. side not far from navel, confined to a small spot, contractive pain, a kind of pinching.—1st d. Oppression in chest, as if he had lard in windpipe which hindered the air from penetrating, e. in open air, lasted 8 m.—2nd d. Custing and pressure in abdomen, especially above bladder, as though diarrhoea would ensue, e. Next d. stool passed with greater difficulty than usual. Sore feeling in trachea with cough.—*No time given.* Pressive pain in scapula with stupefaction; it sometimes closed the eyelids and he yawned. Teeth feel blunt and soft. Dry feeling in mouth, in tongue, and in nose, without thirst. Clean tongue, with sensation of dryness in it and in nose. Fomenting sensation in muscles of upper arm. Drawing pains in muscular parts of limbs, worst when at rest, several d. Anxiety and tendency to tremble of whole body. Laxness of limbs, especially arms, and pressure here and there, weariness. (*Ibid.*)

26. *Siv*—man. Immediately, shooting outwards in temples, in jerks and soon ending. Soon, transient pressure and shooting pain in l. temple. Pressure in stomach and burning there, rising upwards. Transient pain in upper and inner part of thigh, as though he had fallen on it, aggravated by movement.—1st d. Sometimes grave, sometimes disposed to laugh. Variable humour, at first he is inclined to do something, but when it comes to the point he changes his mind. Quite contrary to usual, everything makes him laugh, which is particularly noticeable as he is in the open air. He stood still in the street, made silly gesticulations, occasionally sunk in the completest absence of mind, and on collecting himself, everything that was around him appeared ridiculous; at same time he looked stupid and childish, like a fool; rather better in doors. Loss of thought, like an intoxicated state, and absence of mind. He speaks little, confused images present themselves to his mind, he must always make an effort when he wishes to speak. A violent pressing forwards in head towards forehead, which feels pressed out and twice as big; at same time giddiness as after a debauch, and staggering. To the finger, it feels like a part asleep or as if covered with leather. Very great dryness in mouth, the saliva feels like cotton wool. Such great dryness in throat that he cannot swallow a bit of apple. Great want of thirst. Increased appetite for several d. At noon very ravenous hunger; he ate hurriedly, and although he had pressure in stomach, he would like always to eat. Dislike to tobacco. Pressure and distress in abdomen, as before hæmorrhoidal flux. Feeling as if he had eaten too much and abdomen was over-distended. Pressing from both sides of abdomen towards scrobiculus, such as he used to have before hæmorrhoidal flux, n. Stool less easily passed than usual. Has inclination for coitus, though genitals are lax. Feeling of cold in head, sneezing. Oppression on chest and congestion to heart. Hands cold and as if frozen, and when he came into the room he felt a kind of thrilling under nails. Painful weariness in lower limbs as though he had walked a great distance, the dorsum of feet pain as if a hard body had fallen on them, but the pain grows less above the ankles; though treading increases the pain in the feet, he must constantly trample about on account of restlessness in legs. Great drowsiness and at same time much disposed

to laugh. Rigor coming from loins, when he took down his trousers to go to stool. Cold feeling in feet with hot hands.—2d d. The feeling of dryness in mouth, lips, and throat continues. L. nostril feels colder, not dry or stopped up, but feels as if he could not breathe through it. The dry cough becomes loose, and he expectorates much mucus. Thrilling in all toes as if they were frozen, especially where the proximal phalanx joins the foot; it extends over soles to heel, which pain as if excoriated, in all positions, and renewed by treading (also in 5 d.).—3rd d. Frequent violent sneezing, m. Hoarseness. Raw pain in chest from coughing.—4th d. Elevations the size of a millet seed where the frenum of the tongue is connected with m.m. of mouth, especially on l. side; they are bright red, shining, with sore pain, several together. In lumbar muscles pain as if he had been well beaten. State as if, after profusely sweating, he had got chilled, nape and bones are all painful, and there is pressing out at forehead.—5th d. Drawing pain in flesh at border of r. lower jaw. Velum and fauces slightly reddened; their blood-vessels injected, with raw feeling.—*No time given.* Dazedness and loss of thought, and when he rouses himself with an effort he has first to collect himself. On account of dryness and roughness in eyes he can hardly open and shut them. Dryness of eyes. Teeth begin to grumble as if they would become painful. When eating bread tenderness of teeth. Tongue feels dry on touching it. Blue spots on skin. Though previously greatly given to sweat, the skin is now always dry. (*Ibid.*)

27. Ww—, man.—2nd d. Coughs up some blood, sometimes mixed with mucus, sometimes pure, with stitches in chest. (*Ibid.*)

28. *No name of prover.* Immediately, scraping, scratchy dry feeling in throat. Rumbling in bones. Intoxicated feeling in head, it is painful, and she was so sleepy she could not sit down without falling asleep. After 1 h. dryness in mouth, throat, and tongue, with fullness in stomach and anorexia. After 20 h. urine scanty or very saturated. On waking, m., some sudden spasmodic stitches in heart with slight colic.—1st d. Without actual thirst, and though the tongue is not really dry, she has such a dry feeling in mouth and tongue that it seems to adhere to palate; she feels as though she had eaten salt herring, e. Tongue and buccal cavity covered with white mucus, but yet dry feeling in throat and much thirst. Cutting in mid-belly, with monitions of flatulence and diarrhoea; pain in temples, e. Chest in front pains as if beaten, especially during inspiration and when there is flatulent colic, e.—2nd d. After looking out of window in m., there came a pain in l. lower anterior molars, which spread thence to a r. molar where it pressed outwards; recurred on washing and on getting a chill, e. Pain in front of cheek like a weight, and accompanied by oppression, impeding inspiration, e.—3rd d. During inspiration, sudden pain around chest in region of diaphragm, a.m.—4th d. Violent pain in r. cheek-bone, n. Feeling of weight in chest, impeding inspiration, e. While lying, when he suddenly moved r. lower limb, violent cramp in calf, relieved by pressing foot against something.—*No time given.* He never executes what he undertakes, but remains standing in one place without thought; he seems quite different to those

about him. Shooting pain in r. temple, frequently for several d. On both sides of tongue where the salivary ducts open a disagreeable, almost painful, pressive sensation. Stool soft but passed with difficulty, with feeling of fullness and distension of abdomen; several d. Want of desire for coitus, which is attended with little pleasure. Though there is some sexual desire, the erections are feeble and short. Sneezing. Scraping and tickling in r. side of chest superiorly, causing cough, m. Oppression of chest coming from pit of stomach. Out of breath after eating. Pain in sacrum and weariness of lower limbs as if he had had a blow on sacrum and calves. Pain in back when driving. Great weariness, his knees feel as if he had had a long walk, accompanied by drowsiness; speaking even is too much for him. Sleepy, dreamy state, eyes close. Great sensitiveness to cold air. (*Ibid.*)

29. HAKING, from chewing wild nutmeg* at 10 a.m. For a long time had burning externally on lower lip. After 3 m. pain in l. and upper part of forehead (organ of wis). After 4 m. violent pain in r. middle finger, as if in bone. After 5 m. the pain in forehead goes to over l. eye, is of gnawing pressive character (in organ of locality). Limbs affected, especially thighs, superiorly and externally. For 1 h. pains in various spots l. side of top of head and over forehead, slight toothache on l. side. After 1½ h. pain in l. upper arm near middle, as from severe pressure by a hand grasping it. For several h. pains in l. side of sinciput superiorly, and in l. upper arm. Before 1 p.m. burning externally on l. side of lower lip. Slight burning in stomach and empty feeling. On crossing legs the r. feels congested, and then the l. thigh feels as if going to sleep, like congestion of blood, prickling, &c. At 1 p.m. very acute pain in l. forearm externally and near elbow in radial region, in the flesh of all the muscles and in the bones a kind of pressive gnawing, lasting till 3 p.m. In afternoon headache on r. side, and next m. a kind of pressure on a small spot on r. side of top of forehead. Headache all afternoon and e.; very cross, unable to work, very lively on walking out. (*Hom. Vierteljahrtschrift*, x, 90.)

30. Mr. — took 10 dr. of tinct. for 2 d. Fifteen m. after each dose repeated shooting in abdomen about level of umbilicus, from r. to l. On 4th d. same symptoms without repetition of dose. After further doses, painless diarrhoea all d. (*BERRIDGE, U. S. Med. Inv.*, 1875, p. 101.)

II. *Poisonings.*—1. A nobleman, æt. 36, of good temperament and excellent health, having felt for some d. a little flatulent colic, to ease this ate 4 nutmegs (weighing together about 2 oz.), drinking some beer the while. He had scarcely finished when he was seized with great heat, violent pain in head, vertigo, and delirium, and forthwith became deprived of speech, sight, and all senses. He was put to bed, where he remained 2 d. and 2 n., his body overpowered with lassitude, always drowsy, but nevertheless unable to sleep. I was called on the 3rd d.; I found the symptoms I have just reported; he was in the state known as *coma-epigil*; pulse was feeble and intermittent. Under serpine stimulants he had on the 4th d. come somewhat out of his lethargic state, but he had entirely lost all memory of his past life. A continued fever

* Called by him "nar, Spheroearpa," by Allen "Myrsinica lasua, Hour."

supervened, accompanied by obstinate sleeplessness; palpitation followed, and at length paralysis of all limbs. After 8 d. he recovered his reason, and said that during the first 12 h. of his illness it seemed as if a thick veil were before his eyes, and that a multitude of sparks continually issued from them. The symptoms now gradually went off, and after 3 mos. his health was completely re-established. (SCHMIDTUS, *Eph. Nat. Cur.*, dec. ii, an. 2, obs. 120. 1683.)

2. A person by mistake took ʒij or a little more of powdered nutmeg. He felt it warm in his stomach, without any uneasiness, but in about an h. he was seized with a drowsiness, which gradually increased to a complete stupor and insensibility, and not long after he was found fallen from his chair, lying on the floor of his chamber, in the state mentioned. Being laid a-bed he fell asleep, but waking a little from time to time, he was quite delirious; and he thus continued, alternately sleeping and delirious, for several h. By degrees, however, both these symptoms gradually diminished, so that in about 6 h. from the time of taking the nutmeg he was pretty well recovered from both. Although he still complained of headache and some drowsiness, he slept naturally and quietly through the following n., and next d. was quite in his ordinary health. (CULLEN, *Mat. Med.*, ii, 204. 1780.)

3. A shoemaker, troubled for 8 d. with diarrhœa, took a whole nutmeg, powdered, on bread and butter. The n. was quiet, and the diarrhœa ceased, but on waking next m. he found that he could not appreciate distances, his workshop appeared so far off that he felt he could never reach it. His whole body felt heavy, his head muddled and quite hot; he could not find words to express his thoughts. He returned to bed, and drank an infusion of elderberries in rum. Such aggravation ensued that his physician found him unconscious, with protruding red eyes, open mouth, rattling breathing, pale face, and contracted pulse. Copious bleeding and antiphlogistic purgatives restored him. (THÜMMEN, *Berl. med. Zeit.*, 1833.)

4. I took a broken nutmeg and put it into my pocket, and in the course of 6 h. had eaten half of it. Soon after I felt a dizziness and an unaccountable derangement of intellect, transient loss of memory, but perfect consciousness of all that I said or did. I became remarkably loquacious, and seemed to be neither in this world nor in the other; felt happy and free from any pain; was truly in an indescribable state. My friends were greatly alarmed, and the doctor was sent for in great haste; bleeding was proposed, but I was unwilling to submit to it. After keeping them laughing and crying till about 11 p.m., I retired to bed without anything having been done for me. I awoke in the m. as well as usual. (Communication to *Portland Advertiser* (about 1840; from HERTZ, *Mat. Med.*, vol. i.)

5. *a.* A man took about a teaspoonful of mace, eating it in small bits between 11 a.m. and 12.30 p.m. At latter time, he writes, "I felt a pain on the crown of the head, extending over a space about the size of a penny piece, also slight nausea in stomach as if I had been smoking inordinately. I walked home, and dined about 3. I still felt the pain slightly, and also the nausea, with slight piddiness. On rising from dinner I felt the blood rush to my head, but the feeling was as if an

electric current had passed from the crown of the head downwards. I got mechanically downstairs, and then felt the same sensation which I suppose a person would experience who had become nearly insensible from extreme cold, and as if, should I yield to its influence, I could have slept away out of existence without pain. I felt this sensation twice. I walked about in the back yard to endeavour to drive away these extraordinary feelings, but in a few m. a cold shiver came upon me. I returned to the house, and lay down on a sofa near the fire. From that time I felt every variety of heat and cold from their respective extremes. At every time the blood went from and returned to my head the current changed the sensation, sometimes feeling myself very hot, and then very cold. I felt at one time such a pressure in the head that it appeared as if all the blood in the body had rushed to obtain possession of that region, and I thought I could hear it gushing in my ears. These symptoms gradually became weaker. Some brandy was then administered. The effect of this upon me was as if I had been electrified from the roof of the mouth downwards in a straight line, current dying off towards the feet; it then seemed to diffuse itself over the whole body, as if I had hold of slightly galvanised wires, apparently working in antagonistic directions, out of tune and jarring with each other. The state of the mind was, I should suppose, similar to that of the opium-eater, entertaining no apprehension of the result, though aware of the presence of some danger. The pulse during the several paroxysms was very varied, from 70 to more than 100. During the attacks I felt every nerve in my teeth, but no pain."

6. The reporter adds:—"Precordial anxiety was remarkable. The feet were cold, and required artificial heat; head throbbd, eyes looked injected, and countenance acquired a singular expression, while the words patient employed to express his sensations were the very opposite of what should have been used. His temporal arteries beat strongly for several h. The persistence of the intellectual disturbance was remarkable; for on the 3rd d. the excited state of the sensorium had not quite disappeared, so that he even then felt himself unable to attend to his office books. His thoughts hardly submitted themselves to his control unless by a consciously great effort." (WATSON, *Land. Med. Gaz.*, 1848, i, 260.)

6. A man, æt. 25, of nervous temp., but in good health, at 2 nutmegs about 9 p.m. In 15 m. he was asleep. On awaking he experienced the following symptoms:—Head seemed bulky, and rolled round almost uncontrollably, was obliged to bring to its support one or both hands, while sitting at a table; intense frontal headache, with tense and painful sensation in scalp; eyes felt enlarged, with intolerance of light, while objects seemed to float before vision; lids drooped, and could only be fully opened by use of hands; buzzing in ears; paralysis of organs of deglutition, making it difficult to swallow saliva; nausea, with shuddering aversion to food, vomiting, foul taste in mouth; pressure in pit of stomach; constriction about waist and abdomen, so persistent and distressing that hands are placed on side to try and relieve it by lateral pressure; a most distressing urgent want of breath and painful feeling of oppression upon chest, to relieve which he would

straighten up, when rush of blood to head occurred, obscuring sight ; quivering of heart or violent palpitation,—the organ labouring under fearful embarrassment ; pulse intermitting, intervals between pulsations being so protracted as to excite fears of impending dissolution ; nape of neck tremendously constricted, all bodily energy lapsing into passive suppleteness in the grasp of the unseen giant ; arms and legs felt scorching, large, and heavy ; great languor and drowsiness, with no desire to move, felt unwieldy like a mass of metal ; chilliness. Went to bed, and slept profoundly. In m. was several times called before he could rouse ; could not account for his strange feelings on waking, but was painfully conscious of some powerful influence exerting itself upon his system ; started for office through a park, but to retain footing was obliged to catch hold of trees and fence, turned home, went to bed, and did not get about again for 2 or 3 d. (M. M. DOWLER, from Hering.)

7. A woman, æt. 30, in order to check a too profuse menstruation grated 2 nutmegs into a half-pint of boiling water, and began taking the "tea" about 8—9 a.m., stirring before sipping. She continued this during m., being unusually lively, laughing, and bright ; but about 1 she began to feel giddy and light in her head, chilly and cold all over. She stopped taking mixture at 2, symptoms gradually increasing in severity, with loss of memory, thought uncontrollable, objects would vanish for an instant, and at times she would lose consciousness alike momentarily, though it seemed to be for $\frac{1}{4}$ h. Sickness at stomach, but no vomiting. About 4, feeling as if blood were rushing to heart, thence to head, then all over body, then again to heart, and so on (the extreme coldness and the other previous symptoms being still present). The alternate paleness and redness of the surface, indicating this disturbance of circulation, was distinctly visible. About 5 she complained of sensation as if heart was grasped, with sharp cutting pain in cardiac region. At 5.30 I found her sitting up in bed, tossing from side to side. Surface cold and blue ; deep blue semicircles under eyes ; hippocratic countenance ; pulse almost imperceptible ; skin cold over whole body. She complained of feeling faint, with lightness, giddiness, and emptiness of head. She answered promptly and correctly all questions put to her, but had great fear of death. Under stimulants and a mustard foot-bath she promptly recovered. (ROBERTS, *Hahn. Monthly*, iii, 530.)

8. I ate 2 nutmegs between 8 and 9 a.m. In about an h. I felt somewhat elated, light-headed, and bewildered ; this feeling kept increasing ; my mouth and throat felt very dry and I seemed to choke with thirst. I kept on at my desk till 11.30, when I went to dinner. I ate it mechanically ; my wife noticed that I acted very strangely, but was not alarmed. After dinner I returned to business, all the previous symptoms becoming intensified. My head seemed to be whirling round, my eyes starting from my head ; I felt that my legs and feet were getting numb, and on trying to write I found my hands almost useless. I now began to feel alarmed, and a little before 2 started for home. Twice I thought I should fall down ; by sheer strength of will I reached my house. By this time my breath was coming in long gasps ; my blood seemed dried up ; ears and lips were white ; knees

knocked together; hands had lost all power; tongue clave to roof of mouth; and I thought my end had come. After taking two doses of salts and senna I felt a little better, but my whole body seemed benumbed and dried up. I was in bed all next d. and do not think I fully recovered from the attack for 2 weeks. (*Med. Courrier*, Sept., 1880.)

9. Mrs. G—, æt. 24, was confined about 10 d. since. She made a rapid recovery; but as there was some lochial discharge still, a friend advised her to take some nutmeg. She took nearly a whole one about 9 a.m., and soon experienced a severe burning sensation in lips, mouth and throat. About 2 p.m. she felt strangely over the whole system, with almost irresistible desire for sleep, much jactitation of muscles, vertigo and pain in frontal region, with great confusion of ideas. I was called to see her at 4; found her sitting in a chair, her husband rubbing her extremities, which felt numb; there were momentary paroxysms of blindness, when she would grasp her head saying how strange it felt; there was great incoherency in attempting to explain her ideas; marked muscular erethism, especially of extremities, simulating chorea; many ridiculous or extravagant acts and expressions, while she seemed perfectly conscious, and at the next moment would appear chagrined at her conduct, saying she could not control her actions; disposition to laugh or jest at everything; changeable humour, one moment laughing, the next crying; once stupid look for a moment; great dryness of lips, mouth and throat, without thirst; strong inclination to sleep, without the ability. Next d. there was pain in lumbar region and considerable prostration; but as camphor was used rather freely as an antidote, the prostration may in part have depended upon that. In 3 or 4 d. she had fully recovered. (C. L. HART, *Am. J. of Hom. Mat. Med.*, iv, 5.)

10. a. A woman, æt. 30, 5 mos. gone in pregnancy, having a leucorrhœal discharge, was advised to take a nutmeg. She grated one upon an egg and a little sugar, and got through the whole between 11 a.m. and 5 p.m. During e. she had dulness of senses and loss of voluntary power and control. The upper lids were swollen, red round their edges, and drooping; she looked as if she had been crying. Her hand seemed to her red, covered with red spots, and enlarged. Indistinct sight. At 3 a.m. Dr. H. N. Martin was called to her, and learned above facts. She was suffering now with labour-like pains, having sensation as if something had fallen against rectum, causing desire and frequent efforts for stool, which came abundantly in a semi-fluid state. Mouth was dry without thirst. All these symptoms were relieved in an h. by a dose of nux vomica.

b. Patient subsequently gave further account of her sensations. "From the time I commenced taking the nutmeg, my mouth and lips were very dry, but I had no desire for drink. There was frequent micturition of pale clear urine in small quantity, with constant desire to pass it. There was also rectal prolapsus. My head felt full and dilated, without pain; I was foolishly mirthful, but could not speak, had no desire to do so. I never felt so famished in my life, could scarcely control my appetite or indeed myself. Everything seemed to

me too large, my hands double their size. There was a dark mist before the eyes, which felt as they looked. There was a sensation as if a string was tightly drawn round my arms, and all the blood kept in my hands, which felt full and numb. I felt myself entirely without energy, nothing could excite me. Stools were at first very dark and hard, then watery, then pappy. I walked about all e. with my husband, and trembled and swayed about while going." (*Hahn, Monthly*, 1870, 63.)

11. July 20th, 1881, I had to see Mrs. S., whom I found suffering from the effects of a dose of nutmeg, which she had taken for the relief of a severe colic accompanied by diarrhoea. She had often taken a similar dose without ill effects. Her usual method had been to grate up a small, thoroughly dried nutmeg, adding a little sugar and some brandy. Upon this occasion she had no brandy, and used water instead. The nutmeg was larger than usual, and not so dry. She took half the mixture at 10 a.m., and the other half 15 m. later. The quantity of nutmeg taken was equal to a large teaspoonful. In about 10 m. after taking the second dose her "head commenced to feel queer;" this was followed by great dizziness. In a few m. a sense of swelling ensued, until her "head felt as large as all outdoors." At this time she became utterly unable to reply to any questions, although her eyes were open and she apparently understood everything transpiring around her. Her pupils were markedly dilated; eyes staring into vacancy; face ashy pale; respirations laboured and shallow. When spoken to loudly she could be awakened from this semi-conscious state, and would endeavour to reply, but would immediately lapse into her former semi-comatose condition. At first her pulse was small and rapid, but during this unconscious period it became irregular, fuller, and exceedingly weak. Mustard and warm water were given, and a free emesis obtained. A few drops of the spirit of camphor were administered as an antidote, under which she regained consciousness. Afterwards digitalis was prescribed, on account of the weak pulse. At 3 p.m. she had so far recovered from the poisoning as to give a clear account of her sensations. When consciousness first returned she kept her hands to her head. This, she said, was to prevent her head from dropping off; was also obliged to use her hands to move the head, it being too large and heavy for her body. The explanation she gave of the superficial breathing was, that her chest felt as if it were in a vice which allowed it to expand only to a very limited extent. A strange mental condition remained some days; this was an inability to use words properly. Frequently she would be obliged to stop in the middle of a sentence and change it entirely, because she could not think of the appropriate words which she wished to use. The patient was also very irritable and nervous. No new symptoms appeared after those primarily developed. There was no subsequent difficulty with the digestive tract, or with the function of menstruation. (*A. P. WILLIAMSON, N. Y. Med. Times*, Jan., 1882.)

12. About an h. after a mid-day dinner I set out for a country walk of some six or seven miles; it was during this that by dint of perseverance I succeeded in consuming a whole nutmeg. I more than once

thought of desisting on account of a nauseous feeling it created. It was about 10 p.m. the same d. when the first unpleasant symptoms manifested themselves by a gradual coldness and faintness; these sensations came and went several times, and although I did not faint I felt the power of breathing was leaving me. I got to bed quickly and slept well, but on waking in the m. and attempting to dress, I found I was weaker than I anticipated, and every now and again a tendency to faint came on and compelled me to pause. I succeeded in walking to Dr. —, about half a mile from my rooms, and told him what I had done, and he immediately said—"It is nutmeg poisoning." I felt the faintness coming on whilst with him, for which he gave me a dose of camphor. These attacks diminished in strength, but continued for a year, occurring at no regular period. Another feature was that the abdomen felt as though full of wind but unable to relieve itself, and the heart seemed to beat in a vacuum; it also had a numb cold feeling and as if it dripped sometimes; at times its action seemed suspended. There was a tendency to drowsiness and loss of energy. After eating the nutmeg I felt sick but rejected nothing. (*Communicated.* When patient saw me, some little time later, he mentioned also that objects seemed gradually to diminish in size as he looked at them.—R. H.)

13. Miss M. R—, æt. 24, tall, spare, nervous temperament. During the latter part of March, 1872, and while menstruating, partook freely of several nutmegs to lessen the flow. At 2 p.m. on the 22nd March, she ate an entire nutmeg. Between 3 and 4 p.m. same d. ate a second. An h. later, having eaten another, she began to feel faint and discontinued eating. 5.30 p.m., inability to open eyes; lids felt heavy and stiff; both eyes bloodshot and much swollen; looked bewildered, but vision at time good. Later, objects looked misty. She now made an attempt to walk, but upon standing became very dizzy; she walked to the table and partook of her usual supper (bread, butter, meat, and fried potatoes). On going upstairs she felt weak and numb in her limbs with sensation as though she were floating through the air; was seized, while ascending, with much feeling of weight and oppression in the stomach. On lying down she quickly passed into a deep slumber, was very restless, and tossed about much for about half an hour. Calling her name roused her; she heard the first summons and answered reluctantly, but could not thoroughly arouse herself, and was petulant and irritable when roused. Sleep was irresistible. The thought of a contemplated journey was uppermost in her mind, and she asked to be taken to the train, but at once said she "could not go, she felt too ill." Finally, her sister succeeded in awaking her; she then went downstairs; mouth and tongue now pasty and dry, having a velvety and spongy feeling. Tongue felt stiff, she could not articulate distinctly. On taking a seat the head dropped forwards, and could only be raised by a strong effort. Countenance now presented a silly look; occasionally she would give a diabolical grin; mind still running on her journey. 8 p.m., speech rather difficult; tongue rolled in mouth like one intoxicated; ideas confused; eyes very dull and heavy; indescribable feeling of languor over whole body; felt especially bad about head; while upright and walking could hold head erect, but

when sitting it dropped; looked pale and distressed; eyes bloodshot and swollen, so that she could scarcely see. Had much difficulty in getting into bed; on lying down a sinking sensation as though she were going to die, with no fear, however, and free from pain. Felt happy and unconcerned; sensation not complete; faculties undisturbed save in the expression of her ideas; knew all that was going on; later on ideas muddled; tongue thick, with coldness commencing in lower limbs. Soon after 9 o'clock felt chilly, almost shivering, several chills followed with intervals of freedom of several m. between. Conscious during chills, but in intervals a desire to sleep; the movements of those around her prevented sleep; hands were very cold; rubbing made her petulant; people moving in room annoyed her greatly. Both upper and lower limbs continued dead and numb until noon next d. Dr. von Tagen found following condition between 10 and 11 p.m.: Patient lying on back, breathing slow and heavy, apparently unconscious, not answering to her name when called loudly; limbs rigid, hands clasped across breast and firmly clenched. Attempt to separate hands brought on convulsions (clonic spasms); jaws firmly closed; was able to swallow after inhaling chloroform; then fell into deep sleep; on awaking, same spasmodic condition ensued. While under chloroform breathing natural, 18 per m.; pulse soft, regular, 78 per m.; during spasms pulse small, feeble, and rapid, scarcely countable; resp. 10 per m.; eyes red, watering profusely, and pupils dilated. Lids could not be opened to inspect pupils during the spasms. Expression of face denoted much suffering; much grinding of teeth and laceration of tongue; froth and blood escaped from the mouth. The auricular, epicranial, and palpebral groups of muscles seemed involved. About 1 a.m. symptoms of opisthotonos appeared, remaining only as long as the effect of the anæsthetic was withdrawn. Patient passed water during n. involuntarily while under spasms. Stomach very much distended. Skin in parts of body mottled and appeared bluish. Menses had ceased entirely; womb and ovaries tumefied and much swollen; considerable tenderness over both ovaries, especially l., ever since. There was much retching during n., but fruitless efforts to vomit. The condition described lasted all n., lessening in severity towards m. About 9 o'clock next m. appeared to be sinking. She lay completely relaxed, almost pulseless, and breathing almost inaudibly. (Stimulants were then resorted to instead of chloroform.) 10 a.m. after more chloroform, swooned away, and for 20 m. lay as if dead. Patient began to arouse, and at once vomited a pint of green bilious fluid containing particles of undigested food and of nutmeg. From this time recovery dates. Towards noon slept lightly and fitfully, easily roused. Very sore, as if beaten; severe headache; weak and prostrate; deathly sickness on raising head from pillow. A year later there still remained considerable irritability about the pelvic viscera, especially at the monthly periods, when the ovaries and womb were much swollen and tender on pressure; also frequent micturition and bearing-down pains—a sort of strangury accompanies the last few drops of water. Another sequence is impaired digestion; after each meal sense of weight over epigastrium, with empty eructations, preceded by and relieving a feeling as of a lump in

the throat. Attacks of palpitation to which she was subject have been worse since the poisoning. On awaking in m. dryness of back of mouth and of throat, without thirst; saliva thick and pasty. Starting in sleep continues, like electric shocks, with dreams and nightmare. Dreams of falling from high places and of being pursued by persons seeking to harm her. Trembling and weakness of lower limbs, especially going up or down stairs; easily startled, causing palpitation; more or less constant desire to take a deep breath, which she cannot accomplish. (*N. Amer. Journ. of Hom.*, Feb., 1873, p. 315.)

14. A young lady took an ounce of finely ground nutmeg in half a pint of whiskey on going to bed. She went to sleep, but was awakened in n. with precordial anxiety and burning in the epigastrium. She rapidly grew worse, thought she was dying, and sank into a semi-conscious condition, in which Dr. Howard found her at 8 a.m. Her pulse was 130, respiration oppressed, face ashy, and eyes sunken. She seemed to understand what was said to her, and would begin to reply, but forgot what she was saying in the middle. Complete loss of memory lasted several d.; it seemed too much trouble to follow a connected train of thought. Voices of persons in the room sounded far away; words spoken seemed as if spoken a long time before; objects appeared multiplied, and the extra images of different sizes. Her head felt much too large, and she had a sensation as if the head were being drawn backwards. Did not dare to sleep for fear she should die; sensation of brain constantly whirling round. Throbbing in every part of the body; in "the ovaries" this feeling lasted a week. She lost all feeling all over the body, except the head. When she moved even the eyelids she had a sensation like "electric shocks" all over, but when she did move she was surprised to find how much power she had. She found the numbness was relieved if anyone touched her. Next d. she complained of cutting pain in both ovarian regions, and a dull pain in the small of the back; her stomach felt empty, but she could eat nothing; bowels moved freely; urine profuse and smelling of nutmeg; profuse, greenish, acid leucorrhœa. Subsequently bowels costive, preceded by cramps in abdomen. Stool small and narrow, lack of expulsive power; dysphagia, food seemed to stop in œsophagus. She had a sensation as if someone were scraping her back between the shoulders. Always when sleeping, d. or n., she had troublesome dreams of sexual excitement, and awoke weak and exhausted, with a swollen sensation in the ovaries. She was affected with stammering, which was unusual with her. All these symptoms gradually yielded to treatment, but the menstrual function was not established for some time. (The dose was taken to bring on the delayed menses.) (*Hahn. Monthly*, Feb., 1880, p. 105.)

15. A porter in the employment of Messrs. Boericke and Tafel had diarrhœa for several d., when he grated a whole nutmeg and took it in soup at 6.30 a.m. The diarrhœa was checked, but at 9 a.m. he had nausea, great weariness, and sleepiness; eyes were dull, face pale; he looked very ill. Could hardly reach his home, on account of terrible pains in both shins from knees to ankles. This pain increased so much p.m. that he could hardly walk across the room. It felt "as though

the bone had been smashed to pieces." Next d. the pain was somewhat relieved, and it gradually went off. (TAFEL, in Hering.)

III. *Experiments on animals.*—1. The volatile oil of nutmegs is a strong poison. Six drachms killed a middle-sized rabbit in 13½ h.; ʒij killed a strong rabbit in 5 d.; ʒj killed a small rabbit in about 30 h.; ʒj injected into stomach of a full-grown rabbit made it sick and ill for several d., after which it recovered. *P.M.*—In stomach was found extravasation of blood and formation of blood-vesicles on mucous membrane, which was partially softened and devoid of blood, without being inflamed in the adjacent parts. Interior of duodenum was much divested of epithelium and filled with mucus. In the first experiment (with ʒvj) stomach and jejunum were injected with blood. The most important symptoms of poisoning were—frequent and powerful pulsation of heart; slight acceleration of breathing; at first restlessness, afterwards muscular weakness; little or no diminution of sensibility; evacuation of hard feces; ejection of a peculiarly smelling sanguineous urine after the smaller doses, but no diuresis. Later, decrease of strength and of pulsation of heart; difficult breathing; diminished heat in external parts; death without convulsions. (*Pharm. Journ. and Trans.*, x, 350.)

NUX VOMICA.

Seeds of *Strychnos Nux vomica*, L. Poison-nut. Nat. Ord., *Loganiatae*.

I. *Proving.*—1. HAHNEMANN, *Mat. Med. Pura*, part i of original, vol. ii of English translation. Contains 1200 symptoms from self, and 300 from three fellow-provers and thirteen authors.

II. *Poisonings.*—1. a. PIERRIS DUSTZ, æt. 45, of bilious temperament and vigorous constitution, resolved in a fit of jealousy to poison himself. With this intention he took, June 13th, 1820, a considerable quantity of powdered Nux v., which he dusted over his food. Almost immediately after swallowing this he was attacked with violent convulsions. A medical man who was called excited vomiting by giving hot water and milk; the patient was then carried to the Hôpital St. Louis, where he arrived about 6 p.m. His features were very much altered; he felt completely prostrated. Convulsive paroxysms closely followed one another, marked by rigidity of all muscles, jaws strongly closed, trunk and limbs forcibly extended, lasting 1—2 m. Patient was extremely agitated, uttered inarticulate cries, and called for help. Pulse remained normal. An emetic excited copious vomiting; an enema was also administered. During n. the senses of sight and hearing acquired an excessive sensibility; such was the irritability of the muscles that touching the patient is sufficient to excite convulsive movement; even a slight noise produces the same effect. During the convulsions the pulse is quick and agitated, and the body is bathed in perspiration. 14th.—7 a.m., the patient is calmer, the convulsions are shorter, less violent and less frequent, but are still liable to be excited by the causes

previously mentioned. The pulse is normal, sensation of lassitude and of being bruised throughout the whole body, no pain in abdomen (a weak opiate draught was given). 9 a.m., the convulsions have ceased, and hopes are now entertained of his recovery. He continued in this calm state during d. and n., complaining, however, of weakness and general pains. In e. of 15th the pain is concentrated in the epigastric region, skin is dry, and the pulse frequent. 16th,—6 a.m., pulse small, almost imperceptible, dryness and heat of skin, redness of margins of tongue, acute pain in epigastric region, also pulsations there, feebleness, extreme prostration, alteration of features, eyes staring; intellectual faculties entire. Death at 10 a.m.

b. Examination 48 h. after death.—About 4 oz. of serum in the lateral ventricles of brain, no appreciable alteration in meninges or cerebrum, considerable serous effusion under arachnoid membrane of the spine. Liver large. The stomach contains some tablespoonfuls of a muco-sanguineous brownish liquid; the internal surface presents at various points a discoloration varying from red to a deep black; it is impossible to say whether this is owing to ecchymosis or to inflammatory action. The duodenum is filled with yellowish mucous fluid and is inflamed; the redness and injection of the mucous membrane extends, gradually decreasing, to the small intestine; the middle portion of this is contracted and thickened, the mucous membrane at the contracted portions being ulcerated. Bladder is small, contracted, empty, and slightly inflamed, containing about a spoonful of a puriform liquid. Congestion of lungs, especially towards their base, which is reddish. Heart normal. Considerable rigidity of muscles (although immediately after death they were quite pliant); ecchymosis of skin, especially at the dependent parts of the body. (CLOUVER, in *Orfila, op. cit.*)

2. A young woman swallowed purposely a dem. of *Nux v.* mixed in a glass of wine. In 15 m. she was seized with pain and heat in stomach, burning in gullet, sense of tending and weariness in limbs, succeeded by stiffness in joints, convulsive tremors, towering gait, and at length violent and frequent fits of tetanus. Milk given after the tetanus began excited vomiting. She was further affected with redness of gums, inflammation of tongue, burning thirst, and pain in stomach. The pulse also became quick and the skin hot. Next d., though the fits had ceased, the muscles were very painful, especially on motion. Tongue and palate were inflamed, and there was thirst, pain in stomach, vomiting, colic, and diarrhœa. These symptoms, however, abated, and on the fourth day disappeared, leaving her exceedingly weak. (TACHERON, *Land. Med. Repository*, xix, 456.)

3. A young woman swallowed between 3 and 4 drachms in powder, and in ½ h. was seen by Mr. Ollier. She was sitting by the fire, quite collected and tranquil; her pulse about 80 and regular. He left her for about 10 m. to procure an emetic, and on his return found that she had thrown herself back in her chair, and that her legs were extended and considerably separated. She was perfectly sensible and without pain, but seemed in alarm, laid hold of her husband's coat, and entreated him not to leave her. A perspiration had broken out on her skin, her pulse had become faint and much quicker, and she called frequently for

drink. She then had a slight and transient convulsion. Recovering from it, she was in great trepidation, kept fast hold of her husband, and refused to let him go, even for the alleged purpose of getting her drink. In a few m. after she had another and more violent attack, and shortly afterwards a third; the duration of these was from $1\frac{1}{4}$ to 2 m. In them she retained her grasp; her whole body was straightened and stiffened, the legs pushed out and forced apart. I could not (says Mr. Ollier) perceive either pulse or respiration; the face and hands were livid, the muscles of the former, especially of the lips, violently agitated, and she made constantly a moaning chattering noise. She was not unlike one in an epileptic fit, but did not struggle, though, as she was forced out, it was difficult to keep her from falling on the floor. In the short intervals of these attacks she was quite sensible, was tormented with incessant thirst, perspired, had a very quick and faint pulse, complained of being sick, and made many attempts to vomit (I should state she had swallowed some ipecacuanha powder to evacuate the poison). She continued to refuse to let her husband move, and to the question whether she was in pain, replied "No, no, no!" A fourth and most vehement attack soon followed, in which the whole body was extended to the utmost, and she was rigidly stiff from head to foot, insomuch that, with all the force of the surgeon, he could not bend her thighs on the pelvis to replace her on her seat. From this she never recovered; she fell into a state of asphyxia, and never breathed again. She now relaxed her grasp; her discoloured hands dropped upon her knees; her face, too, was livid; the brows contracted; the lips wide apart, showing the whole of the closed teeth, and a salivary foam issued plentifully from the corners of her mouth. The expression of the whole countenance was at this time very frightful. On removal of the body, it was discovered that the urine had been discharged. She died in about an h. after taking the poison. Five h. afterwards she was still as straight and stiff as a statue; if you lifted one of her hands, the whole body moved with it, but the face had become pale in comparison, and its expression more placid. (OLLIER, *Ibid.*, p. 448.)

4. A. D—, æt. 20, a healthy labourer, was admitted into the Royal Free Hospital, having $\frac{1}{2}$ h. previously taken about ʒiiss of powdered Nux v. When admitted he was in profuse perspiration, the skin of the face, neck, and chest was greatly congested, the eyes suffused, the pupils slightly contracted, the pulse hard and excited. The patient was greatly agitated, and on moving he grasped firmly the nearest object for fear of falling. A few m. after admission a tetanic paroxysm came on suddenly, the man was thrown into a state of opisthotonos, all his muscles becoming rigid and respiration for the time suspended. This fit lasted about half a m., when the muscles became relaxed and he was again able to answer questions. He states he swallowed nearly all the powder. Soon after he felt a little drowsy, and the first paroxysm of tetanic spasm came on about 10 m. afterwards. He had several of these fits before he was brought to the hospital, and five after his admission into the ward. They went on decreasing in severity, and none were observed after the fifth was over. The n. following the patient slept well; next d. he complained of cramping pains in the

limbs when he moved them; tongue dry, much thirst, bowels confined. Next d. patient was dismissed well. Stomach-pump was used. (*Lancet*, 1853, ii, 385.)

5. A. C.—, æt. 16, $\frac{1}{2}$ h. before admission into the Liverpool Hospital had swallowed some of Gibson's Vermin Killer. When admitted she was much excited and hysterical, and complained that her back felt stiff and her throat hot. An emetic of sulph. zinc. was administered, causing her to vomit. About 10 m. after admission twitching of the muscles, which was aggravated by touching the patient, even when she did not know she had been touched, commenced in the limbs and back and rapidly extended over the body, increasing in violence and rapidity, until about 20 m. after admission the whole body was violently convulsed, the back being slightly arched, the jaws firmly clenched, and the face livid, apparently from interference with the respiration in consequence of spasm of the muscles of the chest. The respirations were very slow and laboured, ceasing entirely when the patient was moved or touched. Pulse quick and strong. A hypodermic injection of $\frac{3}{16}$ ss of solution of hydrate of chloral ($\frac{3j$ to $\frac{3j}$). When half an ounce had been injected the spasm of the muscles of chest and jaws relaxed, the patient being able to breathe freely and speak, the face resuming its natural colour; gradually other symptoms disappeared. Next morning she seemed well. (*Ibid.*, 1873, i, p. 698.)

6. a. A somewhat stout maidservant, who had always been in good health, took the desperate resolution, on account of some disagreeable circumstances she had encountered, to deprive herself of life. She asked an apothecary worth of rat poison (*rattenkraut*)—by which arsenic is here understood—instead of which the apothecary gave her about two drachms of grated *Nux v.* About 10 a.m., 10th May, 1796, she took the whole of this quantity in a little water. In $\frac{1}{2}$ h. she complained of severe pains in the bowels, which increased every moment and soon reached an indescribable degree of severity. I was called to see her about noon, and found her in bed suffering the most dreadful convulsions, especially *opisthotonos*, which abated and returned several times in a m. The face was strongly suffused with blood, scarlet, the eyes fixed and glistening, the hands cold, the pulse almost gone. All this time she was perfectly conscious and told me she had taken three pennyworth of rat poison, upon which she soon felt pain in the bowels and then an indescribable anxiety, which still continued. She had drunk a quantity of lukewarm milk without the smallest relief. Under the certain belief that she had taken arsenic, in addition to the ordinary external applications I made her take a solution of the liver of sulphur, gave her a clyster, and opened a vein. But all in vain! The pains went off, a cold sweat broke out, and she died a little after 12 at n.

b. An examination of the body took place the following d. in the presence of several witnesses. Externally the whole r. side was purple, the abdomen dreadfully distended, the hands convulsively clenched, the head pale and collapsed, the mouth shut, the lips blue with traces of blood having run out of them, the nails natural and firm, but the hair was easily pulled out. In the abdomen, the liver, spleen, kidneys and

womb were perfectly sound. The intestines strongly distended with air. The stomach violently inflamed and in the neighbourhood of the pylorus almost mortified (brändig). The inflammation extended to the middle of the jejunum. The ileum was quite healthy. In the stomach a large worm (spulwurm) was found eaten through into three different portions, and about six ounces of pulpy matter, which I carefully collected into an iron pot for examination. The head and chest were not opened. The examination of this pulp revealed the presence of a quantity of grated *Nux v.* but no trace of arsenic. (CONSRUCH, *Hufeland's Journal*, v. 42.)

7. A lady, æt 50, affected with some abdominal complaint, took by mistake a teaspoonful of a sol. of ʒij of the alcoholic extract in ʒij of menstruum. Almost immediately after taking the medicine she was attacked with rigor and vomiting, and got worse every m. Her face, previously pale, became of a very red colour; her cheeks were burning hot; eyes were fixed, and often so strongly drawn upwards that the (contracted) pupil could not be seen; features were distorted; mouth fast closed; grinding of teeth; rapid, grunting, interrupted breathing; great anxiety; violent palpitation; and involuntary loud crying out. When she screamed out her head was drawn backwards, whereupon the mouth was opened wide and gave her countenance a horrible expression; the tongue was at same time protruded, and was several times severely wounded by the jaws closing suddenly upon it. She had great aversion to fluids, which she was sometimes utterly unable to swallow. She trembled all over, and could only keep seated for a few m. at a time, was then compelled, as by an electric shock, to rise up and totter about room. Speech was continually interrupted by hiccup; it was weak, monosyllabic, and often quite unintelligible, so that her wishes could only be guessed at from signs. Pulse small, hardish and quick. These symptoms lasted about 3 h.; they were followed by great exhaustion for several d., and an eruption (kind not stated) over whole body.* (LEONHARD, *Med. Zeit.*, 11 Jahrg., p. 225.)

8. G. E. S—, æt. 16, was low-spirited in her situation, and left her mistress's house about 10.30 a.m., Jan. 25th, 1856. About noon she reached her home, about 2 miles off; and rushed into a room in a state of great mental excitement, exclaiming that her mother had been murdered, seating herself suddenly on a chair, and then being seized with convulsions. Mr. Sleeman was sent for, and 2 more fits supervened before his arrival at 12.30. He found her lying down in violent

* "A young man, æt. 16, whose l. arm was completely and r. partially paralysed, was given pills of equal parts of extr. and powder of *Nux v.*, weighing 1 gr. each. Gradually increasing dose, he finally took 6 pills m. and e. On the 14th d. he was seized with tagging pain and shuddering in l. arm, with violent redness and swelling of limb and breaking out of pustules, which seemed to form an almost confluent eruption and gradually spread over whole body,—the paralysis improving in proportion. Six d. after eruption had appeared it dried up and fell off in large whitish scales. Patient continued his pills, and eruption broke out a second time, preceded by rigidity of limb. From 16 pills daily he now came down to 3; the former had caused shocks and tetanic rigidity, the 3 produced heaviness of tongue and hurriedness in all his motions. At last he only took 1 pill a d. The eruption broke out twice more, but only in the shape of small vesicles, which dried up and left patient perfectly cured" (Drs. BACH, in *Hempel*, *op. cit.*).

tetanic spasms. Her head was drawn back, arms extended, fingers flexed to palms, jaws firmly contracted, countenance somewhat livid, eyes open, fixed, and somewhat protruding, trunk stiff, legs extended, feet turned outward, toes flexed to plantar surface, skin dry and warm; respiration loud, almost amounting to stertor; pulse could not be counted. This paroxysm lasted about 2 m. An interval of perfect sensibility ensued, during which she admitted having taken the poison (about $\frac{1}{4}$ oz.), expressed her sorrow for it, and said that during the fit she suffered much pain.

8. A full dose of sulphate of copper was administered as an emetic, but did not produce vomiting. The stomach pump was about to be used, but a fresh paroxysm prevented it. During the interval between the paroxysms all the limbs were perfectly relaxed, the body pliant, and she was much exhausted: occasionally, after one of more than usual severity, there was a slight tendency to coma. Countenance was pallid, eyes and breathing natural; pulse about 80, moderately full; skin warm and dry. The paroxysms lasted about 2 m., the intermissions about 5 m., when patient was first seen; former gradually increased in severity, and latter became shorter, but always allowing of consciousness even to that before the last paroxysm, which occurred a few m. before 2. During the last $\frac{1}{2}$ h. the slightest movement caused a paroxysm, even an attempt to speak or drink: she begged to be left alone because of the pain she suffered "when in a fit." The P.M. examination presented no feature of interest. (*Med. Times and Gazette*, Feb. 9th, 1856.)

9. A lady affected by rheumatism took, at 7 a.m., 60 dr. of tinct. She remained quite well for 2 h., then she suddenly became convulsed, and in a few m. was quite tetanic. The lower jaw moved in a jerking way from side to side, but could not be opened. The arms were drawn spasmodically up close to the chest, thighs upon abdomen; fingers and toes were strongly flexed. It was with great difficulty that the bent limbs could be extended. The patient whined and groaned, but could not speak a word. Her skin was perfectly insensible, and she felt neither pinching nor pricking. These symptoms lasted $\frac{1}{2}$ h. and then went off. (*Horn's Archiv*, xx, 2, 245.)

10. A chemist, by way of bravado, took one n. 3 or 4 dr. of the homœopathic mother tincture of Nux v. He awoke early next m. with feeling as if head would burst. He was so giddy that he could neither sit nor stand; he had rushing sounds in his ears, intolerance of light and sound, and could not see. His face was turned, and he looked besotted, like a man reeling drunk. (*CHAPMAN, Annals of Brit. Hom. Soc.*, 1, 380.)

11. On August 14th I was suddenly called to attend a lady who, I was told, had just had a stroke of paralysis. I found a young woman lying upon a bed, where she had been laid fainting a few m. before. She had regained consciousness as I entered the room, and was much alarmed, complaining that she had suddenly lost all power over her hands and feet, and was unable to move them. Her fingers were extended, and she could not flex them; close inspection detected almost continuous twitchings of the small muscles of the hand. The condi-

tion was evidently one of tonic spasm, and not of paralysis. The face was pale, and the pupils were equal and widely dilated; the patient complained that she could not see distinctly, and that everything looked far away and blurred. The respirations, although disturbed in rhythm by nervousness and excitement, were, nevertheless, evidently efficient; a moment's auscultation showed the heart beating clearly and forcibly about 100 times per m. The patient's mind was even abnormally sensitive, and she herself keenly apprehensive; despite her alarm, natural under the circumstances, there was a certain dignity and apparent effort to keep calm—an absence of the dramatic element in her manner, which silenced any suspicion of hysteria which might have been suggested by symptoms somewhat difficult to account for in any other way under the circumstances. In addition to this, the dilatation of the pupils was so conspicuous as to call for some other explanation. The mental clearness, associated with marked disturbance of the functions of the spinal cord, at once suggested strychnia, and I asked if she had not taken something—a medicine for her eyes, the last teaspoonful of a tonic mixture, &c. The members of the family denied that she had taken any medicine for a long while, and, being wedded to the opinion that the trouble was paralysis (of which they said many of their relatives had died), almost resented my persisting in asking questions. Suddenly the patient herself remembered that she had taken some homœopathic granules which she had long been in the habit of prescribing for herself when threatened with a sick headache. The dose had originally been five granules, taken two or three times; but that m., feeling very badly, and fearing that the medicine might have lost its strength by having been kept for a year or so, she increased the dose to 14 granules, and took it five times—70 granules in all—in the course of 14 h. This occurred about an h. before the alarming symptoms presented themselves; she had for the time forgotten that she had taken the medicine, not dreaming that it was the cause of her sickness, and, indeed, considering that "homœopathic medicine was in any case harmless, since it affected merely the disease, and not the patient." The vial of granules was given me, and on the cork I read "Nux." During the few m. required for diagnosis, the symptoms became more marked; a slight convulsion occurred, with suspension of respiration and a suggestion of opisthotonos. The face became deathly pale, the pupils even more widely dilated, and the patient fainted—apparently from cerebral anæmia. The inhalation of a few drops of nitrite of amy] (a bottle of which I was fortunate enough to have with me) rapidly restored her. Some chloroform was obtained just in time to be administered during a second convulsion, which was a little more marked than the first had been; 2 drachms of bromide of potassium were given as soon as the patient was able to swallow. The room was darkened and kept quiet, and slight inhalations of chloroform were continued for about 20 m. until the bromide of potassium could be absorbed and produce its effects. No further convulsions occurred; in an h. the danger had passed, and very soon afterward the symptoms had all disappeared. I have been unable to discover the strength of the granules; they were obtained while the patient was travelling in the West, and the circum-

stances attending their purchase have been forgotten. One of them, which I allowed to dissolve in my mouth, had a distinctly bitter taste, and the symptoms above recorded undoubtedly attest the presence of a larger proportion of the original drug than is sustained by any tincture which survives the visitatory Hahnemann. (*N. Y. Med. Record*, 1880.)

12. A man, æt. 56, took by mistake, April 29th, 3 p.m., a teaspoonful of *tinct. nucis vom. Rademacheri*, which is only half as strong as the ordinary tinct. At 12.30 a.m. another teaspoonful. He had a restless n. and peculiar drawing on dorsum of feet and in soles.—3oth, 8 a.m., a teaspoonful. 8.15 a.m., alternate heat and chills, head hot. On trying to rise from chair, he could only stand, but could not raise his feet to take a step; next drawing and stiffness of masticating muscles and nuchal muscles; the movements of eyes are difficult from stiffness of the ocular muscles; drawing and pricking as with needles on dorsum and soles of feet and in toes; a similar sensation in arms and hands. He looked somewhat heated, skin rather moist; legs could be moved when seated, but could not sustain body. He got coffee and camphor. 9.30 a.m., better, with assistance could walk into next room. Urine passed in a stronger stream than for years. 2 p.m., quite well. (*LEMARK, M. Zeitsch. f. hom. Klinik*, xiii, 152.)

13. *Post-mortem* examination of a woman, æt. 26, who had committed suicide with $\frac{1}{2}$ pulv. nucis vom. Body very stiff, head drawn forwards and to l., flexed and contracted arms and fingers of both hands, jaws firmly closed, dark violet sputa on face and upper part of chest, and traces of vomited greyish mucous masses. P.m. sugillations in various parts, flow of bloody mucus from nose. Meningo-spinal vessels slightly congested; vessels of arachnoid not perceptibly injected, in its cavities a little reddish serum, where it covers the l. lobe a reddish-black serous infiltration. Brain substance soft, grey and white substance well defined. On cutting through it many bloody points seen; in lateral ventricles half table-spoonful of reddish serum; lobes of cerebellum covered with red and gelatinous exudation, especially on their upper surface; pia mater very red and injected; cortical substance very soft and very dark, white substance injected. The cavity of the arachnoidea medullæ filled with copious, clear, dark red fluid; vessels of dura mater slightly injected; the thoracic portion of spinal cord very soft compared with the other parts; the grey central parts traversed by visible blood-vessels. Larynx, trachea, and bronchi filled with blackish-violet, slimy, viscid fluid; their m.m. blackish-violet, their capillaries not injected; posterior parts of lungs almost black, crepitating strongly, and on being cut through a large quantity of black fluid blood escaped. Heart flabby and very large; on its surface near r. border 8 to 10 ecchymosed points like flea-bites irregularly grouped and close together; one isolated spot near l. border $\frac{1}{4}$ inch from apex; its cavities contained black fluid blood, as also the large arterial and venous trunks. In pharynx blackish blood slightly staining its walls. Stomach and intestines distended with gas; in former a blackish-brown spot towards the inner surface of spleen; several injected venous trunks under serous membrane. In stomach a clear, beef-see-like, greyish liquid. Its m.m. throughout whitish, with some brownish-red marbled marks.

In the part of the saccus cæcus ventriculi corresponding to the external brown spot the same venous clusters in the m.m., which showed a red spot as big as a florin, very dark and punctated, growing paler towards circumference. Throughout the intestinal canal m.m. whitish; some of the greyish fluid seen in stomach was found in the duodenum, none in jejunum. Liver healthy; spleen very soft, very easily broken up, and containing much black fluid blood. A cyst as large as a pigeon's egg in l. ovary, filled with clear colourless serosity. (OLLIVIER, *Arch. gen. de Méd.*, viii, pt. 3, 17; also in *Frank's Mag.*)

14. A man, æt. 45, of nervous-bilious temperament, took June 13th, 9 p.m., a considerable quantity (12 sous' worth) of coarsely triturated Nux v. Almost immediately violent convulsions. When brought to the hospital his features were altered, general bruised feeling, strength much diminished; convulsive fits of 1 to 2 m. duration at frequent intervals, extremely pronounced stiffening of all muscles, jaws fast closed, great restlessness, uninterrupted cries and request for speedy relief, pulse not altered (emetics and purgatives given). At n. hearing and sight extremely sensitive, the convulsive fits were renewed by touching him and by the slightest noise; during fits pulse frequent and agitated; he is bathed in perspiration.—14th, 7 a.m., quieter, the convulsive fits rarer, shorter, and slighter, but still excitable in the same way, a feeling of relaxation and prostration in limbs (Pot. calm. ℥iv, Op. gr. vi). 9 a.m., cessation of convulsions. This state of quiet continued all d., also next n., and on the 15th there only remained a general feeling of pain and weakness. E., complained of pain in epigastrium, skin dry, pulse quick.—16th, 6 a.m., pulse small, almost imperceptible, dryness of skin, redness of border of tongue, acute pain in epigastrium, extreme prostration, with unimpaired mental faculties. Died at 10 a.m. in a state of general clammy sweat but no stiffness of limbs. P.M. (after 48 h.).—In lateral ventricles of brain about ℥j fluid, in cavo arachnoideæ of spinal cord a considerable quantity; the posterior part of that membrane studded with numerous irregular cartilaginous plaques. Liver large. Gastric m.m. has several red and black spots, contains some spoonfuls of slimy, bloody, brownish fluid; duodenum filled with a yellow slimy fluid, without a trace of inflammation, the redness and injection of its m.m. goes off towards jejunum. Its middle part contracted, its walls thickened, and ulcers on the m.m. corresponding to the contracted part. Bladder small, contracted, slightly injected, and containing a spoonful of puriform fluid. Some adhesions betwixt pleura pulmonalis and costalis, lungs full of blood, especially at the base. Heart normal. Considerable stiffness of limbs; almost all the skin violet, especially in depending parts. (BOUSSELAUD, *Journ. univ. et heb.*, xiv, 396; *Frank's Mag.*, iv, 629.)

15. A young woman took by mistake a quantity of rat poison consisting of coarse powdered Nux v. She was soon unable to walk, and fell down without losing consciousness. When seen was lying in bed with pale face, expression of indifference, anxiety, alternately laughing and crying, eyes wide open, pupils contracted. Breathing irregular, superficial, pulse irregular, small, not hard or quick, skin cool, forearms half flexed, hands and fingers moving convulsively, lower

extremities immovable, stiff, all the muscles hard, tetanically contracted. No pain, no nausea. Respiration became every instant more difficult, and she complained she was suffocating. She got 5 gr. tart. em. After 20 m. no feeling of nausea, a cup of tea was given, and throat irritated with a feather until vomiting ensued. She then got various medicines. The symptoms gradually subsided, but the sight continued dim for 3 d., and she had a bruised sensation and tired and painful feeling in thighs as though she had had a long walk. (BASEDOW, *Hufeland's Journ.*, lvii, i, 86. 1828.)

16. A man for suicidal purpose took, Feb. 7th, 9 a.m., about $\frac{1}{2}$ of an oz. of powdered Nux v. After 1 h. he felt his feet and soon afterwards his legs and thighs growing cold and stiff. He went to bed; then there came on an indescribable pain in back and loins, soon followed by tetanic convulsions. At same time nausea, inclination to vomit, but without vomiting. After being 1 h. in bed his body was covered with profuse warm perspiration, though the legs remained cold, damp, and stiff. When seen at 4 p.m. was bathed in sweat, very anxious and repentant of his foolish act. The legs were stretched out and stiff. The arms also felt cold and crampy, but were still at patient's command. Breathing oppressed. Pulse very quick, 65 to 70, full. On touching him he had immediately a convulsive fit. He could with difficulty put out his tongue, which was furred white. His expression was anxious, his speech stammering and interrupted by convulsions in extremities and back (opisthotonos). After a clyster of Glauber salts the violence of the fit subsided somewhat. He remained perfectly conscious. He slept restlessly, and next m. felt very exhausted, but he could get up and move slowly about the room. He complained of pain and prostration in back and sacrum, fetid odour from mouth, the sensibility of the lower extremities somewhat dulled. Urine turbid, with dirty yellow sediment.—9th. Convulsive movements quite gone, only painful feeling in back and loins remains. Tongue still loaded, no appetite.—11th. Quite well. (LEVER, *Schmidt's Jahrb.*, xxx, 296. 1841.)

17. A few d. ago I received an urgent call to go and see a patient who had been suddenly seized with cramp, and who appeared to be in a dying state. This was about 4 p.m., and he had been attacked about $\frac{1}{2}$ h. before that. On reaching the patient I found him labouring under the following tetanic symptoms, viz. drawing, crampy pains in back of neck, with paroxysms of internal stiffness and rigidity from nape downwards. The paroxysms varied in intensity. During the mild attacks the muscles of the neck alone were affected, when he could walk about and speak freely. During the more severe attacks not only the muscles of the neck but those of the chest and throat were affected, causing great difficulty of breathing and choking sensation, especially when attempting to swallow anything, also the muscles of the head, and especially of the forehead, causing a contraction of the eyebrows, and giving him a peculiarly sullen expression of countenance. During the most severe attacks all the muscles of the back and legs were affected, and the entire body became rigid and curved backwards; at times he was unable to keep his seat on the chair, and when he attempted to get on his feet he could scarcely stand or move his legs, his muscles were so

rigid. Each paroxysm lasted 1—2 m. He always made an effort to move about when the attacks came on, and to rest the affected parts. Having learned the cause of the complaint I at once gave him camphor every few m. In the course of $\frac{1}{2}$ h. the spasms gradually lessened in severity, and disappeared altogether in about 3 h. Shortly after he was suddenly seized with violent strangury. The efforts to urinate were constant and most painful, without being able to pass a drop. For this he got opium, which speedily gave him relief. Next d., with the exception of a little fatigue and shakiness, he was quite well. This patient had been labouring under some slight nervous affection, for which he applied to a well-known orthodox professor in Edinburgh, who sent him a prescription for 60 (!) pills, each containing $1\frac{1}{2}$ gr. Nux v. Of these, one was to be taken 3 times a d. The tetanic symptoms came on after taking the second pill. The first was taken in the m., the second at 3 p.m., and in 10 m. after that the cramps in neck and back came on. (COCKBURN, *Month. Hom. Rev.*, ii, 49.)

16. In the larger medicinal doses the effects of Nux v. manifest themselves by a disordered state of the muscular system. A feeling of weight and weakness in the limbs, and increased sensibility to external impressions (of light, sound, touch, and variations of temperature), with depression of spirits and anxiety, are usually the precursory symptoms. The limbs tremble, and a slight rigidity or stiffness is experienced when an attempt is made to put the muscles into action. The patient experiences a difficulty in keeping the erect posture, and, in walking, frequently staggers. If, when this effect is beginning to be observed, he be tapped suddenly on the ham while standing, a slight convulsive paroxysm is frequently brought on, so that he will have some difficulty to prevent himself from falling. I have often in this way been able to recognise the effects of Nux v. upon the muscular system, before the patient had experienced any particular symptoms. If the use of the medicine be still persevered in, these effects increase in intensity, and the voluntary muscles are thrown into a convulsed state by very slight causes. Thus, when the patient inspires more deeply than usual, or attempts to walk, or even to turn in bed, a convulsive paroxysm is brought on. The sudden contact of external bodies also acts like an electric shock on the patient. The further employment of the drug increases the severity of the symptoms; the paroxysms now occur without the agency of any evident exciting cause, and affect him even while lying perfectly quiet and still in bed. The muscular fibres of the pharynx, larynx, œsophagus, and bladder also become affected; I am acquainted with two cases of paralysis, in which the use of Nux v. caused almost constant nocturnal erection. The pulse does not appear to be uniformly affected. Previous to the production of the affection of the muscles, various painful sensations are oftentimes experienced in the skin, which patients have compared to the creeping of insects (formication) or the passage of an electric shock; and occasionally an eruption makes its appearance. (PZANKA, *op. cit.*)

17. The first effects of the drug are a drawing in the temples and nape, which patients call headache, but which they know to be quite different from any trouble of this kind they have hitherto experienced.

The jaws are a little drawn, or rather they become stiff, as if the play of the articulations were a little less free. It is not long before the stiffness invades all the muscles of the trunk and limbs. The patients cannot completely dilate the chest, and their great efforts at inspiration are cut short by a sort of general muscular spasm. This stiffness, however, is not constant, or rather it becomes aggravated at intervals. The spasms are often preceded by horripilation, accompanied by marked shivering; tingling then comes on along the course of the peripheral nerves, sometimes with painful sensations described as like the passage of electric sparks. The more marked these precursory phenomena the more severe the subsequent spasms. Other muscles, which are usually less under the control of the will, become affected; such are those of the pharynx and œsophagus, and the ereectors of the penis, so that swallowing becomes difficult, and nocturnal and diurnal erections trouble persons who have long lost their virile power. Women even experience increased sexual desire. The tinglings which have been mentioned are at first deep, but afterwards become superficial, and when all the spasmodic phenomena have passed off there sometimes remains an almost intolerable itching. The itching is often the first effect noticed; it occurs chiefly on the parts covered with hair. It is only later that the rest of the skin becomes involved. When the dose of *Nux. v.* is a little larger, the electric shocks resemble a veritable tetanic convulsion, which though not dangerous is decidedly painful, and may be followed by such stiffness of the limbs that walking is impossible. When the shocks surprise the patient standing, he has difficulty in maintaining his equilibrium, and sometimes he falls; in some cases he is thrown as if from a spring and falls. The intellect is in no way affected; some swimming and ringing in the head and flashes before the eyes, and a certain nervous excitement like hysteria may appear, but they pass off as soon as the drug is discontinued. The symptoms do not all come on at once, nor do they all last equally long. Rigidity is the first symptom, then the "electric sparks," then the shivering and the spasms. The tingling and itching only supervene after the drug has been given several days. When examined by means of the galvanoscope it is found that the excitability of the muscles, motor nerves, and spinal cord is preserved, while that of the sensory nerves is abolished. In animals it has been found by experiment that strychnine has an elective action on the extensor muscles, the flexors remaining at rest, except a few fibrillary contractions. In healthy eyes strychnine does not increase the perception of colours in general, but augments the sensibility of the periphery of the retina for blue rays. The field of vision is temporarily enlarged and acuteness of vision increased, so that objects situated at the periphery of the visual field can be distinguished at a greater distance than usual. (TROUSSEAU et PINOIX, *op. cit.*, sub voce.)

Strychninum.—Alkaloid derived from *Nux vomica* (also from *Iglatia*). $C_{21}H_{22}N_4O_2$.

1. *Provingr.*—1. R. R—, æt. 29, bilious-sanguine temp., robust and very healthy, proved the liquor strychniz of the British Pharma-

copra, —4 gr. to the oz., under Mr. Robinson's superintendence. January 3rd, 1868, took 10 dr. m. and e. Tense pain in r. hypochondrium and sleepless n. 4th.—Same m., noon, and e. About $\frac{1}{2}$ h. after 1st dose considerable stiffness of muscles of mastication, and difficulty in opening and shutting mouth; during d. flushing and heat of face, slight confusion of ideas, stiffness of extensor muscles of thighs, as if they were made of wood. Sleepless n. 5th.—3 doses of 12, 15, and 10 dr. respectively. Slight trembling of knees; considerable confusion of ideas (after 2nd dose); general drowsiness, lasting for some h. 6th.—4 doses of 10 dr. each. Slight stiffness of muscles of jaw and hands (after 3rd dose); during d., dull pain shifting along line of aortic arch. 7th.—Same doses. After 4th, stiffness of extensors of thighs, and of muscles of back of neck and hands, causing inability to write. 8th.—Same. No symptoms. 9th.—Same. Occasionally spasmodic explosive cough. 15th, 16th, 17th.—Each d. 48 dr. in 4 doses. No symptoms. 18th.—60 dr. in 4 doses. Troublesome itching of skin for about 2 h. 19th.—60 dr. in 3 doses. Involuntary idiotic-like chuckle; on raising hand to take hold of a cup, it was drawn back suddenly as if it had been burned, and there came on spasmodic twitchings of both arms—he was obliged to eat with elbows resting on table, muscles of forearm being under control, but not those higher up (after 2nd dose); in bed twitchings of limbs, and spasms as if heart was being firmly grasped; slight confusion of ideas. 20th.—60 dr. in 4 doses—last 3 largely diluted and sipped at intervals of about 10 m. No symptoms. 21st.—Same. Rheumatoid pains, especially in articulations of lower jaw and extensors of thighs. 22nd.—Same. Similar pains in front of thighs, and in forearms and fingers. 23rd.—Same. No symptoms. 24th.—Same. Bad taste in mouth; slight shivering. 25th.—Dizziness, humming in ears, general coldness, especially in sacral region, which feels as if it were iced. These symptoms proved the precursor of a "fever of an adynamic intermittent type," such as the prover had frequently witnessed at Peshawur in India, with considerable prostration. Upon this, after 7 d., supervened uneasiness increasing to pain in bladder and urethra, with constant urgency to pass water, pain (shooting) involving rectum, and attack culminating in inflammation of r. spermatic cord and testicle. From Feb. 16th, profuse perspiration set in at n., and general condition improved. Testicle, however, remained hard and swollen, and eventually there came on burning pain of l. side of scrotum, where skin was tense over testicle, and a large abscess formed in dartos and cellular tissue. This was opened, and yielded a great quantity of semi-transparent fluid, partly mixed with blood; after discharge of which size of testicle became somewhat less, though there seemed no connection between it and the abscess. Soon after this spasms of darting pain in rectum, with gurgling sounds, which had never left him, became more frequent and severe; stools throughout being lumpy, either dry or covered with mucus. Therewith was constant headache, sleeplessness, and slight fever. Sulphur 30, *ter die*, caused rapid and almost complete relief. [We have summarised these phenomena subsequent to Jan. 23rd, as it is very doubtful whether they were effects of the S. They can only

be noted for confirmation.—EDS.] (*Monthly Hom. Rev.*, xii, 251, 560.)

2. *a. A. F.*—*æt.* 34, an unmarried woman, in good health, active and temperate, proved same preparation. March 17th, 1868, at 3.45 p.m., took 15 dr. in water. 4.15, sharp momentary pains at bottom of r. heel, and then in r. thumb and s. hip-joint; peculiar creeping chilliness, with heat, in r. side of head and face. 5.30, sore contracted feeling in muscles of abdomen generally; strange darting sensation in calf of l. leg and muscles of l. upper arm; sharp contractive pains in muscles of chest; peculiar muddled vacant feeling, forgetfulness, she felt disposed to sit still and sleep; dull aching pains at nape and up behind ears; stiff sensation in legs on going downstairs, especially in knees; fixed deep-seated pains in lower abdomen; intense aching in small of back. 10, while sitting, suddenly a kind of spasmodic jumping in lower part of trunk, and now and then in l. arm; when falling asleep at n., several convulsive jerks of entire body. Sleepless at n.; visions of dead persons. 18th.—On rising severe headache, with sensation on stooping as if head would burst; feeling of intense fulness in ears; extreme chilliness and drowsiness; shooting pains under jaws, and in muscles generally; transient crampy feeling in toes of l. foot at intervals; dull shooting pains in glands of neck and behind ears; intense itching of nose, as if in bone, lasting entire d.; sharp pains flying about head, at times fixed pain in vertex; creeping, tingling sensation in auricles. Afternoon, burning in l. ear and eye; vacant feeling, forgetfulness; tight stiff sensation up spine when bending head down; hot pains and dry sensation in throat, coming on at intervals and lasting a short time; griping pains in bowels; sharp darting pains in l. calf. 8 p.m., severe pains in head generally, in l. eye, and behind ears, with feeling of stupor and drowsiness; sharp pains in r. wrist, and then in l. arm from shoulder to wrist. 19th.—On rising felt much better. 9 a.m., sharp cutting in l. ankle, l. arm, r. lower half and l. upper half of abdomen, in succession; momentary darting pains in head and under l. jaw; unusually good appetite. 10, sharp pain in r. little finger, and at same time such intense aching in ankles that she must sit down; momentary griping pains in bowels. 4 p.m., headache coming on suddenly, especially in l. side (including eye); peculiar creeping chilliness all over, with tremulous sensation in jaws. 7 p.m., severe sharp pains in shoulder-joints and muscles of chest; severe fixed pain in upper l. chest; a single cold chill down entire length of spine, afterwards she feels deathly cold; dimness of eyes; giddiness and nausea; sensation as if brain had been overworked, with great weariness; dry, hot feeling in throat; darting pains in muscles of arms and in r. calf; dull pains in glands of neck and behind ears. At n. when falling asleep peculiar spasmodic jumping, at times in l. arm only, and afterwards in r. hand; severe toothache at midnight. 20th.—On rising, slight sensation of sore-throat, l. side, with general dry feeling in throat; dull pains in head and eyes, with feeling of stupor and great weariness; griping pains in bowels and constipation; sharp cutting pains in muscles of l. thigh and in both arms. 3 p.m., darting pains and contracted feeling in back of neck and head and behind ears; feeling of weariness in brain, great

desire to lie down and sleep; loss of memory; sharp pains in upper r. chest and in top of shoulders, at short intervals; extreme chilliness, even in warm room; sharp pains in back teeth and jaws. 5.30 p.m., sharp pain in r. thumb and r. great toe; stiff hard feeling of muscles of neck. (All the pains are more cramp-like than rheumatic; they make her feel as though she would be stiffened.)

6. 21st.—At 3.45 p.m., 20 dr. 5.45, slight dull pain in head, behind r. ear; severe sharp pain in muscles of abdomen. 7, peculiar sudden faint sensation, with sense of extreme brilliancy of vision; jaws were suddenly stiffened for a few m., and then in a moment became relaxed. 9, pains in l. knee, palms, and l. thumb, as if they would be stiffened. Spasmodic jumping in arms at n. 22nd.—Shortly after rising, feeling of contraction in throat, l. side. 10, contractive pains in palms. 11.30, sudden drowsy sensation; hard stiffness of muscles of face; stiffening sensation in jaws; sharp darting pains in l. temple and round to back of l. ear; spasmodic jumping of muscles of arms, passing off suddenly. 5 p.m., sharp pains in r. elbow, at short intervals; great weariness and prostration. At n., disagreeable dreams; strange wanderings of the imagination. 23rd.—M., muddled, confused feeling; stiff sensation in eyes, she felt unable to look up; soreness in l. side of throat; tongue much coated, bad taste. 10 a.m., feeling of extreme stupor; weight in eyes, with sharp pains in l. head and eye; pains in back of head extending down whole length of spine; extreme chilliness. 3.30 p.m., painful coldness of head; feeling as if eyes were suddenly stiffened and drawn back, lasting a few m.; prickly numbed sensation in l. hand at intervals during d. 8, throat began to feel much worse, hot pains shooting from its l. side into ear and eye; cramp-like pains in palms, she can scarcely extend them. Sudden spasmodic jumping or starting of entire body when falling asleep; intense gnawing pain in l. half of neck at n.; peculiar paralysed feeling in l. head and face; tremulous feeling in muscles of face; noise in l. ear, like wind. (Menstruation came on on 21st, and was quite normal.) 24th.—M., same soreness in throat. Forenoon, intense gnawing pain in l. half of back from shoulders to waist; exceedingly low-spirited. 2 p.m., deep spasmodic pains in chest and back; feeling of extreme stupor; sharp pains in back of head, extending to l. eye and to back of r. ear; cutting pains in l. calf and l. wrist; digging pains deep in l. ear. 10, sudden burning heat in l. ear and along lower jaw of same side; throat painful and sore, with redness and slight swelling; crampy pains in r. foot and leg. 25th.—10 a.m., violent headache, with bursting pains in forehead, especially l.; at times great nausea; eyes very hot and painful; extreme chilliness; throat painful and sore entire d.; tender bruised feeling over l. eye, with fixed pain towards e.; stiff pains in r. knee when sitting. 26th.—Deep pain in l. lower abdomen, at intervals during d., also occasionally pains of same kind at pit of stomach; sharp cramp-pains in l. palm and sole, also in muscles of neck; slight giddiness at intervals. 27th.—25 dr. at 3.50 p.m. After 1 h., sudden giddiness and extreme drowsiness while walking in street, she felt as if a cloud was coming over her; stiffening heavy sensation in jaws and facial muscles, also stiffening in muscles generally, especially of knees and l. hand;

trembling in legs, with sensation of falling; icy coldness all over, with shivering and yawning. 7, rumbling in bowels, with feeling of diarrhoea, also deep pains in abdomen generally; severe darting pains in back of neck and head, and through head from back to front; burning heat in eyes; painful dryness and contracted feeling in throat. 28th.—M., stiffness in back of legs; painful dryness of throat; sore pains in scalp, as if hair had been pulled; rheumatic pains in various muscles and joints, at short intervals; burning heat in eyes and lids. Afternoon, spasmodic pain about pit of stomach, extending to heart at intervals, also at times similar pain in hypogastrium; extreme chilliness; sudden pain and pressure at top of head and in l. eye; numbed prickly sensation in l. hand for short time at intervals; sharp cutting pains in l. hypochondrium and at times in l. half of back; sharp pain deep in upper part of chest. 8, sharp needle-like pains under jaws, especially l. side. 29th.—Severe dull pains in muscles and glands of neck, at times shooting up into head; pains in maxillary joints and back teeth; sharp needle-like pains in cheek-bone and under jaw, l. side; rheumatic pains in legs from knees upwards, at times in joints of knees and hips, especially l.; confused giddy feeling at intervals, with loss of memory; intense aching and icy coldness of entire back; rheumatic pain in l. back about waist; peculiar stinging in nostrils, as if a cold was coming on; very low-spirited and gloomy; deep pains in abdomen at intervals, generally from below upwards; soreness of tongue and roof of mouth.

d. 30th.—At 2.45 p.m., 30 dr. 3.30, intense aching in soles and outer sides of feet; stiffening of muscles of legs, later also of back and neck; tremulous and powerless, also rigid, feeling in legs; giddiness; hot fixed sensation in eyes; sharp pains at pit of stomach, extending round to region of liver. 6, stiffening of hands, she fears to take hold of anything, and when she did she could not grasp it firmly; when stretching out arms, hands became involuntarily clenched; agonising gnawing pain in muscles of legs above knees, and in back and neck; intense itching of skin of entire body, even of scalp; icy coldness down spine, accompanied by a kind of nervous shuddering; bitter greasy risings with bad taste. 31st.—On rising, intense soreness in muscles generally, especially of legs and back; sharp pains in back teeth and maxillary joints; rheumatic pains behind l. shoulder, and in muscles of arms and legs; dull pains in occiput and temples; giddiness at intervals; deep boring pains in r. lower half of abdomen, changing suddenly from one part to another. By e. soreness and aching of whole body had become much worse, with intense aching in back, especially l. half about waist, and behind ears; dry contracted feeling in throat; sharp needle-like pains under jaw, l. side; icy coldness down spine; extreme drowsiness, with stupid headache. April 1st.—M., violent bursting headache, with stiff contracted feeling in eyes; burning heat in eyes; contracted feeling in muscles of neck; icy coldness down head and spine; feverish thirst, nausea, and bad taste; sore pains in bowels, with sensation of threatening diarrhoea; rheumatic pains and stiffness of knees and hips; sore pains and stiffness of back; sharp needle-like pains in ends of fingers and toes; intense aching of feet when walking; a kind of internal twitching and nervous feeling, radiating as it were

from pit of stomach. E., sharp sore pains in eyeballs; sharp darting pains in shoulders and elbows.

e. 2nd.—At 4 p.m., 30 dr. After 1 h., sharp momentary pain in top of l. shoulder, shooting down to breast; needle-like pains in r. knee; extreme giddiness, with loss of memory and drowsiness; shaking of legs, especially knees; stiffening of jaws and down back; convulsed, stiffened and twisted feeling at one moment in arms and hands, at another in muscles of face, arms felt snatched back when taking hold of anything,—lasting about 3 h., and then suddenly passing off; sharp pains at pit of stomach. N., sudden heat down spine, with trembling faint feeling; sharp pains in back of head and glands of neck; occasional jerking of whole body; choking sensation, as if something were tied tightly round throat; violent itching and tingling in soles and palms. 3rd.—M., felt much better, head and eyes free, which they had not been for a week. Forenoon, rumbling in bowels, with feeling of threatening diarrhoea; stiffness down spine and in knees; spasmodic feeling of contraction in throat. Afternoon, keen sharp pains behind l. upper arm and in front of thighs, also in r. upper chest. N., sudden jerking of legs. 4th.—M., sharp pain in l. hypochondrium, at times shooting to pit of stomach. Noon, rheumatic pains in thighs. Afternoon, giddiness at intervals, with tremulous feeling; sore stiffness in knees and r. calf; violent sharp pains in r. hand; extreme stiffness of back; pains in back teeth and maxillary joints. E., violent thumping pains in head, especially r. half, and over l. eye, lasting about 2 h.; intense aching in soles. N., violent cramp-like pain in lower r. abdomen. 5th.—M., same pain in abdomen, also severe cutting in bowels, with feeling of impending diarrhoea. Noon, intense aching in shins when walking; sharp darting pains behind r. ear; rheumatic pains and momentary stiffness in hands. E., dull pains in maxillary joints, shooting into temples. N., extreme restlessness and talking in sleep, with peculiar sense of "working" at back of brain. 6th.—Sharp tearing pains down entire length of spine, also in muscles of arms, and in r. knee, with tremulous feeling.

f. 6th.—At 4.15 p.m., 30 dr. From this there was a speedy recurrence of the symptoms previously noted, giddiness, tremulous feeling, stiffening of muscles, convulsive shocks, cold chills down back, pains and itching in legs. There was intense burning in eyes at n., with nervous agitated feeling and sense of stupor and aching in head; next d. feeling as if bad headache were coming on, with extreme fullness of head and ears, and burning and bruised feeling of latter; also (for this and following d.) intense pain down neck and spine, and sharp darting pains in various parts.

g. 9th.—At 4.30 p.m., 30 dr., with similar result; tremor and giddiness being very marked. In addition, there was sensation as if a cold iron cap was on head, and rolling of eyes, which felt like cold bullets; sudden cold perspiration and icy coldness of entire body; at n., intense burning and itching of ears, nose, and eyes; next d., burning and tingling in nose, ears, and lips; scanty urine, with constant urging; constipation for 2 d., diarrhoea on 3rd, bowels uneasy with either, nausea and bad taste with latter. On 4th d., low spirits

and feeling of intense stupor. Throughout restless nights, with profuse perspiration.

h. 13th.—30 dr., with similar effects. Also, sudden burning heat in face, and extreme sensitiveness to slightest touch; if foot was touched it jumped as though it was shot. Very sleepless n., with extreme nervous excitability, palpitation, ugly faces passing before eyes; while falling asleep, quite suddenly, several jerks as from womb, with burning irritating heat and violent pulsation in vagina, also feeling of great pressure and bearing down. On 2nd d. felt very much shaken; usual pains prevailed, with intense aching in lower back and over hips, and extreme lowness and gloom. On 3rd d. violent cutting pains in abdomen, with feeling of diarrhoea, distressing flatulence, coated tongue, bad taste, and headache in forehead and eyes. On 4th d., with headache and sharp pains here and there, sensation as though cold water fell from elbow or shoulder at intervals.

i. 17th.—30 dr. With usual immediate symptoms, rapid pulsation in l. upper eyelid, lasting several h., and darting pain and thrilling in vagina, with momentary pulsation at short intervals; also extreme sensitiveness to slightest touch or noise—every sound appeared to beat at back of brain. On 2nd d. same pulsation in lid, with weakness and watery discharge from eye for 8 h. On 3rd d. violent pains in head, especially in forehead and over l. eye, and same pains in r. ankle, making it painful to walk. While at dinner sudden violent attack of spasm at stomach, lasting about 1 h., attended with very severe pain and feeling of suffocation, so that she had to loosen her clothes. On 4th, same pains in head, and dimness and aching of eyes. Restless nights and profuse perspiration throughout.

j. A. F.—continued the proving some time longer, taking 30 dr. April 20th and 23rd, 35 dr. on the 27th, and 30 dr. April 30th and May 4th. The immediate effects were always those already noted, and those of the subsequent days showed the stiffness and soreness, the darting and shooting pains here and there, which have been so often seen. The following fresh symptoms may be mentioned. On 1st d. (doses being taken about 4 p.m.) immoderate fits of laughter; sudden jerks in stomach, especially on opening mouth; frequent fits of sneezing, with itching and stinging of nose. On 2nd d. short breathing, with dry cough; hoarseness, with feeling as of a cold on chest, lasting 2 h.; peculiar pulsation in chin, as if in nerves of lower front teeth, at short intervals. On 3rd d. violent tearing pains in womb and l. breast, coming on at intervals and lasting a few m.; irritability of temper; sudden violent cutting pain in back about waist, as though she were chopped in half, extending 2, and l. to stomach. On 4th d. rapid pulsation in l. temple and l. hypochondrium; prickly sensation in feet at intervals; intense pain in back, aggravated by least exertion; constant aching round waist. No cumulative effects appeared, and after dose of 23rd (making 300 dr. in all) she felt much better in herself. (*Ibid.*, vols. xii and xiii.)

II. *Parionigr.*—t. o. G. S.—, seen to stagger in the streets (of Milan), was taken in a carriage to Moro's pharmacy. He was visited there by Drs. Casanova and Cavalleri, and by the surgeon Gonzales,

Seated, and perspiring, he called out in a strong natural voice that he was seized with the cholera, then prevalent in the city. He complained of formication in legs and arms, and of a feeling of spasm in his throat and stomach, with vain attempts to vomit. No choleraic physiognomy. Dr. Casanova tried to calm his fears, and prescribed ℥ij of peppermint water with ʒj of anodyne liquor and one of laudanum, which the patient took by degrees. Flatus came away, and the spasm of the stomach appeared to subside. Then he rose of his own accord and lay down on the bed, but his cries and fear of cholera did not cease, notwithstanding the assurances of all the doctors who came to see him. The above symptoms, whilst increasing, were accompanied by spasmodic contractions and opisthotonos; the formication in the extremities changed into cramp; the spasm of the stomach reappeared alternately with that of the throat, and was complicated by painful jerks as if from electric shocks every time the extremities or any part of the body was touched. Dr. Casanova thought there was an acute affection of the spine, and bled him, with the approval of the other physicians. The blood gushed out as if from an artery, and coagulated in the usual manner, without any special appearance of the serum, either in quantity or quality. Towards 4 o'clock, G. S— seemed quieter, the spasmodic contractions appeared at longer intervals, but the general jerkings increased in violence; the slightest touch provoked them. The patient still insisted on his fears of cholera, and desired to be taken to the hospital. As much to humour him as to rid the Moro family of such an inconvenient guest, his request was granted, and he was taken there about 7 o'clock; but on the way from the surgery to the hospital the patient died.

b. The post-mortem examination required by law was made by Drs. Antonio Tarchini-Bonfanti and G. Martinelli about 24 h. after death.

Exterior appearance: G. S—, apparently about 45 years of age, was tall, well made, and finely proportioned, robust, and of embonpoint. The face of the corpse is calm, the pupil moderately dilated, the mouth closed but not contracted. The neck is a little large; the chest ample, dilated, and very sonorous, the abdomen slightly swollen; the upper extremities are very flexible, the lower extremities rather rigid, the fingers clenched, but not quite closed. The corpse lies on its back; the front of the body is pale, but the posterior is entirely of a violet colour, as if cyanic; this colour is also seen in the fingers, and is strongly marked in the scrotum. The cadaveric odour is slight. No trace of lesion exists on the exterior.

Head: Infiltrated blood in posterior portion of scalp; skull of normal thickness. The dura mater, of a white pearly colour, adheres strongly to the level of the sinus, which contains a little darkish blood, rather fluid than thick. The arachnoid and pia mater are thin and transparent, showing a very few bluish vascular ramifications. The grey substance of brain is pale and a little dense, the medullary portion is milk-white and firm. The plexus choroideus is of a rose colour. The pineal gland is ash-coloured and soft. The venous sinuses at the base of the brain retain a small quantity of thick blood. The cerebellum is in the same condition as the brain.

Spine: On opening the vertebral canal there is an abundant sanguineous effusion, and here and there circumscribed collections of black blood. The dura mater lining the canal is red, dull, giving the appearance as if the whole cord were made of red wax; the arachnoid is transparent; the pia mater strongly injected; the substance of the cord normal.

Neck: Some of the cervical glands are of the size of a filbert; the thyroid gland is a little larger than normal, reddish, but healthy in its texture.

Chest: The mucous membrane of larynx, trachea, and bronchi is rose coloured, covered with a little mucus; the bronchial ganglia are blackish and a little swollen. The lungs are pressed back from the sternum to the extent of three fingers' breadth; they are ashy, with large black spots, light, feebly crepitant, and congested with blood. No serous effusion either in pleura or pericardium.

Heart is flaccid and so softened that it is most easily torn; it is filled with red blood. Its volume is one fourth larger than the fist of the corpse. On the anterior and external surface there is a strong and resistant cartilaginous patch. Its various cavities contain a small quantity of dark, thick, viscid, coagulated blood; valves normal. The arteries and veins contain a certain amount of blackish purchy blood.

Abdomen: No serous effusion. The liver of moderate size, dull red, dense, granulous, presents an engorgement of blackish, thick blood in the principal branch of the portal vein. Gall-bladder is full of viscid, greenish bile. The spleen is small, pale red; the pancreas is pale and hard, enveloped in a thick coating of fat; the kidneys are of a dull red colour, and the tissue very dense.

The mucous membrane of mouth, of pharynx, of œsophagus, is rose-coloured and normal, that of the stomach is pale rose colour without any partial injection, and covered with whitish mucus; the cardiac and pyloric orifices normal. The intestines are rather pale and distended with gas, otherwise normal. Strychnia was found in contents of stomach. (TARDIEU, *Empoisonnement*.)

2. *c.* A lad of 17 swallowed, immediately after dinner, about 40 gr. of pure S., and washed it down with a glass of wine and water. Immediately afterwards he began to feel uncomfortable, ran about the room, and experienced much anxiety and restlessness. 4 gr. of tart. em. were given without causing much vomiting, and the reporter saw him $\frac{1}{4}$ h. after the poison had been swallowed. He lay stiff and unable to move on his back in bed, the head drawn forcibly backwards; he showed an inclination to turn on the *r.* side; he could still freely use his arms. His countenance was pale and altered; temperature of the skin normal; pulse quick and wiry. His consciousness was perfect, he spoke in his natural voice about his state; he was occasionally interrupted by a transient stiffness of the lower jaw, but not to such an extent to prevent him speaking quickly and easily. This stiffness did not prevent him opening his mouth to take liquids, which he swallowed easily. The trismus gradually increased, and the spasms soon involved the muscles of respiration. The chest was oppressed, the breathing irregular and interrupted, and occasionally there was a rapid succession

of short respirations, with small, contracted and rapid pulse. Every effort to excite vomiting was unsuccessful. While still retaining consciousness, there occurred a succession of attacks of trismus and oppression of the chest, with a few m. interval between each, which continued to increase in violence, soon extending all over the body; and all of a sudden the patient experienced a series of almost electrical shocks throughout the body, and after a short pause opisthotonos followed, whereby the body, though not much bent backwards, was, throughout its whole extent, as stiff as a statue, and was raised a few inches from the bed in the middle. This state was accompanied by the most violent suffocative symptoms. During this attack, wherein the trismus was extreme, but without any distortion of the muscles of the face, he uttered bleating noises, and seemed to be trying to speak. The upper extremities were firmly drawn over the chest, the forearm immovably flexed at the elbow; the lower extremities were stiff and immovable, the feet were bent in such a manner that the soles were opposed to one another. The skin assumed a bluish colour, the face was puffed, of a dark violet hue, the lips dark blue, the neck swollen, the jugulars distended, the eyes projecting and turned immovably towards the r. side, the pupils dilated and unaffected by light, the conjunctiva red. He now ceased to utter any sound; he became unconscious as if suffocated, and the body lay still and stiff. All at once the spasm ceased; the arms fell by the side of the body, the mouth opened, and he drew a deep breath, whereby he seemed to revive and resume his senses, speech, and power of swallowing. The dark coloration of the skin likewise went off. The contraction, however, continued in the muscles of the back, neck, and legs, but he could move his arms freely. Even after the third attack of this sort, the patient recognised the bystanders, and seemed to understand questions put to him, though he was unable to answer them intelligibly. In the fourth paroxysm he died, $1\frac{1}{2}$ h. after the poison had been swallowed.

b. Post-mortem, 20 h. after death. Surface of body blue; abdomen tense, hard, but not swollen. The whole corpse uncommonly stiff; all the muscles rigid, especially those of the lower extremities; the feet still distorted. The flesh of the muscles, notwithstanding their stiffness, was uncommonly soft and doughy, and of a brownish colour like smoked meat. On opening the spinal canal there flowed out about 2 lbs. of viscid, not coagulated, black, tar-like blood. The plexus venosi spinales, which are in ordinary states unnoticeable, were distended with dark blood; and between the fourth cervical and fourth dorsal, and again between the tenth dorsal and fourth lumbar vertebræ, they had the appearance of a thick black venous net, some of the veins being as thick as a crowquill. The vessels of the pia mater of the cord showed the same congested appearance, especially at the corresponding points. Within the membranes some exudation was observed, more particularly about the cervical portion. The cord, when cut across, was at its upper parts soft, in some parts even pappy; lower down it was harder. The cranial cavity was also congested; all the vessels of the dura and pia mater, especially the choroid plexus, and even the cerebral substance, were full of blood, whereby the cortical substance appeared of a bluish

colour. The cerebellum was rather softer than usual. The organs of the chest and abdomen were, on the contrary, very destitute of blood; the heart was flaccid, and its cavities and large vessels so empty that scarcely any blood could be obtained from them. The stomach was distended with solid food, which had quite a fresh appearance. The mucous membrane of the stomach was much reddened, that of the small intestines slightly so. Liver full and distended, more full of blood than the other viscera, otherwise nothing abnormal. (BLUMHARDT, *Frank's Mag.*, ii, 234.)

3. Mr. B.— has been afflicted, for a considerable period, with tic douloureux, occurring at regular intervals and in paroxysms of excessive violence. For the relief of the pain of these attacks he has been in the habit of making use of the muriate of morphia, at first in small quantities, and afterwards in gradually increased doses, until $3\frac{1}{2}$ gr. were necessary to produce its effect. At this time he went into the shop of a druggist in the town in which he resided, for the purpose of obtaining some muriate of morphia, and received a quantity of a powder, slightly yellowish in colour, which was stated to be that substance. On the same d., having occasion to go a short distance into the country on business, he took, previous to going out, his usual $3\frac{1}{2}$ gr. of the powder, which was simply placed on the tongue and swallowed, and he remarked at the time that it was extremely bitter, and that the taste was more than usually persistent; but it did not occur to him that anything was wrong. Shortly after, however, while walking along the street, he felt slightly indisposed, the most prominent symptom being a sense of numbness in the back and legs, which he attributed to the effects of cold, to which he had been exposed in the early part of the m. As these symptoms did not appear of any importance, he proceeded by a public conveyance to the village where his business lay, and returned by the next opportunity. During the whole of this time the symptoms remained precisely as they were the moment he first observed them; but as he was walking along, on his return, they suddenly increased, the numbness being accompanied by a sense of want of power, and a sort of dragging of the muscles of the legs, which soon became so great that, as he described it, he had to put his hands at the back of his thighs in order to push his legs along. This occurred nearly $2\frac{1}{2}$ h. after he had taken the dose of the supposed muriate of morphia, and at this time there could have been nothing remarkable or unusual in his appearance, for on his way home he met a friend to whom he communicated his sensations, and who laughed at his evident apprehensions and assured him that it was all imagination. As he was in the midst of describing the effect upon his muscles, and bending himself so as to show how it occurred, he suddenly overbalanced and fell heavily backwards. He was immediately raised, and on attaining the upright position he felt himself much in the same state as before, except that he was excessively nervous and alarmed. The want of power in the legs did not at all increase in intensity, and no spasmodic affection was observed, although the patient was himself under the impression that his fall was somewhat connected with the previous symptoms. The patient's fall and the nervous state into which he had got now fairly

alarmed his friend, who begged him to get home as fast as he could, and accompanied him on his way, as he experienced considerable difficulty in walking, and could not get on without support. On reaching home he felt somewhat better, and remained sitting for some time, and at length retired to bed, about 5 h. after the first appearance of the symptoms. Just previous to stepping into bed, in order to ensure a good night's rest, of which the recent symptoms rendered him somewhat doubtful, he took a second dose of the powder equal in amount to the first. In less than 10 m. after he was seized with a violent tetanic spasm, affecting the legs and muscles of respiration, and had only time to call for assistance before the sensation amounted to absolute suffocation. Fortunately assistance was close at hand, and he was immediately raised up in bed, with the effect of entirely relieving the sense of suffocation, and a medical man was sent for. Spasms now followed each other in rapid succession, the intervals being about $\frac{1}{2}$ h. or 20 m., and the affection was confined principally to the legs, back, and respiratory muscles, the arms being comparatively unaffected. The numbness and dragging of the muscles, which had been continuous during the first 5 h., disappeared entirely during the intervals of the spasms, and the patient was left without any uneasy sensation, excepting the exhaustion of the previous fit and the apprehension of its successor. During the whole of this time he was not only perfectly conscious, but his senses were preternaturally exalted, and he distinctly heard a variety of whispered observations of the physician and his friends, which from their tenor were obviously not intended to reach the ears of the patient. The paroxysms, after continuing for some time, began gradually to diminish, the intervals becoming longer and duration of each spasm shorter, and it was hoped that they were about to pass off, when all at once they returned to all their original violence. This proved, however, to be the last expiring effort of the poison, for the symptoms now entirely ceased, about 13 h. after the first dose was taken. At the conclusion of the spasms the patient was left in an excessively exhausted state, and was unable to turn himself in bed. From this, however, he recruited with great rapidity, as he was able to get up on the e. of the next d., and on the second he walked out and went about his usual business. The most remarkable fact connected with the case is, that from that time the attacks of *tie douloureux* entirely ceased, and he has not since had any return of it. The medical treatment employed in this case was unimportant and had not any effect on the progress of the symptoms. Chemical analysis proved the drug to be S., and not morphia. (ANDERSON, *Monthly Journ. of Med. Sc.*, 1848.)

4. A man, æt. 34, paralysed on r. side, had $1\frac{1}{2}$ gr. sprinkled on raw surface of powerless leg. In less than an h. he had twitchings in it, which increased in intensity every m., boring pain in occiput, slight vertigo, and noise in ears. The twitchings spread to r. arm, and then over whole l. side, with increase of headache, and at last unconsciousness, with rattling difficult breathing. Pulse was very full, hard, slow, and intermitting; face bluish red, puffed; eyes projecting, pupils very much dilated, mouth open. He tossed about in bed for the violent convulsions and difficult breathing. Skin of r. leg had a blue marbled

appearance. This patient recovered under the use of morphia endermically administered. (RICHTEK, *Frank's Mag.*, i, 104.)

5. A man, æt. 60, took about 75 dr. of a solution of 3 gr. of the acetate in ℥j of water. In $\frac{1}{2}$ h. he had vertigo, and in drinking a cup of coffee his hands trembled and he was forced to rise from his chair, when he was led to bed. He then had general trembling and dyspnoea. His look was wild; pupils dilated; face red; tongue dry in middle, red at edges; very rapid breathing; full, hard, quick pulse. The least noise, the slightest touch produced tetanic convulsions accompanied by frightful cries. Patient continued to get worse, preserving, however, perfect consciousness. The cry was forced from him involuntarily, and was not occasioned by pain. The most disagreeable symptom he experienced was the oppression of the chest. The symptoms lasted altogether $2\frac{1}{2}$ h., and then went off, leaving only thirst and exhaustion. (FOUR, *Ibid.*, iii, 899.)

6. In May, 1850, Dr. BARTLETT was called to see a young man, æt. 22, suffering from "spasms." He had red hair, blue eyes, fair skin, and had previously suffered from dyspepsia. He complained of a singular indescribable sensation all over, quickly followed by general tonic spasm. The extremities were held in a convulsive movement (both flexors and extensors being rigidly contracted), and he looked like one in an ague fit. His countenance was extremely sad and despondent; he was morose and indisposed to answer questions. 8 p.m., patient on back breathing heavily, dysphagia, eyes closed, pulse 120 and full, continued tetanic spasms of all the muscles, spasm lasted 4 m., attacking chiefly back and throat. As he lies, legs are wide apart, toes strongly flexed; wide awake, mind active and anxious, intense thirst, dry mouth and tongue, burning heat and great fulness and throbbing in head (a little pain in forehead). Starts every 15 or 20 seconds; least noise or slightest touch starts spasms, which are all alike, differing only in severity and duration, lasting from 10 seconds to 5 m. One description will suffice: He starts very suddenly, his legs are immediately drawn asunder as far as possible, his body curved so that head and heels only touched floor, muscles of arms and legs rigid, respiratory muscles frightfully affected, so that it is with great difficulty he breathes at all; his face becomes blue and then black; jaws tightly closed; vomiting occurs. During this spasm he has not breathed at all for 3 m., and has lost consciousness, looking like a suffocated man. Tongue protrudes, eyes stand out from sockets, and no action of pulse or heart, yet the paroxysm holds on. Mind harassed with dread, and he weeps, but cannot tell why. After a spasm, sighing, aching of insteps, and a dead numbness all through body. At midnight, nausea, burning heat all over; hot sweat, followed by a dried-up feeling all over surface of body; feels warmth in bowels; eructations of bitter and tasteless wind before vomiting; bitter taste in mouth. By 5 a.m. he was much better; only slight twitchings; other symptoms present, but slight. This patient had taken 3 gr. of S. in ignorance of the proper dose. (*N. Amer. Journ. of Hom.*, i, 469.)

7. H— took 3 or 4 gr. of S. When first seen about 15 m. after he was only partially conscious and unable to answer questions intel-

lightly. He soon became quite unconscious and quite stiff. During the h. and half that followed the spasms were severe; he would throw himself about, snap at a hand that touched him, strike and kick. Suddenly his body would curve backwards and rest on the head and heels, with the elbows on the bed at the sides. The muscles would continue to contract, drawing the head back, until the occiput nearly touched the spine and the face became buried in the pillow. Occasionally he would extend his arms at his side with the fingers straight and separated, and rising to the sitting posture would stare wildly about the room as if in fear. Breathing was only maintained by the aid of artificial respiration. (H. P. COLE, *U. S. Med. Invest.*, ii, 432.)

8. Dr. HAPPEL says that he has found by personal experience that when given in doses of 2 to 4 milligr. S. produces the following effects, viz. 1, increased peripheric sensibility for blue; 2, temporary increase of visual power; 3, more distinct perception of peripheric points; 4, lasting enlargement of the field of vision. (*Hon. Times*, iv, 86.)

9. A man, æt. 59, applied for relief from an intense feeling of cold, attended with visible sluggishness of the capillary circulation, especially in the hands and feet (the remnants of an attack of hemiplegic paralysis from which he had suffered 12 mos. previously), and from an extraordinary enlargement of the abdomen, which he had been led to believe was dropsical. The abdominal distension turned out on examination to be mere tympanitis, from partial paralysis of the muscular coat of the bowels, and strychnia was ordered, gr. $\frac{1}{8}$ three times a d. On the occasion of the man's next visit I thought at first that he was drunk, as he had the uncertain gait, meaningless smile, and flushed perspiring cheeks characteristic of intoxication. To my surprise, however, I found that this effect had been produced by a dose of the S. taken $\frac{1}{2}$ h. previously, and he had come to me to complain of the medicine because it "made him drunk;" this I ascertained subsequently by personal observation was really the fact. He also complained that all sounds caused a "deafening noise" in his ears. The dose was decreased to gr. $\frac{1}{32}$, and the disagreeable effects upon consciousness and co-ordination of movements were no longer observed; but a very remarkable increase of temperature of the surface was still produced by each dose, and by degrees became constant. (ANSTIE, *Stimulants and Narcotics*, p. 151.)

10. M. T—, a man of 40, a great drinker, had become aacetotaler lately, because he had had one or two attacks of delirium tremens; but this had not saved him from sinking into a state of chronic "horrors," so that he feared he should be driven to suicide. He was ordered to take S., gr. $\frac{1}{4}$ ter die. He came on the 3rd d., complaining of decided stiffness in lower jaw muscles, copious flow of saliva, and "flashes of fire before his eyes." His eyesight was much weakened; he could only read the very largest type at any distance, and said that even this looked dim and misty. The flashes complained of always occurred if he looked towards a bright light, and even in comparative darkness, soon after each dose of the medicine. The sensibility of the skin did not seem notably raised. (*Ibid.*, p. 211.)

11. A woman, æt. 33, was suffering from a peculiar numbness,

attended with partial paralysis and some wasting of the muscles of the forearm. S. was administered in gr. $\frac{1}{2}$ doses, with the most manifest good effects. On dose, however, being raised to gr. $\frac{1}{2}$, skin of both arms and forearms, of palms and of soles, became exquisitely tender to the touch, so that she could not bear to walk, and a considerable tendency to reflex muscular contraction developed itself. But the most distressing symptom was the painful effect which any sound made upon the ear; it was not that sounds were heard at all more distinctly, but that the slightest sound occupied the woman's whole hearing faculty, so to speak, and anything like a multiplicity of impressions on the auditory nerve became positively painful. (*Ibid.*, p. 212.)

12. A young man, æt. 19, suffering from enuresis, took S. in doses gradually increased up to gr. $\frac{1}{2}$. The first dose of this immediately produced impairment of sight and distressing sensibility of the eyes to the dazzling influence of light, and even "flashes" after the eyes had been shut, or sometimes in a dark room. (*Ibid.*, p. 213.)

13. *a.* S., even in permissible doses, may produce a chain of threatening symptoms, differing only in degree from true S. poisoning. After gr. $\frac{1}{2}$ — $\frac{1}{4}$ there may appear nausea, redness of eyes, formication, exalted sensibility to external impressions, feeling of weight in feet, and stiffness in limbs. With these symptoms are occasionally associated disagreeable tension of certain groups of muscles, and painful erections. Girl several times observed, after the repeated internal administration of S., the occurrence of periodic spasmodic attacks, reappearing during the course of several weeks, of a tertian type, resembling an intermittent fever, and ending with sweating. After they had ceased, they could be reproduced by S.

6. In the case of a woman who took gr. $\frac{1}{2}$ of the drug, Skinner saw a scarlatinous exanthema, which disappeared after it was discontinued. (*Lewes, op. cit.*)

14. In a case of amaurosis, a small powder = about 3 milligrammes was applied to the lachrymal orifice of one eye. Scarcely 3 or 4 m. had elapsed before patient's face assumed a livid colour, and he yawned spasmodically; then followed vertigo, which made him fall into an arm-chair. Windows were opened, the powder removed, cold affusion, &c., practised; but in spite of this toxic symptoms of graver kind came rapidly on,—complete loss of speech, absence of pulse, respiration laboured and interrupted, then tetanic shocks of extreme violence. From 10 to 12 of these occurred, their force increasing up to the 5th, when they became feeble. As patient improved, he felt painful pressure on bladder and rectum, and a copious evacuation ensued. In less than $\frac{1}{2}$ h. he had completely recovered. (*Gaz. Méd. de Paris*, 1861, p. 98.)

15. In addition to the violent spasmodic contractions produced by S., BALLY has observed an appearance of stupor, vertigo, tinnitus aurium, sleeplessness, and turgescence of the capillaries of the face. (*Bull. de Thér.*, Feb., 1838.)

III. *Experiments on animals.*—1. *a.* Dr. Brown-Séquard has proved that the action of S. consists in an increased nutrition of the spinal marrow, by which excess of nutrition the reflex faculty becomes inten-

sified; and also in a special power of stimulating this nervous centre independently of the quantity of blood it contains. Kölliker's experiments demonstrate that in whatever manner the drug acts, it does so upon the nervous centres alone, and not upon the nerves themselves or on the muscles. His experiments also prove that during the action of S. spasms may be excited by a stimulus proceeding directly from without, or transmitted through the brain. Dr. Marshall Hall states that if a dog under the milder form of strychnism be allowed to remain quiet, it will recover; while, if continually excited, it will as certainly die.

b. The experiments of Dr. Spence (*Ed. Med. Journ.*, xii, 44) confirm these conclusions. He showed that S. applied directly to the nerves of frogs produces no effects whatever, but that its application to the medulla oblongata and spinalis immediately develops specific phenomena. He also proved that even when injected into the abdominal veins it remained ineffectual if the ventricle of the heart was cut away so as to prevent the poison from being thrown through the arteries into the nervous centres. On the other hand, his experiments demonstrated that the poison, if taken into the stomach, acts only when its access to those centres is not prevented. Its mode of action, he concludes, consists in stimulating the nerve-cells to excessive action, and keeping them in that condition until they perish from exhaustion. But before this process is completed, death may take place from asphyxia brought on by spasm of the respiratory muscles. (*STILLÉ, op. cit.*)

2. a. Dr. Brown-Séquard found that when the spinal cord was cut just below the origin of the nerves supplying the forelegs of a frog, and all the blood-vessels going to the lower section of the cord were also severed so as to isolate the latter, on the exhibition of S. convulsions occurred in the anterior part of the body, while in the posterior segment quiet and a normal reflex activity were maintained, although the blood was carrying the poison to every part of it save the spinal cord. This experiment has been repeated a great number of times by MM. Martin-Magron and Buisson with similar results.

b. Richter and Mayer have ascertained that S— causes a very decided rise in the arterial pressure, and the former has seen contraction of the vessels of the frog's web under its action. (*H. C. Wood, op. cit.*)

3. After the death of a dog poisoned with S. I examined spinal cord and brain, chiefly with a view to discover any congestion which might have existed in the several parts. In the brain I met with no unusual degree of congestion, but I was particularly struck by a remarkable condition of the grey matter of the lumbar bulb; it presented, in fact, numerous small effusions of blood, while in the medullary portion no abnormality was found. In another dog, similarly killed, I found in the grey matter of the lumbar portion aneurismal dilatations of the capillary vessels, which were in consequence on the verge of bursting. In both cases the two horns of grey matter were most beautifully injected with blood. (*VAN DER KOLK, Spinal Cord, &c., New Syd. Soc., p. 78.*)

4. ARNOLD (of Heidelberg) found that if gr. $\frac{1}{4}$ is administered to a

frog, tetanus comes on in not more than 5 m., and death ensues in 45—90 m. After gr. $\frac{1}{2}$ it supervenes at about same time, but death comes later. After gr. $\frac{1}{10}$ it took 10—20 m. to develop, but continued in one case for 48 h., frog being found dead after 54 h. In young frogs, gr. $\frac{1}{1000}$ brought it on in 7—12 m., and it lasted 7 h. On giving gr. $\frac{1}{10000}$ after $\frac{1}{2}$ h. or so irritability was somewhat increased, but no spasm ensued in strong, full-grown animals. But in one frog, which the d. before was tetanic for some h. after gr. $\frac{1}{10000}$, but which had quite recovered, a slight attack came on $\frac{1}{2}$ h. after gr. $\frac{1}{10000}$, ending in the death of the animal after some h. (*Hysto*, xvii, i, 50.)

CENANTHE.

Cenante crocata, L. Hemlock water drop-wort. Nat. Ord., *Umbellifera*.

II. *Poisonings*.—1. In 1743 8 Irish boys, having taken this plant for water parsnep, ate several of the roots. In 4 or 5 h. the eldest fell suddenly on his back and died in convulsions. Four others died in the same way, without having been able to utter a word from the instant the poison seemed to attack the nervous system. Of the three remaining one became insensibly maniacal, but came to himself the next m.; another lost his nails and hair; the third was the only one who escaped free, having run two miles and drunk hot milk, which produced copious perspiration. (RAY, *Phil. Trans.*, xx, 84.)

2. 8. March 18th, 1748, 17 soldiers of the garrison of Ayscio poisoned themselves. One of them, having a mind to treat his comrades with good soup, had boiled in it a plant of which he had cut the leaves and root. They drank the soup with avidity, but in 3 d. some fell into syncope and convulsions. One had died before I arrived, 1 h. after supper, a second was expiring; a third showed no sign of life but trembling and convulsions. The activity of the poison was so great that I saw two fall into a swoon, while, at perfect ease about themselves, they were attending to their sick comrades.

3. The author of this deadly feast seemed in the most hopeless state. The upturning of his eyes, the contraction of his lower jaw, the feebleness of pulse, the inability to move, feel, or know anything, with an universal chill spread over his whole body, seemed to be so many signs of death. After vain attempts to give an emetic I had him rolled and well shaken in a blanket by 8 men for 2 h. He recovered warmth, and then involuntarily movement and life. The first signs were efforts to vomit, which, aided by an emetic, were effectual, and the vomiting went on for days, take what he would. He fell asleep for 15 h. On April 1st his tongue was extremely sore and swollen, from being bitten during the convulsions. From 5th to 5th his nose bled twice, and I had him 3 times bleed the arm. The following d. his suffering abated. He remembered nothing that had befallen him from the 21 to the 31d. of his illness. (VALER, *Journ. de med.*, 1803.)

4. A man about 40, when raving, ate this root. He soon complained of great heat in throat, $\frac{1}{2}$ h. after he became speechless, fell down insensible, and was seized with terrible convulsions, which lasted $\frac{3}{4}$ h. and ended in death. It was impossible to give any medicine, the jaws being closed by trismus the whole time. (BAT, *Reç. périod.*, lxxvii, 63. 1831.)

5. In 1743 21 men of the Royal Arsenal, Woolwich, ate Cen. by mistake for celery. Nine were seized with violent convulsions and loss of consciousness $\frac{1}{2}$ h. after. One, with face swollen and livid, and bloody tooth issuing from his mouth and nostrils, stertorous and convulsive respiration, insensibility, and prostration, died in $\frac{1}{2}$ h. Another, after being a prey to the most violent convulsions, was in a kind of apoplectic state,—insensible, speechless, with pupils dilated, face puffed and livid, respiration laborious, limbs contracted, and jaws fixed in trismus. On his recovering consciousness the convulsions were renewed, he fell into a coma, and died in 24 h. in a

fresh convulsive fit. In a the convulsions gave way to maniacal delirium, with roasting about. Others felt numbness and feebleness of limbs. Two left hospital on 3th d., believing themselves cured, but returned, having been seized anew with syncope. Purgatives made them pass *stercus* of the roset on 6th and 7th d. They nevertheless succumbed, one on the 9th, the other on the 21th d. of the poisoning. (BOSSLEY, *Land. Med. Gaz.*, 1844, p. 239.)

5. The following is a résumé of the *post-mortem* appearances in 6 fatal cases :

a. *Exterior aspect* : Very marked rigidity of the corpse ; limbs strongly bent, with thumb applied forcibly to palm ; nails bluish ; small livid patches on front of trunk, on back part generally a deep purple discoloration, which also pervaded scrotum and penis. Face injected and puffy ; eyelids slightly apart, conjunctiva slightly congested, pupils widely dilated ; lips, gums, and ears purple ; tongue showing through teeth and bitten at tip ; froth issuing from nostrils.

b. *Nervous system* : Incision of scalp let out great quantities of black fluid blood. Veins of pia mater, greatly distended, form numerous arborescent plexuses on surface of convolutions and in their internals. The cerebral substance is strongly injected, especially the white matter ; so also the medulla oblongata. Serous effusion pretty abundant under arachnoid and in ventricles. Sinuses distended with much fluid blood. Sheath of cord strongly injected ; vertebral tissues full of black fluid blood, and medullary substance redder than usual. In one man, who died in 26 h., there was found beneath pia mater an escape of blood which covered both hemispheres.

c. *Respiratory system* : Epiglottis deeply discoloured, with considerable injection of network of veins covering it. From glottis to ultimate ramifications of bronchia, mucous membrane is deep red and covered with a thick layer of reddish frothy mucus. Lungs dull and blackish, with numerous small extravasations.

d. *Circulatory system* : Heart contained much black fluid blood.

e. *Digestive apparatus* : Papillæ at base of tongue turgid and vascular. Velum palati, tonsils, pharynx, and œsophagus coated with glairy mucus and deeply livid. Lining of stomach and intestines scarlet, coated with viscid mucus, under which membrane is strongly injected and looks mammillated, owing to prominence of numerous swollen follicles. Here also were points of extravasation, and black lines along venous trunks. (Blow, *L'Ann. Medical*, March, 1874.)

III. *Experiments on animals*.—1. Five decigrammes of the resin were given, suspended in a mucilage of gum arabic, to an adult, well-conditioned rabbit. At first it suffered depression and sadness, refusing its food ; soon after, some convulsions in forelegs and muscles of head and face, posterior extremities refused their support. This state continued 20 h., after which the animal gradually recovered. (Blow, *op. cit.*)

2. Six decigrammes of the resin were diffused through a yolk of egg and slightly diluted with a little hot water ; a full-grown small dog was made to swallow it. He at first exhibited the same depression and sadness as the rabbit, while the weakness of the extremities was still greater. Respiration short ; the tongue hanging out and extremely dry ; anxiety insupportable. The œsophagus was not tied lest it should occasion death. There was no possibility of stopping vomitings, which were glairy, reddish, and slightly bloody, and no doubt carried the poison out. They were accompanied by fetid liquid stools and an abundant discharge of urine. After these evacuations, and even during them, the animal suffered convulsions and extremely violent spasms in anterior extremities, tail, and face. Gradually these sufferings abated. He took no food for 45 h., and then slowly recovered. (*Ibid.*)

3. An adult strong rabbit, who swallowed 3 oz. of distilled water in which a quantity of the roset was steeped, with the addition of a good deal of the essential oil, did not experience the least inconvenience. All the experiments seem to prove that the resin alone is poisonous and the other parts of the plant very little so. (*Ibid.*)

4. Sixty centigrammes of resin were mixed up with some minced meat, of which three boluses were made. One was administered to an adult dog of middle size by force, as the smell of the resin made him shrink back. In 20 m. he began to be restless, and he kept turning round upon himself, seeking for a comfortable position ; 2 or 3 m. after he had nausea without vomiting. They gave him a second and then a third ; the phenomena then became characteristic. At first growling, with increased anxiety ; by degrees posterior extremities do not move in accord with anterior ; at last he could not support himself. In 5 or 6 m. he had bloody stool,

at first containing other matters, then blood only. Nausea returned more severe, as well as a violent hicough. Four times he vomited white matters tinged with yellow and coated with bloody slime. The muscles of the face are contracted, with incessant anxiety. Trismus prevents the exhibition of an emetic; the vomiting and stools become more frequent. He tries to walk, knocks himself almost everywhere, and does not seem to know where he is going. He falls back, is seized with violent contractions, and dies in 35 m. after the poison. No *post-mortem*. (*Ibid.*)

5. Forty centigrammes of the alcoholic extract diluted with a little water were given to a pretty strong rabbit. He suffered from depression, and refused food; convulsions ensued, hind legs became visibly weaker; muscles of the head and face contracted; this state continued from 9 to 12 h. and then he recovered. (*Ibid.*)

6. *July earth*, 6 a.m., I introduced into the mouth of an adult dog, in good health and having since previous e., a teaspoonful of fresh juice. At once he made efforts to vomit, and uttered hoarse cries. He is much agitated, runs, and attempts to vomit, but in vain; lumps at the mouth, and threatens to bite; often goes to drink, and seems relieved *per tem*. About 9 a.m., after intractable efforts, he vomited all the liquid he had swallowed, refused broth, and slept calmly. On awaking ate a little, and drank eagerly and often. Gums, mouth, tongue, and pharynx are red and injected, with red patches at edge of vein pectus and colonus. Urine scanty, no stool, abdomen slightly distended, was left to rest all d., and fell asleep; plaintive barking at short intervals, trismus but little marked. At 1 p.m. he awoke, whined, and tried to vomit, changed his place continually, and rejected, with violent hicough, food mixed with bile, smelling remarkably acid. Next d. one diarrhetic stool. At n. he seemed better. I mixed a tablespoonful of fresh juice with 100 grammes of broth, which he took without repugnance. But he was almost immediately seized with retching, and rejected the ingesta; went to drink as yesterday and lay down. At noon yawning and three diarrhetic very fetid stools. Next d. at 8.30 a.m. I was much surprised to find the animal, who seemed doing well overnight, with a death-rattle, after very fetid green stools; his eyes were stiff and glassy; skin dry, with an eruption of rather venous red spots on back and flank; jaws set fast; heart beating tumultuously and irregularly. He was nearly motionless, so I despatched him by cutting the jugular, and proceeded immediately to the *post-mortem*.

5. *Abdominal cavity*.—Acute peritonitis, arborescent injection on intestines, which are tympanic and empty, especially the large; ascending and transverse portions much injected, with large reddish-brown spots on their surface, indicating incipient gangrene. Mucous membrane of cecum partly detached; ileum much injected, jejunum less so; duodenum only inflamed at pylorus; surface of the stomach little injected. *Stomach*.—At opening bright red, with injection over whole of large cul-de-sac; mucous membrane thick; lesser cul-de-sac less injected. Pyloric orifice choked by an arborescent part of a bright red; caecum equally inflamed, and congestion extends to extremity of œsophagus; interior of buccal cavity red, with spots such as above named. *Spleen* a little congested. *Kidneys* congested; no urine in renal pelvis. *Liver*, nothing peculiar, vena portæ contains some clots. *Gall-bladder*, very little bile. *Respiratory organs*.—Lungs injected, crepitating, float well. Trachea normal, some ganglions congested. Larynx, mucous membrane slightly congested. *Circulating system*.—Heart very bulky, r. ventricle contained a very large blood-clot, fibrinous at upper part, and entangled in tricuspid valve; a. ventricle contains a small blackish clot; numerous clots in pulmonary artery. L. side normal, except a marked white line on columnæ carinæ; slight endo-pericarditis. *Brain*.—Considerable effusion of bloody serosity between brain and dura mater; injection up to edge of outer or lobes. Virchow's centrum ovale pointed. Ventricles, serous effusion abundant. Cerebellum normal, except peduncles, which are injected. *Spinal cord*.—Marked injection all the way to cauda equina; at edge of olive there was some serosity indicating inflammation. (*Ibid.*)

7. A dog above 10 months was poisoned with 30 dr. of the alcoholic tincture in 100 grammes of distilled water. The 1st d. anxiety, agitation, nausea, burning thirst. The 2nd d. 40 grammes of tincture mixed with broth; same symptoms, with rattling gut besides; can no longer run, but drags along; after this he rests and falls it tried to walk; trismus. The 3rd d. the animal is better, and we let him rest. The 4th d. at 7 a.m., 10 dr. of fresh juice mixed with his broth. Almost immediately violent shaking of head and limbs; same nausea and vomiting; extreme

prostration; fetid and frequent stools. At 11.30 he died. A *post-mortem* took place and nearly the same alterations were found as in the preceding case. (*Ibid.*)

OLEANDER.

Nerium Oleander, L. Common maybay or rose-laurel. Nat. Ord., *Apocynaceæ*.

I. *Proving*.—1. HAKKEMANN, *Mat. Med. Puræ*, vol. i of original, vol. ii of translation. Contains 522 symptoms from self and five others, and 20 from authors.

2. LOISELEUR-DESLONGCHAMPS took ʒ dr. of a sol of 30 grm. of extr. in 170 grm. of wine, and repeated it daily, each time increasing dose by ʒ dr. It caused anorexia, malaise, weakness of limbs, anxiety, and great muscular debility. (*GALTIER*, *Toxicologie*, vol. ii.)

II. *Proving*.—1. A delicate boy, æt. 4½, swallowed, Aug. 18th, at 1 p.m., a handful of the flowers. After 20 m. he was observed to be very restless. He was carried into the house, and on the way thither, and again 5 m. later, he vomited the flowers and some food. After the second vomiting he became very gay, and, contrary to his habit, jumped about all afternoon like a playful kitten. At 4.30 p.m. he took his coffee with appetite. 6.30 p.m., became again restless, wished to go to bed, lay there quietly and seemed to sleep. He did not reply to questions, face and body were pale, eyes open, pupils very contracted, head and rest of body quite cold and insensible, pulse and respiration slow and irregular, he could not be roused, and his father thought he was dead. 7 p.m., again vomited food, recovered his senses, and for 10 m. was lively; he then again became comatose in a greater degree than before. After a dose of ipec. he vomited at 9 p.m. a clear watery fluid without any solid matter, again becoming lively for a short time and then again comatose. He had three alternations of liveliness and sopor several times. At 11 p.m. he got some strong coffee. This roused him, and he became somewhat cheerful, but remained exhausted and sleepy; his pulse intermitted every 4 or 5 beats till 4 a.m.; it was weak, small, and rather quicker. Towards 10, the intermissions of the pulse were after 10 to 12 beats.—19th. The pulse intermitted every 13th beat, the weakness and drowsiness continued, the pupils were dilated so that hardly any of the iris was visible. He vomited everything he took. As he had no stool he got a dose of carb. of magnesia every h. from 12 noon, but he always vomited it. After the 6th dose and some lemonade the vomiting ceased; he fell into a quiet sleep, which lasted till 6 a.m. of the 20th. On waking he had a stool, the weakness and drowsiness were gone and he was well. (*Horn. Vierteljahrssch.*, xi, 155; from *Zeitsch. d. k. k. Gesellsch. d. Ärzte zu Wien.*)

2. Five persons who partook of barley broth which had been stirred while cooking with a branch of O. were taken seriously ill. One cried aloud and tossed about, vomited a green fluid, his eyes looked suffused with blood, the pupils were much dilated. Another had dilated pupils, uttered cries, had slight convulsions of the limbs. A third had vertigo, pain in stomach and in joints of limbs and a kind of stupidity so that he did not understand what was said to him. A fourth showed greater stupefaction, complete insensibility, his head was bent down upon his chest. A fifth was apparently completely stupefied, eyes distorted, bilious vomiting. All recovered in a week. (*GALTIER*, *op. cit.*)

3. A man took ʒ grm. 20 centigrams, of the powder of the bark. On the 2nd d. he had copious painful vomiting, cold sweats, syncope, and other serious symptoms, which went off after drinking copiously of sugar and water and ether. (*Ibid.*)

4. An officer, to protect himself from the mosquitoes, made himself a kind of alcove of O. branches in his room, closed all the doors and windows, and went to sleep. The next m. he was found to be dead. (*Ibid.*)

5. A Hindoo, æt. 15, slight and delicate-looking, was brought to the hospital at Kumbhore in the m. of August 9th, 1854, in a state of insensibility. His wife stated that after a quarrel he had swallowed more than an oz. of the expressed juice of the root. He was then about 5 yards off his house, to which he repaired immediately and fell, unconscious, on the threshold. On admission, face and eyes were swollen, head hot and covered with sweat, stertorous breathing, and foam issuing from mouth.

With this there were violent spasmodic contractions of the muscles of the whole body, most marked in upper extremities and on l. side. In the intervals of the spasms the patient lay motionless on his back. When the attack commenced, the stronger contraction of the l. side threw him on the r., and he remained in this position as long as it lasted, falling then upon his back as one exhausted. Sulphate of zinc produced free emission of greenish matter; but, insensibility persisting, with rapid pulse and hot skin, leeches were applied to the temples, and sulphate of magnesia obtained watery greenish evacuations. The spasms returned at intervals of an h., and were apparently brought on by every attempt to move or to raise himself. Towards e. the spasms diminished, the face became pale and pulse thready; eyes were sunk in orbits, and extremities grew cold rapidly. Frictions, mustard, and stimulants restored the circulation, but the insensibility persisted, and there was an involuntary stool. He remained in this state all next d., the spasms less violent and frequent, evacuations still involuntary. In e. reaction was established, but insensibility continued; after action of a full dose of castoral this merged in a sound sleep. On m. of 15th he woke quite himself, though weak, and soon recovered, remembering nothing of what had passed since he swallowed the poison. (BRIDGEMAN, *Trans. of Med. and Phys. Soc. of Bombay*, 1859.)

III. *Experiments on animals*.—1. ORFILA has proved by his experiments that O. exerts a narcotic action on the brain, and an irritant one on the alimentary canal. (*Op. cit.*)

OPIUM.

Impiugated juice of *Papaver somniferum*, L., white poppy. Nat. Ord., *Papaveracea*.

I. *Proving*s.—1. HAHNEMANN, *Mat. Med. Pura*, vol. i of original, vol. ii of translation. Contains 144 symptoms from self and 4 fellow-provers, and 518 from authors.

2. a. BARD counted his pulse every h. for a d., and found it kept to 70—73, rising to 79—84 after meals. Next m. at 7, finding it 71, he took 1½ gr. of O. 8. B— now began to feel distinct effect of O., neither disagreeably nor pleasantly, in head and stomach; had a sense of lassitude, difficult to describe, and occupation began to be irksome and even impracticable; pulse was 69. During next ½ h. pulse fell to 64, and he had strong desire to sleep; there was dizziness in head but no pain, and sense of fullness in face without obvious turgor of vessels. 9. pulse 64 still, fuller than usual. 9.30, pulse 66; took a light breakfast, not without some repugnance. 10, pulse 65; he was thirsty, and his mouth was filled with an unpleasant taste. At 10.30 pulse was 61, at 11, 60, at 11.30, 59. At 12 it was 57, and he could hardly keep awake any longer. Up to this time he had (as on previous d.) abstained from any exertion, but at 1, having walked two or three times about his room, pulse rose to 65. On sitting down again, by 1.30 it was 63; at 2, 61; at 2.30, 58; at 3, 60. After dinner it now rose to 70, and thence after a walk to 75; nor did it fall again below 69. By 6 p.m. he felt no effects of O. save a slight pain in head. Next m. he woke with a most unpleasant taste in mouth, saliva thicker than usual, and yellowish, and tongue much coated. B— repeated this experiment on himself 4 times, and always with same results. When he took 2½ gr. he had nausea and vomiting for 2—3 h., and with this pulse was quickened.

b. On another occasion B— took same dose in 6 portions. Pulse,

which on previous d. was found as before, was 70 at 7.30 a.m., when he began to take the 6 doses at half-hourly intervals. It was unchanged till after breakfast, when it rose to 76. By 11 it had fallen to 66; slight vertigo had followed 5th dose at 10, and now desire for sleep came on. Pulse continued to fall slightly, till at 2 it was 62. After dinner it rose to 71, and remained thereabouts for rest of d.

2. On d. following all his experiments, respiration (undisturbed during action of drug) was anxious and oppressed, with frequent sighings and mucous expectoration, and this lasting some 3 d. (*Tent. de Vir. Opii*, Edinb., 1765.)

3. a. One whom I well knew took before bedtime 1 gr. of crude O. He slept at first as if anxious, and plagued with many, mostly sad, dreams, so that he seemed to be in a somnolent state, a prey to constant delirium. At this time the breathing was hurried, tight, and anxious, with quicker and feebler pulse than in the normal state. Later he slept more soundly. After about 8 h. he perspired all over the body, and was next d. quite well save for a slight diarrhoea, very fetid; a puffy face, especially in lower eyelids, with bluish and earthy-pale complexion, a white tongue, and weakness and turpor of the legs.

b. On another occasion he took, about 3 p.m., 3 gr. In the 1st h. he noticed only sadness and mental weakness. Towards 5 p.m., feeling faint, he went to bed. He lay there moderately warm, tortured with precordial anxiety, constantly inclined to sleep, which yet he could not do; his pulse was slower. There then arose gradually in both hypochondria, but especially the r., a pain which seemed to seize the region of the colon. As it grew more violent, it produced such tension in the abdominal integuments that a finger could not be introduced under the margin of the false ribs towards the diaphragm. At last, between 7 and 8, it increased to an incredible degree of severity, and the rhythm of the respiration was at the same time so completely disturbed that he dreaded suffocation, and hastily got out of bed in the greatest anxiety. In utmost distress, and gasping with open mouth, he wandered with trembling limbs several times across the room. He felt ravenously hungry, and yet shuddered at food; he passed much lemon-yellow urine with copious sediment. Retaining his sound senses, he noticed that his pulse was slower and weaker. His pale skin, papillated with cold, secreted abundant perspiration. At 9 he took a lemon and drank some cups of tea. Now the cramp in muscles of chest and abdomen began to abate, and so did the pains; his cold hands became a little warm, and some eructation followed. (With the dyspnœa there had been hoarseness, the glottis seeming to be tightly contracted and the gullet dried, while only a little phlegm could be detached by hawking.) Most of the torments were now over. The bitter taste of the mouth was succeeded by nausea, and this again by vomiting of the tea and lemon, and of gastric mucus. To slake his thirst he took several more cups of tea by sips, and lay down again in bed; within 2 h. his feet got warm, and between 11 and 12 he began to sleep, at first anxiously and as overwhelmed by dreams, afterwards softly and quietly. At 5 a.m. slight general perspiration. Upon this he left his bed, little refreshed by sleep. He directed the business of the following d. with all his powers save

those of his intelligence. Before midday there occurred an evacuation of frothy fluid mucous feces, with itching, burning, and extreme straining, which last continued many h., and caused much discomfort. Then everything returned to the healthy state, except that during this d. the tongue was dry and white, and the whole body pale and livid. (GRIMM, *Nouv. Act. Nat. Cur.*, iii.)

4. *a.* Having breakfasted lightly at 9 a.m., I took at 12 1 gr. of O. diffused in a teaspoonful of warm water. Pulse was 70—its natural standard. After 5 m. it was 74, after 10 m. 76, at 15 m. the same, at 20, 25, and 30 m. 74, at 35 and 40 m. 72, and thenceforward 70 again. I could scarcely perceive any variation in its strength or fulness, nor was the dose succeeded by drowsiness or any similar affection.

b. At 1 p.m. I gave to a robust, healthy young man, whose pulse beat but 44 in a m., 1 gr. as above. His pulse, remaining stationary for 20 m., at the 25th had reached 50, at the 30th 52, at the 35th 54. It then fell gradually till at the 90th m. it had gone down to 42, and at the 110th to 40. It was not till the 135th that it had attained its normal rate again. Coincidentally, after 25 m. there was manifest increase in strength and fulness also; which in an h. began to diminish, and continued to do so till near the end of the experiment. A slight heaviness, which came on at 55 m., was the only other effect experienced from it.

c. At 12.45 p.m., my pulse beating 70 as usual, I took 2½ gr. in ʒj of water. Already in 5 m. pulse had risen to 74, and by 30 m. it had reached 80. During the next 15 m. it fell to 64, and after another ¼ h. had returned to its normal rate. In 20 m. I perceived a slight warmth, and soon after a degree of moisture on my skin, fulness of pulse increasing as well as frequency. In ½ h. I found myself, or at least imagined myself, more alert and sprightly than before. In 40 m. I perceived a pleasing kind of languor, gradually increasing; in 90 m. a dull headache, which in 2 h. time was much increased, and attended with drowsiness and nausea. In 2½ h. every disagreeable symptom was increased. I took a spoonful of vinegar, which somewhat relieved the nausea. In 2¾ h. all symptoms still increasing, with slight vertigo and tremors in hands. In 3½ h. nausea increased to vomiting, and I threw up contents of stomach. The headache and vertigo were soon after relieved; but I continued in a stupid state for rest of d. (CRUMPE, *Nature and Properties of Opium*, 1793.)

5. *a.* GENTZ took ʒ dr. of a tincture prepared by dissolving one part of purified O. in three of rectified spirit and three of distilled water; within a few m. noticed slight pain over whole head, bordering on congested feeling, lasting only 10 m.; at same time face and hairy scalp became warm. Six dr. of same tincture taken in ¼ oz. water caused some headache after 5 m., and lasting several h. Later, a diarrhœic stool was passed. After 9 dr. same headache came on, but no other symptoms. Repeated experiments, beginning with 1 dr. After a few m. noticed slight pressing pain in region of glabella, lasting a few m. Two dr. produced same effect. After 3 dr. felt slight nausea, and for 5 m. increased secretion of saliva, followed immediately by pressing pain in frontal region, spreading after 5 m. towards root and later tip of nose, when it changed into colic, lasting only 15 m.;

head was quite clear in $\frac{1}{2}$ h. from taking dose. Faeces somewhat softer than usual. Four dr. produced same effect. After 6 dr. neither nausea nor salivation occurred, and in place of headache confusion of forehead came on, lasting 2 h. During succeeding n. dreamt unusually vividly, but only awoke once, soon after midnight. Next m. at 6.30 had some cutting pain in abdomen, soon followed by loose evacuation. On August 4th, at 8.30 a.m., took 8 dr. in 1 oz. water; same nausea and flow of saliva followed. After 10 m. oppression of forehead came on, accompanied by heat and sweating of face; after 20 m. this moderated, leaving only emptiness of head, lasting 3 h. Did not enjoy midday meal; during afternoon had cutting pain in umbilical region and at 7 p.m. loose stool. Next d. took 12 dr.; after 5 m. oppression of forehead came on, interrupted at times by stabbing pains over eyebrows, which spread 1 h. later over whole head. This morbid condition of head improved towards midday, so that throughout p.m. only emptiness and dulness of head remained behind, although stabbing pains were still felt at times. Transient heat occurred at times in face, and kept whole body in a continual state of perspiration till towards e. At 3 p.m. had feeling of constriction of chest, with dyspnoea, lasting $\frac{1}{2}$ h. At 8 p.m. passed loose stool, preceded by few cutting pains in abdomen. On 6th, at 8 a.m., took 18 dr. After 10 m. head became so heavy and stupid that he was obliged to support it, and could almost feel rush of blood towards head. At 10 a.m. was so sleepy that it needed all his efforts to keep awake, and he could hardly speak collectedly; coupled with this there was heat of face and perspiration. The stupor, which passed off towards midday, was interrupted at times by feeling as of tight band round neck, with occasional fleeting stitches, apparently from within to without. During p.m. head remained dull, sleepy, and empty, and intellect clouded. Cutting pains and loose stool followed as before. During n. sleep was restless, and at midnight he was awoke with feelings of constriction of chest, which came on suddenly every 3 m., and after 1 m. vanished. Wild dreams disturbed his sleep during remainder of n. Next m. at 6 a.m. loose stool and cutting as before. Towards 8 a.m. head, which was clear on awaking, became as dull as during previous afternoon, but this soon passed off. Next d. bowels remained constipated.

b. Same took $\frac{1}{2}$ gr. purified (solid) O., which he swallowed with $\frac{1}{2}$ oz. water. After 10 m. confusion of head and pressing in eyes came on, latter feeling as if upper lids were being pressed downwards towards lower. Both symptoms had vanished within $\frac{1}{2}$ h. Next took 1 gr. at 8 a.m. After 10 m. felt confusion of head, increasing every m., face meanwhile glowing and head sweating. Globes of both eyes felt pushed from within outwards; stabbing frontal headache alternated with drawing pains in internal ear. Head finally became so heavy that he was obliged to lie down at times or he would have fallen. Pulse-beat somewhat fuller than usual. These symptoms lasted till about 11 a.m., leaving behind great lassitude and somnolence; some dulness of head and incapacity for mental exertion were noticeable until 5 p.m. Whole body perspired during p.m. Next d., except for slight lassitude, felt quite well. (Jöro, *Materialien*.)

6. HEITERBERG took 1 gr. rubbed up with 3 gr. magnesia and $\frac{1}{4}$ oz. water. After 1 h. cutting pains in abdomen set in, and lasted 10 m. First evacuation took place next m., feces being copious and hard. Same effects followed $1\frac{1}{2}$ gr. After $1\frac{1}{2}$ gr. pains were quite colicky, and lasted 10 to 12 m., returning less violently at 2 and 4 p.m. Bowels were constipated as before. After each dose felt disinclined for serious occupation. (*Ibid.*)

7. *a.* KNESECKE took $\frac{1}{2}$ gr. Slight confusion of whole head and pressing frontal headache followed after $\frac{1}{2}$ h., lasting fully 1 h. Same effects followed after $\frac{1}{2}$ gr. accompanied by slight giddiness. From 2 till 5 p.m. felt some lassitude, with inability to concentrate thoughts; well-known things appeared less familiar, and his speech less voluble. Slept well, but arose unrefreshed next m., and bowels did not act until e., after which they did not act again for 36 h. Effects of drug were noticeable until e. of 3rd d., especially in shape of indifference to everything, even to favourite occupations. After $\frac{1}{2}$ gr. same effects followed, coupled after 2 h. with slight cutting in small intestines, lasting 1 h. Pulse during d. was somewhat slower than normal. Bowels did not act for 60 h. after dose, feces being hard, followed next m. by two liquid evacuations, and acting naturally on m. of 5th d. After 1 gr. same symptoms followed, only that pains in bowels were more colicky and lasted 4 h. Pulse was somewhat slower than normal during p.m. Towards e. frequent and troublesome yawning came on, and he was obliged to go early to bed; slept well, but arose unrefreshed. Felt lassitude all next d. and bowels remained constipated. Next m. bowels acted slowly. All effects had passed off by m. of 4th d.

8. After doses of 6, 7, 8, and 9 dr. of tinct., noticed only slight confusion of head, lasting but a few m.; felt also less lively p.m. Bowels regular, but feces somewhat hard. (*Ibid.*)

9. *a.* LIPPART took, Jan. 30th, $\frac{1}{2}$ gr. of O. After few m. felt dull gentle frontal headache, lasting all forenoon, and slight aching in bowels. Same effects but more pronounced followed dose of $\frac{1}{2}$ gr. On Feb. 3rd took 1 gr. Subsequent headache was more acute, spread over whole head, and was combined with heaviness, confusion, and buzzing in same. Colicky pains were more acute, and recurred for few m. every $\frac{1}{2}$ h. until noon, whilst head symptoms lasted until well on into e. Bowels acted rather oftener than usual. Next d. took 2 gr. After $\frac{1}{2}$ h. head became confused and giddy, so that he could hardly stand; lassitude and weariness spread over whole body; felt at first cheerful and good-tempered, but as other symptoms increased became quiet and serious. Pulse meanwhile was large, full, and quicker than usual. Colicky pains came on after 1 h., increased very much, and manifested themselves as tearing or cutting pains, but at longer intervals, and lasting till afternoon. Experimenter became gradually more weary and tired and very sleepy, so that he could not stand without danger of falling. Heat of skin was increased, but without sweating. These collective effects of drug increased gradually until noon, and decreased during p.m., so that by e. there was considerable abatement. After 3 gr. same effects followed, accompanied by unusual feeling of dryness in mouth, although neither mouth nor tongue were really dry, and,

further, feeling as if he would be sick, although he felt no nausea; and lastly constipation until next m.

b. After successive doses of from 1 to 9 dr. of tinct., he noticed only that evacuations were more difficult and scanty. After 12 dr. confusion of head, which also occurred after 14 dr., accompanied by quick, full, and hard pulse. Same symptoms occurred $\frac{1}{2}$ h. after 16 dr., accompanied by giddiness so that he could scarcely stand, and head felt heavy even while sitting. The symptoms lasted nearly all d. Similar results followed 18 dr. After 24 dr., besides confusion of head felt dull pressing in same, passing on gradually to giddiness, so that thinking was rendered very difficult. Circulation was affected as before. (*Ibid.*)

9. a. Otto took 2 dr. mixed in $\frac{1}{2}$ oz. of water. Only noticed unusual weariness and lassitude of body, indifference to everything, aversion to usual occupation, much inclination to sleep and peculiar indolence, lasting together the whole d. Slept well, but arose next m. unrefreshed. After 3 dr., besides lassitude noticed slight pressing headache, which ceased towards e. On August 6th, at 8 a.m., took 4 dr.; towards 9 became giddy, his thoughts went astray, and occipital headache came on; these head symptoms lasted 10 m. Towards noon weariness again appeared. At 4 p.m. this increased so much that he could not keep on his feet; intense giddiness was also present, face became red and head hot; sweat broke out all over body, darkness came before his eyes, and he lost consciousness. This condition, which lasted about $\frac{1}{2}$ h., was ushered in by nausea, eructations, and inclination to vomit. Such weakness spread over whole body that it was with utmost difficulty that he could move his limbs, and yet an inward unrest constantly urged him to sit or lie elsewhere; decided lassitude oppressed him until e.; bowels were not open during d. Appetite and sleep unaffected. Awoke next d. with slight headache, which he soon lost. Soft, pappy feces passing during p.m. Urine since taking O. was browner, and covered with an iridescent pellicle. On repeating same dose on m. of next d. but one soon felt giddiness and confusion of head, lasting 15 m., then for $\frac{1}{2}$ h. cutting pains in abdomen with urging to stool, followed by evacuation of soft scanty motion and transient weariness. At 4 p.m. pressing pain over whole head came on, and lasted till bedtime, accompanied by great distaste for work and indifference to everything. Next day awoke with same headache, which became worse after getting up, but gradually passed off during forenoon in open air. During p.m. passed pappy stool.

b. O—now took $\frac{1}{2}$ gr. of O. After 8 h. felt slight congestion of chest and head, lasting 15 m., but leaving behind slight confusion of head ceasing suddenly after 2 h. on going into open air. On July 27th at 8 a.m., took $\frac{1}{2}$ gr. After 1 h. felt lassitude and weariness of whole body, increasing gradually until he was obliged to sit; he then passed into a reeling condition as if tipsy, everything in room appearing to him to turn round; felt at same time constriction of head as if brain were being compressed by scalp; slight pains coming and going inside head, and irritation of globe of eye, followed by diminished power of vision; next came sleepiness, manifested by frequent deep yawning and general lassitude. Pulse-beat large, full, and strong.

After this group of symptoms had lasted fully 1 h., they gradually passed off, leaving the headache and a feeling of general listlessness behind, lasting until e. Bowels did not act all d., nor till noon of next d., but fæces were soft. On repeating same dose, experienced same effects, and in addition fixed tender pain in region of l. mastoid process, which troubled him several hours during p.m. Bowels were affected as before. Next took $\frac{1}{2}$ gr.; very soon felt slight giddiness, accompanied with belching up of flatus, and changing to oppression of head which here and there almost amounted to pain. Pain was also felt in abdomen, first in stomach then lower down in small intestines, changing later into general cutting, followed by copious natural action of bowels. During p.m. was troubled with lassitude and sleepiness. Slept well during n., but arose not thoroughly refreshed. Same abdominal symptoms followed $\frac{3}{4}$ gr., but this time stool was pappy. After 15 m. from time of dose, slight giddiness came on, lasting only 15 m. and leaving no pain behind. Lassitude and weariness, especially of lower extremities, troubled him much, with sleepiness and indifference to everything, even his most important affairs. Sleep during n. was sound but unrefreshing; felt same weariness next d. (*Ibid.*)

10. *Dr. PIENITZ*, on February 4th, at 9 a.m., took $\frac{1}{2}$ gr. At 10 felt head confused, heavy and oppressed, pulse small and frequent, skin warmer than usual, whole body weary and unstrung, and spirits depressed; before 12 all had passed off. On 7th, took 1 gr. at 9 a.m. No symptoms occurred until 3 p.m., when there was dryness of mouth, constriction of larynx, pressing in and over both eyes reaching to vertex, increased superficial heat of whole body, and general lassitude; all passing off before 10 p.m. Next d. bowels did not act until after dinner. Next took $1\frac{1}{4}$ gr. After 1 h. felt lassitude and weariness of whole body, followed immediately by oppression of head, and feeling as if he had been drinking spirituous liquors, trembling and weakness in extremities, moist cold skin, dryness of mouth, thirst, and great inclination to sleep, all lasting 1 h.; pulse meanwhile being weak and quickened. For next 3 h. suffered with nausea, want of appetite, belching of flatus and distension of abdomen, and general weakness. Pulse during this time had become fuller and quieter. Eyes became cloudy and dark. Next d. bowels acted only p.m., action being accompanied with slight colic in region of stomach. On repeating same dose, after $\frac{1}{2}$ h. feeling of indifference came on, with tipsy feeling noticed above, confusion of head, and sensation of tension over surface of head. Later there were added, want of appetite, heaviness and rumbling in abdomen, and distension of intestinal canal, all disappearing after about 2 h. Bowels were affected as before.

Dr. P.—also took 3 dr. of tinct. in $\frac{1}{2}$ oz. water. After 1 h. lassitude and inclination to sleep came on, accompanied by quicker and weaker pulse; both symptoms disappearing within 1 h. Had little appetite for midday meal. On repeating same dose lassitude and weariness lasted 2 h. On taking 6 dr., besides lassitude and somnolence, felt heaviness of whole head, pressure in forehead, and smaller pulse, lasting 2 h. (*Ibid.*)

11. *Dr. STEENHAAR*, 1 h. after 5 dr., felt same heaviness in head, with

feeling as if head had been hanging down for a long time, lasting barely 1 h. Then took 6 dr. After 1 h. was surprised by feeling of pressure in region of stomach, followed shortly by heaviness and confusion of head lasting 15 m. Pulse meanwhile was quicker and smaller than usual. After 7 dr. same symptoms occurred, but lasted nearly 2 h. Appetite for dinner diminished. After eating this and going into street, was seized with such severe nausea that he with difficulty refrained from vomiting; this nausea continued for 10 m. and then gradually disappeared, and was accompanied by an extraordinary feeling of lassitude and weariness, lasting whole d. and associated with inclination to sleep. During following n. was very restless; at 2 a.m., on getting out of bed, was seized suddenly with giddiness and nausea, so that he had to lie down again. This condition lasted 15 m., after which he fell asleep again. Felt some headache on awaking next m. Next d. took 8 dr.; after $\frac{1}{2}$ h. felt troublesome pressing and cutting pain in region of stomach and deeper in abdomen, lasting about $\frac{3}{4}$ h.; with this there was confusion of head, especially in frontal and parietal regions, changing to actual pain, which lasted several h. Pulse meanwhile was slower and weaker than usual. During latter part of d. there was uninterrupted lassitude, weariness, and distaste for mental or bodily exertion. Next m. felt unrefreshed. Similar effects followed dose of 9 dr. except that he felt sleepy, and weariness and lassitude lasted all d. Pulse was unaffected.

6. February 4th, at 9 a.m., took $\frac{1}{2}$ gr. of Op. At 10 a.m. an attack of giddiness and confusion of head, changing at times to lassitude and indifference to everything around; pulse meanwhile was several beats quicker but weaker than usual. These symptoms lasted about 1 h. Similar symptoms followed dose of $\frac{1}{2}$ gr. with addition of constipation. On 9th, at 9 a.m., took 1 gr.; towards 11 felt pain in abdomen more pressing than cutting in character, especially in umbilical region, spreading thence over whole abdomen, which appeared somewhat distended, increasing in intensity till noon, and disappearing at 1 p.m. During afternoon and e. felt more tired and weary than usual. Faeces next m. were hard. Similar effects followed dose of $1\frac{1}{2}$ gr., with headache during e. in addition. Next took 2 gr.; after 1 h. abdominal pain came on, and lasted 5 h., leaving feeling of weariness, lassitude, and indifference behind. Zest for food was all day less than usual. Bowels only acted on m. of third day, faeces being hard. (*Ibid.*)

12. JÖRC, on August 15th, at 8 a.m., took $\frac{1}{2}$ gr.; at 9 a.m. slight confusion spread over head almost imperceptibly, increasing about 10 to feeling of complete intoxication, and accompanied with giddiness, vanishing again about 11. From this time till e. felt frequent pressing in eyes, with diminished secretion of mucus, and mistiness of sight; constant feeling of dust in one or other eye, with itching and burning in same; at times felt as if accumulated mucus obstructed sight, eyelids were, however, rather dry. This condition of eyes passed off at dusk, but recurred during next 3 d. if exposed to bright light. On intestinal canal, drug produced following effects:—At 9.30 a.m. cutting in abdomen came on, and soon after great urging to stool, which he could not resist; small hard motion was passed, but without relief, for cutting

pain lasted till 1 p.m., nausea being present between 11 and 12. After 3 p.m. was troubled with pressing pain, sometimes in vertex, at others in occiput, spreading later towards nape of neck, and becoming at times boring in character, lasting till bedtime and only disappearing during n. after several h. of very disturbed sleep. Similar effects upon brain and intestinal canal followed dose of $\frac{1}{2}$ gr. In addition to this, after 1 h. pulse beat 8 to 10 times in m. quicker than normal, was contracted and hard; after 4 h. it became full, and towards e. gradually returned to its normal condition. From 2 to 4 h. after dose felt pressing and stabbing in thorax, especially towards posterior wall, and at times as if to spinal muscles. Occasionally slight cough was present. Skin became generally warmer,—face being hot, and sweating considerably from 9.30 till noon; complexion during this time changed several times from dark red to pale red, former being most prominent, especially on cheeks. During afternoon and e. bowels were constipated, and abdomen distended; during n. sleep was much disturbed; awoke next m. tired and unrefreshed, and suffered from characteristic headache from 9 a.m. till noon, with some cutting pain in abdomen.

8. Took 1 dr. of tinct. After 1 h. felt pressure in forehead and over eyes, but not painful; coupled with this was a tremulous drawing in scalp covering forehead and parietal region, lasting $\frac{1}{2}$ h.; gradually pressure in forehead and over eyes changed to heaviness and inclination to sleep; felt all d. as if he had not slept enough. On Aug. 7th, at 8 a.m., took 2 dr. After 25 m. was attacked by pressing pain in both frontal eminences, descending to nose, and apparently affecting especially (both) nasal bones; 1 h. later this pain passed off, but left behind pressure in forehead, especially over eyes, and general heaviness of head. With first appearance of pain increased heat suddenly spread over whole body, soon succeeded by outbreak of general perspiration and feeling of increased vascular action. Pulse-beat 10 above normal, large and hard; fulness and hardness ceased at 10.30, and acceleration between 3 and 4 p.m.; perspiration ceased between 11 and 12 a.m. Besides these effects of drug, at 9.30 felt pressing pain between tip of r. shoulder-blade and posterior wall of thorax; pressing pain kept meanwhile coming and going in l. frontal eminence. At same time eyes became dry and weak with feeling of dust in them, lasting till bedtime. From 5 till 10 p.m. slight pressing headache, especially in l. half of vertex and forehead, alternated with pains in spinal muscles, at times extending into thorax. Bowels were sluggish. On 9th, at 8 a.m., took 3 dr. After 15 m. felt general oppression of head, passing on 15 m. later to confusion, almost amounting to giddiness, rendering thinking and speaking difficult. At same time there came sudden heat over whole body, especially about head, where abundant sweat broke out. Pulse was contracted and rather hard, beating 10 above normal. At 11 a.m. the contraction passed off, and during p.m. circulation became normal. Confusion of head became less after 9 a.m., then came somewhat sensitive cutting in region of navel, soon accompanied with urging to stool. Cutting pain lasted 1 h., and was accompanied by recurring pressing in thorax, causing and relieved by slight cough. Almost at same time for 15 m. there was feeling of thrusting from

thorax and spine towards nape of neck, and as if muscles and vessels there were being squeezed together. Upon this followed at times recurrent stabbing, apparently spreading from within the thorax outwards, and especially to region of r. shoulder-blade. From 10, mouth and gullet became somewhat dry. During p.m. slight confusion of head continued, combined with two slight attacks of pressing pain on r. side of vertex and forehead, lasting each time about 20 m. From noon till e. abdomen was distended; neither flatus nor fæces passed until 10 p.m., when after great straining a small stool, not hard, was passed. From noon till 6 p.m. felt heaviness, lassitude, and distaste for work; after 6 these symptoms changed to somnolence. N. was restless; sweated much and passed much foul-smelling flatus. Next d. felt "out of sorts," and for 3 d. was troubled with same pressing headache as after 2 drops. This pain in head and nose appeared as if fixed in periosteum. (*Ibid.*)

13. s. EDWARD JÖRC took 1 dr. on Aug. 10th at 8 a.m. After a few m. felt buzzing in head soon followed by confusion, and cutting pains in abdomen lasting till 9.30, recurring at 10.30 and lasting $\frac{1}{2}$ h. After 9.30 confusion changed into true pressing headache, attacking forehead more especially, and descending towards eyes and nose, ending between 11 and 12, and leaving behind general weariness and lassitude. Next d. at same hour took 2 dr. After few m. smart cutting in region of stomach and umbilicus came on, and after 15 m. pressing and confusion spreading over whole head, but especially towards vertex. All these symptoms vanished about 10 a.m.; then eyes began to burn and feel as if there were sand or dust in them. At same time considerable heat of whole body came on, but more especially of head; skin generally quickly began to sweat, and congestion of head showed itself; then head became really painful, especially in frontal region. Pulse-beat was 10 above normal, full and hard. Eyes were better towards noon, but other symptoms lasted until well on in afternoon, also accompanied with lassitude and general weariness. During p.m. and evening headache became at times very troublesome, spreading from vertex towards right orbit, and apparently pressing from within outwards. At 10 p.m., on going to bed, heat and headache prevented his sleeping; later on slept quietly; next m. head confused and dull and abdomen heavy, but these symptoms gradually passed off during forenoon. Morning stool was abundant.

b. E. J.—took $\frac{1}{2}$ gr. of Op. Immediately after felt numbness of head, accompanied after 1 h. by increased heat over whole body, and 2 h. later by urging to stool. Numbness lasted 10 m., changing to confusion of head, and towards noon to pressing headache, which recurred from time to time during p.m. Increased heat lasted till 5 p.m.; sleep was disturbed during early part of n. After $\frac{1}{2}$ gr. noticed slight confusion of head, and, later, weariness, somnolence, increased heat of body, and quickened pulse. Next m. felt some headache, especially from vertex towards l. eye, lasting with more or less intensity the whole d. (*Ibid.*)

14. s. FRAU CH—, on Aug. 14th, at 8 a.m., took $\frac{1}{2}$ gr. After $\frac{1}{2}$ h. was seized with confusion and severe pain in head, especially in r. half

of forehead, becoming towards noon so acute that she could not collect her thoughts. Pulse meanwhile was quicker, larger, and fuller than usual, and skin was warmer than normal. During p.m. frontal headache was less troublesome, but she suffered from general pressing pain over whole head, and from rheumatic pains in l. hand and arm. Eyes became hot, misty, and dry. During n. slept well, but next d. felt same pressing headache, weariness and lassitude of whole body, and considerable depression of spirits. Bowels were somewhat constipated both days, although she felt movements in stomach and small intestines as if from a dose of aperient medicine. On 16th, at 8 a.m., took $\frac{1}{2}$ gr. Similar effects followed, but in addition there was increased heat of whole body, especially in face, and palpitation, pulse being 12 beats above normal, large and full. Palpitation lasted till 4 p.m., but increased heat, headache, and somnolence till bed-time; did not sleep till midnight, and during whole n. sleep was very disturbed; bowels acted at 10 p.m., fæces being hard. Next m. felt very tired and weary, and suffered between 8 a.m. and noon from severe stabbing headache, especially over r. eyebrow, changing during p.m. to more moderate general pressing ache, which diminished gradually towards e. During a.m. felt also constriction of chest. From 2 to 3 p.m. distressing dreams during siesta, and, later, lowness of spirits. During following n. still felt constriction of chest, which disturbed her sleep. Next d. felt still some headache in r. frontal region, lasting from 9 till 11 a.m., and same, though in lesser degree, on following d. Bowels during all this time were constipated.

b. Same took $\frac{1}{2}$ dr. of tinct. After 15 m. felt slight confusion in head, and 10 m. later uneasy movements in stomach, lasting $\frac{1}{2}$ h. After 1 h. confusion of head gradually disappeared. Next d. took 1 dr. After 5 m. felt above symptoms, pains in stomach approaching nearer to actual cutting. After these pains had disappeared for 1 h., felt sinking feeling as from prolonged fast, not relieved by eating. Enjoyed dinner, but immediately afterwards oppression of head, which had never ceased, changed to stabbing headache spreading from forehead to occiput, especially on r. side, accompanied by longing for sleep; on sleeping for 1 h. had uneasy dreams and awoke unrefreshed. Headache lasted till 5 p.m., and was accompanied at 4 by giddiness. Bowels only opened in e. after several ineffectual attempts at stool. After 2 dr. same symptoms followed, uneasy feeling spreading to small intestines, and accompanied after 2 h. by sinking, nausea, and general lassitude. After 3 h. there was general warmth; after 4 h. considerable heat and redness of cheeks, pulse being large, full, and hard, and 10 beats above normal. At noon had 1 h. of restless sleep; between 2 and 3 heat vanished, but headache became worse, especially in r. half of forehead. Bowels constipated all d., acting at 10 p.m., fæces hard. During n. slept more quietly than at noon, but all next d. suffered with general lassitude, weariness, and, except at rare intervals, with headache. (*ibid.*)

15. Th. Jöna, on August 10th, at 8 a.m., took 1 dr.; almost instantly felt confusion and pressing pain in head and transient pressing in stomach; after 15 m. momentary stabbing in l. corner of l. eye;

soon afterwards weariness, especially in knees, and frequent stretching and yawning. Head-symptoms and weariness became worse towards 10 a.m., and he was also troubled with rheumatic pains in joints and painful sensations in region of spleen and back; by 11 a.m. confusion and weariness alone remained, and by noon these had disappeared. Pulse all a.m. was quickened and excited. Next d. took 2 dr.; confusion of head with pressing in forehead followed after 15 m. and lasted till 10 p.m., though moderating towards e., and accompanied from 9 a.m. till noon by cutting pains in abdomen, changing during p.m. to distension of intestinal canal. During p.m. and e. nose was very dry, and watered several times. Pulse from 9 a.m. till 2 p.m. was quicker than usual. During afternoon much troubled with sleepiness and distaste for work. (*Ibid.*)

16. a. WINKER took, July 26th, 11.45 a.m., $\frac{1}{4}$ gr. Op. After $\frac{1}{2}$ h. on rising up felt heaviness and slight stiffness in limbs, which went off after 20 m. In afternoon was very active, not the least desire for sleep. No stool all d., very unusual.

b. July 28th.—After a stool, took, at 7.30 a.m., the pulse being 70, 1 gr. Op. The bitter taste lasted some time. After 20 m. head felt heavy, heat of face, pulse increased by 3 or 4 beats. 7.45 a.m., heaviness of head nearly gone, as also the heat of face, but arms and legs felt as heavy as lead, making all movements difficult; at same time slight sickness and inclination to vomit, followed by eructation; pupils somewhat dilated. 8.15 a.m., well, except some heaviness of head and weariness.

c. July 31st, 7 a.m., after stool, pulse being 72, took 2 gr. Op. After 20 m. head heavy, face hot, thinking and writing difficult, pulse 5 beats quicker, pupils not dilated. Ten m. later the limbs, especially thighs, could only be raised with difficulty. 7.45 a.m., heaviness of head and limbs and heat diminished, but he was unable to work, a kind of giddiness prevented him thinking. 8 a.m., sleepy, slept some m. After 8 a.m. head heavier than ever, trembling, sight dim, could neither think nor write. Nausea, eructation, retching and ineffectual efforts to vomit, after which he became easier. In open air, head remained heavy, giddiness and nausea. 12, noon, slept a little and ate his dinner, after which all the symptoms disappeared. (*Op. rit.*, iv, 72.)

17. OPPENHEIM took 7 gr. at once. He had congestion in head, pulse quickened, vertigo, headache, flickering before eyes, dyspnoea, increased heat, restless sleep. After 4 h. woke exhausted, stupefied, pulse quick. Felt unwell and excited for 24 h. (*Ibid.*, 73.)

18. PURKINJE took 5 gr. After $\frac{1}{2}$ h. nausea in stomach, which gradually affected all motor nervous system, especially branches of sciatic, with feeling of great weakness and faintness, so that he could with difficulty walk $\frac{1}{2}$ h.; at same time great depression of spirits, always occupied with thoughts of death. All this went off after a glass of wine. (*Ibid.*, 71.)

19. J. HAUKENBECK, æt. 47, Feb. 8th, 7 and 11.30 a.m., 0.030 grm. 9.30 a.m., restlessness, a kind of anxiety, oppression of chest, trembling, chiefly of lower extremities and about lumbar vertebrae, frequent eructa-

tion, dryness of tongue and palate, then painful pricking in jaws, especially about condyles, confused head. After 2nd dose nausea and inclination to vomit; thereafter a slight contractive feeling in stomach, rumbling and pinching in bowels, in l. leg a feeling of movement as if a fluid moved to and fro in it. Afterwards had, however, extreme faintness, drowsiness and uneasy sleep for 1½ h. After waking staggers as if intoxicated. P.m., after supper all the symptoms went off, except the trembling; soon there came on nausea, eructation, lame feeling in knee-joints with an obtuse pain there, occasional painful twitchings in muscles, especially of limbs, dryness of whole buccal cavity and tongue, bitter rather burning taste, sometimes obtuse headache and staggering gait; slight persistent pain in bowels. All symptoms went off by 8 p.m. No stool this day.—10th, 8.15 a.m. and 4.30 p.m., 0.040 gm. 9.30 a.m., repeated eructations. After ¼ h. pinching in stomach, rumbling in bowels, slight bellyache, soon followed by dryness of tongue. 10 a.m., pain in bowels increased, dryness in fauces. 10.45, vertigo. 11.15 a.m., dull headache, staggering gait as if intoxicated, inclination to vomit and dizziness. 11.45 a.m., sad humour, same feeling in knee-joints. 12 noon, creeping feeling in both legs. Slept from 1 till 2 p.m. On waking some headache and dryness of mouth, all gone by 3 p.m. 5 p.m., eructation. 6 p.m., dryness in mouth, pinching in bowels. 6.30 p.m., trembling of thighs. 8 p.m., pain in stomach removed by movement. 9 p.m., quite well. One stool, hard and grey.—10th, 8 a.m. and 3 p.m., 0.040 gm. 9 p.m., 0.050 gm. Op. 10 a.m., some retching which ended with eructation. 11.15 a.m., slight lame feeling in knee-joints and transient pain in houghs. 11.30 a.m., vertigo. 11.45 a.m., pinching in belly. 11.58 p.m., all symptoms gone. Slept uneasily from 3.30 till 4 p.m., dimness and dryness of eyes, which felt stiff; sometimes they were very watery. From 6 till 7 p.m., vertigo. From 7 till 8 p.m., pressure in abdomen and oppression of chest, dry mouth. One stool, hard and yellow. Woke up at 2.30 a.m. with great itching of anus and hiccup.—11th, 8 and 12.30 a.m. and 8.30 p.m., 0.050 gm. 9 a.m., a transient stitch in cardiac region. 9.30 a.m., alternate watering and dimness of eyes. 10 a.m., much hiccup till 11 a.m., then dryness of mouth. About noon, vertigo with continued dry mouth, and return of hiccup. After dinner slept 1 h. From 1 till near 4, pains in head, after that very cross and angry without reason, with occasional intervals of cheerfulness, confusion of head and vertigo, bitter taste, dryness of mouth, pretty intense thirst. 7 p.m., pain in supra-orbital region. 7.30 p.m., hiccup. 9 p.m., a hard stool. 10 p.m., great headache, vertigo, staggering gait. Loss of appetite. Slept well.—12th, 8.15 a.m. and 2.15 p.m., 0.050 gm., and 9 p.m., 0.060 gm. 9.29 a.m., violent pains in abdomen of short duration. 10 a.m., eructation. 10.30, slight dimness and moisture of eyes. 11.15, formication in l. leg. 11.30 a.m., pain in gullet on swallowing. 12 noon, dry mouth, vertigo, trembling of whole body; transient stitch in l. hypochondrium. After dinner slept till 1.30 p.m.; quite well on waking. 3.46 p.m., violent pains in abdomen, watering of eyes; abdomen tympanitically distended, slight pressure caused pain in umbilical region. 6 p.m., oppression of chest and choking in throat,

weariness of knee-joints, dry mouth, eructation. 7.30 p.m., rumbling in belly, coldness in stomach, trembling, depression of spirits, vertigo, headache and sleepiness. 8.30, quite well. No stool, slept well.—14th, 8.30 a.m., 2.30 and 9 p.m., 0.050 grm. 11 a.m., dull pressive pain in abdomen. 11.43 a.m., trembling of upper and lower extremities. 12 noon, vertigo, stupefaction and a kind of intoxication, not lively, dryness of mouth and sleepiness, little appetite for food which, however, tasted well, slight perspiration when eating, especially in upper part of body. After dinner slept till 2.15 p.m.; quite well on waking. From 4 till 4.44 p.m., slight pain in abdomen. 5.30 p.m., vertigo, drowsy, great noise in ears. 6.16 p.m., very violent pain in chest lasting till 6 and causing dyspnoea. Eyes watered in open air. Could read and write by candle-light without spectacles, which he could not do before. 10 p.m., pulse 70, strong, slept well. During d. frequent dryness of mouth, no stool.—15th, pulse 65, strong. 8.30 a.m., 3.30 p.m., 0.050 grm.; 9 p.m., 0.060 grm. Good appetite on rising. 7 a.m., not quite wide awake, lazy, obtuse headache. 7.30 a.m., quite wide awake. 9.30 a.m., rumbling in abdomen and stomach. 11 a.m., vertigo and dull pressive pain in umbilical region. 11.30 a.m., perspired when walking. 5 p.m., vertigo with intoxication till 5.32 p.m. Went to bed at 10 p.m., woke up at 3 a.m. with violent pain in stomach, oppression of chest, choking in throat, dry mouth; then slept till 7 a.m. and woke quite well. Pulse at 10 p.m. 68, no stool.—16th, m., pulse 66. 8.30 a.m., noon, 4 p.m., 0.060 grm. Appetite good, but soon satisfied. During d. much flatus. The first 2 h. after each dose spasmodic contraction of anus; one hard stool. 7 a.m., on rising pretty well. 11 a.m., vertigo, oppression of chest, lazy and sleepy. Noon, immediately after taking dose stiffness and weariness of knee-joints, vertigo. After dinner till 1 felt nothing, slept till 3.30 p.m.; on waking felt as if he had been intoxicated. 6 p.m., vertigo, weariness of lower extremities, especially knee-joints. 6.30 p.m., sleepiness and laziness. 7.30 p.m., dull headache. On going to bed at 10 p.m., vertigo, formication in legs; quiet sleep till 6.45 a.m.; on waking, cheerful and brisk.—17th, 10 a.m., pulse 66, not so strong as usual. 8.30 a.m., 3.0 and 9 p.m., 0.080 grm. Appetite bad for dinner at noon, rest of d. good. Quite well on rising. 10 a.m., sleepy. 11.30 a.m., vertigo, confusion of head, intoxication, weariness in knees. Noon, dull headache, trembling of lower limbs, dry mouth. 12.30 p.m., after eating without appetite, symptoms gone, soon afterwards pressure in stomach. 12.45 p.m., cheerful and brisk. Slept till 2.45 p.m., woke thirsty. From 3 till 7 p.m., quite well and cheerful. 7.15 p.m., pinching pain in stomach. 7.30 p.m., violent pinching in abdomen. A hard and lumpy stool. Woke several times at n. with pains in abdomen till 5 a.m. During the abdominal pains, spasmodic closing of anus and difficult flatus. At n. slight sweat, and at 3 a.m. urging to urinate with difficulty of passing urine.—18th, 8.30 a.m., 3 and 6 p.m., 0.080 grm., and 9 p.m. 0.090 grm. P.m. and e., bad appetite, no stool. On rising 7 a.m., well. 10 a.m., choking for a short time. 10.15 a.m., stiffness of eyes, sleepiness. 10.30 a.m., vertigo. 11 a.m., trembling of lower extremities. 11.30, well. From 1 p.m., restless, dreamful

sleep. 3.30 p.m., intoxication. 4 p.m., vertigo, great gaiety, and dysuria as if the urethra were closed; this went off at 5.30 p.m. 6.45, nausea and vomiting, afterwards bitter taste, trembling of whole body, cold feet, pressive pain in stomach, eructation, vertigo, headache. 7.15 p.m., nausea, numbness and coldness of r. hand. 7.30 p.m., pain in abdomen, staggering gait and drowsiness. 8 p.m., vertigo. On going to bed at 9.45 p.m., intoxication and vertigo. Slept till 5 a.m. On waking difficulty of passing urine, violent pain in chest, dry mouth. —19th, 98 grm. blood abstracted. 11 a.m., 6060 grm. On rising 7 a.m., violent pain in chest, dry mouth, trembling of body till 9 a.m. 10 a.m., vertigo. 11.30 a.m., sleepy. 12.15 p.m., trembling and lame feeling of knees. 2 p.m., well. 2.30 p.m., great vertigo till 3.30 p.m., then dull headache, sleepiness, bitter taste and trembling of whole body. 4 p.m., no symptoms. 5 p.m., vertigo, transient oppression of chest. 8 p.m., painful formication in l. leg, pressive pain in abdomen, vertigo. All d. bad appetite and frequent urging to urinate, with scanty but easy discharge of flatus; one stool, hard and lumpy. During all the proving no inclination for, or power of, coitus.—20th, 2 stools, the first hard and very painful on account of the spasmodic closure of anus, the second easier. On rising at 7 a.m. brisk and cheerful. 8.30 a.m., vertigo. 11 a.m., sleepy for $\frac{1}{2}$ h. The same vertigo and sleepiness at 3 p.m. 6 p.m., sleepy and not brisk, gnawing pains in belly till 9 p.m., then trembling of arms.—21st, on waking m. trembling of whole body. A certain amount of laziness and exhaustion lasted for several d. The stools became gradually softer, were frequent (2 in d.) and painless. The hearing has not been so good since taking the Op. In 14 d. he was quite in his usual state.—During this proving the blood and urine were carefully examined. It was found, 1st, that the weight of the body remained unaffected; 2nd, that the quantity of food consumed was lessened; 3rd, that the quantity of the urine was increased, to the amount of about 150 grms., but that the quantity of solid matter in it was diminished; 4th, that the amount of the laces, perspiration and semen was diminished. (WÜCKER, *Zeitsch. f. Erfahrungsheilk.*, iv, pt. 1, pp. 1—80; in *Frank's Mag.*, iv.)

20. d. FRANZ ALB—first proved several dilutions of opium, but they produced no effect except a bitter astringent taste and a feeling of scraping and constriction in the fauces for 2 or 3 m. On August 15th, at 9.30 p.m., he took 5 dr. tinct. The bitter astringent taste and scraping and constriction of fauces lasted 6 m.; drinking water relieved it. Woke up at 3 a.m. with tickling in larynx, and violent, dry, fatiguing cough, lasting 10 m., relieved by drinking cold water, but it returned after 15 m. with such severity that the eyes overflowed with tears, again relieved by drinking cold water; fell asleep at 3.15 a.m., but awoke again at 6 a.m. with a fit of coughing with some mucous expectoration. 9.45 a.m., pressive tensive pain in occiput at insertion of m. cucullaris, that spread all over nape and inner border of scapulae to their apices. The pain was most intense at the 4th cervical vertebra, whence it extended to last dorsal vertebra, aggravated by motion, relieved by rest; on waking from midday siesta it was gone. At 10.30 a.m. tensive pain in flexor muscles of both thighs to hough,

lasting 12 m. Heaviness and weariness in legs, his gait became slow, and on returning home at 12.30 p.m. felt as tired as if he had taken a fatiguing walk. On sitting down became so drowsy that he could not help yielding to it, and lay down and fell asleep at once. At 3.15 p.m. was awakened by same dry cough with flow of tears, lasting 6 m., relieved by drinking water. About 6 p.m. sudden drawing tearing pain in 2nd joint of r. ring finger, increased by movement, relieved by rest, lasting 10 m., then gradually diminishing, and spreading over wrist to head of radius, lasting till 8 p.m. In l. little and ring fingers numbness from 2nd joint to tip, lasting 4 m., removed by rubbing fingers. Urine passed at 6.30 p.m. of normal colour and strong smell. The stool, which usually occurred in the m., was delayed till 6 p.m. and then passed with effort; it was viscid, dark brown, of fetid, mouldy smell.—16th. Was long in falling asleep on account of a very painful boil on l. buttock. Dreamt of small humming-birds. At 2 a.m. tickling in larynx and dry cough for 5 m.—17th. At 11.15 a.m. heavy feeling in both legs till 5 p.m. Stool at 8 p.m. same as yesterday.—18th. Urine passed at 5 a.m. in $\frac{1}{2}$ h. turbid, with same peculiar smell. On coming home from a meeting at midnight had rumbling and griping in transverse colon, hurried call to stool, which was watery, copious, with much flatus passed with rapidity and noise, and followed by tearing in rectum for some m. Woke at 3 a.m. with the dry cough with tickling and scraping in larynx, lasting 5 m.—19th. At 8 a.m. stool of viscid consistence, yellow-brown colour, and mouldy smell. 2.30 p.m., a second stool of same kind, preceded by griping about navel. Frequent discharge of flatus till 5 p.m. Tension and full feeling in whole abdomen, especially its upper part.

6. Sept 2nd, 5.30 a.m., 25 dr. 8.5 a.m., sight dim as if through a veil, lasting 10 m. Dulness of hearing in l. ear for 4 m. Tension in abdomen. 11 a.m., numbness from l. shoulder-joint to tips of fingers, worse in volar aspect of hand, thumb, and little finger, lasting 6 m., recurring after 20 m. and lasting 4 m. Soon afterwards empty feeling in stomach, with feeling of hunger. Though he ate at dinner (1 p.m.) much more than usual, the empty feeling lasted till 3 p.m.; during this time eructation of air. 2 p.m., recurrence of the same dimness of vision. 3.45 p.m., copious discharge of urine. 5 p.m., slight drawing tearing pain on a small spot about the small fontanelle, gradually increasing, lasting 8 m., and then suddenly ceasing. It recurred after 20 m., thence spreading all over spinal column, and lasting 6 m. 6.30 p.m., horripilation from anterior aspect of r. thigh to knee for a few seconds, after $\frac{1}{2}$ h. the same symptom occurred in nape, spreading over back to sacrum for a few seconds. Urine passed at 7.50 and 10 p.m. copious, of normal odour, and pale coloured. No stool.—3rd. The dry cough came on later in m., with tickling and scraping in larynx and dry tongue. Soon afterwards urging to urinate, passed a large quantity of urine of yellow colour. On waking at 6 a.m. again copious urine. No stool. 7 a.m., after breakfast cramp and heavy feeling in legs on rising from seat, lasted till 6 p.m. 9.30 a.m., sudden lightning-like tearing on outer side of r. knee-joint, going down outer aspect of leg to ankle. Empty feeling in stomach and hunger, which

was not satisfied by eating a good deal. At noon ate a large dinner, which did not remove the empty feeling in stomach.—4th, 6 a.m., copious urine, stool. Noon, passed much urine, out of all proportion to fluid consumed; also tension and fullness as though clothes were too tight. This continued till 28th. (*Zeitsch. d. Ver. d. hess. Arzt. Osterr.*, i, 3, 28.)

21. BRASSLAUER, æt. 43, proved 30th and 12th dil., but got few and unimportant symptoms except great urinary tenesmus, contraction in urethra and bladder, relieved by passing urine, and on one occasion hæmaturia for 4 d. (*Ibid.*, 36.)

22. DUNITSCH, medical student, proved the 30th and 12th dilutions, and carefully observed his pulse and respiration, both of which seemed to be slightly increased in rapidity. He also felt pressive stupefying headache in r. side of forehead, eructation of bitter fluid, shooting in l. side of forehead, numb and prickling sensation in l. lower extremity and weakness of l. knee. (*Ibid.*, 40.)

23. a. Dr. EINHORN, æt. 30, June 4th, 7 a.m., took 4 dr. 1st dil. After $\frac{1}{2}$ h., heat alternating with coldness along spine. Later, warmth proceeding from stomach over whole body with moist skin; frequent yawning; heaviness of head, especially of sinciput, and dazed feeling there; inability to follow out train of thought. After 2 h. felt as if anus was spasmodically contracted; when touched externally, burning pain there for 10 m., when it gradually subsided, but could be renewed by touching the part.—5th, 6 dr. after breakfast. After $1\frac{1}{2}$ h., increased warmth throughout body and yawning; persistent tickling at anus, ending in itching there.—6th, 8 dr. 10 m. after breakfast. After $\frac{3}{4}$ h. feeling of anxiety, restlessness, heaviness of limbs, general exhaustion and dazed head; sensation of warmth proceeding from stomach and spreading all over body. Feeling of hunger, which on taking food changed into a feeling of emptiness and pressure in stomach; rapid trembling of lower jaw for 5 m. Sensation of stupefaction, lasting $\frac{1}{2}$ h. Profuse perspiration, unsteady gait, and soon tired. At 10.30 a.m. a cigar, which he was accustomed to smoke, caused vertigo, great nausea, inclination to vomit, cold sweat all over, trembling of limbs. All this was immediately relieved by a glass of cold water. The crampy feeling in anus lasted till 3 p.m. That same e. before going to bed took 10 dr. The n. was very restless, with much tossing about. Sleep very light, heard every noise in the street; the striking of the clocks in the house painfully affected him. Had dreams of various sorts all n.—7th. Did not rise so early as usual, and then felt more exhausted than when he went to bed. Head heavy and dazed. Took no med.—8th, 20 dr. after breakfast. After 1 h. felt more exhausted, head confused, frequent yawning.—9th, 24 dr, 2 h. before midday meal. After 20 m. same symptoms as on 6th, and besides, vertigo, pressive feeling in head, vision as through a veil, profuse sweat and sleep. Coffee relieved the symptoms.—24th. Began with 4 dr., and increased the dose daily by 1 dr. until he came to take 10 dr. Similar symptoms were observed. Stool retarded all through this proving.

b. August 8th. 5 dr. of tinct. After 25 m. confusion of head with slight vertigo on looking to either side. Cheerful humour and

increased acuteness of hearing. After 1½ h. out-pressing headache in temples and forehead. Vertigo with buzzing noise as of a bee, with stopped-up feeling of both ears and diminished acuteness of hearing. Weariness of whole body, diminished mental power. When sitting writing became so sleepy he had to lie down, and slept for 20 m., then awoke quite well. Pulse increased from 60 in 40 m. to 68, in 1 h. to 72.—9th. 10 dr. Same symptoms.—10th. 12 dr. Same symptoms but still greater drowsiness.—11th, 9 p.m., 20 dr. After 15 m. head felt relieved, cheerful spirits. After 20 m. so sleepy he could not keep eyes open. All movements are performed lazily, and he hardly knew what he was doing. Woke after 2 h. by a noise in street and could not get to sleep again. Memory dull, could not think connectedly. Headache in temples as if compressed. Feeling of emptiness in stomach, relieved by breakfast for 20 m., when it again recurred and continued with slight intermissions all d., though he ate frequently. Great prostration and despondency all d. Next d. felt better, but the pressing pains in temples lasted all d. No stool on 10th, 11th, and 12th, stool with great forcing on 13th. Urine increased in b. of 11th.—15th. 20 dr. caused similar symptoms. (*Ibid.*, 43.)

24. Dr. FRIED, æt. 25, May 28th, 6 a.m., 6 dr. tinct. 10 p.m., same dose.—29th, 6 a.m., 6 dr. No symptoms these 2 d. except constipation.—30th, 6 a.m., 6 dr. Sudden call to stool, which was soft.—31st. No med. M., a pappy, soft, copious stool. In e. a violent pressive headache till bedtime.—June 1st, 8 a.m., 6 dr. Very little appetite for dinner. In e. when sitting playing had a sudden faintness, so that he could scarcely sit on his chair. Lay down on sofa and the face was sprinkled with cold water, which soon revived him.—2nd. Only slight exhaustion remained, and he had a coryza with cough that lasted 4 d. (*Ibid.*, 50.)

25. a. Surgeon JENYSCHEK, June 3rd, 1½ h. before breakfast, 3 dr. 1st dil. Soon fulness and tension in abdomen.—4th, m., 5 dr. No stool (was used to have 2 stools, one before and the other after breakfast). 8 a.m., uncommonly sleepy, great forgetfulness, fearfulness, with giddiness and excited condition, so that he was several times in danger of being run over. As the day advanced became cheerful. At 7 p.m. a copious firm stool.—5th. Took 5 dr. No symptoms except irritability.—7th, 6 a.m., 10 dr. After ¼ h. pain in forehead, forehead felt warm. Peevish humour.—8th. 10 dr., no symptoms.—9th. 10 dr., no symptoms.—10th and 11th. Frontal pain in afternoon; it was intolerable on the 11th, it was a boring pain, intermittent, and spread from forehead to crown. Tongue furred, sticky pasty taste; but the stool was regular on the days when no medicine was taken.—13th, afternoon, 15 dr. At 6 p.m. fulness in head, vertigo on stooping, tinnitus aurium and distinctly-felt pulsation of cerebral vessels, increased saliva, furred tongue, complete constipation; urine turbid, dark red, saturated, frothy, with reddish-yellow greasy sediment.—14th. 15 dr., no symptoms except scanty, costive stool.—15th. One h. before dinner, 15 dr. After dinner, when lying on sofa a painful beating and visible rising and falling of the full stomach synchronous with pulse, so that he could not bear to lie on his back, but must get

up and walk about; this gradually went off in 1 h.—16th, m., 15 dr. No symptoms.—19th. 20 dr., no symptoms.—20th. 30 dr., and same dose on 21st. No symptoms.

b. June 24th, 4 p.m., 3 dr. tinct. No effect. Continued taking ever-increasing doses up to 15 dr. till July 6th without effect.—7th, 4 p.m., 30 dr. 6 p.m., feeling of anxiety, weight in chest, must often breathe deeply, occasional gasping for breath, clothes felt too tight, heart's beats not felt; skin hot and its blood-vessels full. Later in e. nipping and pinching in belly, and all through n. noisy emission of a large quantity of inodorous flatus and occasional eructation of air, which continued during next d.—8th. Early in m. a liquid, frothy, copious stool with great relief. Forehead confused, thickly furred tongue, pasty taste, redness of conjunctiva and increased secretion of tears; felt very exhausted, prostrated, and cross; felt as if he had passed a sleepless n. after a debauch.—9th, afternoon, 30 dr. Recurrence of the pinching in belly, emission of flatus, distension of abdomen; in e. a liquid stool.—10th, m., 3 liquid stools with tenesmus and burning in rectum and anus; urine increased, at first dark coloured, afterwards less so. From nose and mouth there came a yellow, viscid, mouldy-smelling mucus. As he felt great loathing at the medicine he took no more. (*Ibid.*, 51.)

26. a. W. JENITSCHK, æt. 9½, June 4th, 3 dr. 1st dil. Soon, pressive headache in forehead, pressive pain in l. hypochondrium, nausea, increased saliva for 2 h.—5th, m., 5 dr. After ¼ h. complained of frontal headache, forehead felt warm for 1½ h. Afternoon, kept eyes open by effort, they felt dry and as if dust were in them, had to rest them frequently; increased redness of palpebral and ocular conjunctivæ. Constipation; skin dry, hot, and turgescens.—6th. 5 dr., frontal headache, constipation, and increased turgor vitalis.—7th. No med. Stool normal.—8th. 3 dr., frontal pain and eye symptoms as before, but the eyes were full of tears. Rumbling and pinching in bowels, sweet taste, constipation.—9th. 8 dr., frontal pain and increased temperature, constipation. Urine in forenoon turbid and dark.—10th, 4 p.m., 8 dr. 6 p.m., tongue thickly furred, pricking in belly, constipation.—14th, afternoon, 10 dr. E., headache, transient shoots in head, noise in ears, furred tongue, scanty stool, hot skin.—15th. 10 dr., some confusion of head.—16th. At bed-time 10 dr. No symptoms.—20th and 21st. 15 dr., no effect.—22nd and 23rd. 20 dr., no effect.

b. 24th and 25th, 2 dr. tinct. No effect.—27th. 5 dr., some pricking frontal pain and increased warmth of forehead.—28th. 5 dr., besides yesterday's symptoms constipation.—29th. 5 dr., same symptoms.—30th. 5 dr., shooting, throbbing, frontal pain, heaviness of head, feeling of a heavy body in it, swaying to and fro, increased heat of body. Burning shooting pain in r. wrist, and on back and palm of hand some pimples the size of peas which rose in blisters. E., 2 similar but smaller pimples on r. cheek, painful when pressed; constriction of stomach, constipation and lachrymose disposition.—From July 1st to 4th, 5 dr. Frontal pain, vertigo with swaying of body, objects seemed smaller. The blisters of yesterday gone, but others rose on the side of the neck; they were not red but tender.—4th to 7th. No med. No

symptoms, the pimples gone.—7th, 4 p.m., 10 dr. Hard stool.—8th, 10 dr., hard stool.—11th and 12th, 15 dr., no effect.—13th, 10 a.m., 20 dr. In afternoon a liquid stool.—14th, 20 dr., 4 diarrhetic stools. (*Ibid.*, 56.)

27. Surgeon A. SCHAUER, æt. 27, June 8th, 20 dr. tinct. 11 a.m., slight discomfort, confusion of head especially in forehead, lachrymation and burning in eyes, weariness of lower extremities, 9 p.m., these symptoms increased, and in addition a tiresome pain betwixt shooting and boring in coronal and sagittal sutures. Slight redness of conjunctiva of ball and lids, slight swelling of caruncula lacrymalis. Tongue furred more than usual. Little appetite for dinner, after which irresistible drowsiness; an empty almost pressive feeling in stomach. Weariness of limbs, spasmodic twitching in muscles of calf; stool delayed for some hours; emission of very fetid flatus. Sadness, loss of power of thinking, incapacity for mental work; then general prostration. From 5 to 7.30 p.m. pretty free from these symptoms; then the confusion of forehead returned, with general weak feeling lasting till 9 p.m. Next d. same symptoms but slighter. (*Ibid.*, 60.)

28. Dr. STERN, æt. 36, accustomed to have 2 stools daily, one early, the second after a meal. The dilutions from 30th to 1st caused no symptoms.—May 25th, 5 dr. tinct., no stool.—27th, 7 a.m., 8 dr. No stool.—29th, 7 a.m., 10 dr. No stool. Confusion of head. Breathing laboured as if thoracic muscles were relaxed. After breakfast a second stool, and 1 h. later a third liquid stool.—31st, 7 a.m., 15 dr. After 1 h. vision veiled, head confused as after drinking alcohol. Constipation, emission of flatus. From 5 to 7 p.m. dull pain in occiput, tearing and drawing in forearms.—June 1st, 7 a.m., 15 dr. Depressed spirits, dislike to work, constipation.—3rd, 7 a.m., 20 dr. 9 a.m., vision dim. 11 a.m., feeling of discomfort, emptiness and sinking in stomach, accumulation of water in mouth, frequent spitting, inclination to vomit, exhaustion, trembling of hands and feet, transient jerkings in hands, cold sweat on forehead, confusion of head, heaviness in eyes. This lasted till noon. Cold air revives momentarily. Complete anorexia, loathes food. After a cup of coffee these symptoms went off. (*Ibid.*, 63.)

29. Dr. A. v. SZONTADH, æt. 27. Dilutions from 30 to 5 caused no symptoms.—July 6th, noon, 5 dr. tinct. No effect.—8th, noon, 8 dr. In afternoon and next m. pressive pains in rectum like hæmorrhoidal congestion, increased by touch.—11th, 10 dr., no effect.—13th, 15 dr., immediately pulse rose 14 beats higher, slight burning in ears, weakness of knees and prostration of whole body, nausea relieved by eructation. All this lasted 1½ h., but on eating there was a kind of spasm of œsophagus which made even water difficult to swallow.—16th, 15 dr., next m. at the normal time a stool, at first hard and difficult, at the end diarrhetic.—11th. Was awakened at 5 a.m. by call to stool; he had a copious, pappy, dark-coloured, almost inodorous stool. Pulse 90, roaring in ears for 8 m. Soon afterwards a second diarrhetic stool. E., on extensor side of l. thigh 2 itching wheals the size of peas, which went off after some d.—19th, noon, 20 dr. Soon eructation, weakness in arms and legs, sleepiness; when eating, every

time he swallowed, spasm in œsophagus, after meal discharge of much flatus. A kind of urinary tenesmus; at the commencement of micturition had always to wait some time on account of spasm of the sphincter vesicæ, but when the urine came it was in full uninterrupted stream. This occurred every time he urinated. Frequent erections at n. in sleep.—21st, noon, 25 dr. After eating, much flatus. E., roaring in ears for some m. Next d. pulse quickened by 10 beats, roaring in ears, heat and sweat for 10 m. After falling asleep n., a sudden jerk through whole body that woke him up.—23rd, noon, 30 dr. Soon great weariness in legs, increased secretion of urine. After 1½ h. hurry in doing things, thinking, too, was rapidly performed, but its quality was unaltered.—25th. While sitting roaring in ears for 10 m.—28th, 35 dr., and 30th, 40 dr. Besides prostration and emission of flatus, no symptoms.

4. Aug. 11, noon, 5 gr. 2nd trit. No effect.—14th, noon, 5 gr. 1st trit. At midnight, after sleeping 1 h., profuse perspiration.—16th, noon, 10 gr. Sweat at midnight.—19th, 1.30 p.m., 15 gr. Soon weariness in knees, elbows, and masseter muscles. Difficulty of swallowing food or drink on account of spasm of œsophagus.—21st, 1.30 and 2 p.m., 10 gr. Weariness in legs and forearms. Pressure against external meatus auditorius; spasm of œsophagus during and after swallowing. After 1 h. indistinctness of seeing and hearing as if slightly intoxicated; this went off after 2 h. Increased secretion of urine; with a full bladder difficulty of urinating on account of spasm of sphincter vesicæ; the full stream is sometimes interrupted all d.—24th. At same times 12 gr. Slight intoxication, which, however, did not interfere with his thinking or work, for which he had greater inclination and capacity than usual. Redness and heat of cheeks and feeling of burning in them; increased discharge of urine. All right in 2 h. Sleep at first restless, afterwards sound, refreshing. Stool next m. at usual time, but passed with greater effort.—31st, 1, 1.30, and 2 p.m., 10 gr. (= 3 gr. pure opium). Pressure in maxillary joint and malar bones with heat and burning there, also in lobes of ears, slight noise in ears, pulse large and quick, disagreeable buzzing in ears when talking or whistling; heaviness of upper eyelids as if they were swollen; increase of urine; frequent interruption of the stream of urine, which only came after long delay on account of twitching in sphincter vesicæ; drowsiness when reading. Next d. there appeared on wrist and flexor aspect of both forearms thickly set itching wheals, the size of hemp-seeds, which went off during n. (*Ibid.*, 65.)

30. a. Dr. L. Tapesco, æt. 42, March 16th, 6 a.m., 5 dr. 30th dil. 20th, 12 dil.; 24th, 6th dil. No effect.—From 28th to 31st, 5 dr. 6th dil. 3 times a d. On 29th pressure in stomach for several h. On 30th a liquid stool.—April 28th, m., 5 dr. 1st dil. 2 p.m., pressive frontal pain till 10 p.m., after a refreshing sleep he woke quite well.—May 2nd, 7 a.m., 5 dr. In afternoon scraping, rough feeling in fauces.—6th, m., 10 dr. After dinner pressive pain in forehead and occiput, confusion of head, giddiness, altered taste, dislike to tobacco, increased saliva, slight nausea, feeling of water-brash, lasting all afternoon, gradually going off in e.—11th, m., 15 dr. Afternoon, pressive headache as

before; at midnight a liquid stool.—12th. 20 dr. Afternoon, frontal headache, liquid stool.—13th to 17th, every d. 25 dr. Every d. frontal headache in afternoon till late in e. Also each d. 1, 2, and 3 liquid stools of whitish colour.

b. May 29th to June 1st, every d. 5 dr. tinct. No effect.—2nd. 10 dr. Some h. after dinner, dazedness and confusion of head, passing into pressive pain over eyes to nape. Dislike to tobacco and unusual taste in mouth. 3rd, m., 15 dr. Same symptoms in afternoon.—4th to 9th. 15 dr., no noteworthy symptoms.—16th, 20 dr.; 17th, 25 dr.; 18th, 19th, and 20th, 30 dr. No effect except more or less pressive frontal pain.—July 13th. 10 dr., only constipation.—17th. 10 dr., no stool.—18th. 10 dr., no stool, sight dim.—19th. 10 dr., sight still dim.—20th. 10 dr., in afternoon pressive, sometimes throbbing headache from back to front along median line. Sight so bad that when writing the letters ran together. Stool insufficient and hard.—21st. 15 dr., eye symptoms as before, no stool.—22nd. 15 dr., eye symptoms continued. 9 p.m., a normal stool.—23rd. 15 dr., eye symptoms less.—27th. 20 dr., dim vision, constipation.—28th, 29th, and 30th, 25 dr. Same symptoms. A hard stool on 30th.—31st, and Aug. 1st and 2nd, no med. On 2nd d. 2 fluid stools at 9 and 12 p.m., with slight griping.—3rd, 4th, and 6th, 30 dr. Only the above-mentioned symptoms in moderate degree. As the smell of the medicine caused loathing, stopped the proving. (*Ibid.*, 69.)

31. I have tried many experiments with doses from grt. $\frac{1}{10}$ to grt. $\frac{1}{2}$ of tinct., and in every instance the pulse has been quickened, and sometimes rendered sensibly fuller, in 2 or 3 m., e.g. from 66 to 68 and from 70 to 76. After a longer or shorter interval, e.g. in from 5 m. to an h., determined by the dose, the beats return to what they were at the beginning, and sometimes afterwards descend a little below this. (SHARP, *Essays on Medicine* (1874), p. 724.)

32. a. Nov. 2nd, 1876, at 12 m., pulse being 64, I took 1 dr. of tinct. in a little water. At 12.3 pulse had risen to 70, at 12.10 and 12.30 it was 68, and continued thus for a considerable time. On the 4th, at 7.25 a.m., pulse 68, 5 dr. were taken. In 15 m. pulse was 70, in 35 m. 74, in 60 m. 76, at which point it remained for an h., after which it fell gradually to 68, remaining thus for some h. At 25 m. there was flatulence, and after dinner at 1.30 considerable indigestion.

b. In Nov., 1876, Mr. S—, while continuing his usual habits and his active occupations, took (at my request and without knowing what it was) 1 dr. of 1st dil. n. and m. for 10 d. The only effect which he noticed was a considerable increase of appetite. At another time he took 5 dr. of the same dil. n. and m. for 10 d., under similar circumstances. The result was the same—a decided increase of appetite, so that he thought I had been giving him a tonic.

c. Mr. S—, at 6 p.m., having just finished tea, pulse 72, took 10 dr. of tinct. and sat down to read. Pulse fell, somewhat irregularly, during next 2 h., so that at 1.10 m. it was as low as 53; it then began to recover, and at 9.15 (after supper) it was 64. At 70 m., when it had fallen to 62, it is noted as "very weak." The only other effect observed was drowsiness.

d. On another occasion Mr. S— took 6 dr. at 12.30 p.m., pulse being 54. In 25 m. it had risen to 58, after which it fell to 52 (40—45 m.). When dinner had been taken it rose to 64. (IBID., *The Actions of One Dose*, p. 13.)

32. I frequently tested the pulse of a pupil, æt. 16, in health, and always found it 90—108, when not quickened by exercise. I now rubbed into his leg a mixture of ʒij of laudanum with ʒiij of olive oil till the whole was absorbed. In 10 m., when nearly half was rubbed in, pulse was 88, soft. In 20 m. it was 84; he was drowsy, and complained of being cold; eyes look heavy. In 50 m. pulse was 72, feeble, and small; countenance pale; coldness continues, and is accompanied with disagreeable sensations. In 60 m. pulse 76, weak, and not quite regular; complains of great weakness. Pulse rose through following 65 m. to 108, and grew regular and stronger. Disagreeable sensations did not go off till after supper, which he ate heartily. Experiment was repeated 2 d. later, ʒiij of laudanum being used. Pulse, 95 before applying the O., fell in 30 m. to 83, and became soft and weak; he complained much of being cold, and felt so; looked sickly and dull; felt depressed and drowsy. He ate breakfast greedily, and was soon relieved of disagreeable sensations. He said the word "horror" well described the extremely unpleasant coldness he had experienced. (WART, *Med. and Phys. Journ.*, vii, 136.)

33. Mrs. G. W—, æt. 34, well save for paraplegia, had ℥v of tinct. injected hypodermically. After 1 h. pulse accelerated 10 beats; no somnolency; had felt uncomfortable, and was now faint, and gave way to hysterical crying and sobbing. After 2 h., pulse weak, accelerated 16 beats; had vomited twice, and now retched violently, and threw up mucus mixed with bile; face pale and anxious. After 5 h., pulse small, feeble, and intermitting, accelerated 20 beats; had vomited bilious matter twice, and experienced constant nausea, with considerable drowsiness, but was restless, distressed, and unable to sleep on account of illusory objects which continued to pass before the vision as soon as she closed the eyes; surface cold. Nausea, repeated action of bowels, somnolence, giddiness and faintness continued up to the 11th h., when she went to sleep for the first time, and slept throughout n. with much dreaming and wandering. Pupils and tongue remained unchanged throughout. (HARLEY, *Old Veg. Neurotics*, p. 130.)

34. Opium taken in the dose of 1 gr. always causes in me after 12 h. a diarrhoea that lasts at least 24 h. The evacuations are not frequent, from 4 to 5 times in the 24 h., have a whitish colour, are pappy, and cause burping in anus that lasts for ½ h. (STRECKER, *A. h. Z.*, xii, 133.)

35. At first I took ½ gr. O. for dose, always after a meal, but experienced no effect, whereupon I took 1 gr., and this did not act. But if I took it shortly before bedtime, my sleep at n. was often broken by waking up, and it was long before I could get to sleep again, so that once I got up at 3 a.m. When I took 2 gr. in the form of pills, they caused headache, sleepiness, red congested face, quickened pulse, and profuse sweat. The largest dose I took at once was 4 gr. in pills. One h. after swallowing it I had violent headache, my face became

redder, pulse accelerated, profuse sweat broke out; there was drowsiness, but I could not sleep quietly, and 5 h. after the dose I vomited 8 times without much straining, a thing I am not used to, and it caused great exhaustion. (WALTE, *A. A. Z.*, xxii, 160.)

II. *Poisonings*.—I. a. Mrs. T—, æt. 30, of slender form, hypochondriacal, and very irritable, was in the habit of frequently taking 30 dr. of laudanum for the purpose of relieving certain distressing sensations. On Feb. 27th, in a moment of passion, she swallowed 6 dessert-spoonfuls, having previously taken four glasses of port wine and some spirits in her tea. After 3 h. she was found in her bed, and perfectly insensible. She was then deadly pale and cold, her limbs were relaxed, and felt flabby when handled. She breathed slowly, and apparently with great difficulty. There was a loud mucous rattle in the trachea, with great frothing at the mouth, which was wide open, the under-jaw having fallen towards the sternum. The eyelids were closed, and when raised by the finger exhibited a distorted, fixed, suffused eyeball, with extremely contracted pupil; pulse 100, and exceedingly feeble, free from intermission, although the motions of the heart were tumultuous. The temperature of the body generally was very low, but it was high at the præcordium. There was paralysis of the muscles of deglutition, with intense coma. Fourteen h. were fruitlessly employed in the administration of emetics, stimulating enemata with sulphate of zinc, and frictions. Towards m. she could swallow small quantities of tea, coffee, broth, bread, and ammonia at intervals, and complained only of great distress in breathing. Soon afterwards she recognised her medical attendants, and knew all her domestics. She detailed all the proceedings of the preceding a., regretted what she had done, and expressed much anxiety as to the result. The limbs were still powerless; the eyelids were raised, but only by a great effort, and they quickly resumed a half-open position, exposing suffused balls, a persisting contraction of the pupil, and a frightful strabismus. For a moment she appeared able to direct eyes to an object; they then rolled as if free from control, and settled into quiescence, the cornea being turned upwards and wholly concealed. On a few occasions she vomited a small quantity of fluid darker than coffee, and without any odour of O. She partook of strong chicken broth, and was soon capable of conversing with a minister, from whose hands she received the Sacrament. This excitement being over, being about 18 h. after taking the dose, the difficulty of breathing became an agony. She referred all her sufferings to her lungs,* asked for a blister to her back, and announced that she was surely dying. The wrist was now pulseless, the extremities cold, the limbs relaxed, and in 5 h. more she was dead, retaining her consciousness until a few moments before she expired.

b. The body was inspected 19 h. after death; it was then warm and very rigid. The limbs were strongly extended, the hands clenched. The whole front was pale, while the underlying parts were deeply ecchymosed. The lungs filled the chest, and scarcely retired on expo-

* Dr. WRIGHT considers the dyspnoea of O. poisoning due to closeness of the respiratory passages, and finds it greatly relieved by the inhalation of steam (*Amer. Journ. of Med. Sci.*, 1851, p. 540).—Eds.

sure; they crepitated when handled, and yet they felt firm and fleshy, and resisted the scalpel; their anterior surface presented an anæmic appearance, studded with small black spots of a circular form; internally they were gorged with livid blood. The large pulmonary vessels were nearly empty, as was the heart, the blood which they contained being fluid. The liquor pericardii amounted to $\frac{1}{2}$ oz. The stomach was distended by a brownish, inodorous fluid; the internal tunic exhibited purple marks, attributable more to vascular turgescence than to extravasation. The intestines were pale throughout, except near the gall-bladder, where they were extensively and deeply tinged with bile; and they were undistended by flatus. The voluntary muscles were particularly florid. Examination of the head was not permitted. (KILBY, *Dubl. Med. Press*, 1845, p. 406.)

2. An infant was killed in the course of a n. by a decoction of poppy-heads. There was a great deal of livor over the whole back part of the body. All the sinuses and vessels of the brain were gorged with fluid blood, and a good deal of serosity was found in the ventricles and base of the skull.* The lungs were distended, and so gorged with fluid blood that it ran out in a stream when they were cut. The cavities of the heart contained the same fluid blood. Although the body had been kept only 2 d. in the month of February, the belly emitted a putrid odour when it was laid open.† (CHAURISON, *op. cit.*)

3. A. S.—an unmarried woman, æt. 28, swallowed \mathfrak{zj} of laudanum with suicidal intent. I saw her at 5 p.m., within an h. of its ingestion. When I entered she was sitting supported in bed, her eyes were wild and staring, face flushed, skin hot, pulse (when it could be reckoned) 126, and voluntary muscles strongly convulsed. The violent action of the muscles occasionally relaxed, and was replaced by slight subsultus. Vomiting could not be induced till \mathfrak{zij} of sulphate of zinc in sol. were given. Her mind all this time was in a state of great confusion; at one moment she was sensible of her crime and called for assistance, at another she resisted the means used to save her. Pain being complained of in abdomen, emollient clysters were given; at first it was difficult to introduce them from the contraction of the sphincter, afterwards to get them retained, owing to its relaxation. At 8 the increased action of the system abated, and the delirium was followed by languor and indifference. The thirst was intense, but the stomach was so irritable that it rejected whatever was given. At 11 lethargy had increased so much that it required the utmost exertions to

* Turgescence of the vessels in the brain, and watery effusion into the ventricles and on the surface of the brain, are generally met with. Dr. Bright mentions an instance where unusual turgescence was found, and on the surface of the brain a spot of slight ecchymosis as big as a crown piece. I have seen turgescence of vessels and serous effusion in one instance to a considerable extent; each ventricle contained \mathfrak{zij} of fluid, the arachnoid on the surface of the brain was much infiltrated, and the vessels both in the substance and on the surface of the brain were a good deal gorged.

† It appears that the body is often apt to pass rapidly into putrefaction. In one of the cases I examined, although the body had been kept only 30 h. in a cool place, in the month of December, the cuticle was easily peeled off, the joints were flaccid, and an acid smell was exhaled.—(C. mentions two other instances, yet more pronounced.—Eps.)

keep her awake; pulse was 55, breathing laborious, countenance dark and often ghastly, eyes sunk and often shute, muscles flaccid, extremities coldish. Though thirst was still excessive, and she always called for drink when aroused, the stupor was so great that she sometimes fell asleep with the basin at her lips. Next m. pulse was 70, soft and full; tongue clean; thirst great; no appetite; skin hot and dry; bowels natural. In the e. she was in a profuse perspiration, but gradually recovered, save that her mind continued to be in a state of imbecility till she had left town for a time. (McKENZIE, *Ed. Med. and Surg. Journ.*, vii, 305.)

4. A soldier took, to kill himself, ℥iiss of laudanum and ʒj of extr. of O. at 6 p.m. An h. later he was brought to hospital with colic, stiffness of whole body, and extreme tendency to sleep. Ten gr. of tart. emetic caused free vomiting, and this was followed up by draughts of diluted vinegar. Next d. he had violent spasmodic movements, with plaintive cries; sharp pain in stomach and whole abdomen; tongue was black; pulse quick and full; face animated; there was considerable heat; he complained of intense headache and prostration of strength. The heat was followed by profuse sweats. 3rd d.—Some abatement of symptoms, but l. arm was paralysed. 4th d.—Tongue not black now, but yellowish; stools also, which were black at first, returning to their colour; urine lemon-yellow. By 6th d. paralysis of arm had disappeared, but on 8th headache, which had much lessened, regained its intensity. At 7 a.m. patient felt sharp pains momentarily in lower jaw, and spasmodic contractions in muscles of face, lasting 2 m. and not recurring. On 10th d. pain was lighter, and from this date he convalesced, always complaining, however, of drawing in abdomen, want of appetite, and painful digestion; of embarrassment of breathing at intervals; and of a malaise he could hardly describe. He was subject also to numbness and weakness, now in one limb, now in another. (*Journ. de Méd.*, xvi, 21. 1808.)

5. A young man swallowed ℥j of laudanum with intent to destroy himself. When seen he was lying in an armchair totally insensible; a death-like paleness had come on, and his features were distorted, particularly angles of mouth; lower jaw was fixed; respiration performed at long intervals, and laboriously; pupils insensible to light; skin cold; hands clenched; pulse rapid, small, and intermittent. Sulphate of zinc, &c., induced free vomiting, and he was walked up and down the room. He was now able to move one leg before another, perspiration broke out upon his forehead, and he groaned aloud. He became affected with spasms, particularly of muscles of back, neck, and extremities. These continued some time, until consciousness returned. Next m. his face was flushed and hot, lips dry, tongue lined with brown fur, throat and stomach sore, pain in head with weight in eyes; he was very drowsy; pulse quick, but not hard or full. In a few d. he entirely recovered. (YEATMAN, *Med. and Phys. Journ.*, xxxi, 468.)

6. a. "In about 4—5 h. after taking a dose of O. I become suddenly almost deprived of sense and hearing, and then am seized with shivering. These symptoms go off as soon as I get warm in bed, and a rash then makes its appearance on my face, arms, hands, neck, and

lower extremities, causing a burning, pricking sensation. The effect is the same on my skin when O. is applied externally. On one occasion 2 dr. of laudanum produced a slight attack of the kind.*

b. This was patient's statement. Reporter witnessed an attack of the kind, brought on by 2 small doses of paregoric. Vomiting was troublesome for a few h. Desquamation of cuticle began, as in scarlet fever, about end of 5th d.; and during convalescence she was at one time threatened with anasarca. (It was for a teasing cough, remaining after bronchitis, that she took the paregoric.) [*Dubl. Med. Press*, xlix, 319. 1863. A similar case, in an old lady, is reported at p. 489 of same volume.]

7. a. The first effect of O. on the Chinese smokers of the drug* is to render them more loquacious and animated. Gradually the conversation drops, laughter is occasionally produced by the most trifling causes, and to these effects succeed vacancy of countenance, pallor, shrinking of the features, so that the smokers resemble people convalescing from fever, followed by deep sleep for $\frac{1}{4}$ h.—3 or 4 h. An inordinate quantity causes headache, vertigo, and nausea. The Malays are rendered outrageous and quarrelsome by the O. pipe.

b. The continuance of this destructive practice deteriorates the physical constitution and moral character of the individual, especially among the lower classes. Its powerful effects on the system are manifested by stupor, forgetfulness, impairment of the mental faculties, emaciation, debility, sallow complexion, lividity of lips and eyelids, languor and lack-lustre of the eye, appetite either destroyed or depraved,—sweetmeats or sugar-cane being the articles that are most relished. "In the m. these creatures have a most wretched appearance, evincing no symptoms of being refreshed or invigorated by sleep, however profound. There is a remarkable dryness or burning in the throat, which urges them to repeat the O. smoking. If the dose be not taken at the usual time there is great prostration, vertigo, torpor, lachrymation, and in some an involuntary discharge of semen even when wide awake. If the privation be complete a still more formidable train of phenomena appears. Coldness is felt over the whole body, with aching pains in all parts. Diarrhoea occurs; the most horrid feelings of wretchedness come on, and, if the poison be withheld, death terminates the victim's existence." The offspring of O. smokers are weak, stunted, and decrepit. (SMITH, of Penang, *Lancet*, Feb. 19th, 1842.)

8. HILL witnessed O. smoking in the person of a Chinese soldier, æt. 24. He took 8 whiffs before going to sleep. After the 2nd, the eyes became full and sparkling, the face began to flush, and the pulse to increase in quickness and fulness; the breathing likewise became more frequent, and the whole system seemed considerably excited. These symptoms continued to increase until the 7th application to the pot of O. ($\frac{1}{2}$ h.), at which time the pulse was 120, full and bounding. After the next two applications (5 m. more) he appeared quite stupefied by the drug, and lying down on the couch instantly fell asleep. He was allowed to wake of his own accord, which he did in about 3 h.

* Only one full whiff is taken at a time, but it is repeated until the effects of the drug are felt.

Considerable depression now seemed to have followed the previous excitement, the eyes, though still full and projecting, being dull and heavy, and the whole countenance having a languid and stupid expression. The breathing was likewise heavy and oppressed, and the pulse considerably below the natural standard, scarcely 60. (*Lancet*, 1840-2, i, 820.)

9. The effects of the O. fumes when inhaled are far more exhilarating and immediate, as well as more transient, than when the drug is taken into the stomach. The pulse vibrates, it becomes fuller and firmer; the face glows, the eyes sparkle, the temperature of the skin is elevated, and it becomes suffused with a blush; the organs of sense are exquisitely sensitive; perspiration flows profusely; respiration becomes quicker; the action of the heart is increased; the nervous energy is exalted, and a glow of warmth, and sensations similar to those which often attend highly pleasurable and agreeable feelings, overspread the body. The mind shares in the general exhilaration, and is filled with those delicious and brilliant ideas which follow the other modes of employing O.; but if the smoking is too long protracted, these pleasing feelings vanish. All control of the will, the functions of sensation and volition, as well as reason, are suspended; vertigo, coma, irregular muscular contractions, and sometimes temporary insanity, supervene. (McPHERSON, *Two Years in China*, quoted by Stillé.)

10. *a.* Mr. LITTLE describes the mode, &c., of smoking at Singapore in terms nearly the same as those we have quoted from Dr. McPherson, adding that, after the effect of the stimulant has passed off, a state of languor, listlessness, and incapability of exertion succeeds, together with loathing of food, nervousness, aching of the limbs, gloom, and indefinable wretchedness, a state from which the smoker has no relief until the period comes round for renewed indulgence in the gratification which led to it, and which again infallibly induces it.

b. He also draws a frightful picture of the derangement of the nervous system and of the digestion, the oppressed breathing, and hazy, bleared eyes of the devotees of this vice. The sexual organs lose their power, and are affected with a gleet discharge; the flesh withers, and the bones are racked with pains. The stooping figure, shuffling gait, drooping eyebrows, and dull eyes surrounded by a livid circle, give an appearance of premature decrepitude. In both sexes the procreative power is lessened, and in females the secretion of milk is defective. Ultimately, the stomach is the seat of an incessant gnawing pain, the food is vomited, diarrhoea comes on, the urine is turbid, and Bright's disease is not uncommon. (*Ibid.*)

11. Dr. LIBERMANN, who was a medical officer at the capture of Peking by the English and French, has furnished a picture of the effects of this vice, which corresponds exactly to what has now been presented; but he adds some touches which were wanting to complete it, by describing the state of chronic delirium into which the O. smoker ultimately falls. The wretched man is assailed by the most various hallucinations, but all very unlike the voluptuous visions which he enjoyed on his first dalliance with the poison. The most disgusting

objects and the most horrible scenes are perpetually before him, but most of all at night, when he in vain seeks refuge from his misery in sleep. He is haunted by spectral toads and all manner of obscene animals, or a fiery dragon swoops around and drags him into a flaming pit. Sometimes he endures all the tortures of the Buddhist hell; or, fancying himself one moment in voluptuous embraces, the next he finds within his arms the mangled limbs of a hideous monster. These images, which, we are assured, are literal copies of the O. eater's phantasms, present a vivid resemblance to the more familiar spectral illusions of delirium tremens. (*Ibid.*)

12. A young man who has a mind to accustom himself to the immoderate use of opium is initiated in the following way:—His master first gives him some grains of this juice in wine or brandy, and then a quantity of the latter to drink after it, till a heavy fit of drunkenness deprives him of all sensibility and throws him into a deep sleep. After 7 or 8 h. he is roused by shaking, however much the overpowering effect of the sleep fetters him, and has to drink a great deal of cold water. But each cup he throws up with vomiting, nausea, and retching, and with eyes full of tears stares at the bystanders without recognising them, or knowing what passes before him. At last they give him warm wine with nutmeg. Now he no longer vomits, but, sleepy and unconscious, yawns often, and by this time sleep threatens to overpower him again, when they give him a second but *doubled* dose of O. Laughing, crying out, dancing, noisy music keeps our scholar of some hours in a state of utter unconsciousness. He wants to talk, but the organs of speech remain immovable, though his mouth is open. He goes through a number of silly actions, which excite the laughter of the bystanders, z. g. he stretches out his arm to reach the guitar, and at the same instant forgets to take hold of it or to draw his arm back, and the like, until at last he falls to sleep smiling. After 4 h. rest, the sleeper is again awakened and doused with cold water, his eyes washed with vinegar, and every possible art employed to drive away sleep. They drag him out of bed, force him to walk, but hardly will his stumbling feet obey, until they are at last with some trouble put in some sort of motion. The scholar stammers out some half-intelligible words, and complains that he is cold; they give him warm wine, he finds himself better, and longs to eat, but hardly has he swallowed a few morsels, after tedious chewing, when hunger and appetite flee away. He wishes to sleep, to which, however, he is not left till within a few hours before the expiration of the period, which is reckoned from the last dose of opium. Scarcely has he rested these few hours when he is awakened forcibly and obliged to take again the same quantity of opium, whereupon he is again treated as before. Thus the system is day by day accustomed to this medicine, and already between the 8th and 11th d. the scholar feels the desired effect of the previous treatment; he goes about, it is true, with a swollen face and bloodshot eyes, but his very peculiar significant look testifies to an inward happy feeling of a quiet state. But this joy is not lasting; when the effect of the opium fails again, which with beginners is usually the case in 24 h., he feels great anxiety, restlessness, frightful

images all around, shivering, and nausea, which do not pass off till he has taken another dose of opium. Then these sufferings cease, and a quiet, agreeable intoxication sets in for 10 or 12 m., and ends with the liveliest imagination of the very ideas which the opium-eater wished to experience. If, for instance, he sets his heart upon anger, he becomes passionate even to fury, and is capable of no other idea than this. He sees not the danger into which he blindly rushes at all risks, and even the person whom he attacks in his terrific rage. On the other hand, if he wishes to give himself up to amiable, gentle feelings, he stays quiet, smiles with internal contentment, seeks to testify of his happiness in perfect silence to those around; until after the intoxication has evaporated he leaves off dreaming, returns to humanity, and goes about his business in tranquillity. Still he feels a certain timidity, becomes forgetful, incapable of any of the finer feelings, and for ever indifferent to pain and pleasure. The opiphagus requires continually larger quantities, and at shorter intervals. Afterwards 1 oz. is hardly enough for the d., and now he becomes dull, and in this state of apathy in every sense extremely miserable, sleep flies from him, no dream in the slightest degree recalls the memory of former enjoyment; the opium itself becomes disgusting to him, and yet a state which is otherwise intolerable and dangerous compels him to the frequent use of it, and he never dares, for fear of his life, leave off while he lives. His figure becomes quite deformed, his face swollen, with its muscles immovable and hanging quite flaccid, his eyes bleared, his whole body feeble and collapsed, as his bones refuse their sufficient support. He is always chilly, rolls himself into all warm places, baths, and hearths; being incapable of rational ideas he forgets decency, and becomes an abhorrence to all men, until at last dropsy puts an end to his misery. (REINEGGS, Blumenbach's *Med. Bibl.*, ii. 1785.)

13. Dr QUINCEY took O. occasionally for ten years, experiencing only its exaltation. A gastralgia which then supervened led him to take it daily, gradually increasing the dose till it reached to some 8000 dr. of laudanum. After describing the intellectual torpor and profound melancholy thus caused, he writes:

a. "I now pass to what is the main subject of these latter confessions, to the history and journal of what took place in my dreams, for these were the immediate and proximate cause of my acutest suffering. The first notice I had of any important change going on in this part of my physical economy was from the reawakening of a state of eye generally incident to childhood, or exalted states of irritability. I know not whether my reader is aware that many children, perhaps most, have a power of painting, as it were, upon the darkness all sorts of phantoms; in some that power is merely a mechanic affection of the eye, others have a voluntary or semi-voluntary power to dismiss or summon them, or, as a child once said to me, when I questioned him on the matter, 'I can tell them to go, and they go, but sometimes they come when I don't tell them to come.' Whereupon I told him that he had almost as unlimited a command over apparitions as a Roman centurion over his soldiers. In the middle of 1817, I think it was that this faculty became positively distressing to me; at night, when I lay awake in

bed, vast processions passed along in mournful pomp; friezes of never-ending stories, that to my feelings were as sad and solemn as if they were stories drawn from times before *CEDIPUS* or *PRIAM*, before *TYRE*, before *MEMPHIS*. And at the same time a corresponding change took place in my dreams; a theatre seemed suddenly opened and lighted up within my brain, which presented, nightly, spectacles of more than earthly splendour. And the four following facts may be mentioned as noticeable at this time: 1. That, as the creative state of the eye increased, a sympathy seemed to arise between the waking and the dreaming states of the brain in one point,—that whatsoever I happened to call up and to trace by a voluntary act upon the darkness was very apt to transfer itself to my dreams, so that I feared to exercise this faculty; for, as *MIDAS* turned all things to gold, that yet baffled his hopes and defrauded his human desires, so whatsoever things capable of being visually represented I did but think of in the darkness immediately shaped themselves into phantoms of the eye, and, by a process apparently no less inevitable, when thus once traced in faint and visionary colours, like writings in sympathetic ink, they were drawn out, by the great chemistry of my dreams, into insufferable splendour that fretted my heart. 2. For this, and all other changes in my dreams, were accompanied by deep-seated anxiety and gloomy melancholy, such as are wholly incommunicable by words. I seemed every night to descend—not metaphorically, but literally to descend—into chasms and sunless abysses, depths below depths, from which it seemed hopeless that I should ever reascend. Nor did I, by waking, feel that I had reascended. This I do not dwell upon, because the state of gloom which attended these gorgeous spectacles, amounting at least to utter darkness, as of some suicidal despondency, cannot be approached by words. 3. The sense of space, and in the end the sense of time, were both powerfully affected. Buildings, landscapes, &c., were exhibited in proportions so vast as the bodily eye is not gifted to receive. Space swelled, and was amplified to an extent of unutterable infinity. This, however, did not disturb me so much as the vast expansion of time. I sometimes seemed to have lived for seventy or 100 years in one night, nay, sometimes had feelings representative of a millennium, passed in that time, or, however, of a duration far beyond the limits of any human experience. 4. The minutest incidents of childhood, or forgotten scenes of later years, were often revived. I could not be said to recollect them, for if I had been told of them when waking I should not have been able to acknowledge them as parts of my past experience. But placed as they were before me, in dreams like intuitions, and clothed in all their evanescent circumstances and accompanying feelings, I recognised them instantaneously. I was once told by a near relative of mine, that having in her childhood fallen into a river, and being on the very verge of death but for the critical assistance which reached her, she saw in a moment her whole life, in its minutest incidents, arranged before her simultaneously as in a mirror, and she had a faculty developed as suddenly for comprehending the whole and every part. This, from some opium experiences of mine, I can believe; I have, indeed, seen the same thing asserted twice in modern books, and accompanied by a remark

which I am convinced is true, namely, that the dread book of account which the Scriptures speak of is, in fact, the mind itself of each individual. Of this, at least, I feel assured, that there is no such thing as *forgetting* possible to the mind; a thousand accidents may and will interpose a veil between our present consciousness and the secret inscriptions on the mind. Accidents of the same sort will also rend away the veil; but alike, whether veiled or unveiled, the inscription remains for ever; just as the stars seem to withdraw before the common light of day, whereas, in fact, we all know that it is the light which is drawn over them as a veil, and that they are waiting to be revealed when the obscuring daylight shall have withdrawn."

b. "In the early stage of my malady the splendour of my dreams was chiefly architectural, and I beheld such pomp of cities and palaces as was never yet beheld by the waking eye, unless in the clouds. . . . To my architecture succeeded dreams of lakes, and silvery expanses of water. . . . The waters now changed their character,—from translucent lakes, shining like mirrors, they became seas and oceans. And now came a tremendous change, which, unfolding itself slowly like a scroll, through many months, promised an abiding torment, and, in fact, it never left me until the winding up of my case. Hitherto the human face had often mixed in my dreams, but not despotically, nor with any special power of tormenting. But now that which I have called the tyranny of the human face began to unfold itself. Now it was that upon the rocking waters of the ocean the human face began to appear; the sea appeared paved with innumerable faces, upturned to the heavens; faces, imploring, wrathful, despairing, surged upwards by thousands, by myriads, by generations, by centuries; my agitation was infinite; my mind tossed and swayed with the ocean."

c. "One memorial of my former condition still remains" (*i. e.* after he had reduced his dosage to a minimum); "my dreams are not yet perfectly calm; the dread swell and agitation of the storm have not wholly subsided; the legions that encamped in them are drawing off, but not all departed; my sleep is tumultuous, and, like the gates of Paradise to our first parents, when looking back from afar, it is still (in the tremendous line of Milton) 'with dreadful faces thronged and fiery arms.'"

d. "The symptoms which attended my case for the first six weeks of the experiment"—of leaving the drug almost entirely off—"were these: enormous irritability and excitement of the whole system, the stomach in particular" (in which he had become "aware of an increasing callousness or defect of sensibility") "restored to a full feeling of vitality and sensibility, but often in great pain; unceasing restlessness night and day; sleep—I scarcely knew what it was—3 hours out of the 24 was the utmost I had, and that so agitated and shallow that I heard every sound that was near me; lower jaw constantly swelling; mouth ulcerated; and many other distressing symptoms that would be tedious to repeat, amongst which, however, I must mention one, because it had never failed to accompany any attempt to renounce O.,—namely, violent sternutation. This now became exceedingly troublesome, some-

times lasting for 2 h. at once, and recurring at least twice or three times a day." He speaks also of "the excessive perspiration, which even at Christmas attends any great reduction in the daily quantum of O., and which in July was so violent as to oblige me to use a bath 5 or 6 times a day." (*Confessions of an Opium Eater.*)

14. In 1841 an opium eater, æt. 26, was admitted into the London Hospital. He was accustomed to take ʒij—ʒiiss of solid O. daily. He originally began its use to relieve the attacks of angina pectoris. He was now most anxious to leave off this habit, though the difficulty of doing so was extreme. It did not diminish, but, according to his assertion, augmented his appetite; for after each dose he ate voraciously. At first when he commenced its use it caused dryness of mouth and throat, and constipation; but latterly his bowels have been as regular as usual. His pulse ranged from 88 to 96. His urine was somewhat less than natural. The condition of his skin varied; in general it was dry, but occasionally was covered with profuse perspiration. He described the effects of the O. on his mental faculties as those of calmness, comfort, and serenity. Under its use he was able to support great mental and bodily fatigue. He never experienced the exhilarating and pleasurable sensations described by De Quincey. His feelings, when not under the influence of O., were most distressing. At this time his eyes were hollow, dark, and sunken; features haggard; hands trembling; voice and manner anxious; mouth parched; appetite wanting; sleeplessness. Unable to sleep for want of his accustomed dose, he used to pace the ward of the hospital at n. almost frantic, though quite sensible of his miserable condition, and anxious to abandon the practice. (*PERBIRA, op. cit., sub voce.*)

15. a. E. M.—, æt. 35, was admitted May 26th, 1835. About 17 years before she began to suffer from a pain in the r. iliac region, for which a medical man ordered her to take 10 dr. of laudanum n. and m. This was gradually increased, the pain continuing, until at last she took 3 teaspoonfuls every 4 h. n. and d. At first the 10 dr. relieved the pain, but it was found necessary to increase the dose to produce the same effect, so that the 3 teaspoonfuls at last did not produce so much relief as did the 10 dr. at first. As the dose was increased, she found it produce a very comfortable condition of the mind. She felt lively and cheerful, and capable of doing any amount of work; it also produced a sense of warmth over the whole body. She had severe family afflictions, but was not at all distressed by them while under the influence of O., though she felt them severely at other times. If she passed over the usual time for taking a dose, she felt the most distressing sensations about the joints, not of pain, but such as she was unable to describe. She suffered from involuntary motions of the arms, fingers, and toes; numbness in the limbs and body generally; profuse perspiration; nausea, vomiting, and loss of appetite; saline taste of the saliva and bad taste in mouth; tremor in limbs; great sense of debility and lassitude. Memory and mental powers generally became greatly impaired, attended by a miserable depression of spirits. These symptoms were all relieved by a repetition of the dose. The O. also produced constipation,—not more than one motion occurring in a

week, and she does not recollect whether even this was produced by medicine or not. If the dose was deferred, she always suffered from severe headache; her sense of smell was so much impaired that she could perceive no pungency in snuff; her taste was so much lost that she could not distinguish pepper or mustard; and her hearing had become so defective that she could hardly detect the voice of anyone who spoke, yet her own voice sounded most disagreeably loud to her; her touch was so much affected that she could not execute any needle-work. The acuteness of all her senses was restored by the usual dose, the want of which was attended by flushing and heat of the face. During the period of taking the O. she had very little sleep, and in the intervals she could not attempt to sleep for want of the desire, so that she generally worked all n. What sleep she had was generally in the daytime, and that little was much confused, and easily ended.

6. About 5 or 6 years ago, her resources being exhausted, she obtained admission into the hospital. Her laudanum was here left off for the first 3 d., and all the above symptoms continued; she now, for the first time, began to see frightful animals and other objects in the ward. The symptoms were again relieved by her usual doses. The laudanum was decreased during the whole time, and when she left the hospital she took only a teaspoonful in the course of the d. On returning home, and being dependent on her friends, she was obliged to discontinue the laudanum and wine, and was even unable to get beer. She was now more miserable than before, all the symptoms returning with increased severity, and for the first 6 mos. she was almost entirely helpless. She was then first affected with pain in her chest and a cough, which has continued ever since. She was 12 mos. at home before the above distressing symptoms disappeared. The only consequences of her opium eating at present are a much impaired taste, numbness of the limbs, coldness of the feet, inability to walk far without aching pains in the limbs, and a general sense of lassitude. (TAYLOR, *op. cit.*, p. 589.)

16. The habitual opium eater (in Turkey) is readily recognised by his appearance. A total attenuation of body, a withered yellow countenance, a lame gait, a bending of the spine, frequently to such a degree as to cause the body to assume a circular form, and glassy deep-sunken eyes, betray him at the first glance. The digestive organs are in the highest degree disturbed; the sufferer eats scarcely anything, and has hardly one evacuation in a week; his mental and bodily powers are destroyed. As the habit becomes more confirmed, his strength continues decreasing; the craving for the stimulus becomes greater, and, in order to produce the desired effect, the dose must be constantly augmented. After long indulgence, the opium-eater becomes subject to neuralgic pains, to which O. itself brings no relief. These persons seldom attain the age of 40 if they have begun to use O. early. (OPPENHEIM, quoted in *Ibid.*)

17. A gentleman of a very haggard, sallow, gloomy appearance, and trembling all over, entered a druggist's shop and asked for an ounce of laudanum, which was properly refused without medical sanction. He then asked to be shown how much an ounce was; and when it stood

before him, measured in a graduated glass, he seized it from the counter, and eagerly swallowed it. The druggist was struck powerless. The gentleman, seeing his great alarm, assured him it was needless, as he had been a long time an opium-eater, and took twice daily as much as he had now drunk. He remained for $\frac{1}{2}$ h. in conversation with the druggist, who was surprised to observe the wonderful change which so short a period had made in his visitor, whose manner became animated, at the same time that his face became plump and suffused with a pleasing blush. (KIRBY, quoted in *Ibid.*)

18. MADDEN, having witnessed O. eating in Turkey (which he describes as do others), tried it himself, taking 4 gr. in divided doses, and thus relates his sensations:—"My faculties appeared enlarged; everything I looked at seemed increased in volume. I had no longer the same pleasure when I closed my eyes which I had when they were open; it appeared to me as if it was only external objects which were acted on by the imagination, and magnified into images of pleasure; in short, it was 'the faint exquisite music of a dream' in a waking moment. I made my way home as fast as possible, dreading at every step lest I should commit some extravagance. In walking, I was hardly sensible of my feet touching the ground; it seemed as if I slid along the street, impelled by some invisible agent, and that my blood was composed of some ethereal fluid, which rendered my body lighter than air. I got to bed the moment I reached home. The most extraordinary visions of delight filled my brain all n. In the m. I rose, pale and dispirited; my head ached; my body was so debilitated that I was obliged to remain on the sofa all d., dearly paying for my first essay at O. eating." (*Travels in Turkey, &c., Lond., 1829.*)

19. a. There not unfrequently occurs in some persons, even after doses of gr. $\frac{1}{2}$ to $\frac{3}{4}$, a feeling of excessive fullness of head, dizziness, and headache, lasting several h., or even a number of d., seated sometimes in frontal, sometimes in occipital region. After larger doses, but still less than the maximum, there have been noticed buzzing and ringing in ears, confusion of ideas, dimness of vision, disturbances of hearing, and partial or complete unconsciousness. The motor sphere may also be affected, there occurring in some cases, as Albers stated, spasm of tendons, particularly of extensor muscles; tremor of the hands; jerking, weakness, and even temporary paralysis of the legs.

b. The changes which sometimes occur in the skin after the use of O. are especially worthy of study. Aside from the sometimes very profuse sweating which takes place, the face is congested and intensely reddened, and the rest of the skin feels hot to the touch. Annoying itching, without eruption, may also be present. This "pruritus opii" was mentioned by Dioscorides and Paulus Aegineta, and also by authors of the last century, and described as a tormenting and intolerable affection. In rare cases an eruption, with or without pruritus, is noticed after the use of O. The first recorded observation on this subject emanated from Trailes, who believed that the eruption bore a certain relation to the sweating which appeared simultaneously with it. The presence of the latter symptom is, however, not essential to the production of the exanthema. Duclos lays special stress on the fact

that this may occur without augmentation of the secretion of the skin. It consists usually of small red isolated spots, resembling in form those of measles. According to an observation of Rieker, these spots may spread diffusely over the whole body, and thus present the appearance of scarlatina. Even the mucous membrane of the mouth and throat, this writer states, may be attacked by this "erythematous inflammation." He witnessed the occurrence of such an eruption on a man every time he took O. internally, and even after the employment of ointments and collyria containing it. According to Béranguier, the erythematous spots show themselves shortly after taking the drug, on face, neck, arms, and breast, and disappear without leaving traces of their presence behind. Behrend has also recently studied an O. eruption. It appeared after taking a few $\frac{1}{2}$ gr. doses, accompanied with violent itching, on the chest from clavicles to lower end of sternum, on inner surfaces of both upper arms, flexor surfaces of forearms, and over wrist-joints, spreading down legs and terminating at ankles in a stripe of livid colour about three fingers in width. It appeared as a pale scarlatina-like redness, which, on closer examination, was seen to be composed of papules of pin-head size lying close together. Several d. after the eruption had passed away there occurred a fine branny desquamation of the epidermis. Brand also observed an eruption which spread over the trunk and flexor surfaces of the body, was attended with intense itching and high fever, and presented the appearance of a diffuse redness made up of innumerable small points. In this and a similar case there appeared after 8 d. a desquamation in the form of flakes of various sizes, which lasted nearly 20 d. (LEWIN, *op. cit.*)

20. *a.* Dryness of mouth and fauces, huskiness of voice, and diminution in the sense of taste, occur in a short time, after administration of the drug in small medicinal doses, and continue during the whole period of its influence. To the dryness succeeds a viscid secretion, which contains excrementitious matter having a foul odour. When O. does not produce nausea, the appetite may not be impaired, may be even increased; but the rule is that the desire for food is lessened. The secretion of mucus, and of the special glandular apparatus of the gastrointestinal mucous membrane, is lessened by O., and hence the digestion and the peristaltic movements are less active. The excretions being thus locked up, dulness and hebetude are experienced, the skin looks muddy, the tongue is coated and the breath offensive. When the influence of the O. ceases, it not unfrequently happens that the constipation is succeeded by relaxation of the bowels; and rather profuse and foetid evacuations, and increased urinary discharges, take place. The action of the heart becomes stronger, and the arterial tension rises. The face flushes a little, the pupil contracts slightly, the conjunctivæ may be somewhat injected, and the expression of the eyes more brilliant. At this stage the ideas flow more rapidly, but are less sustained and orderly. The appreciation of time, the sequence of events, and the sense of moral fitness, are diminished. The cerebral excitement is, after a period which varies in different individuals, succeeded by calm and drowsiness; sleep when it occurs is usually disturbed by visions and dreams, often of a frightful character. In most subjects, when the

stupor has passed off, headache, vertigo, confusion of mind, nausea, constipation and muscular hebetude are experienced.

6. When full medicinal doses are administered the symptoms above described occur in a more intense degree. The stage of cardiac stimulation and of cerebral excitement* is of much shorter duration, and the stage of intoxication and sopor not only comes on more quickly, but is much more pronounced. At first the pulse is increased in frequency, and the respiratory movements are more rapid, but the cardiac pulsations soon diminish in number and force, and the respirations become sighing in character and more shallow. There is also present decided dryness of mouth, fauces, and larynx, and swallowing becomes somewhat more difficult, and the voice grows husky. Nausea and vomiting, or at least weight and oppression of the epigastrium, ensue. Confusion of ideas, vertigo, somnolence, are succeeded by deep sleep, contracted pupils, slow and relaxed pulse, slow and snoring respiration, a perspiring skin, and in many persons a general pruritus, which, however, is more harassing at the nasal orifices. Persons not habituated to the use of O. usually experience, after a full dose has expended its force, very distressing sequelæ, referable to the cerebro-spinal system. The most important of these after-effects are headache, confusion of mind, vertigo—which is especially severe on assuming the erect posture, nausea, retching and vomiting, † complete anorexia, and constipation. A mild but defined hepatogenic jaundice not unfrequently occurs, and the urine is tinged with the colouring matter of the bile. ‡

(BARTHOLOW, *op. cit.*)

21. a. Where the quantity of O. is large, and the form such as to permit rapid absorption of the whole, the course of symptoms is as follows:—The patient, if an adult, quickly becomes conscious of a sense of fullness in the head, which seems to commence in the nape of the neck, and to spread therefrom; and in the course of a few m. feels great and increasing drowsiness, and a sensation of general heat, which increases to an almost intolerable degree, and is then accompanied by sweating. This sweating, which generally bathes the body in moisture, tends to suspend all its other secretions.

b. If the dose given has been very large, it reduces the surface to a clammy coldness. The drowsiness passes into semi-coma; the patient, unless aroused, lies unconscious, and is heedless of everything around him, but if roughly spoken to and shaken can still be induced—though the speech is thick and hesitating—to answer questions, and even to

* "It is commonly asserted that there is a stage in the action of O. in which the activity of the mental faculties is exalted. This may be so in some persons, and especially in those who have accustomed themselves to the use of the drug as a stimulant; but my experience is that in those who do not habitually take O. true mental power is, in all stages of the action of the drug, diminished rather than increased" (H. C. WOOD).

† "Very frequently vomiting does not occur so long as absolute rest in the horizontal position is maintained; indeed, an almost diagnostic sign of this affection may be found in the fact that the stomach is quiet so long as the patient keeps the head upon the pillow, but the distress occurs as once upon rising up" (IBID.).

‡ "Some persons can never take even a small dose of laudanum or morphia without producing for a day or two clay-coloured motions and high-coloured urine" (RANEA, *op. cit.*).

get up and walk about; on leaving him, however, he immediately subsides into his former stupor. The pupils are generally contracted to the size of a pin's point, and become insensible to light; and there is buzzing in the ears. The pulse, which in the first or hot stage was rapid and somewhat full, becomes feeble or irregular, and falls to the normal rate, or even below it; simultaneously with this alteration the features become pinched and ghastly, and flushing gives place to livid pallor, while the muscles of the limbs are affected with spasmodic jerkings. The mouth and fauces are dry, and there is commonly nausea, and often vomiting. The general depression of the system is marked. The respiration becomes more and more embarrassed; in the later stages the presence of a quantity of mucous secretion in the tubes makes itself known by the rattling sound of the breathing. The respiration comes to a standstill usually some m. before the entire cessation of the heart's action. Death, that is to say, takes place by apnea.

c. The course of events differs considerably in young children, especially in infants. Here there is a more rapid passage into profound stupor, but what is specially characteristic is the much greater frequency with which convulsions occur. The convulsive movements vary from mere twitchings of the facial muscles to rhythmical startings of the limbs; to severe clonic convulsions, which may be hemiplegic, or may affect both sides of the body alike; and even to tetanic spasms. I have seen three adults thrown into a state of apparently complete tetanic rigidity of the whole body, the mouth open and squared, all the facial muscles highly tetanised, the spine strongly curved, resembling the shape of a well-drawn bow; and this state of opisthotonos continue in each case without abatement 12—48 h., and then only become relaxed to grow rigid again for a longer or shorter time, according as the effect of the O. was kept up. One of the patients remained more or less in this state for 4 or 5 weeks, O. having been given in the first instance to relieve toothache, and continued for the convulsive spasms which followed. As soon as the O. was discontinued the patient recovered, but some months afterwards, having accidentally taken it again, the same results quickly reappeared. (PHILLIPS, *op. cit.*)

III. *Experiments on animals.*—1. a. O. acts on all invertebrate animals by diminishing the contractility in the tissues which have this property, and consequently weakening all their movements. These animals always die in a completely powerless state, in a variable time, and without having shown any signs of excitement.

b. In vertebrate animals, O. exerts the same action on contractility; it also depresses the nerves, further weakening movements, and blunting the impressibility of the surface. It causes at the same time convulsive movements, tetanic contractions recurring paroxysmally, and the other signs of a violent over-excitement of the cerebro-spinal axis.

c. In fishes, amphibia, and reptiles the convulsions are not strong enough to cause death, and they die powerless like the invertebrata. Mammalia and birds often perish during the tetanic paroxysms.

d. The highest mammalia, besides the two previous classes of

effects, may present the phenomena of cerebral congestion, as in man; but this is not strong enough to cause death.

These propositions are the result of numerous experiments. (CHARVET, *L'Action de l'Opium*, Paris, 1826.)

2. SCHROFF, who performed numerous experiments with O. and its constituents, remarks that although 2 and even 3 gr. certainly contain less than a gr. of morphia, yet their action is strikingly more intense, occasioning rapidly a degree of narcotism bordering on coma, but soon subsiding without leaving decided secondary effects behind; while morphia does not readily produce narcotism, but its after-effects are of longer duration. O., he further remarks, increases the temperature of the body and also the sense of heat, but morphia lowers the temperature even when the sense of warmth is increased. O. primarily augments the frequency of the pulse, and afterwards diminishes it as narcotism comes on; but morphia primarily renders the pulse less frequent. O. is less prone than morphia to disturb the stomach and excite vomiting, or it does so, if at all, for a shorter time; and it is also much less apt to produce vesical irritation and retention of urine. (STRICK, *op. cit.*)

3. a. I injected mxx of tinct. beneath skin of a bitch, pulse being 120, pupils contracting to $\frac{1}{4}$ in. in the light and dilating to $\frac{3}{4}$. Between 5th and 15th m. she was very qualmish, and at last vomited a heap of food. The diaphragm acted spasmodically for 3 m. more. She then lay down with head on the ground. After 7 m., bowels acted, clear mucus ran from mouth, and pulse was 112. In $\frac{1}{2}$ h. after injection, pulse was 78 and irregular; respiration irregular and sighing; glairy alkaline mucus continued to drop from mouth; pupils were broadly dilated in moderate light. Slight somnolency was now manifested for the first time, with a little twitching of the hind legs. As the somnolency did not increase, I injected at the end of the hour mxx more. In $\frac{1}{4}$ h., pulse was 72, and very regular in relation to the breathing—i. e. the expiratory rate was 40, and the inspiratory about 120. Resp. 16, and regular. She continued in the same position, and there was no further contraction of the pupils. Every now and then she raised her head and looked about her, and then slowly laid it down again upon the carpet and closed the eyes. In 15 m. more she became decidedly drowsy, and the pupils, from being broadly dilated, contracted to $\frac{1}{4}$. The drowsiness continued for an h., but did not amount to sound and continuous sleep at any time; and at the end of this period, upon being a little disturbed, she got up and walked away, and began to retch. From this time the drowsiness began to pass off, and she continued to walk about, listen to footsteps on the other side of the door, and pry about. Pulse was now 78, and less irregular; resp. 18.

b. Injected mxi by two punctures, one on either side of body. From 7th to 10th m. vomiting, until stomach was emptied. At 15th m. lay down and remained quiet, with eyes open; pulse 130, regular; respiration shallow, irregular. During next $\frac{1}{4}$ h., respiration was much disturbed, and occasionally suspended for 15 seconds; after a long-drawn inspiration, it gradually became slower, and ultimately sank to 15; the pulse meanwhile was depressed to 72, and influenced by the

breathings. Glairy mucus continued to trickle from the mouth. Up to end of 3rd h. she did not have any sound or continuous sleep; she remained dull and quiet, and when called, or disturbed by the approach of anyone, would get up and walk slowly into the next room. When left undisturbed she fell off into a nap, from which a slight noise awoke her. After 3½ h. the somnolency had almost entirely passed off, and she was walking about most of the time. She could run, and jumped well off a chair. Pulse 80, respiratory. Resp. 15, irregular. Pupils contracted to ¼ at diffuse daylight, and dilated widely towards dusky side of room. (HARLEY, *op. cit.*, p. 109.)

Morphinum, morphia; alkaloid obtained from opium ($C_{17}H_{15}NO_2$, H_2O .)

1. *Proving.*—1. CHARVET, 5.50 a.m., when his pulse was 65, took 1 gr. acetate in 1 drachm water. 6.15 a.m., pulse 90, tension in head. 6.30 a.m., vertigo, drowsiness; pulse 80, fulness in orbits, tinnitus aurium. Slept 5½ h., dreamed of many things, but heard all that took place about him, and was fully conscious of his state. At first it was pleasant, he felt lively twitchings in arms, head, and face. 8.30 a.m., woke up by nausea and inclination to vomit; pulse 62. He then fell asleep again. 1 p.m., wide awake, he had call to urinate, but could not pass anything. 2 p.m., recurrence of inclination to vomit. 7 p.m., nausea. 10 p.m., was able to urinate. Next d., anorexia, heaviness of head, constipation. (*Op. cit.*)

2. a. CHEVALLIER took ½ gr. acetate in 3 oz. water. Bitter taste and irritation of œsophagus for 20 m., then headache more in r. than l. side for ½ h., a painful sensation remained behind, pupils somewhat dilated. After ½ h. nausea, tongue red on borders, violet in middle; pulse slow, full, intermitting; could not work; restless sleep with frequent starting for 6 h.; on waking, head painful, eyes sunken, especially r., mouth doughy, general exhaustion; all went off after exercise.

b. ½ gr. in 3 oz. water. After ½ h. violent headache, face red, lips and cornea as if injected, pupils unaltered, tongue uniformly red, great nausea, dryness and contraction of œsophagus, pulse strong, quick, skin warm, itching, especially on arm, slept 5 h. quietly; on waking, pain in r. side of head, doughy mouth, weary limbs, pains along spine, urine clear and light coloured.

c. ½ gr. in 3 oz. water. After ½ h. violent headache, irritation of œsophagus, dilated pupils, pulse strong, anxious respiration with acute pains in chest, at every inspiration violent pain in abdomen and along spine; then restless sleep with frequent starting; after sleep stiffness, pain in arms, patches of red papules, mental powers obtuse, urine turbid and slimy.

d. 1 gr. in 3 oz. water. After 20 m. violent headache, great irritation of œsophagus, inclination to vomit, burning thirst, pulse raised, dyspnoea with violent pain. Drowsiness, tranquil sleep for a long time. Woke with headache, cramp, nausea, anxiety, general prostration, dazed expression, arms and legs covered with red papules. (*Rev. Méd.*, 1824; from Wibmer.)

3. *n.* WISMER took, Feb. 18th, at 9.20 a.m., pulse 75, $\frac{1}{4}$ gr. of acetate. After 10 m. head dull, especially in forehead. After $\frac{1}{2}$ h. pulse hard, small, 72; head heavy, with tensive feeling in it as though both frontal bones would be pressed asunder; thinking and working difficult. After $\frac{3}{4}$ h. dulness of head still present, though less; face hot; pulse 75. Headache now went off gradually; slight stiffness and heaviness of limbs on rising from chair. 10.30 a.m., no headache, but confusion of head. 10.45 a.m., head free, pulse 68. Now took $\frac{1}{4}$ gr. After $\frac{1}{4}$ h. dull headache, which went off in a few m. 11.30 a.m., slight nausea with increased heat of face, head heavy, hot, inclination to vomit; after a few m. face got cool, paler than usual, general weakness affecting limbs, pulse 66, pressive headache, drowsiness. 11.45 a.m., great inclination to vomit, nausea, irritation. Lay down and slept 10 m., in sleep slight twitching in limbs. Noon, got up, felt well, pulse 70, head somewhat dazed. 1.30 p.m., took a drink of vinegar, which increased nausea and headache; little appetite. When and after eating increase of heaviness and stupefaction of head. Lay down and slumbered; during sleep twitching of muscles of face and limbs; on rising the heavy stupefied head symptoms returned. Pressive sensation in stomach, drowsiness. When writing unsteadiness, trembling of hand. Could not think or read well and headache increased thereby, felt quite well when lying in a slumber. This nausea and vertigo on rising lasted till 6 p.m., when he vomited his dinner and felt better. From 8 to 9 p.m. violent itching all over body. Passed turbid urine in e.; no stool this d. or next m., only a scanty hard stool at 2 p.m.

8. July 21st, 7 a.m., pulse being 70, took $\frac{1}{4}$ gr. morph. After $\frac{1}{4}$ h. head confused, thinking difficult, heaviness of limbs. Heat, especially of face, increased. 7.45 a.m., tensive feeling in head as if cranial cavity were too narrow for brain; reading, writing and thinking difficult, head hot, frequent rumbling in belly. 8 a.m., eyelids tended to close, felt very prostrated, great desire to lie down. 8.15 a.m., all symptoms lessened, his head somewhat dazed and limbs heavy. 8.30, took $\frac{1}{4}$ gr., pulse 75. 8.45, quite well. In $\frac{1}{2}$ h. head began to get dazed and confused. 9.30 a.m., quite well. Went out to work till 12 noon, felt dazedness and confusion of head, difficulty of thinking, sight clouded. Coming home had eructation and nausea, threw up some phlegm and was relieved, great weariness and trembling of limbs made him lie down. On rising up had nausea and inclination to vomit. 1.30 p.m., vomited acid, bright green fluid with relief to sickness. Lay down from 2 to 3.30 p.m. in a half-waking slumber, had most confused fancies, his limbs lay stiffened and immovable without great effort of will. Constant twitching, especially in jaw, otherwise felt well while lying. 3.30 p.m., got up, was very tired, could not work, head confused, hands trembled. After this gradually got well. (WISMER, *op. cit.*, iv, 133.)

4. *a.* ALLONIO, æt. 22, bilious temperament, pulse 66, took at 3 p.m. $\frac{1}{4}$ gr. acetate. After 5 m. pain in pit of stomach, drowsiness, dyspnoea. After 20 m. profuse perspiration all over body, pupils greatly dilated, pulse 94. After 33 m. drowsiness, frontal pain. After 50 m. lips livid, face red, puffy, conjunctiva swollen, throbbing pain in sinapit.

After 52 m. pain in vesical region, look stupid, eyes very sparkling, great thirst, weakness. 4.30 p.m., itching of skin, pain in urinary and genital organs, especially r. spermatic cord, weight in forehead. This continued till 7 p.m., when he had great pain in scrob. cordis, nausea, inclination to vomit. Till 1.30 a.m. restless, headache, pain in umbilical region; slept soundly till 6.30 a.m. Woke with dull pain in forehead.

b. 8.15 a.m., took $\frac{1}{4}$ gr. acetate; pulse 66, bitter taste. After 20 m. tongue red, pupils dilated. After $\frac{1}{2}$ h. violent frontal pain, burning heat of skin, exhaustion, pulse 80. 9 a.m., lips livid, great thirst, inclination to vomit. Felt exhausted all d.

c. 8.30 a.m., 1 gr. Almost immediately pain in stomach, dilated pupils, eyes looked as if they would start out of sockets, face red, lips pale, tip of tongue red, palate scarlet and painful. 9 a.m., violent headache, pulse 78, pain in scrob. cordis increased, weight in forehead. Then restless sleep, face covered with sweat, pulse 88. 11 a.m., woke with pain in forehead, scrob. cordis and bladder; exhaustion and pain in joints till noon. No appetite, nausea, inclination to vomit. Slept well at n. Next m. watery diarrhœa. 8.30 a.m., violent frontal pain, cold sweat on back, fainted twice, with dilated pupils, tongue pale, mouth sticky and bitter. During d. 2 painful stools. Recovered gradually. (BERARDI, *Annal. universat.*, 1829, from Wihner.)

5. a. CRISPO, æt. 21, sanguine-bilious temperament, took at 3 p.m. $\frac{1}{4}$ gr. Taste very bitter. After 4 m. nausea. After 20 m. stupefaction, dilated pupils, rumbling in belly, pulse 79. After 30 m. circumscribed redness in cheeks, stupid look, sparkling eyes, cold sweat over body, weight in head, sleepiness, profuse general sweat. 5.30 p.m., pain in bladder, 1 watery stool, pain in scrob. cordis, slept well at n.

b. $\frac{1}{4}$ gr. when pulse was 65, pain in scrob. cordis. After 5 m. burning at back of fauces. After 20 m. redness of tongue, dilated pupils. After 25 m. weariness in limbs, sacrum, neck, joints; pulse 68, irregular, conjunctiva injected, face red, puffy, lips pale. All n. pupils dilated. Next m. eruption all over body.

c. Pulse beating 84, took at 8.30 a.m. $\frac{1}{4}$ gr. After $\frac{1}{2}$ h. inclination to vomit. After $\frac{1}{2}$ h. dilated pupils, pulse 94. 10 a.m., face red and puffy. Appetite for dinner good. After dinner drowsy (unusual), slept till 5 p.m., then woke with frontal pain, and then violent pain in umbilical region. Next m. well, but face and most of body covered with a rash. (*Ibid.*)

6. a. NABUNI, æt. 19, sanguine temperament, took $\frac{1}{4}$ gr. Pulse 63, in $\frac{1}{4}$ h. rose to 108, border and tip of tongue red.

b. $\frac{1}{4}$ gr. caused only bitter taste and red tongue.

c. $\frac{1}{4}$ gr. at 8.30 a.m., when pulse was 66. After $\frac{1}{2}$ h. pupils dilated, pulse 82. 10 a.m., pulse 92. Slight pain in scrob. cordis and abdomen. (*Ibid.*)

7. a. BERARDI himself, with pulse at 65, took at 3 p.m. $\frac{1}{4}$ gr. Immediately pain in scrob. cordis, to bladder. After 5 m. profuse general sweat. After 15 m. nausea, dyspnoea, heaviness, pale tongue, pulse 66. After 50 m. pupils much dilated, pain in occiput, pressure above eyes, conjunctiva injected. After 55 m. intolerable pain in r,

side of head, restlessness, red face, beads of perspiration on face, stupid, sad expression, itching of skin. 4 p.m., violent headache, face livid, after a few m. restless disturbed sleep for 3 h.; on waking, violent pain in scrob. cordis and bladder, scanty clear urine with much urging; on rising persistent nausea and pressure in umbilical region. Food increased pain in stomach. 10 p.m., diarrhoea, pains in stomach, navel, and bladder. N. restless, skin dry, itching. Next m. diarrhoea.

b. $\frac{3}{4}$ gr. Immediately pain in scrob. cordis and r. side of head, pupils much dilated even when he looked at sun. Pulse rose from 61 to 86. Then nausea, inclination to vomit, weakness of joints, conjunctiva injected, lips pale, eyes sparkling, dull pain in forehead, especially on r. side. 10 a.m., fell asleep, cheeks red; on waking, tip and borders of tongue red, middle violet, pain in stomach, navel, and bladder, febrile pulse. 11, vomited green stuff; got gradually well during d.

c. At 9 a.m., when pulse was 60, took 1 gr. After $\frac{1}{2}$ h. pulse 80, pain in stomach, face puffy, eyes injected, tongue red, headache; slept quietly till 11 a.m., then nausea and vomiting ensued. After a moderate dinner, headache, violent pain in stomach, so that he had to go to bed. Slept till 8.30 p.m. At n. restless sleep, fever, headache, itching of skin, diarrhoea which lasted next d. Suffered for 3 d. from pain in stomach. (*Ibid.*)

8. Having occasion to take a dose of M. I was struck with the largely increased urinary secretion and its clear limpid character. Next d. I measured all the quantity passed in 24 h., and proved it to be 28 oz., sp. gr. 1014. The next d., after urinating on rising, I ate and drank as usual, but took gr. $\frac{1}{2}$ of the sulphate at 7, 10, 1, and 4 o'clock; and, measuring all the urine passed up to 9 p.m., found it to be 45 oz., very limpid, sp. gr. 1003. This experiment was repeated carefully at intervals of 5 d., and each time showed a corresponding increase in quantity and lowering of sp. gr. Since that time I have several times repeated the experiment, and always with the same results. Lest this should be the result of some idiosyncrasy I subjected five young men to the experiment, and with four of them obtained a very large increase and lower sp. gr. With one of them, on two trials, I found no perceptible increase or diminution of the quantity, but a marked lessening of sp. gr. I have not obtained the same results with O. itself. (WOODWARD, *Bost. Med. and Surg. Journ.*, lxxv, 157.)

9. a. Whenever I have taken a single full dose of the sulphate (which, with me, is about gr. $\frac{1}{2}$) I have invariably been entirely unable to sleep for 4—6 h. afterwards. My wakefulness has always been calm, placid, and pleasurable. Thus, when I have taken the dose at the beginning of the e., I have usually been kept awake by it till about 2 the next m., though the sleep obtained during the remainder of the n. has seemed to refresh me as much as if I had slept the whole time.

b. The first dose I ever took consisted only of gr. $\frac{1}{4}$, and in about 6 h. it produced a very disagreeable vertigo, and would doubtless have produced vomiting had I not confined myself to my bed till the whole effect of the drug had passed by. (TULLY, *Ibid.*, vii, 29, 31.)

10. Three doses of M., of $\frac{1}{4}$ gr. each, dissolved in alcohol, produced on SEKTERNER and three of his pupils a decided stimulant effect, which

was followed by prostration, numbness, and faintness. In one delicate individual who swallowed vinegar while in this condition, violent vomiting was immediately excited, which was followed by profound sleep, and next d. by headache, heaviness, anorexia, nausea, retching, and torpor of intestines. (*Ibid.*, p. 32.)

11. $\frac{1}{2}$ gr. of M., taken by me when in a state of health, produces scarcely any appreciable effect, supposing that I am in a state of indifference as to food (*i. e.* with a stomach neither recently filled nor, on the contrary, pained with hunger). Administered at a time when I am decidedly hungry, it has a most remarkable influence in dispelling the desire for food, for which it substitutes a warm and comfortable feeling, not merely in the stomach but also in the whole body, which exactly resembles the pleasant sensation occasioned by a moderate meal of good food, and endures for about 1 h. or $1\frac{1}{2}$ h., and then quickly subsides, leaving no trace of depression except that occasioned by hunger. I have repeated this experiment at least a dozen times, at intervals of several weeks; and always with the same result (except that on one or two occasions the influence of the drug has lasted longer). The medicine caused no particular inclination for sleep. The largest dose I have been able to take without producing greater effects than those mentioned is gr. $\frac{1}{4}$. (*ANSTIZ, Stimulants and Narcotics*, p. 119.)

12. Dr. A. M. CUSHING took 100 dr. of 3rd dil. of sulphate, Dec. 8th at 10 p.m. Next d. frequent dizzy spells with momentary loss of sight. Repeated dose at same time. 10th.—Awoke with severe colic. Spells of dizziness and loss of sight all d. At 10 p.m. took 3j. 11th.—Awoke with cramp in epigastrium as if clenched by a hand. At 11 p.m. took ʒiʒss. 12th.—In m. dull frontal headache; mouth dry; colic, relieved by turning on back; desire for stool for 2 h., then small stool with great straining; at 2 p.m. soft loose stool with horrid tenesmus and burning in rectum, almost causing frenzy; pain over and at side of l. eye all d., with some pain in l. ear.

"I made and procured several other short provings of the drug, but have mislaid them. The most prominent symptom in all of them was violent and sudden neuralgic pains, similar to those of belladonna." (*Publ. of Mass. Hom. Med. Soc.*, iii, 569.)

13. M. E.—, æt. 48, strong, but suffering from sciatica. Pulse 78; pupils $\frac{1}{2}$ at light, towards dark side of room dilating to $\frac{1}{4}$; tongue a little furred and not very moist. Injected gr. $\frac{1}{4}$ of acetate.* After 30 m., pulse unchanged; pupils $\frac{1}{2}$, dilate to $\frac{1}{4}$. At first experienced a little nausea; after 15 m. drowsiness, and since then sleep. After 1 h. 20 m., pulse unchanged, nausea gone, felt a little giddy, and continued heavy and sleepy. After 2 h. 18 m., pulse fallen 6 beats, full, regular; pupils as at 30 m.; mouth unchanged throughout. Still continued drowsy. Now walked home, a distance of 3 miles; felt very weak going along, and on getting home "broke out into a cold perspiration, and was low-spirited, faint, and almost ready to drop." Recovered in about $\frac{1}{4}$ h., after taking a cup of tea; but still feeling poorly and sleepy, went to bed and slept about 2 h. The injection

* The acetate was used in all Hasley's experiments.

was repeated on another occasion with exactly the same results. (HARLEY, *op. cit.*, p. 124.)

14. J. L—, æt. 54, an able-bodied man, suffering from severe facial neuralgia. Pulse 74, regular, good volume and power; pupils $\frac{1}{2}$; tongue clean and moist. Injected gr. $\frac{1}{2}$. It produced great somnolency after 15 m.; and after 2½ h. pulse was reduced 19 beats (to 55), unchanged in volume and power, pupils $\frac{1}{2}$. Had continued very drowsy, and slept at intervals. Walked cautiously, and felt giddy. No nauseating or other effects. Walked home, and continued sleepy for 2 or 3 h. (*Ibid.*)

15. S. M—, æt. 49, able-bodied and well-nourished, but for 15 years a great sufferer from facial neuralgia. Pulse 74, of fair volume and power; resp. 19—20; pupils at light $\frac{1}{2}$, sideways $\frac{1}{2}$; tongue moist, and when the pain came on there was much slobbering.

a. Injected gr. $\frac{1}{4}$. Somnolency followed, and after $\frac{1}{2}$ h. he fell asleep and had a short nap. After 2 h., pulse 70, a little fuller and stronger; pupil $\frac{1}{2}$. Somnolency had continued, and he still felt a little sleepy.

b. Injected gr. $\frac{1}{4}$, 3 h. after tea; urine acid, sp. gr. 1022, about 3ij in the hour. After 15 m. great somnolency. After 30 m., pulse accelerated 6 beats, unchanged in volume and power; intermitted thrice in 2 m.; pupils $\frac{1}{2}$; somnolency continues. After $\frac{1}{2}$ h. dozing; resp. 15, regular; pulse accelerated 8 beats, no intermittence; pupil $\frac{1}{2}$, sideways $\frac{1}{2}$. After 1 h., pulse only 1 beat quicker, of diminished volume; after 2½ h., pulse decreased 8 beats, and of less volume and power than before injection; pupils as at 30 m.; somnolency continued, and he was very comfortable; head, face and hands cool. The somnolency was at no time so great that he could not prevent sleep; and when he gave way to it he passed into a gentle slumber from which a slight noise awoke him. During the 2½ h. 3iv of bright acid urine, sp. gr. 1020, was secreted.

c. Injected gr. $\frac{1}{4}$ 2 h. after tea; had secreted during the previous h. 3ij pale acid urine, sp. gr. 1000·2. After 10 m. began to feel very sleepy; pulse accelerated 16 beats; resp. 16, regular; eyes suffused; pupils $\frac{1}{2}$, sideways $\frac{1}{2}$. After $\frac{1}{2}$ h., pulse accelerated 20 beats, increased in power; resp. 14, regular; tongue unchanged; membranes of eye much injected; cheeks hot and flushed; scalp a little less so. After 1 h. pulse had attained its maximum acceleration of 26 beats, strong and regular, and of good volume—a pulse indicative of strong stimulation; resp. 14, regular; pupil $\frac{1}{2}$, sideways $\frac{1}{2}$; general diffusion of warmth throughout body; eyes injected, face and head hot and flushed. After 2 h. the maximum acceleration of the pulse and the other symptoms continued unchanged. After 3 h. the symptoms began to decline; the pulse had fallen from 100 to 96, and had nearly returned to its original volume and power; resp. still 14; pupils $\frac{1}{2}$, sideways $\frac{1}{2}$; less heat and flushing of head and face; somnolency rather less. After 3½ h., pulse 94, still a little fuller and stronger; resp. 14, regular; anterior part of tongue dryish. Had slept throughout comfortably and a little more soundly than in ordinary sleep. Was not conscious of dreaming, but muttered a good deal. During the 3 h. fol-

lowing the injection, 3vas of bright acid urine, sp. gr. 1022, was secreted. The only after-effect was a little sleepiness during the next 48 h. (*Ibid.*)

16. J. W.—, æt. 33, subject of severe lumbar neuralgia. Pulse 78; pupil $\frac{1}{2}$; tongue clean and wet.

a. Injected gr. $\frac{1}{4}$. After 50 m., pulse decreased 4 beats; some drowsiness and giddiness. After 1 $\frac{1}{2}$ h., pulse decreased 10 beats, unchanged in volume and power; pupil $\frac{1}{2}$; face slightly flushed. Had begun to feel more light-headed and sleepy $\frac{1}{2}$ h. previously. After 3 h., pulse 60, i. e. decreased 18 beats, of normal volume and power; pupil $\frac{1}{2}$. Dozed, and had had some sound sleep since last date. No change throughout in mouth or vision; continued to read newspaper for 1 $\frac{1}{2}$ h. succeeding injection. Now walked away a distance of 4 miles.

b. Some weeks after, injected gr. $\frac{1}{4}$. Somnolency followed within 5 m. After 1 $\frac{1}{2}$ h., pulse decreased 4 beats, unchanged in volume and power; had slept soundly for $\frac{1}{2}$ h., and was now very sleepy and giddy; pupil $\frac{1}{2}$; vision unimpaired. (*Ibid.*)

17. C. V.—, æt. 32, strong man save for chronic lumbago. Pulse 76; pupils at light $\frac{1}{2}$, sideways $\frac{1}{2}$, at dark side of room $\frac{1}{4}$. Injected gr. $\frac{1}{4}$ 2 h. after breakfast. Passed 3ix urine, acid, sp. gr. 1010.4. After 30 m., pulse unchanged; pupil $\frac{1}{2}$, sideways $\frac{1}{2}$, and at dark side of room $\frac{1}{4}$; tongue clean and moist; no drowsiness. After 1 $\frac{1}{2}$ h., pulse decreased 16 beats, regular, of unchanged volume and power. After 2 h., pulse decreased 20 beats; passed 3viiiiss of urine, alkaline, sp. gr. 1008.8. After 4 h., pulse decreased 22 beats, being now 54, regular, and of good volume and power; pupils continued as at 30 m.; tongue and mouth remained unchanged, moist, and clean; no nausea or somnolency throughout; passed 3vij more of urine, freely acid, sp. gr. 1009.2. Now walked home, and between 5th and 6th h. felt a little nausea, but no somnolency. The injection was repeated on two occasions with the same result, viz. decrease in frequency of pulse and contraction of pupils; but, in addition, a little heat and flushing of face and slight giddiness. There was no apparent somnolency on either occasion. (*Ibid.*)

18. Mary B.—, æt. 46, well nourished, but very lame from sciatica. Pulse 80; pupils at light $\frac{1}{2}$, aside barely $\frac{1}{2}$. Injected gr. $\frac{1}{4}$ behind tracheæ. After 10 m., giddiness and somnolency; then fell asleep for $\frac{1}{2}$ h. After 1 h. awoke, and complained of being very giddy, and said that everything was running round; cheeks and forehead hot and flushed, hands hot, "felt hot all over;" pulse increased in volume and power; pupils at light $\frac{1}{2}$, aside $\frac{1}{2}$; tongue clean and wet. After 2 h., —had felt very drowsy and sickish; pulse 74, regular, of same volume and power as before injection; pupils at light $\frac{1}{2}$, aside $\frac{1}{2}$; tongue moist, a slight whitish fur, indented. During next 5 h. was distressed with nausea, faintness, and constant retchings, with alternate flushes of heat and cold.—Experiment was repeated with exactly the same results. (*Ibid.*)

19. Mrs. N.—, æt. 40, a spare, very excitable, loquacious little woman, afflicted with severe neuralgic pains in r. shoulder. Pulse 100; pupils $\frac{1}{2}$; tongue clean and moist; general health good. Injected gr. $\frac{1}{4}$ into affected part. After 40 m. looked very heavy, and

felt "dreadfully tipsy;" pupils $\frac{1}{2}$. After 1 h., pulse decreased four beats, regular; drowsiness gone off; now felt very ill, with "indescribable sensation, worse to hear than any pain" behind lower half of sternum; sick and faint. After 2 h., pulse decreased 30 beats, feeble, and slightly irregular; had suffered constant nausea, and vomited twice; bowels had acted loosely twice; was pale and cold, and almost unable to walk. During next 4 h. she continued in this state; and did not recover from the weakness, and tendency to nausea and faintings, for a week. She subsequently told me that M. always had the above-described effect on her; that 6 dr. of laudanum by stomach would make her sick and faint; and that she could readily distinguish between the action of laudanum and morphia, the latter always producing a more intense feeling of distress in the præcordia. (*Ibid.*)

20. a. Mrs. W—, æt. 34, stout and healthy, of hysterical temperament, and liable to neuralgia, which she had now had for two years in fingers; pulse 80; pupils $\frac{1}{2}$ at light, $\frac{1}{4}$ at dark side of the room; tongue clean and moist. Injected gr. $\frac{1}{2}$ into arm. In 15 m., drowsiness. After 7 h., pulse accelerated 6 beats; pupils at light $\frac{1}{2}$, away from it $\frac{1}{4}$. After 1 h., drowsy and giddy; pulse same. After 2 h., pulse 80, regular, of good volume and power; pupils as at 7 h.; giddiness and drowsiness had now passed off; tongue and mouth unchanged, and there was no nausea or faintness throughout.

b. Some time later, injected gr. $\frac{1}{2}$ into affected finger. After $\frac{1}{2}$ h., pulse weaker; face slightly flushed; had felt faint, tremulous and sick for 15 m. After 7 h., had napped for 20 m.; pulse feeble, decreased 4 beats, intermitting occasionally; felt sick and faint; face pale and anxious, and she was generally cold and tremulous; resp. irregular, with frequent sighs. After 3 h., had slept $\frac{1}{2}$ h. more, but still continued very sick and faint; pulse very small, weak and intermittent, accelerated 6 beats; pupils and mouth unchanged throughout. She now walked home. Slight drowsiness continued for a short time, but there was no more nausea. A month later, same dose was given with same results, but vomiting and retching continued some h. (*Ibid.*)

21. a. The train of symptoms from gr. $\frac{1}{2}$ of acetate by the mouth were these:—The first was nausea, which was accompanied, in 25 m., by tightness across the brows, and headache; pulse was retarded; saliva diminished; mouth and fauces became dry. Later, pulse was still further retarded. The nausea passed off in a few h., the most persistent symptom being headache. With larger doses pupils become contracted, and nausea and loss of appetite may continue for some time after the other symptoms have passed off, or vomiting even may occur.

b. Nausea was not observed to follow the introduction of the drug into the rectum in so marked a degree as when it was given by the mouth. In some cases, itching of the skin was a prominent symptom; but no other difference in the kind of symptoms was observed.

c. From injection of gr. $\frac{1}{2}$ into cellular tissue,—the first signs of absorption (after 4—10 m.) were dizziness and faintness; then ensued headache, nausea, acceleration of pulse with slight increase of temperature, burning heat of face and flushing of cheeks. The period of excitement passes off in about 20 m.; pulse is retarded, temperature

falls, natural secretions are diminished; saliva ceasing to flow, mouth and fauces become dry and constricted; general lassitude and disposition to sleep come over the patient; pulse bears yet more slowly, and occasionally is irregular; in some cases itching of the skin is felt, in others profuse sweating. If the dose be large, retching and even vomiting may follow, nausea and headache being prolonged for some time. (*Med.-Chir. Trans.*, 1, 572.)

22. *a.* Man, æt. 31, in perfect health. At 11.35 a.m., 2 h. after breakfast, gr. $\frac{1}{2}$ was injected, pulse being 60. 11.40, slight dizziness and faintness, which gradually increased and became severe at 11.45, when they were accompanied by headache, tightness of forehead, pain at back of eyeballs, and slight nausea. 11.50, heaviness of eyelids; pulse 68; previous symptoms increased. 11.55, burning heat of cheeks and face. 12, pulse 60; dizziness increased, decided dryness of tongue; head symptoms severe; some dimness of sight. Partial relief from these disagreeable symptoms was obtained by lying down. 12.7, pulse 58, headache rather less; other symptoms unaltered. 12.10, marked decrease in quantity of saliva, with general dryness of mouth and fauces; utter incapacity for work or exertion of any kind. 12.17, pulse 54, intermittent; inclined to doze; general lassitude and disinclination to work; dryness of mouth, constriction of fauces. 12.32, pulse 53, irregular; somnolence. 1.10, speech thick; inclination to misuse words; pupils contracted. 1.37, slight itching, with general dryness of skin. 1.55, pulse 48, very sleepy; slept for a short time. 3.5, dull and heavy, but not so overpowered with sleep. 4.20, able to go out and do some work; the more potent effects of the drug are passing off. Pulse irregular. 5.5, head a little lighter. This state continued till 11.30 p.m., when pulse was 50, and he had headache, heavy eyelids, and flushed cheeks. Went to bed; heavy sleep disturbed by dreams, and disinclination to rise on following m. Next d. urine diminished in quantity; less bile in stools than usual; appetite bad. Pulse at 9.30 a.m. had returned to 60. Dryness of mouth lasted till 1.30 p.m., that of skin till 5.30. Headache remained, though in minor degree, till e. of 2nd d., and nausea was not removed till m. of 3rd d.

b. Same individual took, at 11.44 a.m., same dose in a drop of water on tongue; pulse 64. 11.54, slight nausea; pulse same. 12.12, nausea increased, and accompanied by some tightness of forehead. 12.47, pain across forehead and nausea; pulse 56. Symptoms very slight, and no disinclination to work. 1.11, dryness of mouth and tongue, not so marked as on previous occasion. 1.42, dizziness began to pass off; pulse 54; pupils not observed to be small. 1.57, nausea giving place to feeling of hunger; headache remained, but there was less dizziness; pulse 54. 6.30, pulse 66; no nausea or dizziness; secretion of saliva restored; no alteration observed in quantity of urine, bile, or perspiration; only slight heaviness existed across brows. This had quite passed off, and no symptoms remained, at 11 p.m. (*Ibid.*, p. 604.)

23. At 9 p.m., Feb. 15th, 1875, Dr. C. P. GATCHELL, for experiment, administered to himself two hypodermic injections of M.

at $\frac{1}{2}$ h. intervals, each injection of gr. $\frac{1}{2}$. The 1st produced only heaviness of arms and head and tingling in feet. After the second, very sleepy, mind very active, but seemingly without control of the will. Thoughts followed each other in quick succession, and the mind jumped rapidly from one subject to another. The condition seemed to be analogous to that which exists when in a dream, seeming to involve days or weeks, but known to occupy but a few seconds or m. of time. Went to sleep for a short time, but was soon awakened by an itching sensation over whole body, which induced vigorous and constant scratching. This was felt on every part of body, from crown of head to soles of feet. Head itched as though innumerable insects were crawling through his hair. Face felt as though covered with cobwebs, which he tried to wipe off; bottom of feet as if he had chilblains. Legs, arms, abdomen, and back all itched as if tickled with feathers. This, with the scratching induced, lasted until m. Occasionally after scratching he would fall asleep, but only to be awakened by the itching, necessitating more vigorous scratching. In spite of this, skin in m. was smooth and white. Much vertigo on rising. Pupils much contracted and irresponsive, eyes feel small—too small for sockets, look watery and countenance haggard, like one who had been dissipating. Gait irregular and staggering like a drunken man. Impossibility to study or fix mind on one subject. For an h. after rising, in talking had to stop in midst of the simplest sentence and think what word to say. At intervals during d. and in e. slight itching, as from fleas. This was the only remaining symptom after 24 h. (*U. S. Med. Invest.*, March 1st, 1875.)

II. *Poisonings*.—1. M. X—, æt. 30, in good health save for occasional severe headaches and cerebral congestions following upon a meningitis at 14 years, took immediately after dining, with suicidal intent, 1 gram. of acetate in bread-crumbs. He returned $\frac{1}{2}$ h. later to his lodging, apparently calm, but fell suddenly as if lightning-struck. Time was lost in summoning a brother, and Dr. Salviat did not see him till after 2 h. more. He found him stretched on the ground entirely insensible; teeth locked; limbs relaxed; eyes fixed, insensible to light; face flushed; pulse full, slightly quickened. Ignorant of the cause, he opened a vein. As the blood flowed, patient opened his eyes and appeared to regain some sense; on being questioned, he confessed to having taken M. An emetic was then sent for, but before it could be given he had relapsed into insensibility and teeth were clenched. Mayer's hammer was applied to various parts of body, but only provoked some convulsive movements, which soon ceased again. Pulse and surface temperature had now fallen considerably. Nothing further was done, but about $\frac{1}{4}$ a.m. consciousness began to return, the emetic was given with effect, and then some coffee. The physician, recalled, found coma indeed, but not such as to prevent questions being sensibly answered. He gave another (antimonial) emetic, and directed a strong solution of tannin to be administered when vomiting should have ceased. At 2 p.m. he saw him again, and found him quite conscious. He now had convulsive movements, tingling all over body, nausea, profuse sweatings, burning thirst, constipation, suppression of urine, but no

contraction of pupils. By e. he was better, and next m. was up, complaining only of great fatigue and some tingling in limbs. (TARDIEU, *op. cit.*)

2. A young doctor swallowed 24 gr. of acetate in 1½ oz. water. After 10 m. burning in back of head and pit of stomach, whence an itching formication spread along linea alba to r. and l. thigh. After a little the same feeling occurred in upper extremities, and all the limbs felt bruised. This was followed by heat of whole head; after several h. burning thirst, dry tongue, consciousness perfect, no nausea or vomiting, shooting in eyes, which seemed to have a veil before them. The heat now went through whole body, but the limbs remained cold; abdomen was distended, carotids throbbled, and he now for the first time felt approaching stupor. In ½ h. afterwards, when the people of the house came into his room to learn why he lay so long in bed, he could not see them, though he was sensible enough to reply to their inquiries that he lay in bed because he had not slept the n. before. Soon after this he fell into a state of profound stupor, and lost all consciousness. In 12 h. he was visited by Orfila, who found him cold, quite comatose, and affected with lockjaw; the pupils were feebly dilated, pulse 120, breathing hurried and stertorous, belly tense and tympanitic; and there were occasional convulsions, with intense itching of the skin. By means of copious venesection, sinapisms, ammoniated frictions, stimulant clysters, ice on the head, &c., he was gradually aroused, so that in 6 h. he recognised Prof. Orfila. In subsequent n. and d. he had difficult and scanty micturition, with pain in kidneys and bladder, and difficulty in swallowing; but these symptoms went off during 2nd n., and on 3rd m. he was quite well. (CHRISTISON, *op. cit.*, 4th ed., p. 725.)

3. A young man addicted to opium-eating, but who had left off the practice for a twelvemonth, took first 10 gr. and in 10 m. 40 gr. more of the acetate. In 5 m. from last dose he had excessive general feebleness and sense of impending dissolution, which forced him to confess what he had done. In 15 m. more M. Castara found him motionless, almost comatose, and breathing laboriously. Limbs were flaccid, pupils contracted, face and lips livid, skin warm and moist, pulse full and hard, deglutition impossible. He was bled to 18 oz., upon which he started as from sleep, rubbed his eyes, said everything turned round him, and that he could not see the people present. When left to himself he quickly fell into a calm slumber, but if kept awake he told collectedly all that happened before he became comatose. He complained chiefly of slight itching and a general bruised feeling. In an h., by keeping him constantly roused, his consciousness was almost restored, and this without vomiting having been produced, though 2 gr. of tartar emetic had been swallowed and three administered by the rectum. In 4 h. after he swallowed the poison he vomited freely and had diarrhoea. After this he recovered, the sleepiness continuing all next d., and the itching of the skin even longer. (*Journ. de Chim. Méd.*, vii, 135.)

4. A girl, æt. 19, was brought to the Edinburgh Infirmary perfectly insensible; breathing somewhat hurried and oppressed; pulse almost imperceptible, and so rapid that it could not be counted; pupils contracted to size of pin's head. It was ascertained that a ʒviij cough-

mixture had been prescribed for her, containing rather more than 1 gr. of the muriate. She took the whole of it in divided doses between 8 p.m. and 2 a.m. She then fell into a state of insensibility, which had continued up to the time of her admission to hospital at 9 a.m. She died soon afterwards. On inspection, the only morbid change observed in the head was a somewhat less marked appearance of the depressions between the convolutions; and the vessels contained dark-coloured blood. The stomach, which was much corrugated, contained a pint of greyish-coloured fluid. In heart and great vessels were numerous coagula of blood. There was purple lividity of face, neck, and arms. (TAYLOR, *op. cit.*)

5. A. B.—took a quantity of the acetate in warm wine. Disagreeable taste, restless n. Next m. took some milk, after $\frac{1}{2}$ h. vomited and had copious stools. 11 a.m., more vomiting, firm, intermittent, small, contracted pulse, slight pain in umbilical region. 4 p.m., sweat, free, full pulse, soon stupefaction, slight twitchings. 11 p.m., unconscious, head drawn backwards, laboured breathing, blue complexion, some mucus in mouth, upper part of body covered with viscid sweat, lower extremities cold, pulse small, intermittent, violent spasmodic shocks. Twenty leeches to pit of stomach, and venesection, allayed these symptoms, but they recurred 2 h. later. The 3rd d., 6 a.m., body blue, warm, respirations rattling and rare, pulse could not be felt, pupils very contracted. Venesection brought only a few drops of blood, the face gradually became cadaverous, and death ensued at 1.15 p.m. *P.M.*—Blue coloration of skin, frothy mucus in r. nostril, the jejunum externally red, red spots on m.m. of cardiac end of stomach, emphysema and black ecchymoses in its m.m., veins distended, semi-hepatization of r. lung, exudation of bloody water in both pleural cavities, r. side of heart filled with black blood, its structure soft, dura mater tense, sinuses and veins of brain distended with blood, arachnoid red and congested, serum in ventricles, cerebral substance firmer than normal. (CHAYET, *op. cit.*)

6. A porter in a druggist's shop, æt. 53, strong and healthy, but fond of brandy, coming chilled from walking in the cold into the laboratory, drank some of a mixture of alcohol and morphia. He ate his supper at 8 p.m. as usual, went home, complained of confused head and giddiness, and went to bed. Next d., at 6.30 a.m., he was found lying in bed unconscious, lying on the l. side of his face, the pillow soaked with saliva. The doctor found him apoplectic, destitute of consciousness, sensibility and movement, breathing snoring and rattling, face bluish and bloated, heart and carotids beating strongly, pulse hard, urine and feces suppressed. 2 h. after venesection pulse not so hard and full, breathing short and unequal, snoring and rattling louder, eyes dull, pupils contracted, features fallen in and blue, œsophagus quite paralysed, forehead and extremities cool, rest of skin warm. After 4 h. pulse small and irregular, sometimes intermittent, tongue dry and covered with thick dirty slime, on back and thighs many dark bluish red spots. Died the 5th h. *P.M.* 45 h. after death. Sanguillations numerous, rigor mortis less than usual, abdomen much distended; veins of pia mater and medulla oblongata, plexuses in central cavities and

sinuses of dura mater distended with black fluid blood. Heart's ventricles and coronary veins distended with fluid, blackish-red blood. Stomach much distended with gas, food in it undigested and smelling faintly acid. M.m. reddened in sacculus coecus, near pylorus and in some parts of duodenum and ileum. Veins of mesentery and liver contained much black discoloured blood; bladder distended with urine. (PFISTER, *Schweiz. Zeitsch.*, ii, 2, 283. 1837.)

7. A man, æt. 25, took from 30 to 36 gr. and presented the following symptoms:—Pale face; perspiration; pulse small, contracted, quick; pupils very contracted, immovable; vision distorted and obscured; complete ischuria; constipation; sopor; slight itching of skin, restlessness, heat all over body at n.; sleeplessness followed by sopor. (LESSIER, *Journal des conn. méd. chir.*, Novr., 1838; quoted by TRINKS, *A. h. Z.*, xviii, 288.)

8. A female infant, æt. 11 weeks, who had been nourished artificially for 4 weeks, got on 4th March, c., by mistake $\frac{1}{2}$ gr. She immediately fell into profound sleep, occasionally interrupted by convulsions. After 12 h., at 10.30 a.m., she was found still sound asleep, from which she could with difficulty be roused, face bloated, lips livid, look staring, pupils very much contracted and immovable. This state was occasionally varied by attacks of convulsions and trismus, and there was very much diminished sensibility. The cervical and temporal arteries beat strongly. Scanty emissions of urine, no stool. She got from 10.10 till noon 2 teaspoonful of black coffee every $\frac{1}{4}$ and then every $\frac{1}{2}$ h., and between 12 and 3 p.m. 2 clysters of coffee. Then an emetic of ant. tart., which did not cause vomiting. Cold compresses to head and douches of cold water every h., which every time woke her up. At 4.30 p.m. the bowels opened freely, the excrement was very fetid, but the other symptoms continued as before. Camphor emulsion was then given every $\frac{1}{2}$ h. from 6 p.m. till midnight. At 7 p.m. the child was still in profound sleep, from which she could be partially roused, when she had attacks of opisthotonos; she looked like a corpse. Leeches were applied to mastoid process, and soon afterwards the convulsions ceased and she slept quietly all n. Next m. she awoke nearly well, and on the 12th the mother reported her better than before. (ZEPUDER, *Wien. mediz. Halle*, 1861, No. 14, quoted in *A. h. Z.* *Mbl.*, iii, 49.)

9. A young woman, labouring under uterine scirrhus, and suffering from vomiting and pain in stomach, had applied to the epigastrium, from which the cuticle had previously been removed by a blister, gr. $\frac{1}{3}$ of the muriate. The application was repeated next m. Some time after this patient fell into a state of complete narcotism. She suffered from pain in head, stupor, ringing in ears, dizziness and incoherency, a hot and dry skin, and a strong and frequent pulse. Among the symptoms was one somewhat remarkable,—she saw only the (lateral) half of surrounding objects. The cerebral congestion was followed by convulsions. Venesection was performed, but this produced only a stronger attack, followed by another. A compress soaked in vinegar, with ice, was applied to the forehead, followed by sinapisms to legs. The symptoms gradually abated, but it was three weeks

before vision and speech were perfectly restored. (*Brit. Med. and Surg. Journ.*, xxxiii, 128.)

10. A woman, æt. 63, suffering from extremely painful incurable spasms, for which $\frac{1}{4}$ gr. of acetate was prescribed to be applied endermically on both sides of the cervical vertebræ, had once too much (how much?) sprinkled on. The doctor, called in 3 h. afterwards, found her sitting up in bed, the face, which was rather red, and all the body, covered with cold sweat, breathing short, indescribable anxiety, pulse small and irregular, a convulsive twitching all over body, constant retching, extreme exhaustion, consciousness not quite lost. These dangerous symptoms yielded in a few h. to washing off the drug and applying camphorated spirit on compresses to the gastric region, enemata of vinegar, strong coffee, and camphor emulsion; but it was some weeks before she quite recovered. (HEYMANN, in *Casper's Wochensch.*, No. 25, p. 402. 1837.)

11. A washerwoman, æt. 36, who had been confined to bed for 8 d. with violent tearing pains in head, had $\frac{1}{4}$ gr. applied endermically on the nape. After 2 h. the face, previously pale, was dark red and bloated, eyes wild and prominent, veins of forehead distended, mouth drawn awry, lips convulsively twitching, indescribable anxiety and restlessness, breathing short, quick, and jerky, face and limbs covered with cold sweat, pulse irregular, intermittent, nausea; but full consciousness. It was found that for 3 d. previously she had been taking opium internally. She recovered under antiphlogistic and derivative remedies in 24 h. (HOEFMANN, *Hufeland's Journ.*, lxxvi, Pt. 2, 37. 1833.)

12. a. BILLROTH, in the case of a lady who took small doses (gr. $\frac{1}{2}$ — $\frac{1}{4}$), saw such anxiety, nausea, and vomiting, that, although suffering intense pain, she refused to take the remedy again.

b. WERNICK has called attention to a paresthesia of taste occurring after M., especially in weakened states of the system. The persons affected complain, shortly after the injection, of an intensely bitter or sour taste in the mouth, which usually ends simultaneously with the cessation of the M. action.

c. The incidental effect which M. sometimes produces on the eyes has been carefully described by v. Graefe. There occurs, particularly in very irritable persons, a spasm of the accommodation, the result of the stimulating influence of the drug upon the ciliary muscle. The focal point approaches so near that the range of accommodation is much limited and myopia therefore occurs. Sommerbrodt also observed spasm of the accommodation, lasting only 30 seconds, after injection of gr. $\frac{1}{4}$. The outlines of faces and heads of persons standing around bed seemed to patient suddenly to run together, so that he was unable to recognise anyone. Although, according to v. Graefe, this condition usually occurs 30—45 m. after the injection, in this case it presented itself immediately after it.

d. APOLANT saw in the case of a man who took several times 12—15 dr. of a sol. of the muriate, gr. $\frac{1}{4}$ to $\frac{3}{16}$, an urticaria-like eruption, which the patient, without knowing what he had taken, at once attributed to M., having already discovered that he was specially suscep-

tible to its incidental effects. The eyelids were swollen, the whole face œdematous, and red wheal-like prominences appeared on the hands and other parts of the body. After 5 d. desquamation set in, during which large coherent pieces of epidermis could be pulled off. (LAWIN, *op. cit.*)

13. A patient took, for cough, a sol. of the muriate in such frequent doses as to induce excessive drowsiness, "falling asleep even while she was speaking." On the 6. of the d. in which she did so she was attacked with vomiting, and was soon covered with a papulo-vesicular eruption, which, beginning on face, quickly extended to neck, trunk, and lower extremities. In its crescentic form it strongly resembled measles. The M. was discontinued, and next d. there was little trace of the eruption. (*Med. Circular*, June 10th, 1863.)

14. A patient took, for dysmenorrhœa, teaspoonful doses of a sol. of 3 gr. of acetate to ℥j water (℥). The first few doses produced nausea and vomiting. She retired at 8 p.m., feeling, as she said, "quite drunk." An h. after she was found perfectly insensible, lying upon her back with eyes open, a delicate flush in cheeks; lower extremities seemed paralysed, and were cold and doughy,—they were violently pinched and pricked with needles, but—even after consciousness returned—without result. Consciousness partly returned in an h., when r. arm and leg were paralysed, with violent trembling and shaking. (*Amer. Journ. of Hom. Mat. Med.*, iv, 60.)

15. A girl, æt. 20, suffering from neuritis and neuromata, had for mos. at first 0·012 and after awhile 0·015 grm.; every injection produced in the beginning intense but evanescent redness of face, surring of the ears and palpitations, more rarely vertigo and vomiting; another frequent manifestation was a long-continued singultus and a hoarseness when speaking for any length of time, whereas her voice is usually extremely clear. As her constitution became used to the remedy, all these symptoms disappeared except a peculiar tickling sensation in the nose, œsophagus, and larynx, as when one has to sneeze, which she experienced after every injection. (*Amer. Hom. Obs.*, vii, 420.)

16. The effects of M. and its salts on the various organs and systems of the body may be considered in the three following respects: 1, the progressive course of the phenomena; 2, the relationship between the varieties of these phenomena; 3, the special modifications due to the mode of administration.

a. Digestive system.—Increased thirst is one of the first symptoms, it comes on in from a quarter of an h. to a few h.; most quickly if placed on the denuded skin and less quickly and certainly after internal administration. Dryness of the mouth and throat always accompany the thirst, and sometimes dysphagia. Very occasionally, however, thirst is not increased, and an increased flow of saliva occurs. This takes place only after external application. It is to be noticed that in these circumstance swallowing is always easy, and that a diminution in the saliva precedes the pryalism. Bitterness of the mouth does not ensue from the use of morphia, but the vomiting due to it is very noticeable. There appears, therefore, to be no relation between bitterness of mouth and vomiting. As long as drowsiness and the malaise

preceding vomiting last, there is dislike for all sorts of food. When the head symptoms have passed off the appetite may continue poor, but it may, on the other hand, be very good. Digestion is badly performed. Vomiting occurring during the last few days of dressing a raw surface passes off in a short time, leaving only a little nausea or none at all remaining. Hypodermic injections cause nausea, but rarely vomiting. After internal administration vomiting occurs late and may last long. The vomiting is entirely unaccompanied with gastric pain or alteration in the condition of the tongue. The lower part of the digestive tract is not less affected than the upper; either constipation or diarrhoea may occur as a result of the use of M.; the former always after the external application, and the latter only after internal administration for several d. Even so, constipation always precedes the diarrhoea. The most noticeable modifications that M. and its sales produce on the digestive canal, then, are thirst, loss of appetite, difficulty of digestion, nausea, vomiting, and constipation or diarrhoea. Of these the first three and the constipation may exist without nausea or vomiting; the presence of vomiting supposes the existence of the whole series of phenomena.

b. Secretory apparatus.—The urine may be increased or diminished; diminution takes place more often than increase, but in either case the drug must have been given for at least 2 d., in doses of 5 to 10 centigrs. Rarely the alteration occurs after 1 d. and 5 centigrs. Increase is more frequent after internal administration; diminution is much more frequent than increase. According to the researches of T. and P., urination is rendered difficult both in men and women; other authors state that dysuria occurs only in men. In most cases, after prolonged effort only a small quantity is passed, and where it was necessary to draw off the urine only 200 or 300 grains. were removed. (The dysuria may be explained in part by supposing a condition of dryness similar to that of the mouth, and in part by a lessened contractility of the muscular walls of the bladder.) An h. or two after external application of M. profuse sweat appears, at first in the neighbourhood of the part where the drug was applied, and gradually extending to the rest of the body, and lasting some 24 h. The heat of the skin is increased and the face is more or less flushed. After internal administration, sweat appears less promptly but not less surely. Women perspire much more freely than men; this is noteworthy in connection with the fact that in men the kidneys are more affected than in women. Itching of the skin, of more or less severity, is generally produced. It appears and spreads in the same manner as the sweat has been stated to do. Sometimes it may be in the eyelids, the nose, the back, or the joints that the itching begins; it may be limited to these parts, but generally it becomes universal, remaining more severe in the parts in which it began. The sweating and itching commonly go together, but they may occur separately, especially near the beginning of the administration. Sometimes the sweating and the itching exist in inverse proportions; in several cases it was observed that while the forehead was sweating profusely, the eyelids and nose were quite dry and itched very uncomfortably. Eruptions, such as prurigo, urticaria, erythema and eczema, appear as the result of considerable sweating, and are asso-

ciated with itching. But it should be understood that the itching also occurs independently of the eruptions and much earlier in the course of the administration. These skin phenomena come on chiefly during external use of M., but they occur also, though less often, from its internal use. In the latter case these symptoms come on more slowly, and are less pronounced. The formula of authors, "increase of cutaneous secretion, diminution of internal secretions," is subject to exceptions; generally speaking, any secretion capable of increase under the influence of M. may also be diminished thereby; the order of diminution preceding increase, however, is always preserved.

c. Generative apparatus.—In ♀ women menstruation was rendered either more profuse or earlier in its onset than ordinarily; it was even re-established after having long ceased.

d. Circulatory system.—The perspiration described is always accompanied by a development of heat, a heightened colour of skin, increased frequency of pulse and respiration.

e. Nervous system.—Disturbances of vision, noises in the ears, pains and heaviness of head, and weakness of muscles, are well-known effects of the drug. Contraction of the pupils takes place, and coincides with the vomiting and sleepiness; the eyelids droop; they assume a violet tinge, which extends along the furrow, commencing at the inner angle. These modifications, together with the appearance of depression and weakness spread over the countenance, make it easy to recognise the effects of opium, even in moderate doses. Only on one occasion have the authors seen violent and noisy delirium produced by M. Sleep may be calm when the dose is a small one, and the patient feels no other narcotic effect; but when, at the same time, nausea, itching and contraction of pupils exist, the patient is stupefied, and wakes up only at once to fall asleep again, but this sleep is of short duration, and is accompanied by painful dreams. This condition lasts as long as the administration and daily increase of dose continues, but when the administration is left off the most rebellious insomnia may trouble the patient, even for weeks together. In some cases profound coma exists, in which the patient is insensible to every stimulus.

f. Experiments show that M. is absorbed more quickly by the skin than by the stomach; in the former case symptoms of intoxication beginning in 2 m. after the application to the denuded derma, in the latter delaying perhaps for an h. or two, and vomiting not setting in for 2 or 3 d. Among the phenomena that have been described some begin from the very first d., while others delay for a longer or shorter time. The 1st class are thirst, vomiting, frequent urination, sweat, itching, sleepiness, contracted pupils, and depressed and languid expression of countenance. The 2nd are, salivation, constipation or diarrhoea, increase of urine, appearance of menstruation, and obstinate sleeplessness. (TROUSSEAU et PIDOUX, *op. cit.*, sub voce.)

17. Dr. BALLY made a great number of observations of the effects of morphia and its salts on patients suffering from various affections in a large hospital. As the result of these observations he gives the following as the effects of this substance: slight dryness of throat, bitter taste; retching and vomiting without loss of appetite, frequently

occurring transient shooting pains in stomach, eructations of air preceding the sickness. Constipation sometimes followed by diarrhoea; colicky pains, chiefly about the navel, but also in ascending and descending colon; these pains are usually of short duration. Irritation of neck of bladder causing frequent urination. Usually the patient has to make efforts to pass his urine for from 2 to 15 m., then the urine will come all at once, stop again, then flow, and so on till bladder is emptied. Sometimes there is complete retention requiring catheter to be used. In one case the bladder after death was found to be so distended that it reached up to the epigastrium. Sometimes after a number of ineffectual attempts the urine flows away involuntarily; sometimes it is in a full stream, in which case it will often suddenly stop and only flow again after waiting and renewed effort; sometimes it dribbles away. The urinary symptoms are only observed in males; women only sometimes complain of heat in the urethra. Little or no effect on circulation or respiration was observed. There is often intolerable but transient and recurrent itching of skin, sometimes all over, sometimes chiefly on face, neck, and loins, occasionally on external genitals, interior of nose, and eyelids. Sometimes attending the itching there is an eruption of small conical red or colourless pimples. Vertigo in which the walls, bed and furniture seem to whirl round, the floor to rise up, and the ceiling to sink down. The gait is unsteady, sometimes they go forwards and then backwards, sometimes obliquely or sideways, some stagger about and require to hold on to a support, some fall suddenly down, all complain of intoxicated feeling. The vertigo is most felt when standing, but sometimes persists while lying. The latter when they rise up have a trembling or rather a kind of shaking which propels them upwards and from behind forwards, or jerks their arms upwards. Sometimes electric shocks are felt through body and limbs. Mists or specks before eyes are sometimes present, others see phantoms of various kinds, some see flames, and as if the place was illuminated by thousands of candles. (These symptoms occur more in dry warm than in wet weather.) Some imagine they see abysses, curious monsters, new worlds, Purgatory or Paradise. Drowsiness, stupor of physical and mental faculties, are frequent. Sight is often obscured, so that patients cannot read. Pupils are sometimes contracted, rarely dilated, but generally unaffected. The vertigo is often attended or followed by headache. There is sometimes tinnitus aurium, sometimes a crepitating sound is heard in head, and sometimes loud and sudden explosions. (*Mém. de l'Acad. roy. de Méd.*, i, 99.)

18. Dr. —, æt. 65, had valvular disease of heart, dropsy, and neuralgic pains of limbs. For relief of latter began hypodermic M. in usual doses, and increased them till he took a gr. every 8 or even 5 h. After he had taken this quantity daily for 6 mos., the following was his condition:—From 1—3 h. after injection of gr. j pulse full, strong, regular, 90—100; countenance ruddy, bright, and cheerful, and patient abounded with his natural vivacity and mental vigour. From 4—8 h. after, pulse 80—90, weak and flaccid, but still regular; he was haggard, depressed, and irritable. The M. soothed the pains, which seemed now more imaginary than real, but it never induced a trace of

hypnosis, muscular spasm, or contraction of pupil. Tongue is always preternaturally clean and smooth, resembling recent muscle in colour and in the appearance of superficial translucency, moist or even wet, but sometimes inclining to dry and glazed. (HARTER, *op. cit.*, p. 127.)

19. An old gentleman, after paralysis at 75, took opium every n. to procure sleep. After 3 years M. was substituted, and from time to time increased until he took 1 gr. every n. After continuing this for 6 mos., its effect was as in previous case. It produced a quieting effect, but patient was never conscious of sound sleep as a result of its use. Tongue, from being constantly furred, became preternaturally clean and smooth, like raw flesh, and had a great tendency to become dry and glazed. Appetite remained good, and secretions were as active as when no opiate was taken. (*Ibid.*, p. 132.)

20. A lady got by mistake a hypodermic injection of 3 decigr. of M. Immediately violent pain at point of injection, and extreme anxiety. Seen after 20 m. face dark red, vertigo, oppression, strongly beating carotids and pupils extremely contracted, pulse 92, resp. 24. Atropine, $1\frac{1}{2}$ milligr., was injected twice at short intervals. Then pupils began to dilate, but the oppression and sleepiness increased, speech became slow, difficult, stammering, face dark red, eyes sparkling. Coffee was given, and an ice-bladder applied to head and leeches to mastoid process and nostrils, without effect. To prevent sleep a tepid bath with cold douches was given, and patient, supported between two persons, made to walk about. Resp. having sunk to 4 per minute the phrenic nerve was faradized. Patient made no response to calling to her, nor to irritants. She was put to bed and sank into profound sleep. After $\frac{1}{2}$ h. of sleep the respiration had sunk to 3 per m. She was again faradized. She then woke smiling, her face was paler, pupils more dilated, but she again fell asleep. The sleep was short, interrupted by vomiting every $\frac{1}{2}$ h., then came on merry delirium which left her little rest. Resp. increased to 6 per m. 12 h. after the poisoning the chief symptoms had gone and the mind was clear. She remained for a fortnight weak, giddy, and unable to think or walk quickly. Sugar was found in the urine. (LUBWITZ, *Morphiumsucht*, 104.)

21. Another case of acute poisoning, in which death occurred in a few h. with stupefaction, coma, and cyanosis, showed albumen and sugar in the urine.* (*Ibid.*, 106.)

22. The evil effects of M. show themselves after it has been taken 6 or 8 months. Many find themselves very well for a while, their appetite keeps good and they retain their flesh, but others emaciate. But afterwards the organism begins to suffer; sometimes one part, sometimes another, is first affected. The skin often loses its turgor, its colour, and its tension. The subcutaneous fat first disappears, but in some cases, especially of women, there is no loss of *embonpoint*. The

* Sugar was found in the urine of rabbits and dogs poisoned by M. (*Ibid.*, 115—119). "The occurrence of sugar after toxic doses of M., which, after the cases in human beings and the results of experiments on animals here recorded, must be regarded as a frequent phenomenon, will henceforth be of importance in a forensic point of view. The absence of sugar in a suspected case of M. poisoning will leave it doubtful if the death was owing to that cause" (*Ibid.*, 123). [See III, 3.]

face is usually ashy pale, seldom red, only exceptionally unaltered in hue; perspiration is often much above normal. Inflammation of the sebaceous glands, urticaria, eruptions similar to shingles, chiefly located on chin, cheeks, and intercostal spaces, occasionally appear, disappear, and reappear, or remain permanently. The points of injection are the seat of abscesses, circumscribed indurations, or infiltrations. The latter sometimes attain the size of a man's head. On their dirty grey mucous surface are numerous small ulcers, connected by fistulous passages with one another, which when pressed discharge pus. The eyes are generally dull, the look fatigued and shy; but a fresh injection makes the eyes lively, fiery, and ecstatic. Diplopia and diminished power of accommodation are not rare. Pupils generally contracted, rarely dilated, sometimes unequal. The pulse in the severe cases is small and thread-like, but sometimes full, tense, and intermittent. There is sometimes palpitation. Epistaxis and, immediately after the dose, hoarseness and oppression (*asthma nervosum*). Many patients have immediately after the M. injection a bitter or metallic taste, and rumbling in bowels; the buccal m.m. is usually dry, they complain of great thirst, anorexia, later of nausea, vomiting, dislike to butcher's meat, bulimy; with the last-named there is a feeling of burning gnawing in *scrob. cordis*, combined with syncopeal weakness; this often occurs shortly after a full meal, often wakes the patient up at n., and he cannot get to sleep again without taking some food, a small quantity suffices. Large quantities of fluid do not quench the thirst. Stool generally retarded, diarrhoea seldom. The patients are tormented by restlessness, anxiety, sleeplessness, hypnoid states, hallucinations, hyperæsthesias, neuralgias, which cause variable spires; the reflex irritability is exalted, but at the climax of the disease the knee-jerk disappears. There is trembling of hands and of the tongue when it is protruded, and alterations of articulation. The sleeplessness is not absolute, the patients often lie for 5 or 6 h. in bed before going to sleep, and the sleep they then get is not refreshing, even when it lasts a sufficient time. Hyperæmic states like those of the chronic poisoning by alcohol and lead are frequently observed. The features become relaxed, the eyelids hang down heavily, the eyes are dull and lustreless and cannot be fixed; the patients are generally able to answer simple questions, but are puzzled by anything complicated, such as simple sums in arithmetic. Starting up in sleep, or even when awake, is not uncommon. Attacks of syncope are sometimes observed. Hallucinations are rare; they generally come on in the e., soon go off, and are chiefly connected with vision. Stammering is sometimes noticed. In some cases the kidneys secrete albumen. The quantity of urine is often diminished, its sp. gr. varies greatly (from 1004 to 1038). Sugar is generally present. Neuralgic states of the bladder, violent constrictive pains which radiate to perinæum, anus, and urethra, spasm of detrusor and sphincter vesicæ, paresis of bladder, are frequent effects of abuse of M. Retention of urine may lead to catarrh of bladder. Men become impotent, women amenorrhæic. (*Ibid.*, 14.)

23. The victims of the M. habit are liable to fever of an intermittent character. There are 2 forms, a slight and a severe. These forms

have this in common with malarious ague, that the first paroxysms disappear after quinine, but soon return in spite of continuance of the Q , that they are improved by change of air and recur after some injurious impressions (errors of diet, sea-voyages, &c.). There is chilliness increasing to rigor, headache, oppression, heat and perspiration. This fever ceases immediately on giving up the M , or even on diminishing the daily dose. Sometimes the attacks are irregular, but generally they are regular, usually tertian, more rarely quotidian. They sometimes are ante-, sometimes post-poning. The fits last from 4 to 10 h. Along with the febrile paroxysms there are often neuralgias in various parts—supra-orbital, intercostal, or cardiac. The temp. is always increased, ranging from 38.5° to 40° C. The spleen is usually enlarged. In some cases delirium occurs at the height of the fever, which sometimes amounts to furious mania. Great exhaustion follows the fits. When there is not regular ague, there is often chilliness, increased heat (not above 38.3° C.), great thirst, exhaustion and oppression. This state lasts about 1 h. and generally comes on in the e., but sometimes it lasts $\frac{1}{2}$ a d. Another form begins with headache, tinnitus aurium, vertigo. The patients complain that they cannot read (paresis of accommodation); they are weak and apathetic, and wish to go to bed, they feel so chilly and uncomfortable. They sometimes keep their bed for 3 to 6 weeks. Their temp. does not exceed 38.3° . There are also attacks of fever that only take place when the injections are performed in certain parts—as the upper arm. (*Ibid.*, 25.)

24. The delirium of M . intoxication consists of a series of symptoms that possess all the characters of alcoholic delirium. From my observation two forms may be distinguished, the acute and chronic. The chronic develops during the course of M . intoxication, continues during the period of abstinence, and runs its course without excitement. The acute form appears as a consequence of the withdrawal of the drug, and breaks out with violent symptoms. In the chronic form the depression is variable; most of the patients exhibit a kind of joyfulness, only for a short time interrupted by anxiety; in some individuals during the d. the mood is depressed, but in e. there is some excitement, and at times illusions of the senses. Trembling of hands and twitching of muscles are constant features. In spite of the alternations the patients are perfectly lucid and self-possessed. They are able to ward off for a longer or shorter time their depressed or excited moods, and they can mingle in society. The acute M . delirium develops in the course of 6—12 h. after the withdrawal of the drug. The patients at first become excited and restless, run constantly about the room, weep and cry, and at last become delirious under the action of painful sensations and hallucinations. The attacks, which last only a few h., are followed by a quiet stage, during which the patients have hallucinations, which involve all the organs of sense except that of taste. They see brilliantly-coloured birds, hear voices, have a sensation of sitting in wet, and perceive the most various odours. These illusions are associated with a hypochondriac mood; the patient thinks he will die, that he has seen his own burial; seems to see persons by him constantly growing larger, &c.; also constantly talks with himself and with absent people. Tremor of

hands increases, and is associated with muscular twitches, nystagmus, and trembling of whole body. At the commencement of the acute delirium the voice and speech become altered. (*Ibid.*)

III. *Experiments on animals.*—1. The following symptoms followed the subcutaneous injection of 4 gr. in two animals of opposite disposition, the one a grey horse, about 6 years old, of a quiet and stubborn temperament, the other a weakly and excitable thoroughbred colt, 2 years old, pulses 32 and 36 respectively. Acceleration of pulse occurred in 15 m. An h. after injection, acceleration had attained its maximum of 20 and 28 beats respectively in the 2 animals. There was considerable restlessness, indicated in the one by constant stepping from side to side, chiefly with forelegs; in the other, by as constant pawing of the ground; and they were impatient of restraint. There was increased moisture of mouth, rise in temperature of skin, tendency to sweat, and slight dilatation of pupils. All these symptoms continued, and at end of 7 h. pulse of strongest animal was 12 beats more than before injection, while that of weaker and more excitable one still retained its maximum acceleration of 20 beats. Shortly after this time the restlessness subsided. The general effect upon both animals was a powerful stimulant action; the force and volume as well as the number of pulsations were increased. Mucous membrane of mouth and tongue remained clean and healthy throughout, and moistened with a superabundant clear fluid. The restlessness never amounted to delirium, nor was there any increased injection of the membranes of the eye. There was complete retention of secretions as long as animals remained under observation. There were no after-effects. (HARLEY, *op. cit.*)

2. After an interval of 6 d., 6 gr. of acetate, dissolved in ʒiiss of water, were injected by two punctures into each of these horses, their pulses being 36 and 44 respectively. Precisely the same effects followed as when 4 gr. were given, but in a more intense degree. At end of an h. pulse of grey horse was 72, being exactly doubled; that of colt was only 5 beats less. Both were in a high state of excitement, mouth very clear and pink, but hot and wet almost to slobbering; head and skin hot, conjunctival membrane injected and wet, and pupils slightly dilated. At end of 4½ h. pulses had attained their maximum acceleration, and numbered 85 and 90 respectively; but volume and power were a little diminished. At end of 7th h. pulse in both was 60, and the restlessness was now abating. Both animals had staled freely. Pupils unchanged. Throughout the whole of this time, and for an h. subsequently, the horses were in a state of great restlessness, and trod their clean straw beds to a complete litter. Their mouths were hot and wet, and the skin warm and almost sensibly perspiring. Next d., 19 h. after the doses were given, the animals appeared in their usual health; they had dunged rather copiously, and the dung was a little greener and moister than usual. The pulse of the grey horse was 42, and that of the colt 60. Pupils natural, mouth clean and wet. (*Ibid.*)

3. Gr. 12 of the acetate, dissolved in ʒiij of water, were administered by 3 punctures to each of the two horses. The effects were as follows:—In the grey horse, after 5 m., strong erection of the penis, and copious emission of semen; then gaping. After 20 m. lids began

to droop and head to nod, and he continued very drowsy for the next 24 h. He remained standing still and very quiet the whole of this time, breathing slowly and heavily, and every now and then falling off to sleep, and snoring slightly for a few m. Pulse meantime rose from 44 to 72, and became full; pupils were unchanged; mouth clean and wet, and forehead warmer than usual. After 3 h. the animal became very restless, constantly pawing ground with hoof of l. foreleg; but a considerable amount of drowsiness and stupor still continued. Pulse rose quickly to 96, and was regular and of good power; pupils were slightly dilated, and appeared to be fixed; membranes of eye injected; mouth hot, but clear and pink, and wet to slobbering; temperature of the skin raised, and its secretion increased, but not to such a degree as to wet the hair. He continued in this state of restlessness and delirium till the 6th h., when the symptoms began to decline. Half an h. afterwards he took food and water. In the brown colt, not the slightest sedative effect was produced. Twenty-five m. after dose, muscles of trunk were affected with slight tremor and some rigidity, lasting only a few seconds; and 5 m. afterwards he began stepping from side to side, and continued thus in restless motion for the next 9 h. Pulse at the same time rose rapidly, and at end of an h. attained its maximum acceleration, and numbered 96. Restlessness greatly increased, and at end of 4th h. he was walking rapidly to and fro, bathed in sweat, and slobbering from mouth; heart was much excited, the facial pulse 96 and weak. Pupils were unchanged, being rather dilated; membranes of the eye injected. There was no appearance of stupor or delirium, but an intense excitement, with apparent distress, giving way to exhaustion. Towards 9th h. restlessness and other symptoms gradually subsided, and at this time he took food and water. Ten h. afterwards, both animals were in their usual condition. There was neither constipation nor any other after-effects. (*Ibid.*)

4. Gr. 36 of acetate, dissolved in ʒij water, introduced by 3 punctures into subcutaneous tissue of a powerful full-conditioned hunter, about 7 years old, caused the following symptoms:—15 m. after, and continuing up to end of 3rd h., great somnolency, and a gradual rise of the pulse from 36 to 96, and it became full and thrilling; pupils moderately dilated and fixed. The drowsiness and stupor were very great, but they did not pass into sleep. At first he continued to pick up a little hay, and masticate it at intervals in a slow mechanical way, and with eyelids closed. After 25 m. he ceased eating, but continued to stand still, pointing his ears in the direction of any sound, and occasionally turning head round to l. On attempting to move he staggered, and once nearly fell down. The soporific effects attained their maximum at about 45 m. after the dose, and he occasionally leaned against the wall with the whole of his weight, or forwards over the rail, moving at short intervals slowly and awkwardly. An h. after dose a fine rigid tremor affected head, neck, shoulders and tail, but passed off in a few m. Eyelids were also very tremulous, and he blinked on approach of a light; pupils were dilated and fixed. Respiration was slow, and occasionally interrupted by a sigh. Such was his condition up to the end of the 3rd h., when great restlessness and severe

delirium set in, and, soon attaining its maximum, continued unabated for 7 h. It then began to decline, but the animal continued under the influence of the morphia for at least 24 h. after, and at end of this time he was greatly exhausted. Between 3rd and 10th h. he continued to walk rapidly, and sometimes even run, round his stall, and always in same direction, viz. from r. to l. Shoulders, sides, and haunches were damped with perspiration; pulse 96, quite regular, full and thrilling; respiration accelerated. The animal was perfectly blind, and allowed a candle to approach near enough to singe the eyelashes; pupils were dilated and fixed; membranes of eye and nose so intensely injected as to present appearance of crimson plush; mucous membrane of mouth pink and wet, with a superabundance of thin glairy mucus. Eighteen h. after dose pulse was 75, regular, very soft, and of moderate volume; pupils moderately dilated, but contracting on exposure to a strong light; membranes of eye and nose of dark crimson colour, and vessels turgid, as if blood were stagnant in them; tongue was red, clean and moist, skin warm. Some restlessness and impatience of restraint still remained, and alternated throughout d. with intervals of drowsiness. (*Ibid.*)

5. The action of M. upon the dog differs in no respect from its action upon man. There are two classes of individuals, each of which is affected differently. In the one, the hypnotic effects of the drug are readily and constantly induced, and, if the dose be sufficient, profound narcotism results; if the dose be larger than is necessary for this purpose, the narcotism sometimes gives place to delirium with stupor. In the other case it is difficult, and in many cases almost impossible, to induce sleep or narcotism by any dose excepting such as would destroy life. In this class M. produces the most distressing effects, viz. faintness, prolonged nausea, and retching, with intervals of dreamy delirious somnolency, rarely or never passing into sleep, which only comes to the exhausted body when the protracted effects of the drug have passed off. (*Ibid.*)

6. Upon the mouse the action of M. is uniform and characteristic. It consists essentially in forced exercise associated with a cramped condition of the spine. Hypnosis is altogether an after-effect, and narcotism only occurs after a dangerous dose. The mouse runs about nimbly for a m. or two after the subcutaneous injection of gr. $\frac{2}{5}$ — $\frac{3}{5}$ of the acetate. Then sudden and frequent pauses are made, and the animal remains for a few seconds at a time in a fixed attitude, as if of attention to some internal sensation. During the 1st, 2nd, and 3rd pause the tail begins to bend slowly and stiffly upwards from its root until it is elevated in a single curve or double undulation over the back at some short distance from it. The spine is at the same time shortened by rigid flexures, whereby the head is a little raised and the face bent downwards to a r. angle with the body, the back elevated into a high hump, and the lumbar and sacral regions so depressed as to bring the perinæum in contact with the surface upon which the animal rests, the sharp upward curvature of the caudal extremity of the spine giving at the same time a backward and upward inclination to the hinder part of the pelvis and the attached limbs. The cranio-spinal axis is, in short, affected by three curves,—an anterior and a posterior, corresponding to

the junction of the head and tail respectively, and the summits of which are in opposite directions, and an intermediate and more considerable one affecting the thoracic vertebrae, cramping the chest and abdomen together, and giving to the back a contour exactly resembling that of the hog. The movements now become slow, stiff, and creeping, and the animal is arrested every 4 or 5 paces by inaction of the hind legs, the thighs being closely appressed to the sides of the pelvis by the downward inclination of the sacral part of the spine, and apparently useless, while the legs and feet are extended in a straight line with each other at r. angles to the thighs, and the hinder parts of the body are thus supported upon the extended and divergent toes. After a few seconds the body is very slowly advanced, as if by an under-curving action of the anterior part of the spine and a simultaneous pressure upon the hinder part of the dorsal curve. The feet, remaining stationary meanwhile, are thus left in the rear until, the forward balance of the body preponderating, the little animal is impelled a few paces forwards, and the cramped lagging action of the hind legs is for a moment interrupted. As soon as the body comes fairly to rest, the forward impetus again commences and soon prevails, and thus the mouse is kept in a state of cramped rest and forced motion, as if by two antagonistic powers exerting their influence simultaneously upon the anterior and posterior parts of the body respectively. Sometimes the one power prevails, and the mouse is urged round and round the limits of his cell at a slow, measured, laborious pace, as if upon a treadmill, and showing the soles of the feet at every step; and sometimes the other power is in the ascendant, and the animal is arrested in his progress for several m. at a time, while the hinder legs, first one and then the other, are stiffly extended backwards in a straight line with the body, or raised upwards in the air. But sooner or later the anterior power so far prevails that a slow, laborious, forced creep is maintained for hours together. It is probable that some amount of delirium accompanies this condition, but there is not the slightest tendency to somnolency. The hearing continues excessively acute; at first the animal is startled by the least noise, and the above-mentioned phenomena are effaced for the moment, and he runs a short distance as usual, but soon coming to a pause relapses into his cramped condition. After a time, however, stupor comes on to a greater or less degree, dependent upon the dose; and then the animal, unless strongly aroused, takes no notice of interruptions. As often as the depressed face comes in contact with the fingers or any other object, the little animal leans against it with all its weight, and rests for a while. (*Ibid.*)

7. HUGHES BENNETT made several experiments with a meconate on rabbits and dogs. His conclusions are:

a. In both animals, M. acts on the encephalon and on the spinal cord; but in dogs the action is more cerebral, while in rabbits it is more spinal.

b. Either delirium or hypnotic effects may be produced, but hypnotism predominates.

c. In rabbits, death is often produced by convulsions.

d. In both animals, while deeply under the influence of the drug,

as stimulation of the motor nerves caused muscular contractions, we must hold that the sensibility and conducting power of the nerves is not destroyed.

e. In both, stimulation of the vagus in the neck causes stoppage of the action of the heart. Consequently, the vaso-inhibitory fibres in the vagus are not paralysed by M.

f. In both, stimulation of the sympathetic causes dilatation of the pupil. Consequently, the sympathetic trunk is not paralysed. (*Antagonism of Medicines*, p. 35.)

8. A sol. of 0.15 grm. of the muriate in 5 grm. of water was injected into one of the external jugular veins of ten rabbits; and the blood of the liver and arteries examined for sugar. The following results were obtained:—The sugar in the liver was more than double the normal amount, rising from 0.59 to 1.39. That of the arterial blood was also about double the natural quantity, rising from 0.05 to 0.11. The proportion between the two remaining normal, the combustion in the lungs was neither increased nor diminished. The urine was not examined.* (*Gaz. Méd. de Strasbourg*, 1857, &c.)

9. *a.* ANSTIE made 12 experiments with large doses of M. (gr. 1—5) on dogs, cats, and rats, by injecting an aqueous solution into the peritoneal cavity. Convulsion, in one shape or another, was noted in every case, except that of a dog who received a (for that animal) very small dose. Clonic convulsions were present in every instance where there was convulsion at all. Violence and frequency was proportionate to largeness of dose. Paralysis, at any rate of sensation, was always developed prior to the occurrence of clonic convulsions.

b. "Dr. Sharpey was good enough to inform me that in experimenting upon frogs with an aqueous extract of opium, he found that tetanic convulsions were produced; and I have since repeatedly verified this observation. Moreover, I have observed the same phenomenon, in a cases, in experimenting upon rats with large doses of M. Rats are also liable to a very peculiar affection from M., which closely resembles the state known as hysteric catalepsy, and which was well shown in the following experiment (as well as in several others):—A full-grown rat had 3 gr. of the acetate, dissolved in 5j of distilled water, injected into its peritoneal cavity. After 27 m. the surface of the body was everywhere insensible to any but the strongest impressions. In $\frac{1}{2}$ h. later still a partially cataleptic state was developed. If the limbs were placed in any position, however awkward, they retained it steadily. Thus the animal was made to sit upright upon its hind quarters, with its forelegs extended in the attitude of a popular preacher; it maintained this position for several m., the head slouched to one side. On being pushed so as to lose its balance, it recovered itself somewhat, and crouched down. A few m. later, on being stirred up, the animal walked a little way, lifting the hind legs with great difficulty (they were found to be somewhat rigid). Soon after this the cataleptic condition became more

* CL. BERNARD found that M. caused glycosuria as surely as curare or puncture of the floor of the fourth ventricle; and believed that all three acted by dilating the blood-vessels of liver and kidney, and so causing increased formation and elimination of sugar (see *Lond. Med. Recor.*, 1, 707—9).

marked, and voluntary movements entirely ceased. Clonic convulsions now set in, and continued to recur frequently for about $\frac{1}{2}$ h. A general tetanic spasm then seized the animal, which lasted for about 6 or 7 m., when respiration was found to have ceased; the heart beat faintly for 2 or 3 m. longer. The whole body was quite rigid very soon after death.

c. Five gr. of M., in solution, were injected into the peritoneal cavity of a full-grown and remarkably strong and lively cat, at 11.46 a.m. 11.49, the animal, which had taken no notice of the operation, and had been purring contentedly, twisted suddenly round several times upon the same spot, with a very excited manner, and with a dazed, stupid look. It now commenced running rapidly round the room, sometimes stopping to sit down on its hind-quarters for a moment. At 12.5 it lay down for a few m., panting, and with the heart beating quickly. Sensibility was slightly diminished in the hind limbs. The tongue was constantly protruded from the mouth, the lips covered with slaver and quite insensible to impressions. The pupil was very widely dilated and insensible to light. The cat soon got up and began to run round the room again. I now observed that it took its leaps in a very curious manner, seeming to dance on the tips of its toes, and evidently not feeling accurately the surface of the floor. 12.55, the animal has been alternately running round the room and lying down, with its legs folded under its body, the tongue protruded, the mouth covered with foam, breathing rapid, heart's action rapid and feeble. It is now lying down, and there is evidently a great diminution in the sensibility of the fore limbs, and complete abolition of it in the hind limbs. 1.10, the animal made a sudden attempt to spring forward, but the limbs gave way—the hind legs being pushed out in a perfectly dead, helpless way, the forelegs extended and struggling. Insensibility of the skin perfect, almost everywhere. About 1 m. later the cat fell on its side, and went into a series of epileptiform convulsions; it remained profoundly unconscious until death, which occurred at 1.45 by cessation of the respiratory movements, the heart beating some m. later.

d. Ten gr. of M., in solution, were injected into the peritoneum of a lively young terrier at 2.30 p.m. No symptoms of any kind occurred for 3 h. At the end of this time, it was observed that the hind quarters drooped a little as the animal walked, and on examining them sensibility was found to be considerably diminished. Left alone, the dog sank gradually into the characteristic coma of opium, from which, however, he could be easily roused by shaking him. At 8 p.m., motor paralysis was complete in the hind limbs, and sensibility was completely lost in the hind, and partly in the fore limbs; not in the face. Shaking the animal still restored its full consciousness. At 9.58, the dog, which had been lying still, lifted up its head and began to whine. Sensory paralysis was found to be complete; no impression could make the animal wince at all. Heart's action irregular and intermittent; respiration rather gasping. At a few m. past 10, the dog suddenly became unconscious, and at once experienced a violent epileptic convulsion. For the next 24 h. it was profoundly unconscious, and the clonic convulsions recurred at very short intervals; the reflex sensibility was

much heightened, and it was only necessary to direct a stream of cold air on any portion of the body to induce a fit. At the end of this time consciousness returned slowly, and the animal had completely recovered a few h. later. Paralysis of sensibility and motion disappeared latest in the posterior limbs. (*Stim. and Narc.*, pp. 179, 181, 203, 205.)

10. Dr. OGLESBY observed effects of hypodermic M. on the temperature in animals. He finds it at first lowered, but soon—when the subject is healthy and strong—a steady rise follows, lasting some h. The bulb of the thermometer was inserted well into the rectum, and left there 6—15 m. In Exp. 1 a healthy young cat, deprived of food for several h., had a temp. of 100°. At 9.30 a.m. a sol. of the bimeconate containing gr. $\frac{1}{2}$ was injected. Till 11 temp. fell, reaching at that time 99°; it then gradually rose, till at 2 it was 102.1° and at 4 102.3°. The effect of the dose was very marked, the cat being much affected by it, jumping and running round the room, and uttering plaintive cries. The increase of temp. lasted several h. In Exp. 2 a guinea-pig, 4 h. after a meal, had a temp. of 101.2°. At 4 p.m. it received a similar dose of the acetate. Here there was no fall, but a steady rise till at 8 o'clock 104.1° was reached, at which point it remained till 10, when there was a very sudden and progressive fall to below the norm., owing (Dr. O. thinks) to the long fast the animal had undergone. The subsequent experiments conformed to one or other of these types. When the dose was small, and the animal not visibly affected by it, the desire for food was often intense, and large quantities were consumed greedily. This was especially noticeable in the case of rabbits and guinea-pigs. (*Practitioner*, iv, 27.)

Apomorphinum, prepared from Morphia by treatment with hydrochloric acid under pressure. $C_{17}H_{17}NO_2.HCl$.

I, H. *Proving and Poisonings*.—1. Dr. J. G. BLACKLEY, May 25th, 1869, at 9 p.m., injected mx of a 10 per cent. sol. under skin of l. arm, pulse being 72 and temp. 98°. "During the first 2 m. no effects were produced. After about 3 m. pulse began to rise slightly, and respiration became slightly accelerated. At end of 4 m. I felt a sudden qualmishness, almost immediately followed by nausea and profuse vomiting. This continued for several m.; and was followed, as soon as the contents of the stomach had been evacuated, by severe retching. On taking a draught of water with a little brandy in it this was immediately rejected, and on drinking cold water this too returned at once. No bile, however, came up in the vomited matters. At the end of 7 or 8 m. from the commencement of the experiment I began to feel very faint and was compelled to lie down, and almost immediately on doing so I fainted entirely, and remained in a state of syncope for about 5 m. On awaking from this I felt giddy and chilly, and was obliged to take a little brandy and water. This was retained, and as I began to feel slightly drowsy I remained lying down for about an h., during which time I perspired profusely. On rising I still felt slight giddiness, but no inclination to vomit. I went to bed, and slept soundly all n., awaking about 8 a.m. in my usual health, slightly pale, but very hungry."

Pulse at 9.5 had risen to 80, at 9.12 fallen to 65. Temp. at 9.5 was 99.1°, at 9.12, 97.8°. (*Brit. Journ. of Hom.*, xxi, 498.)

2. Same injected into arm of a stout carman, æt. 28, having an ulcer on the leg, at 8.4 p.m., a solution containing gr. $\frac{1}{2}$. Pulse was 76, temp. 98.3°. 8.8, felt giddy; complained of pressure at epigastrium; pulse 88, weak but regular; pupils moderately dilated. 8.9, began to vomit slightly. 8.10, vomiting profusely; this continued for 3 m. 8.13, ceased vomiting; took a drink of water, which came up immediately; milk was also rejected in same manner. Pulse 80, weak; temp. 98.6°. 8.20, still feels very giddy and looks pale; pupils dilated. After lying down for $\frac{1}{2}$ h. he got up and walked home; felt no unpleasant after-effects, and at 9 ate a good supper. (*Ibid.*)

3. *æ.* Oct. 26th, 1873, M. LACHIZE injected into my l. arm 3 mgrm. of A.; pulse was 60, resp. 16, temp. 36.8°. 9.23, pulse 72; no other change. 9.25, violent inclination to vomit; feeling of heat all over, but especially in head; face congested; pulse 92, resp. 20, temp. 36.9°. 9.28, pulse 96, resp. 22; no other change. 9.30, pulse slightly irregular; less nausea; pulse 80, resp. 20. 9.35, pulse still irregular; nausea ceased; drowsiness; temp. 36.8°, resp. 16. 9.40, sleep. 10.15, awoke, feeling well; pulse 63, temp. 36.8°, resp. 14. Breakfasted at 11 without feeling anything abnormal.

4. Nov. 6, 6 mgrm. were injected at 9.40 a.m., pulse 76, resp. 15, temp. 36.9°. 9.43, pulse 80. 9.45, violent inclination to vomit; full regular pulse; pandiculations; pulse 100, resp. 18, temp. as before. 9.48, retching; pulse 104, resp. 24, both irregular, temp. 36.8°. 9.50, easy vomiting; pulse 94, still irregular, resp. 20. 9.53, pulse 96, resp. 21; more vomiting. 9.55, vomiting ceased, still some nausea, pulse 94, resp. 18, both irregular, temp. 36.7°. 10, quite quiet; drowsy; pulse 76, resp. 12, temp. 36.7°. Quiet sleep for an h.; on waking, pulse 68, resp. 8, temp. 36.8°. Ate next meal without any uneasiness.

5. Dec. 10th, 3 etgrm. were injected at 2.20 p.m., pulse 66, resp. 14, temp. 36.8°. 2.22, pulse 134, resp. 19; vomiting, without previous nausea, preceded for 2 m. by sudden sensation of heat, running all over body, and lasting for 3 m.; during it pulse 100—102, resp. 20—24, temp. normal. 2.26, extreme fatigue; tried to get up, but could not; pulse 84, resp. 16. 2.27, pulse 78, resp. 15. 2.28, nausea, pulse 96, resp. 18. 2.29, several vomitings, violent headache. 2.32, quiet, drowsy; pulse 98, resp. 17, temp. 37°; so much fatigued that eyes closed involuntarily. 2.36, nausea, pulse 104, resp. 16, temp. 37°. 2.38, vomiting, less copious than before; invincible need of repose. Slept in a chair. 4, ached with fatigue; no other bad feeling; pulse 80, resp. 15, temp. 37°. (*VICTOR BOURGEOIS*, in *Allen's Encyclopædia*, i, 427.)

6. $\frac{1}{2}$ gr. was swallowed by a man in good health. In 20 m. he felt dizzy and depressed, with an uncomfortable sensation in the head, very qualmish, not in the least somnolent; he then became very pale, and was salivated; in 25 m. after the dose he vomited freely; after doing so twice he felt much relieved, drank half a glass of wine, and in $\frac{1}{2}$ h. regained his usual condition. (*G&B, Trans. of Clin. Soc.*, ii, 167.)

5. A healthy young man was injected in the arm with gr. $\frac{1}{2}$. In about 3 m. he began to feel uncomfortable in his head; in 5 m. he was much depressed; in 7 m. he looked very pale and low, his pulse became infrequent and rather weak; he sweated; in 10 m. from the injection he vomited thrice; after a little brandy the vomiting ceased, and he recovered in about $\frac{1}{2}$ h. (*Ibid.*)

6. A gentleman who was working with A., and had his hands sometimes wetted with the solutions, frequently vomited 3 or 4 times in the e.; besides this he was, at times, depressed, uncomfortable in the head, and unfit for work. (*Ibid.*)

7. Once or twice, when A. has been used as an emetic, there has been an amount of depression both of the circulation and of the general muscular power beyond what could be accounted for by the vomiting. (*Ibid.*)

8. A man affected with chronic Bright's disease was injected with gr. $\frac{1}{2}$. In 4 m. he vomited freely. The vomiting continued at intervals for $\frac{1}{2}$ h.; he then passed into a mildly delirious state for $\frac{1}{2}$ h., after which he went to sleep for an h.; when he awoke he felt, according to his own account, better than before the injection. (*Ibid.*)

9. RIEGEL and BOZHM have observed quite commonly giddiness, headache, and a disposition to yawn; also free perspiration and great drowsiness, with apathy. In none of their experiments was the pupil affected; the pulse was very generally diminished in force and volume. (H. C. WOOD, *op. cit.*)

10. *a.* If the dose injected is insufficient to produce vomiting, the patient is observed (5—10 m.) to grow pale, and the circulation to slacken. We have seen in such a case a fall of the pulse from 72 to 48. The patient is then attacked with faintness and profuse sweats, the eyes become dim, the strength fails, and the pulse is as feeble as it is slow. These phenomena are fortunately transient, and the pulse soon rises again; the other symptoms gradually pass off, and by the end of an h. the relieved patients enjoy a refreshing sleep.

b. When the dose is emetic the results are different. There is no faintness without nausea, as in the former case, but, on the contrary, pronounced nausea, ending after 3—5 m. in vomiting. The latter may even supervene primarily. It is rapidly performed, but moderate, and merely empties the stomach, rarely bringing up bile, and never followed by diarrhoea. Each attack of it is brief, and followed by marked quietude, sometimes even a little sleep. (Trousseau et Pidoux, *op. cit.*)

III. *Experiments on animals.*—1. A. injected in large doses into the lower animals produces grave symptoms referable to the nervous system. Two gr. were injected into a dog; he vomited, and in 2 or 3 m. began to course round the large room in which the experiment was performed in a curiously methodical manner. He recovered completely. Three gr. injected into a cat produced more excitement; her running about was frequently interrupted by high leaping into the air and turning somersaults; her pupils were dilated to the extreme and insensible. Two more gr. produced epileptiform convulsions. Two gr. yet were injected, making 7 in all; the convulsions were followed by perfect

relaxation, the heart beat pretty forcibly; she was found dead the following m. All the organs were perfectly natural; no hyperæmia of any of them. (GEE, *loc. cit.*)

2. Under skin of abdomen of a large powerful tom-cat injected gr. $\frac{1}{2}$ dissolved in 10 dr. of water. This was at 10.20 p.m. Within a few seconds after he began to be excited and to jump about the room; pupils became very much dilated; runs wildly round room looking up at walls. 10.25, resp. and pulse very much quickened; very excited and savage; highly sensitive to slight noise; runs round room and tries to scale walls, falling backwards on back at each attempt. On examination with ophthalmoscope retinal vessels appear much congested. 10.40, injected another $\frac{1}{2}$ gr. Urination; walks to and fro like a tiger in a cage, constantly looking up at the wall; pupils dilated to their fullest extent; breathing 92 per m., laboured; pulse too rapid to be counted. 11, injected another $\frac{1}{2}$ gr.; slightly salivated; tongue protruding; is very savage if touched; runs about from side to side, hind legs being slightly dragged; slight twitchings of head, especially on hearing any noise; runs backward. Next m. all symptoms had disappeared save a slight dragging of hinder extremities, which continued for 2 d. (BLACKLEY, *loc. cit.*)

3. CHOUFFE divided the two pneumogastriæ in a dog, which was then allowed to rest until the vomiting produced by the operation had entirely subsided. He then made a subcutaneous or intravenous injection of apomorphine, tartar emetic, and ipecacuanha. With the two former, vomiting occurred as quickly and as freely as when the nerves were intact; with the third vomiting never occurred. (*Gaz. Méd. de Paris*, Aug. 1, 1874.)

4. SEIBERT and MOORZ have shown that A. does not affect the blood-pressure, and that the pulse rises when emesis comes on, reaches its maximum during vomiting, and declines in the interval. It causes at first increased rapidity of breathing, afterwards diminishes the force and depth of the movements, and finally arrests them. This result occurs even when the vagi are divided. It has no appreciable influence on the temperature. As respects its influence on the nervous system, it is at first strongly excitant. Afterwards it causes muscular tremblings, followed by paralysis and convulsions. The muscular irritability is impaired but not destroyed, and the functions of motor and sensory nerves remain intact. (BARTHOLOW, *op. cit.*)

Codeinum, alkaloid obtained from Opium, $C_{16}H_{21}NO_5 \cdot H_2O$.

I. *Præparat.*—1. In G. W—, æt. 17, 2 gr. taken every other m. an h. before breakfast caused slight contraction of pupils, feeling of stiffness in integuments over forehead, and occasionally troublesome itching of skin, chiefly affecting forehead and shoulders. Same dose taken towards bedtime sometimes caused slight drowsiness, contraction of pupil from $\frac{1}{2}$ to $\frac{3}{4}$, and acceleration of pulse a few beats. (HARLEY, *op. cit.*, p. 175.)

2. W. W—, æt. 19, took C. in increasing doses. No effects followed until dose reached 4 gr. Half an h. afterwards there was sudden increase in temp. of skin, and, to use his own expression, he "broke

out into a feverish heat." Pulse was slightly accelerated, pupils contracted, and there was considerable giddiness, obliging him to sit down for an h. After continuing 2 h., these symptoms passed off. On one occasion he took food at end of 3 h., but within an h. vomited it, and for some h. afterwards was troubled with rumbling and griping pain in belly. On another occasion these symptoms recurred, but the nausea did not end in vomiting, and it passed off after two loose stools. There was no inclination to sleep on either occasion. (*Ibid.*)

3. S. M.—, æt. 49. Pulse 74, pupils at light $\frac{1}{2}$, aside $\frac{1}{4}$.

a. Injected subcutaneously 1 gr. of C. 20 m., pulse unchanged; felt a little heavy. 1 h., pulse 68; pupils $\frac{1}{7}$, aside $\frac{1}{4}$. Was drowsy. 2 h., pulse 64; pupils as before; somnolency passed off. A little heaviness continued for the following h. There were no after-effects.

b. Injected at 7.45 p.m. gr. $1\frac{1}{4}$. Resp. 19; urine acid, sp. gr. 1026 $\frac{1}{4}$; skin sweating. Had taken a chop and tea at 6 p.m. Somnolency came on in $\frac{1}{4}$ h. 1 h., pulse accelerated 15 beats, fuller and stronger; pupils $\frac{1}{8}$, sideways $\frac{1}{4}$; was drowsy, but presented no appearance of heaviness. 2 $\frac{1}{2}$ h., pulse accelerated 10 beats, of same volume and power as before injection; resp. 18; pupils as at first h.; anterior part of tongue and hard palate a little dry; had been very drowsy during the last h., and still continued heavy, gaphic, and sleepy. The looks betokened heaviness, and the membranes of the eye were slightly injected; skin moist and cool; no nausea. Passed, after a prolonged effort, nearly \bar{ij} of urine, of sp. gr. 1024, otherwise resembling that passed before the injection. Walked home, still feeling a little drowsy. Slept well; no after-effects.

c. Injected 2 gr.; pulse 74, tongue wet and clean. 1 h., pulse accelerated 8 beats, unchanged; pupils $\frac{1}{7}$, sideways $\frac{1}{4}$. Somnolency came on after $\frac{1}{2}$ h., and continued, but as yet he had not slept. 2 h., acceleration of pulse continued, it was now slightly increased in volume and power. Had slept for $\frac{1}{4}$ h. Felt a little squeamish. 3 h., pulse accelerated 4 beats, of same volume and power as before injection; pupils contracted as before, sclerotic a little injected; anterior part of tongue dry. The nausea continued for an h., and was accompanied by general warmth and itching of skin, especially between shoulders. Still continued to feel drowsy. The somnolency passed off as he walked home. There were no after-effects. (*Ibid.*)

4. In the dose of 0.1 grm. C. caused increasing bitter taste, frequent eructation, violent pains in stomach, nausea, inclination to vomit, salivation, confusion and heat of head, feeling of pressure in forehead and temples, occasional tinnitus aurium, weak sight, inability to engage in mental work; pulse slow (in one observer it went down 28 beats in the first 4 h.), small and weak. After 4 h. trembling of whole body, lasting several h. till he went to sleep. Next d. drowsiness, slowness of flow of ideas, diminished attention. In one prover it caused feeling of pleasant warmth, confusion of head, dysuria, and sleepiness. (SCHROFF, *op. cit.*, 516.)

5. I gave the crystallized nitrate to several of my pupils, taking it myself also. No one felt anything up to 3 gr., but 4—6 gr. produced somewhat remarkable effects,—at first, acceleration of pulse and heat

in head and face; then striking mental excitement like that produced by intoxicating drinks, a pleasant feeling and lasting some time. It was accompanied by very pronounced itching, beginning in head and spreading over whole body. After some h. this state was followed by a disagreeable depression, with nausea and occasional vomiting. None of us observed the least tendency to sleep, except after the stage of depression. We did not push the dosage further. (GREGORY, *Journ. de Pharm.*, xx, 85. 1834.)

II. *Poisonings.*—1. A man, depressed and languid, had for some time been passing large quantities of urine (sp. gr. 1038), containing a great quantity of oxalate of lime in octahedral crystals and abundance of sugar. One m. he took a pill containing $\frac{1}{4}$ gr. C. and $\frac{1}{2}$ gr. sulphate of strychnia at 9.30. Soon after 10 he felt uncommonly jolly, as if up to anything. Had a genial glow all over him. After walking 2 h. he sat down to write, and could not see letters distinctly. Suddenly sight failed him and he felt the room going round. He got into the open air, feeling very bewildered. He knew he met two ladies, recognising their voices, but could not speak to them. At 1.30 he was standing indoors with a terrified look, was very pale, and had large beads of sweat on his forehead. Pupils slightly contracted, radial pulse scarcely perceptible, surface of body cold and clammy, and voice reduced to a whisper. Had vomited a mouthful. Said he felt "sick as death." A tumbler of hot water containing brandy and ammonia was immediately ejected. Lay down, and was wrapped in warm rugs. In $\frac{1}{2}$ h. began to improve, was not sleepy, only terribly sick, as after smoking a lot of bad tobacco. He remained thus till 10 p.m. On slightest movement, began to retch violently. No sleep all n., slightly delirious. Got up at 9 a.m., very sick and ill. Pulse 56, surface cool, face pale, pupils much contracted. Had passed about 6 oz. urine, sp. gr. 1018, no sugar, oxalates plentiful. No appetite all d. After tea and toast in e. he went to bed, slept well and felt himself in m. (A. S. MYRTLE, M.D., *Brit. Med. Journ.*, 1874, i, 478.)*

III. *Experiments on animals.*—1. G. HARLEY injected gr. 1.07 beneath skin of a bitch that was very susceptible to action of morphia. Eyelids became swollen in 20 m., and continued so for 25 m. more. Pulse fell in $\frac{1}{2}$ h. from 120 to 60, and thence to 64, always accelerated by inspiration. She remained very quiet and timid, as if feeling poorly, till 9th h., when she had returned to her usual condition. Till then no excretion had been passed. For first 3 h. there was nausea, and during part of this time a little tendency to sleep, but she did not close her eyes throughout. Pupils were unaffected; secretions of mouth increased. Later, she received 2 gr., without any other effect. He then injected 3 gr. into a stout beagle weighing about 40 lb.; and, there being no change in $\frac{1}{2}$ h., 3 gr. more. Within a few m. followed whining and restlessness, and repeated action of bowels. After 2 h. resp. was irregular, wholly abdominal, expiration consisting in a prolonged collapse of abdominal muscles, accompanied by a subdued whine

* We have given this case in spite of its lack of purity, as the dose of strychnia was too small to produce physiological effects, and in fact none of its characteristic symptoms appear in those recorded.—EDS.

ending with a slight grunt." Heart's action weak and irregular; pulse 65, respiratory. Pupils contracted closely at light. After 3½ h. resp. was 8 only, but now thorax moved slightly; pulse 84, very feeble, ranging 60—120 during each inspiration. Dog lay down most of time, but walked well though feebly. After 6th h. gradual recovery ensued, but he continued for some time in a restless whining state, not lying more than 2—3 m. in same place. As he lay down his flaccid legs were slightly jerked with faint spasms; at 2nd h. muscles of chest occasionally quivered with a much stronger spasm.

b. In the mouse C. produced the same effect as morphia (II, 6); but the forward movements were after a time performed by a series of little jerks, and then tetanic convulsions came on, in which respiration (previously shallow and irregular) became arrested, and death ensued. *P. m.*, l. heart was empty, pale, and contracted; r. distended. (*Op. cit.*, p. 170.)

The other alkaloids of Opium must be more briefly presented.

Cryptopia.—This has received little examination save from Harley (*op. cit.*, pp. 156—168), who has experimented on man, on the dog, and on the mouse. His conclusions are as follows:—1. Cryptopia, like morphia, has two distinct effects, an hypnotic, and an excitant of a most remarkable and exceptional kind, dependent partly upon an illusion of vision, and partly upon a tendency to convulsive action. (This is in animals; H— says: "I have as yet been unable, after careful inquiries, to detect the slightest tendency to illusory or other exalted effects in man.") 2. The hypnotic effect is both considerable and protracted in those who are readily calmed by morphia. No unpleasant effects have followed its use (in man). 3. Its action upon the respiratory function is first stimulant, but subsequently depressant, and death is the direct consequence of this depressive effect. 4. The effect on the heart's action is regulated by that on the breathing, and is therefore indirect. 5. In large doses C. causes dilatation of pupils.

Meconinum.—This, too, is chiefly known—pathogenetically—through Harley (pp. 158—166). Administered by the stomach, it has no effect, or so slight a one as to be inappreciable. By the skin, gr. ½ to 1 is tranquillising and hypnotic, and is not followed by any unpleasant results. In animals similar effects were observed; but when gr. ½ proved fatal to a vigorous mouse (p. 167), there were convulsions before death, and for 10 m. after. The kidneys were congested, the bladder distended, and the urine (as did that passed a h. after the dose) contained many blood-corpuscles.

Narcotinum has been declared by Bernard, Behier, Debout, Lind, and Eulenburg to possess narcotic power secondary only to that of morphia. Da Costa and Harley find it much less active, and ascribe its efficacy in the hands of the French observers to admixture with codeia or meconine. Such as it is, it seems purely hypnotic, and its action leaves no disagreeable after-effects. Anuria and dysuria have been noted from its use; but Harley considers these mechanical effects, its insolubility leading to its precipitation in the urinary passages. In animals, given in sufficient dose, it kills by paralyzing the respiration, without producing convulsion. (*HARLEY, op. cit.*)

Narcotinum appears to be, in the lower animals, a convulsant. Schrott and Tully have proved it on the human subject. The former found in the dose of ʒ to ʒʒ centigr. at first increased quickness of pulse by 6—12 beats, then as many beats under normal. The temperature first rose 0.2° C., then sank 0.1° C. Taste insipid, not bitter; sometimes uneasy feeling. Soon after taking it a transient head-ache with humming in head, redness of face, injection of eyes, dilatation of pupils, increased transpiration, peculiar disagreeable tormentation in limbs, agreeable warmth in chest, deeper breathing, pleasant disposition, weakness and drowsiness, followed by coldness and rigor, especially in back. The morphia in doses of a drachm, caused

disgusting, bitter, astringent and acrid taste. After 3 h. rigor all over body, slight pressure in forehead, heat and redness of face. (*Lectr. d. Pharm.*)

Prof. Tully proved N. on eight persons. In the first, 2 gr. at 10 a.m. reduced pulse from 70 to 60 in $\frac{1}{2}$ h. Four gr. more, taken at 4, brought it down by 5 to 52, and it was softer and more compressible. By 5.30 there was also many and confused feel of head; by 6 considerable languor, perspiration, and vertigo increased on motion; by 7 much immobility, disagreeable sensation in epigastrium, itching of surface, and hoarseness; by 7.30, slight thickening of speech and vacillation of gait, and bladder emptied itself slowly and with difficulty. All these symptoms increased for 2 h. more, and then remained with some variations up to 11, when he went to bed, slept heavily, and woke in m. with mouth somewhat dry and clammy, and still some difficulty in evacuating bladder. The second took same doses, and had same symptoms, with also nausea and repeated vomiting. The third was as the second, but his symptoms lasted all next d.; both found that a short walk improved all symptoms for the time. A fourth took 2 gr. at 11 a.m. About 12.30 began to feel highly pleasurable sensations; by 13 itching of whole surface, most intense at nose and inside thighs, increasing up to 1.30, after which it gradually subsided. From 12.30 much immobility, increasing up to 5. Pulse went down (from 68) to 48; pupils were contracted. Other symptoms as in former proofs. Near three experiments were with small repeated doses,—gr. $\frac{1}{2}$ every 2 or 3 h. in two, gr. j every h. in a third. Some symptoms were produced. (*Bist. Med. and Surg. Journ.*, vii, 37.)

All this is in strange contrariety with H. C. Wood's statement that "20 or 30 gr. have frequently been taken without effect, and even doses of 120 gr. are said to have been exhibited with no greater results." (Narcotice is not mentioned by Harley.)

Papaverinum has been experimented with by Hermann (*Wien. med. Wochenschr.* for 1863), who took on 3 successive d. doses of gr. 2—3 of the muriate. In 1 $\frac{1}{2}$ h. after 3rd dose, severe hiccough came on, and lasted for 6 m., followed by pain in epigastrium, and when this disappeared frontal headache came on. (See Allen's *Encyclopædia*, sub voce.)

Thebainum acts on animals like strychnia. Two gr. injected by Harley under the skin of a dog weighing 15 lb. killed it in $\frac{1}{2}$ h. by arrest of the respiratory movements. "Rabreau took 20 centiges., with the production only of a feeling of tightness in the head" (Wood).

ORIGANUM.

Origanum vulgare, L. Wild marjoram. Nat. Ord., *Labiatae*.

1. *Procure*.—1. M. de CESSOLÈS, 21, about 60, took 1 dr. of tinct. Rheumatic pain in arms, hands, thighs, and feet, sometimes wandering or intermittent; pimples of vivid red colour, but slightly raised, painful to touch, on outer side of legs; a few scattered spots on thighs, legs, and belly, rose coloured, 2—3 centimetres long; many dreams; he is frequently awakened by desire to micturate; swelling of nipples; epistaxis in m. (GALLAVARDIN, *Comptes Rendus*, i, 80.)

2. A young woman, of lively disposition, took 1 dr. of tinct. May 3rd and 4th, 1844, a dr. on 5th, and 3 dr. on 6th. Rheumatic pains in foot, toes, breast, shoulder-blade, arm, and hand, on r. side only; itching in nipples; excitement of cerebral appetite. From 16th—14th she became very self-absorbed, pensive, taciturn, sad, hopeless, felt inclined to throw herself out of window, and to walk about continually,—it was impossible to keep herself quiet; everything seemed contrary; disgust for life, in which all things felt tame, and longing for death; great heat in head, when it increased head turned involuntarily from side to side; extravagant ideas; desire to walk very fast, and for fresh air, which comforted her; dissolute feeling, desire to change her condition; loss of appetite; great thirst during d. and frequent waking, constant and extravagant dreaming, waking with a start and trembling. On the 14th, great vivacity and need of active movement. (*Ibid.*)

3. A companion of the above took 30th dil., 2 globules on May 26th and 27th. She, too, experienced much mental depression, followed by excitement, and had similar excitement of venereal desire, but no information is given as to her character and previous state of health. (*ibid.*)

OSMIUM.

Including the metal itself, and osmic acid—osmic tetroxide, OsO_4 .

I. *Proving.*—1. *a.* Being in excellent health, I took, May 12th, 1855, 2 gr. of 3rd trit. of the metal at 8.30 a.m. without effect. 13th.—Repeated dose. All afternoon fulness and aching in upper and back part of head, indoors and out; worse on throwing head back. 7 p.m., took same. 14th.—Next d. took same at 4 and 10 p.m. After 1st dose, dull headache like a band round head above ears, after 2nd extending from base of brain into jaws. 15th.—At noon same dose. At n. return of dull aching of previous d.; irregular attacks of stabbing in tips of fingers, especially l. 16th.—Arose very tired, with muddled head and aching limbs and body; and was thus all d. Stool delayed, small and costive. 10 a.m., 2 gr. In e. perceived urine to be strongly scented, somewhat like violets, very high coloured, and apparently full of bile. 17th.—No med.; urine and head the same. 18th.—2 gr. at 11 a.m. and at n. 19th.—2 gr. at 11 a.m. All d. yesterday and to-d. uneasiness in stomach, increasing to anxiety and contraction; worse after food, and much aggravated by stimulants. Felt restless and fidgety. Bowels moved daily, but costively. Feeling so poorly, took no med. till 22nd, when I repeated dose in forenoon. (Rawness in larynx now began, increasing by 24th to severe laryngeal catarrh—? medicinal. 24th to 26th.—Also aching, drawing and shooting in several joints. Felt very weak and easily tired.) On 28th took 1 gr. at 2.30 p.m. 5, weakness of stomach almost amounting to nausea, and aversion to cocoa (usually well relished). 29th.—Rose, feeling jaded, after restless tossing n. Took 1 gr. at noon. 30th and 31st.—Took 1 gr. each d. On n. of 30th restless as before.

2. June 6th, took 1 gr. at 3 p.m. All e. had distension of stomach and bowels, though dinner was only plain roast mutton and potatoes. Restless m., and dull head all d. on 7th; bowels not moved till 4 p.m., and urine brown and scanty. At 3 p.m. another dose. At n. slight griping in bowels; stool passed hastily, with burning at anus; it was bilious and partly fluid. 8th.—This m. urine scanty and strongly scented, but not so dark as before. Took 1 gr. at 11 a.m. In e. again distension of stomach and bowels, with difficult passage of flatus. 9th.—Urine scanty and dark coloured. Took 1 gr. a.m. All p.m. abdomen very sensitive and distended. Only small lump of faeces, like a marble, passed to-d. after much effort. 10th.—1 gr. a.m. Again troubled with distension all p.m. and e. 11th.—1 gr. Pulse 90, normally 72. Before (mid-day) dinner contractive pain and weight in epigastrium, often attended with feeling as if I had swallowed rugged stones. No appetite for dinner; bowels distended p.m.; pressure on

both inguinal rings. No stool till 10 p.m., dry and full of air (*sic*). 12th.—Sleep restless every n., with dreams of painful events; rise jaded. In forenoon constrictive pain in stomach. Pulse 80. Stool at 10 a.m., small. Urine scanty and dark. 2 gr. at noon. 16th.—Took no more med. Bowels remain costive; urine scanty and dark, but improving. Have several times felt before-mentioned stabbing pains in tips of l. thumb and fingers. Sleep haunted by weighty but unremembered dreams. In about a week from the time I left off this last trial my health resumed its usual vigour and evenness, which had been rather unpleasantly ruffled by this powerful drug. (*Strokes, Monthly Flam. Rev.*, iii, 164.)

2. C. HERING. *a.* From olfaction.—Peculiar feeling in head, and great pain in upper r. forehead (soon); cold jerks in l. upper jaw and front teeth; in m. first hard, then thin soft stool of striking orange yellow colour (3rd d.); pain in r. nostril (immediately); pain near l. lower rib, a dull stitch (*imm.*); sensitive pain in middle of l. humerus, soon after in fingers (2 h.); violent bone-pain in l. elbow (*imm.*); burning pressure on outer side of r. forearm; flying cutting pains in bones and joints of r. foot (1st h.)

b. After trituration.—Severe pain in l. petrous bone, above and behind ear; ringing in r. ear, and pain; pain in spermatic cords, especially l. (soon); throbbing, sticking, pricking, pinching pain on l. side of glans penis.

c. From 21st dec.—Misplacement of words in same phrase; headache in upper l. forehead, a tearing to and fro, deep in, at same time similar deep-seated pains in bunces of limbs (*e.* of 1st d.); falling out of hair is increased and continues (12th d.); sensation as if axis of vision was moved back and forth a short distance, without moving eyes,—with closed eyes (*e.* of 1st d.); ringing in r. ear (in $\frac{1}{2}$ h.); tongue much coated; coffee tastes badly,—3rd d.; urging to stool, but passage of flatus only (p.m., and d.); mushy stools 3 times in d.; unusually strong erections; pain in spermatic cords, especially l.; glans penis reddened on one side; mucus hangs in larynx like a thread, irritates to hawking and cough, causing retching and almost vomiting (11th d.); burning pains in l. ring finger (6th d.); violent itching on spot an in. wide and a hand long above crest of l. ilium, towards abdomen,—place is red, with many small points as if tetter would appear (7th d., *et seq.*); fulness and restlessness in legs which becomes quite unbearable, he does not know what to do with them, and finally has to lie down (*e.*, 5th d.); violent itching on legs and ankles; burning stitches in skin at many places, particularly in r. upper eyelid, worst at inner border of nail of l. fourth finger, where it burns like fire (soon); itching as from crawling insects on shoulders and back in *e.* when going to bed, it scarcely permits sleep and makes him very impatient (9th d.).

d. From 1st cent.—Violent itching in l. inner canthus, irresistible desire to rub it (2nd d.); violent pain around l. eye, as if externally on bone, for $\frac{1}{2}$ h.; earache, first in r., then in l. ear (*e.* of 1st d.); violent yet undefined pains at tip of glans and in prepuce; violent pinching in bones of r. forearm; pain in l. wrist-bones, m. after stool (2nd d.);

legs and feet appear as if too full; pinching pain in ankles; pinching pressing pain in head, as if in bone, first l. then r. (2nd d.).

2. Without specification of dosage.—Inward weakness, thinks he will have to give up practice on account of mental weakness (in e. while riding out); thoughts of accidents having happened to others, gradually growing upon him as if he were to do such injuries (after several weeks); pain in muscles of mastication, after eating wheat bread, for 2—3 h.; sensation of great weakness in both groins toward cord (soon); cough on rising, in violent short bursts without expectoration; sweat in axilla, smelling of garlic, for a week (8th d.); severe pinching pain in l. upper arm, a handbreadth above elbow, inwardly and on inner posterior side, often repeated and very severe, for 15 m. (soon); severe pains in r. forefinger, especially in 1st phalanx, stinging and twitching towards point (after a week); severe pains in r. ankle, which do not prevent walking (1st h.). (*Mat. Med.*, vol. 1.)

3. Dr. NEIDHARD, 5 m. after olfaction twice repeated, had pressing headache in forehead, soon followed by ulcerative pain in l. leg and gluteal muscles. (*Ibid.*)

4. Dr. RAUE, after olfaction, had pressing headache in organs of identity; pulsating dull stinging on inner side of r. shoulder-joint; drawing on inside of r. forearm. (*Ibid.*)

5. Dr. HUGANUS on Dec. 24th, 9 a.m., smelt at undiluted osmic acid and the 1st dec. dil. while preparing it. Symptoms: Odour pungent, causing prickling in nose and increased secretion of mucus. The odour remains long in nose and changes into an odour of blood. Sensation in nose as if it were stopped up, and as if coryza were about to come on. Immediately afterwards increased secretion of saliva causing him to spit frequently. When breathed in it caused scrapy, rough, prickling sensation in larynx as if catarrh were coming on, compelling frequent hawking. Soon afterwards catarrh ensued. In afternoon after frequent inhalations of 1., at 1 p.m. nose and larynx very sensitive to cold air, constant discharge from nose, and at same time nose felt stopped up. Scraping and raw feeling in epiglottis. Has a constant smell of the acid in the nose or a sensation as if unslaked lime had penetrated into nose, along with prickling sensation in nose. Scraping in larynx exciting short dry cough; during and after cough pain in larynx and trachea to middle of sternum as if raw and sore, as if with every cough the m.m. were torn away. This feeling of rawness in chest is permanent, and causes hawking and tussiculation. At 4 p.m., dimness of vision in r. eye, not relieved by wiping it, as if a veil rose before eye or the room was full of smoke. Frequent abortive sneezing. 5 p.m., the candle flame is surrounded by a bluish-green halo with bright red border; when the candle is removed far from eye (10 to 12 paces) the halo disappears, and the flame appears indistinct as if enveloped in smoke. The catarrhal symptoms increase, as also the pains in larynx and cough. Smelling of the 1., is very disagreeable and repugnant, and is like what one feels on smelling at strong mustard. Lachrymal secretion increased, especially when looking long at any object. Nausea with flow of saliva into mouth. 10 p.m., frequent sneezing with increased discharge from nose. The coloured halo

round candle-flame continues unaltered. Towards e. the cough becomes loose with expectoration of colourless mucus, the scraping and raw feeling in larynx and under sternum continue. On blowing nose smell of the acid in nose, very marked, and feeling as if blood came from head into nose, which is very sensitive not only to cold air but to that in the room. Nausea and flow of water into mouth, as if vomiting would ensue. Sudden pain in hip-joint as if dislocated, preventing walking for a few m. Tobacco scrapes the throat and causes cough and increased raw feeling in larynx. 12 p.m., the pain in l. hip-joint occurs once when walking but soon goes off. Coffee does not relieve these symptoms. No symptoms during n.—25th, 5-30 a.m., dry feeling in chest, dry shaking cough. When coughing pain under sternum and both sides of chest, burning, sore as if chest were all raw inside. After coughing a long time, expectoration of viscid, yellow lumps of mucus. Tightness of chest, dread of breathing. When breathing the air causes sore pain in bronchial tubes. Mucous râles in chest and larynx, in the latter there is some pain, but not so bad as in chest. The feeling of scraping in larynx is still there. The catarrh goes on as before. Sense of smell much impaired. Eyes the same as yesterday, the coloured halo round candle-flame still slightly observed. In abdomen rumbling and rattling as if air and water were in the bowels. Smell and taste much impaired, can hardly tell what food is eaten.—26th. Catarrh continues, and all the chest and larynx symptoms, even the cough, though less in degree. In open air smell of lime-dust in nose. Smell and taste still impaired. On back of l. hand betwixt thumb and index small, pointed vesicles with red areola and intolerable itching (6 years ago had itch here), similar vesicles appeared on ulnar border of same hand from metacarpal joint to phalanges of little finger and on dorsal aspect of wrist. No vesicles on r. hand, but much itching. All the vesicles disappeared in 24 h. The catarrh continued with only slightly diminished severity till 29th; cough in m. only, the sensation before described in the chest is still present. All the symptoms were gone on the 30th December.

6. January 4th, 10 dr. 1₂. Taste and smell of acid repugnant. Immediately increased heat of chest along course of œsophagus.—5th. Same dose. Immediately same sensation in chest. In e. twitching jerks in r. upper hollow tooth, very painful and often preventing speaking. E., stool, at first hard, then soft; before stool strong urging; after stool extreme burning in anus with urging to stool preventing sleep, only a little lumpy yellow mucus was evacuated.—6th. Same dose. In m. confusion of head with pressing and weight, especially in l. frontal eminence, going off p.m. At n. towards m. same toothache as yesterday in same tooth, but more drawing, and relieved by sucking at tooth with tongue.

7. June 1st, 10 dr. 1₂; immediately nausea with rush of water into mouth making him spit frequently. Soon afterwards empty eructation, at first without, afterwards with taste and smell of acid, with relief to nausea. After 20 m. incessant disgusting eructation with smell and taste of acid, whereby the nausea is so much increased that vomiting is momentarily expected, but it did not occur; much spitting of the

constantly accumulating saliva, which is very watery. Soon after this vomiting of much slimy water mixed with smell and taste of acid with many blackish grey specks like the sediment the acid causes when in contact with organic substances. The vomiting comes in jerks, at first of the above-described water, later of yellowish but not bitter-tasting viscid water which draws into threads. After vomiting eructation of air with taste and smell of the acid and continuance of the flow of saliva. After 2 h. exhausted, tired, drowsy, dislike to work and to intellectual occupation, as weary as after a long walk. Taste metallic, as is also smell before nose; nausea and salivation continue. Tobacco not relished. Head feels stupid and full, with irresistible sleepiness, limbs feel heavy as lead, weariness and heaviness of legs, especially knees, cannot stand long, must often sit down. Taste blunt, smell of acid constantly before nose, great loathing at it and its odour. At 10 a.m. a normal stool. All m. till noon eructation of air with smell of radish. Sticky and pasty in mouth as after a long illness, feeling in body as if a serious disease were coming on. Sinking sensation and discomfort under navel with feeling of weakness, occasional rumbling in bowels. At 9 p.m., a soft, almost pappy, but afterwards thin formed stool. At n. slept well, confused but not frightful dreams of conflagrations. Slight nausea and discomfort in scrob. cordis in m.—2nd. Same dose. Soon same array of symptoms as yesterday with nausea, vomiting, salivation, exhaustion, drowsiness, &c. Later, when driving in street, sinking feeling in scrob. cordis and nausea as if about to vomit. Sinking feeling in whole abdomen with profuse salivation. After eating sinking feeling, extreme discomfort, dull pain and weight in scrob. cordis. Appetite much diminished.—3rd. Same dose, and immediately the same symptoms, but longer continued and more intense; great general malaise preventing him from working all d. Visible and sensible twitching of *r. levator palpebræ superioris, m.*, relieved by rubbing, but always recurring, lasting 2 h. 4th and 5th. Dull paralytic pain, deep in *l. radius*, aggravated by lifting anything or by allowing arms to hang down, lasting 3 d. and going off very gradually; on 3rd d. the same pain went into *r. forearm*, but was much less severe and soon went off. During whole time from 1st to 7th June, clear urine with brick-coloured sediment, sometimes sinking to bottom, sometimes adhering to sides of vessel. All the time unusual attacks of nausea by d. without any apparent cause, continued till 10th. (*Intern. hom. Praxis*, v, 275).

6. *o.* Prof. BRATKLE observed from small doses (taken by self) burning feeling in conjunctiva, discharge from nose, irritation of Schneiderian membrane like that caused by snuff, sneezing, coryza, hoarseness, tickling in larynx and constant short cough. In *c.* the candle flame was surrounded by a bluish-green halo with ash-grey border. The nasal discharge, hoarseness, irritation of larynx and cough lasted 3 or 4 d.; they were aggravated in open air.

7. Larger doses caused the same symptoms in a greater degree, and, in addition, salivation, frequent hawking of mucus with inclination to vomit, tickling in larynx and trachea, taste of blood, oppression of chest and dyspnoea, as if the lungs were collapsed and the access of air hindered, hence difficulty of breathing (relieved by deep inspiration),

exhaustion, laziness, sleepiness and disinclination for all work. Exposed to the fumes he got heaviness of head, compression in forehead and temples, pressive pain in eyeballs, diminished acuity of vision, so that distant objects seemed enveloped in a thin mist, pressive pain in sacral region and shivering especially in back. There was also crossness, irritability amounting to anger, and the greatest repugnance to the acid, all which lasted a long time after the trial. (*Ibid.*, 230.)

II. *Poisoning*.—1. HELLMANN, exposed for a longer time to fumes, had at first burning in eyes, copious lachrymation, constant mucous discharge from nose, followed by profuse salivation, constant expectoration of phlegm causing inclination to vomit, a peculiar irritation in nose, fauces, larynx, cesophagus and trachea as though scalded by hot water, at same time sensation of constriction of trachea, in consequence of which and of oppression of chest there is dyspnoea. In addition heaviness of head and peculiar pressing and aching in back from scapulae to sacrum aggravated by movement and coughing, and pain in lumbar region. On walking in open air after $\frac{1}{2}$ h. had to rest frequently on account of weakness and dyspnoea. He went to bed but found no relief from drinking warm milk or from medicine. No appetite. On trying to read the letters ran together. He felt the greatest disgust at coffee and tobacco, which he was passionately fond of in health. During e. the flame of the candle appeared surrounded with a green red-bordered halo. No sleep at n. Next d. was much better, the following n. slept well, but the vision was only perfectly restored on the 3rd d. From the 4th d. he regained his appetite for tobacco and coffee, but he still saw the halo round the candle-flame on the 5th d. Although he went on steadily improving he had to keep his bed for to d. on account of want of strength. It was not till the 3rd week that he felt quite well. (*Ibid.*, 227.)

2. In April, 1845, at 1 p.m., Prof. CLAUSN sniffed up for an instant the fumes from osmic acid in a bottle. Immediately violent burning pain in eyes (with lachrymation), nose, fauces, larynx, and trachea. Later, copious salivation with constant expectoration of mucus, with retching but not nausea, constant discharge from nose with oppression of chest, difficult whistling respiration, dry spasmodic cough, heaviness of head, pain in sacrum and pressure in both groins, which when he coughed extended to testicles. After these symptoms had lasted 1 h. he got 6 dr. laudanum, mustard to chest, and warm milk to drink. After 3 doses of the laudanum at 5 m. interval the retching and respiratory distress were much relieved, and in 1 h. more he could eat his dinner. After dinner he attempted to read, but the letters ran together, and he had to give it up. In the e. he was troubled with salivation, hawking of mucus, and the pain in groins, but the other symptoms had disappeared. The candle-flame all e. was surrounded by a yellow halo. Next d. he complained of pain in testicles, which had kept him awake all n. The lachrymation continued, but the salivation and sacral pain were relieved; no stool. On 3rd d. stool, pain in spermatic cords to testicles, and inflammatory swelling of r. inguinal gland the size of a pigeon's egg; sight normal. From the 4th d. the pain in spermatic cords and testicles decreased, and ceased entirely on 7th d.

The swelling of inguinal gland continued till the 10th d. The irritation of fauces, trachea, and larynx, the oppression of chest with cough, the dyspnoea, hawking of mucus and nasal discharge became less every d., but were not all gone till the 15th d. (*Ibid.*, 219.)

3. *o.* A man, æt. 30, began in December to work at separating O. from its compounds. At first in good health, he began to suffer from extremely acute pain in eyes without disturbance of sight; his sleep became heavy, unpleasant, interrupted by nightmares. Towards end of February he had a copious eruption on forearms, hands, and on side of face. On entering hospital, April 1st, he stated that he had for some little time had 9—10 diarrhetic stools in d., preceded and followed by colic, and accompanied nearly every time by emission of a certain quantity of blackish blood (he had no hæmorrhoids). He had also suffered since commencing his work from violent and obstinate headaches, which even prevented his sleeping. A fortnight before admission he had nausea without vomiting, followed by cough; and 4 d. later was seized with chills and dyspnoea, recurring every other d. I was struck with the difficulty he had in breathing; he seemed threatened with asphyxia. Skin was dry and hot; temp. 40.6°. Examination of chest showed generalised bronchitis, and on l. side pretty extensive pneumonia. Surface of forearms and hands was dotted with papules, some large, some small; they were reddish brown; the epidermis came off in scales. Albumen was found in large quantity in the urine. Patient lived a week in hospital, gradually growing weaker. Fever and albuminuria continued, also pneumonia, which had the mobile character noted by Vulpian as an ominous prognostic.

b P.M. examination found l. lung in some parts in grey, in some in red hepatisation; while in others a gangrenous cavity was in process of formation. Bronchial glands were enlarged, red, and soft. Kidneys showed Bright's disease in second stage. No change in other organs save stomach, where ecchymoses as large as the hand occupied the greater curvature. Histological examination found renal epithelium in state of fatty degeneration. (*RAYMOND, Progrès Medical*, June 27th, 1874.)

4. Other workers in, or inhalers of, O. have noticed—decrease of sight, for 3—4 d. each time after smelling at binoxide,—flame of lamp in e. seemed much larger and more confused than natural; a very large rainbow-hued ring around flame of every candle (after each exposure to fumes); crises of nervous asthma; a singular and persistent cutaneous affection. (See ALLEN's *Encyclopædia*, sub voce, and *Bull. de la Soc. Mtd. Hom. de France*, xvi, 363.)

III. *Experiments on animals.*—1. Into the stomach of a small dog was injected ʒiʒss of a fluid containing oxide of osmium. After 2 m. constant vomiting for 1 h., first of a fluid smelling strongly of O., then of small quantities of white froth; with great effort, at last cough. Next d. would not eat, was perceptibly thinner, but gradually recovered. (*GMELIN, Versuch., &c.*; also in *Franks Mag.*, iv, 664.)

2. A rabbit, which after the injection of ʒiʒss of same sol. into stomach would not eat and became very thin, got 4 d. afterwards ʒiʒss at 9 and 9.30 a.m. Immediately after 2nd injection very weak, hinder

extremities seemed paralysed, but it recovered a little. The next m. it was found dead. *P.M.*—Extreme emaciation; œsophagus, stomach, and small intestines externally bluish black, internally like coal, and rough and hard to the feel. Large intestine, heart, lungs, liver, spleen, bladder, brain, and nerves unaltered. Stomach and small intestines empty; the walls of stomach near cardia somewhat dropsical (œdematous?). (The black colour was evidently owing to the chemical decomposition of the oxide of O.) (*Ibid.*)

3. A small dog vomited the instant the injection of *zinc* into the stomach was performed; this recurred several times the next $\frac{1}{2}$ h. Then another similar injection was performed, when white froth was vomited with great effort; this lasted 2 h. and recurred occasionally after 8 h., occasional cough. Next d. the animal was lively but would not eat. On 3rd and 4th d. the excrements were semi-fluid, mixed with black flakes. (*Ibid.*)

4. *Zinc* sol. of oxide of O. (= 1.305 grm. metallic O.) injected into external jugular of a strong dog. After $\frac{1}{2}$ h. frothy vomiting, twice repeated, exhaustion, dyspnoea. After 50 m. it died slightly convulsed. *P.M.*, immediately.—Voluntary muscles very irritable on application of stimuli; the heart also contracted slightly when irritated, its r. half was filled with black fluid blood; the blood in l. ventricle was brighter but not normally bright; the blood took a long time to coagulate. Lungs much distended, pale, with red spots, bronchial tubes filled with much white froth, the trachea with thick snow-white froth resembling soapuds; when water was added to it it behaved just like diluted blood serum; it had come out of mouth and nose before death, and it was found also in œsophagus and stomach. Liver, kidneys, spleen, and abdominal veins filled with black fluid blood; bladder empty. (*Ibid.*)

PÆONIA.

Paeonia officinalis, L. Peony. Nat. Ord., *Ranunculiferae*.

1. *Proving*.—2. (No information of any kind). Proving l.-sided headache, after dinner. Bozing pain, from without inwards, in r. temple. Twitching tearing in r. temple into head. Gnawing headache. Itching of r. upper eyelid at short intervals. Very painful shooting in r. upper eyelid towards its inner canthus, not removed by rubbing. Pinching behind e. ear. Very painful jerks in cartilage of ear. Burning heat in ear. Fornication in upper lip. Pressure from foœa of lower jaw through internal ear, eased by opening jaws for a length of time, e.g. in drinking, and aggravated by pressing the jaws together. Pressure under heart, as from great anxiety. Drawing fornication below navel, relieved by scratching. Pappy diarrhoea, with sinking sensation in belly and burning in anus after stool, which occurs in 6 h.; it comes on rapidly, followed by internal chilliness; the malaise is, as a rule, greatest some h. afterwards. On perineum at anus a small ulcer, which constantly secretes moisture of very bad odour, it is painful for 3 d. Fornication in rip of nose. Throbbing through r. side of thoracic cavity, and from behind up to nape, where it ends in an intermitting pinching. Cutting pressure on l. side of chest when sitting bent forward. Pressing ache near both sides of sternum at its inferior part, while eating. Obuse stitches in thoracic cavity from before backwards, as if through heart. Pinching, now in dorsal, now in abdominal muscles. Shooting on several

parts of back, going off when scratched. Fine boring pain on l. scapula, going off on moving. Sharp stiches in axilla. On flexing arm the muscles are tense above elbow-joint, with feeling as if the part were pressed. Shooting pinching in l. wrist-joint, behind thumb. Severe cramp in ulna, near wrist. A living crawling and working in a part of l. forearm. Very tedious prickling sensation in fingers and toes. Weary pain in ankle-joints when sitting. Cramp-like pains in r. temple, from without inwards. Strong cramp in r. knee-joint when sitting. Single sharp blows on inside of knee, from within outwards. Itching of cavities, removed by rubbing, and burning itching of toes, which were swollen and drawn crooked, and pain as if a sharp knife were struck through them at short intervals. Burning heat in face, back, and chest, with cold extremities. (*Prakt. Mittheil. d. corresp. Ges. Am. Aerzte*, No. 4, July, 1827, p. 62.)

1. Dr. GREEN, æt. 35, took, Nov. 16th, 10 p.m., 6 dr. tinct. After sleeping 2 h., woke up on account of great heat all over body, as also unusual heat in gastric region, and amorous dreams, which disturbed his sleep during remainder of n.—17th. Felt well till 5 p.m., from which time till he went to bed he had tiresome rush of blood to head, with pressure and dull pain under forehead, one ear hot, the other cool. Very irritable and dejected without cause. Sleep next n. disturbed by distressing and frightful dreams (of the death of near relations, &c.).—18th. No symptoms all d., so he took in e. 15 dr. Next n. was undisturbed.—19th. 6.30 a.m., 15 dr. After 1 h. violent perpendicular stiches in l. half of chest, beginning under l. axilla and going through whole chest to diaphragm, near the heart, most severe during expiration, increased by walking about; at same time pressure and stiches towards l., from ensiform cartilage.—20 a.m., shooting pains near r. nipple, increased by walking and running at 1 p.m. All p.m. till e. very drowsy and timorous aurium. Sleep next n. unrefreshing and disturbed by many dreams and frequent and copious micturition.—21th. m., considerable inflammation of eyeball, a pain in l. eye, as if a sharp grain of sand were beneath upper eyelid. P.m., recurrence of pains in chest, lasting 2 h. 2 p.m., severe pressure in middle of sternum, going off at n., but returning more severely on 23th, and lasting all m. For some d. past the toes are extremely sensitive. The symptoms go off with dying away of one finger, all except the pressure in l. eye.—16th. No symptoms all d. 11 p.m., 22 dr., which caused disturbed sleep from heat all over body, burning in stomach, and vivid, curious dreams.—17th. m., full feeling in whole head and pressure in occiput. E., increase of full feeling in head, and violent pressure pain in l. eye. All d. tormented by inexplicable anxiety. Next n. very distressing dreams, pain in occiput, and violent pains in l. eye, the inflammation of which attains its greatest intensity on 18th. The conjunctiva is bloodshot and swollen, difficulty of opening eye on account of pain and photophobia for a short time, with copious lachrymation. This inflammation continues for 3 d. After a very restless n., on 19th m. recurrence of stiches in l. side of chest, parallel to axis of body. There n. besides, periodical shooting in lowest cervical vertebrae. E., recurrence of stiches in r. side of chest. Next n. sleep worse than ever before; the distressing dreams increase to nightmare, he dreams of an extraordinary figure, which sat on his chest and affected his breathing, and is often wakened by his own groaning. (*Hygæa*, xxi, 323.)

3. a. Mr. HERRICK, farmer, æt. 41, took, May 21st, 12.30 a.m., 8 dr. tinct. 4.45 p.m., cutting around navel, lasting $\frac{3}{4}$ h., recurred at 8, and at 10 p.m. was very violent. At n. wake up frequently, dreams much, had an amorous dream, with emission.—9th. At noon, slight stiches down through l. side of chest. At n. dreams about quarrelling.—10th, 10 a.m., 15 dr. During d., 5 diarrhetic stools; unusual painfulness of corns.—11th. At noon, 20 dr. Only felt some pressure in abdomen in e.—12th, 20 a.m., 30 dr. At n., an amorous dream, with emission.—13th. 40 dr. were followed by anxious dreams and some relief.—14th. 50 dr. no effect.—15th. 50 dr.—19th. 100 dr. only caused restless n., full of dreams.

b. June 27d. p.m., 100 dr. At 8 p.m., cutting in abdomen and one normal stool, 9.15 p.m., a diarrhetic stool.—10th, At 8 a.m., 15 dr. During d., 3 diarrhetic stools, with cutting in abdomen. At n. anxious dreams and an amorous dream, with emission. On 27d. a slight cutting in abdomen.

c. June 17th. 20 dr., some cutting across upper abdomen.—18th. e., 15 dr.—19th. m., the urine passed in drops with constrictive sensation in neck of bladder, 3.30 p.m., shooting in l. thoracic cavity parallel to axis of body, accompanying each

inspiration, lasting 5 h. This recurs at 9 p.m. At n. anxious dreams; next d. very cross.—20th. 15 dr. On 21st, p.m., cutting in stomach and transverse colon, and a loose stool. Also during d. paroxysmal attacks of stitches from middle of stomach upwards. Next 2 n. many dreams.—23rd. 25 dr. Next n. many anxious and anxious dreams. The following d. furnication in abdomen, 3rd d., shooting in l. side of chest, and, p.m., cutting in abdomen. (*Ibid.*, 316.)

4. Hill had made a provings on different persons; no information as to dose, &c.

5. Starting in sleep, even in the daytime. Smarting at back of palate, e. (after 5 d.) Diarrhoea. Tearing cut pain in chest superiorly and anteriorly, beneath sternum, a kind of pressure, m. (5th d.). A transient, sharp, pressive pain in r. side of chest interiorly, above liver, m. (after 2 d.). Pain in r. upper arm to elbow when moving, for several d. Sensation in r. big toe as if splinters were sticking in skin, when it is touched, e. (2nd d.).

6. Always cough in throat, he must hawk and cough in order to clear it. The nostrils posteriorly are full of mucus, worse during sleep at n. and at noon, and when the weather is rainy. Diarrhoea, smarting itching at orifice of anus, causing him to rub, it feels swollen, p.m. (2nd d.). Slight pains in tips of l. fingers. Beneath calf, a feeling impeding walking, as though the muscles and tendons and aponeurosis were stiff, or had been broken. (*Ibid.*, 310.)

II. *Peisaniaga*.—1. After pressing juice out of roots and chewing a morsel, felt, on going up a gentle acclivity, fine prickling in skin, first in chest, then in axilla, on shoulders and arms and down side of back; burning smarting, as from needles, on head, chest, and limbs, with itching of skin, making him rub the part; vertigo, dazedness, and weight on head, in warm room; nausea, vomiting in head, loss of, or dulness of, senses, feeling of faintness, after a short walk uphill, on coming into warm room. Nausea relieved by a glass of water, but vertigo persists. Exhaustion, heaviness of limbs, better after eating. E., great weakness and prostration of all limbs; vertigo with every movement, constant whirling in head; vertigo, especially when walking about room, things sway to and fro. Walks unsteadily, whirling in head, the limbs totter. Burning of eyes and lids. Restless, dreamful sleep, dreams not remembered. Next d. dry, smarting eyes, not easily opened. Burning in eyes, itching and dry feeling in eyes. Nose stopped up and dry in bed, m. Persistent pain in occiput and nape persistent. Very acute shooting pain at r. ear, a.m. In l. side of head above eyebrow pressive shooting. Heat in throat, burning in fauces; feeling in throat as if something burning acridly crept up. Hawking up of viscid phlegm; when hawking the heat in throat increases, p.m. Head confused, heavy, giddy, hot. Prickling itching and prickling on skin in open air. Heat and burning, like needles, on chest, back, and shoulders. Exhaustion, when walking so tired and heavy on chest and in limbs, that he must often stand still, in open air. Ebulition of blood to head and face, with perspiration. Vertigo, uncertain gait, staggering. Nose stopped up, e. (*SCHWABING*, *A. A. Z.*, xxviii, 122.)

2. A chlorotic girl, æt. 19, who had not menstruated for 4 weeks, took every day fasting a cupful of a decoction made from one large peony-flower. Soon afterwards she always got a pressive headache with confusion, noise in ears, flickering before eyes, nausea and several liquid stools. On the 3rd, 4th, and 5th days vomiting and painful diarrhoea. By e. the symptoms had nearly gone, but on the 5th e. the colic continued, nerves greatly affected, shivering, slight delirium, twitchings and heavings in extremities, face red and bloated, eyes red, tearful; skin very warm, pulse hard, contracted; tongue red, abdomen tender, and especially along transverse colon and in epigastrium, hard and contracted; external genitals swollen, painful, urine scanty and passed with burning, great thirst, dysphagia, loss of appetite, weariness, prostration, pain and dazedness in head, paroxysmal tearing pains in catenities, leaving behind a numb feeling. Recovered in 4 weeks. (*OPPELHAUSEN*, *Zurich*, iv, 1850, quoted in *Ham. Pharm. Jahrb.*, ii, 474.)

PALLADIUM.

The pure precipitated metal.

I. Prodrings—*J. C. HERRING*, April 5th, 1850, while circulating and soon after, felt pressure on r. forehead in boundary line of hair, covering small spot, and lasting 30—50 m. At noon, sudden stinging pain in metacarpal bone of l. middle finger. 10 p.m., a first hard then mushy stool with protrusion of anus. Strong inclination to use terrible language and violent expressions. 6th.—Several of above symptoms were repeated. 7th.—Last n. again severe pain deep in l. hand, burning and boring, as if part were shattered; it woke him. Towards m. peculiar pain in s. side, never felt before, disappearing on turning. Heavy, tired in limbs, inert and undecided, in m. Sensation in l. arm as if it were going to sleep. Pain in rectum with retained stool; no urging for its evacuation. 11.30 a.m., took a teaspoonful of the black water obtained from washing out the mortar after making the 1st trit. In ½ h. very painful dulness in head, and stitches running to and fro in s. l. side; sudden twitching in r. wrist and metacarpal bones. Pain in rectum increased till 1 p.m., when it ceased after a soft stool. Pain, felt worse; violent digging pain in r. side, 1—1 m. to r. of epigastrium, then pressing pain under l. ribs. Slight inclination to stool as if diarrhoea would set in, while walking in e.; it also seems to him, repeatedly, as if he had grown much taller. Dulness in occiput lasting entire e.; burning on small spot on s. grain (same in r. face in m.); increased urging to urinate, and he passes more; very tired when walking, he reels on coming into room; burning in nose as from horse-rash, followed by watery discharge. 6th.—Thin stool, with quick and violent urging, as if diarrhoea would set in. L. arm as if "gone to sleep" for ½ h., at 11 a.m. While sitting still, constant painless twitching which cranks fingers, till noon. Frequent painful pressure in cardiac region and low down in l. chest, occurring at intervals. Constant sensation to r. head, at noon, through entire inner l. head at 1 p.m. R. corner of mouth pants as if sore. Edges of eyelids feel dry. 9th.—Dryness of fauces and tongue; tongue looks redder in middle. Took another swallow of the filings at 9 a.m. Burning and itching on spots below r. shoulder-blade, also on various places on r. thigh and leg. For several d. two pimples on scalp behind l. ear, running a slow course. Eyes dry and itching nearly every e.; rubbing gives no relief. Shown violent stinging pain in l. metacarpal bones and thumb. Again discomposed, drowsy and lay in e. After stool with much pressing, sense of fullness in anus. (All stools since growing commenced, save on 6th, occurred in afternoon or e.) 10th.—Drowsiness and fatigue again in e., but later; he is very much excited and disinclined to work, lies down and goes to sleep if he can. Itching over whole body while undressing at n. There are small pimples in various places, besides those behind ear, painfully sore. 11th.—For nearly a week has had same kind of dream every n., viz. of buildings which he was viewing or exploring. For several d., and especially this d., sensitiveness of a l. incisor and feeling as if it was a dead foreign body. Very painful contraction of muscles of r. neck, felt several times during praying. Vesicles on eyelids and pimples in whiskers. 12th—15th.—Aversion to hear. Frequent headache at base, inwardly, in places size of apple or 6th, or dull crooked stitches. R. arm and hand often get numb in e. (*N. A. J. of H., N. S., 12, 176.*)

2. a. Alex. C. took ʒ dr. of 4th dil., June 26th, at 6.30 a.m. Noticed no symptom till 6 p.m., when after a walk she had dull heavy pain in l. eye and back of orbit, lasting 1 h.; it grew severer in spreading over body and vertex, and then disappeared. 17th.—At 5.45 a.m., again ʒ dr. Towards 8, after walk, pain in l. eye and temple and around ear. During dinner same, and slight unpleasant sensation around l. eye. 18th.—Four dr. at 5.30 a.m. Colic before rising, afterwards pain in r. temple. 7.10, while walking, pain in r. hip. 9.15, pain in r. thumb, then in l. fore-finger, first in r. then in l. temple, in r. shoulder and arm, then again in r. temple. In after-part of d. nasal pain, itching and transient, most frequently in temple and longest lasting there. 19th.—At 3 p.m. overpowering sleepiness lasting 1 h., passing off with pain in l. temple. With these symptoms closed, and 6 globules of 5th, then of 6th, for 3 mornings, produced no more. Her next period came several d. too soon.

6. July 12th, took 4 dr. of 4th at 6 a.m. 7.30, while walking in open air, dull pain in temple and orbit, dull gnawing pain in l. sup. 20, while walking, pain round l. eye extending beyond r. eyebrow; after sitting awhile, congested feeling in r. chest; very marked tension in temples; pain in r. wrist extending into forearm, pain in temples and on vertex, lasting several h. Took another dose before retiring. On following days sensation as if heads of femora expanded or were pressed out of their sockets, especially on l. side, not noticed when walking but when pressing down as if for a stool. (*Ibid.*)

7. Dr. KAUF, April 8th, 1850, took dose of 3rd trit. in m. Painful drawing in neck and shoulders, and down l. arm, of short duration. Fluttering pain at seat of "cautionness," r. side, between a stinging and a pressing, passing off on touching or fixing attention on it. 15th.—Repeated dose. Pressing pain in l. renal region, as if urine had been retained too long, worse while sitting; pressure rather relieves it, but it gets worse afterwards. Frequent urging to urinate; aching in bladder. Aching along edge of ribs and in diaphragm. In e. mental effort irksome; pain in kidney very marked. 15th.—Still some renal pain while sitting; also in l. trapezius, as soon lying on it too long, worse when turning head to l. 17th.—Vesicle inside under lip near l. corner. 18th.—Deep-seated pimple on r. cheek near ala nasi, red, not painful; a few lightning-like stiches in r. shoulder, almost making him scream; stiches in r. chest in region of nipple, running deep in, worse from taking deep breath; drawing pain in l. forearm, as if lance, more on radial side. While walking in open air, stiches in chest and lameness in arm disappear, but he feels aching in l. groin at every step. On returning to room, again painful drawing in r. shoulder, and fleeting stiches on inner side of clavicle. 15th.—Took a third dose. Pimple on r. neck, of some d. standing, begins to itch and burn; one near r. canthus hump and bites when touched. Rheumatic pains in r. shoulder in e. In afternoon dull pressing headache, as from sitting up stiffly too long. Stool no longer daily, but every other d. 17th.—At approach of stool, dull stiches or dull aching twitches in l. side of rectum, stiches through bladder and painful weakness. 18th, 19th.—Pimples on cheeks. 18th.—On bending forward while sitting, flying stiches from mid-chest towards shoulders; very vivid in e. (at which time nearly all symptoms appeared or were more felt). Frequent micturition; bladder feels full, and yet but little urine passes. (*Ibid.*)

8. OSCAR TINTZEL, April 10th, 1850, at 9.30 a.m., took dose of 3rd trit. Proves was troubled at times with symptoms of tapeworm. P. seemed to stir these up, and after its influence had subsided, he felt no more of them for over a twelvemonth. Besides these, he had remittent pain in r. knee, of short duration; sensation as of impending stiff-neck, and immediately after at level of lower border of scapula pain as if from pressure with a dull body,—this is again followed by the stiffness; peculiar pain in throat when swallowing, as if bristly crumbs had lodged there, disappearing and returning suddenly, relieved for a time by eating; pressing in suprasternal fossa; isolated short stiches in legs; neuralgic pains in body here and there; stiches through urethra to glans; pressing in bladder, as if it was full of urine; small vesicles above knee, like flea-bites; itching in eyelids, has to rub them, more l. than r.; stiches in fingers, first l. then r.; frequent urging to micturate, with scanty discharge. Last symptom continued for near a d. (*Ibid.*)

9. Dr. FRANSON, April 15th, 9 a.m., took 1 gr. of same. An h. later, dulness in frontal region, as if a heavy load were lying on brain; each expiration is accompanied by feeling as if this load was pushed forward from occiput to forehead (it occupies more the central portion of the brain, temples being free). Pain had reached its climax in 1½ h., then abated gradually, and was gone in 3 h. (*Ibid.*)

6. Dr. COXS proved 3rd trit. on a woman, æt. 29, who had had a headache for some d. She took 1st dose at 10 p.m., Nov. 16th. Slight pains and itchings in various parts followed almost at once. At 7 a.m. next d. took another dose. Variations in headache, with great irritability, occupied forenoon; p.m., sensation as of flea-bites in various spots, and at 2.30 winter throbbing throughout body, preventing sleep for a hour. Repeated dose in e., and m. and e. till 3 doses altogether had been taken. After 3rd dose itchings as at first; after 6th, return of irritability with headache. After 8th, during m. twinging pain in l. hip-joint; in e., pain at hypogastrium, and at 2 a.m. pain in cardiac region. On 6th d., in m., pain above l. knee, extending thence into chest. On 7th d., sharp colic in hypogastrium before stool;

pain and soreness in liver; aversion to any exertion. Headache continued off and on all the time. (*Ibid.*)

7. Same proved 1st test, on 5 other persons.

a. M. L. C.—took a gr. daily for 6 d. Took 1st dose at 10 p.m. At 7 next m. formation over entire back and thighs, with itching; disappears from scratching, but soon reappears in a neighbouring place. Within 36 h. it had become very troublesome, and it lasted throughout the proving, and 2 d. after. One d. observed small elevations here and there as of urticaria, red, on base whiter than skin. Stools soft during proving, but habitual constipation returned afterwards. Slight fulness in forehead and sensation as if brain was being shaken lasted for 36 h.

b. S. A. C.—, wt. 10, took same for 5 d. Some headache; sensation of roughness on forehead and slight itching, off and on for 3 d.

c. D. C.—, wt. 15, took same for 4 d. Formation and itching on various parts of body; stools more frequent and softer than usual.

d. L. L. C.—, wt. 19, took same for 4 d. without effect.

e. J. R. C.—took a gr. daily for 8 d. Slight numbness in l. forearm, extending to finger, from afternoon of 7th d. till e. of 11th. (*Ibid.*)

f. Dr. NEATHAN gave a nursing mother 1 gr. of same before 7 a.m., 3 d. before she expected her catamenia, which occurred throughout period of nursing. P.m., dull aching and weight across forehead and over eyes, lids heavy; ere about 20 h. aching through limbs as if beaten, with feeling as if menses would appear. Both symptoms diminished in e. without entirely disappearing. Child was irritable, and had frequent stools followed by slight colic. Next m. again heaviness over eyes and in forehead. Felt as if beaten in muscles of both shoulders and arms to elbows; improved in e. Menses did not appear. (*Ibid.*)

III. *Experiments in animals.*—1. A big dog got 3ss of the chloride in 3ss water. After 4 m. vomiting first of brown (colour of P. solution) fluid, latterly of white froth. After ½ h. diarrhoea, all d. very tired and emac. Next d. well. (GROSS, *Verhandl., &c., in Frank's Mag.*, iv, 665.)

2. A rabbit got 5 gr. in water, without effect; it then got 15 gr. in water. It would not eat, and on the 1st d. died. P.M.—The walls of stomach, especially between the serous and muscular layers, perforated by a reddish, clear fluid, m.m. thickened, greyish-brown, very brittle. On surface of lungs small black points, intestines muc. contracted, liver and spleen small, animal much emaciated. In both auricles and in e. ventricle of heart blood. M.m. of bladder inflamed, urine dark, thickish, red, but containing no trace of P. (*Ibid.*)

3. An old, medium-sized dog had 3 gr. in 3ss water injected into the external jugular. He yelped out, made 2 or 3 respirations, and died in 2 m. P.M. in 5 m. Heart not contractile. In its c. half not coherent coagulated blood, in l. half fluid, scarlet-coloured blood; peristaltic movements active, voluntary muscles irritable. (*Ibid.*)

4. Another dog, poisoned in the same way and with same result, showed similar pathological changes. (*Ibid.*)

PARIS.

Paris quadrifolia, L. Herb Paris, true-love. Nat. Ord., *Triburnaceæ*.

I. *Proving*.—GROSS.* After 5 m. tension and pressure in l. cheek. After 10 m. tearing in e. ear, as if it were torn out of head. After ½ h. sensation as if a thick fog lay before both ears, preventing him hearing well. After 1 h. sensation as if 2 sharp pins were placed on the r. frontal protuberance (superficial shooting pressure). After 24 h. on l. parietal bone a very wise place, only when touched, as if after a hard blow, at n. After 2 d. tearing in whole of l. index.—*No time stated*. Sudden whirling vertigo, especially when sitting. Stupid feeling in head. In l. side of forehead, a stupifying headache, throbbing like a pulse. Tension in insertion of forehead and eye-socket; it feels as if the skin were firmly adherent to the bone, and could hardly be moved. Head heavy, the nape muscles cannot support it, it sinks forwards. Tension in muscles of neck and nape, so that the head is involuntarily

* No information given in any of these provings.—EDs.

drawn forwards. Sensation as if a great weight lay on nape. Small dry papules, with itching lining above l. eyebrow; the biting is aggravated by scratching, and it then feels as if a splinter were sticking in skin. Burning pain in inner canthi. In the daytime eye-gums in inner canthi and burning pain, especially on touching. Watering of eyes, after rising, m. Itching red spots on cheeks and ramus of inferior maxilla, like millet seeds, which are painful when rubbed or scratched. Horrible itching, biting and burning on l. side of lower jaw and under its l. border, e.; after rising, m., there are on this spot scratched-off, bloody papules, the size of millet seeds. Root of tongue brown, after rising, m. Mouth quite dry on waking, m. Hawking-up of mucus from fauces. A reddish, streaked eczema above navel, where the ribs leave off, with painful pressive sensation, especially in its centre. Above and to l. of navel, on a small spot, pressure as if something hard lay there. Painless rumbling in hypogastrium. After rising, m., nose quite stopped up; with difficulty he blows from his nose mucus mixed with blood. Blowing of red and green nasal mucus. Pluent, alternating with stopped coryza. Trachea and mouth quite dry on waking, m., with hoarse voice. Roughness in trachea, causing deep bass voice. Irritation to short cough in larynx, as from sulphur fumes, and he can bring up but little mucus; after which, in a few m., the irritation recurs, and he must again cough. After rising, m., constant short cough, without expectoration; after $\frac{1}{2}$ h., some green, viscid phlegm comes up. Very frequent short cough in order to bring up viscid phlegm, that seems to be located at back of larynx. Coughs up viscid green phlegm from larynx. Constant short cough, without expectoration; as soon as he lies down in bed, he coughs so violently that sparks come before eyes. Very violent cutting and shooting pains in r. side of thorax, near emitorin cartilage, as if the pain were midway between back and sternum, in the centre of the thoracic cavity, but more to r. Palpitation of heart, when at rest and when moving, e. Pulsating sharp shooting in coccyx. In r. hip-joint painful sensation only when walking; when he puts down l. foot and the r. leg is stretched to its utmost just before being brought forward, he has stinging pain in r. hip-joint, as if the leg were powerfully torn back. Painful sensation on r. knee only when it is bent and supports a part of the weight of body, but not when he is standing, sitting, or lying. On l. sole paralytic pain when standing for several d. (*Archiv.*, viii, 1, 171.)

2. HANKESSON.—*No time stated.* Internal headache on waking at m., like bubbling, he could not go to sleep again on account of internal restlessness. Pimples on forehead, with pressive pain when touched. No relish for tobacco-smoking. The abdomen becomes distended and uncomfortable after a meal. Pressive pain in abdomen. Uneasiness in abdomen. Very fetid stools, like putrid flesh. Urging to urinate every 10—15 m., and burning when it passes. Nocturnal emission of semen. Cough when he lies on l. side in bed. (*Ibid.*)

3. HARTMANN. After $\frac{1}{2}$ h. thin, slimy stool. After 2 h. constant painful pressure deep in r. frontal protuberance. Fine needle-pricks in r. hip, frequently recurring. After $\frac{1}{2}$ h. chilliness in chest, abdomen, and lower extremities, with goose-skin and yawning, with icy-cold feet. After 1 $\frac{1}{4}$ h. rumbling in bowels under stomach, as if from emptiness. After 2 h. pressive pain in r. temple, removed by pressing with hand. After 2 $\frac{1}{2}$ h. slight chilliness on lower extremities and sensation of contraction of skin, whilst upper part of body and arms and feet are warm. After 3 h. painful pricking between 4 last r. ribs, close to spine, worse on inspiration. After 3 $\frac{1}{2}$ h. cramp-like pain about r. palate. After 4 h. continual yawning. After 4 $\frac{1}{2}$ h. the whole r. half of body from head to feet is cold, whilst the other half is warm. After 5 $\frac{1}{2}$ h. on inspiration pressive shooting on l. nipple.—*No time stated.* Painful pressure over l. orbit, which seemed to press down the upper eyelid. Constant hiccup after eating. (*Ibid.*)

4. LARHAMMER. After $\frac{1}{2}$ h. dilation of pupils. Bitter taste, with dryness and roughness of tongue. After $\frac{1}{2}$ h. a pustule in the middle of the upper lip beyond the red, with red areola. A vesicle on inside of lower lip. After $\frac{3}{4}$ h. hiccup. After each micturition, m., urinary tenesmus. Increased heat of all the body. After 1 h. writhing itches in l. side of forehead externally. After 1 $\frac{1}{2}$ h. pain of hairy scalp when touched as if the hairs were painful. Tongue fissured, white and rough, as if covered with millet seeds. Fine stiches at mouth of urethra. Oblique stiches on dorsum of r. foot. After 1 $\frac{1}{2}$ h., while sitting, violent sharp stiches on l. inner ankle. After 2 h., on standing, pain extending upwards in tendons of r. thigh,

Very painful stitches on sole across balls of feet. After 2½ h., while sitting, violent burning at urethra of urethra. After 3 h. intermittent drawing pain in muscles of r. side of occiput. After 3½ h. itching papule on metacarpal bones of r. index and middle fingers, the part pines after scratching. After 4 h. ringing in l. ear. A papule on upper lip under nose, with pus in its apex and surrounded by a red areola. After 4½ h. violent tearing in r. testis. After 4¾ h. mucus in chest, without inclination to expectorate. After 5 h., when smoking, headache. After 22 h. pale face. Yawning, with drowsiness, p.m. After 13 h. several stools. After 24 h., an itching pimple on r. side of chin, paining when scratched. After 25 and 43 h., on waking, m., general biting itching perspiration, making him scratch.—*No time stated.* Pain in forearms, as though he had been writing for a long time, worst when the arm hangs. Pain as if suppurating, or as if blood were extravasated, in tip of middle finger. Sleep at n. full of dreams. (*Ibid.*)

3. STAFF. After 1½ h. such great hoarseness that he cannot bring out an audible word, periodically recurring in ½ and 1 h. After 2½ h., after a small dinner, he has a flush of heat with sweat over back and forehead, then rigor down back and cessation of sweat and dry burning heat and redness of face. After 3½ h. hard, difficult stool. After 10 h. a rapidly developed pain in both ears, as if a wedge were forced into the meatus, which forced apart its turnings; latterly only heard in r. ear; relieved for a short time by boring in finger, when walking in open air, &c.—*No time stated.* Saliva rushes into mouth, which, though tasteless, draws the mouth together like astringent things. Face back on palate a rapidly developed dry and scrappy feeling, with efflux of a quantity of tasteless water into mouth, as when one is hungry. Hunger soon after a nourishing meal. For several d. very dark-coloured urine, without sediment. Constant hawking up of phlegm, a quantity of phlegm seems to lie in larynx, which he must hawk up; it is white, viscid, and tasteless. For several d. there comes constantly from upper part of trachea a lump of mucus, without much hawking. (*Ibid.*)

6. ТУТКОВ. After 3 h. epistaxis. After 6 h. violent epistaxis. (*Ibid.*)

7. WELZIGENUS. After some m. formication on several parts of skin. After 10 m. shivering. After ½ h. cramp-like tearing in all abdominal muscles up to scrob. cordis, worse when stoop bent forward than when walking. Feeling of weight in axis. After ½ h. twitching and quivering of upper eyelid of r. eye. Biting, gnawing pain in sternum. After ¾ h. wringing pressure under zygomatic. After 1 h. cramp pain at back of l. wrist. After 1½ h. formication on inner surface of l. hand, as it goes to sleep. After 16 h. pinching on dorsum of foot. After 2½ h. formication on border of r. eyelid. (*Ibid.*)

8. БЕТЗМАНН. After 4 h. most often spit out watery saliva. After 12 h., in r. on lying down a very violent drawing cutting pain in l. side of thorax and abdomen (on which he lay), which began above the diaphragm, seemed to bore through it, and extend down into abdomen, then passed, more of a cutting character, through small intestines to entrance into true pelvis, where it disappeared, but almost at the same moment again began in thorax; at same time respiration laboured and superficial; lying on back gradually took away pain. After 18 h. drawing in anterior part of urethra.—1st d. Great appetite. 2nd and 3rd d. Must go to stool oftener than usual, but the stools are generally unsatisfactory and pappy.—4th d. In m. as if a stone lay in stomach.—*No time stated.* Disagreeable, disgusting irritation. Digestion not so good as usual. When urinating leaning in urethra behind glans. Urethra dilatory in coming away; he has urgency, but must wait some m. before it issues. Aired smell, milk and bread smell like putrid flesh. Drawing deep in middle finger. (HARTLAUB and TRINKS, *R. A. M. Z.*, ii, 149.)

9. HARTLAUB.—*No time stated.* Disinclination for mental work. Confused head. Fine stitches in l. temple. Painful pressure in upper orbital border as if in lane. Tearing pressure on upper surface of r. eyeball. Ringing in l. ear. Hot darts in l. maxil. bone, which is painful when touched. Drawing pain in a hollow tooth. Firm, almost painless, swelling on hard palate near backmost molar, size of a pigeon's egg. A sharp shoot in œsophagus. Belching. Painful pressure in a small spot on l. side of abdomen. Rumbling in abdomen and discharge of flatus. Violent sneezing. Must always hawk phlegm from larynx and trachea. Dull pressure in r. side of chest. Obtuse stitches in l. side of chest. On bending head to l. side paralytic pain on l. side of nape. Burning feeling in l. shoulder, as if in bone.

Drawing in upper arm. Shooting in l. palm. Drawing in metacarpal bones. Drawing pain in thumb and index. Violent tearing in proximal joint of r. middle finger. Obtuse shooting on back of index. Throbbing-shooting in index, in bone. Paralytic drawing in whole r. lower limb, when at rest and when moving. A stitch in l. naris. Tearing in l. knee. In bed, drawing in lower end of tibia. Slight drawing in outer ankle. Paralytic pain in l. ankle-joint, as if the hip-joint was relaxed. Numb pain on inner ankle. Dull drawing in heel-bone. Painful shooting in fore part of r. big toe. Weariness. Itching all over head, after scratching it burns. Violent itching in coccyx. Great itching of skin here and there. Single little scurfs on head. Day drowsiness. (*Ibid.*)

10. HARIKO. After 1 h. sensation in whole head as if it were blown out, or as if temples and eyes were forced outwards from within.—1st d. Disposition to get angry and discontented with others for a trifling cause, and to express himself in a few contemptuous words. Silly; he speaks much on every subject, passes quickly from one to another, speaks for the sake of speaking, and would even do so if he were alone, has pleasure in his own feivulous and ridiculous chatter. Feeling in head as if the meninges of brain and brain itself were stretched, then a sensitive feeling in palpebral region as if the skin was thicker there and could not form wrinkles. Scraping in throat. Less urine than usual. Drawing in lower extremities.—No time stated. Vertigo, everything goes round with him. Slight pressure in l. temple. After reading aloud, vertigo; speaking and looking closely at anything are difficult for him, and he feels as if he were going to have a violent headache, this is worse when walking; there occurs a pressure from within outwards in whole head, with feeling of iponisation. When going upstairs slight vomiting and throbbing headache. The hair falls out, and is painful on crown. The eyes feel sunken and as if their orbits were too small; at same time he can look at nothing fixedly, objects appear to move. Slight boring and smarting in eyes (from vapour of juice). Much mucopus in eyes, m. Transient cramp in l. sterno-cleido-mastoid muscle. Pain in skin of palate, which exfoliates next d. Dryness and tickling-burning in hard palate. Burning and then scraping in oesophagus. In m. white slimy foam on corners of mouth. Flat, slimy taste. Fiery urine, which after standing shows in its middle a flaky substance, but later a reddish sediment, and a thin iridescent film on the top. Urine after standing quite turbid, with a greasy film on top. Increase of sexual desire, very stiff erections. Slight burning in larynx. After dinner drowsiness and sleep, with disagreeable dreams. Afternoon sleep, with many voluptuous dreams and seminal emissions, with stiff erection. (*Ibid.*)

11. NAWIKO. After 1 h. shooting in r. side of head. While walking, cutting in l. iliac region. After ½ h. heat and sweat on upper part of body, with quick full pulse. After 1 h., stupid in head, like vertigo, going off in open air. Pulse slower by a few beats. After 3 h. urine pale yellow.—1st d. Lively, talkative, shooting and gnawing in l. frontal region, then gnawing in l. side of lower jaw, very painful. Pressure in stomach relieved by eructation. As it full in stomach. Gastric region distended, as from flatulence, and painful when touched. Urine increased. Heat and sweat on head, with nausea, after breakfast.—and d. Diarrhetic stool. Cold on lying down, e. After 3 d. painful drawing in a hollow molar, cold makes the pain jerking; worst a.m., relieved by walking, lasting 3 d. Toothache like tickling, chiefly p.m., worst n., aggravated by cold and hot things. Two diarrhetic stools.—4th d. Burning and watering of eyes. Half sleep all n.—No time stated. Sharp stitches on l. side of vertex. Headache aggravated by thinking. Tearing in l. ear. Feeling as if something burning hot came out of both ears. Painful tension under l. eye. Tongue dry and rough. Tongue feels to her too large and too broad. Frequent flow of water from mouth after breakfast. Frequent empty eructation, with pressure on chest, a m. Clear tasteless water comes up from stomach without nausea, m. Burning, like heartburn, and nausea, rising up from belly to chest, after breakfast. Violent pinching in stomach, going off by eructation, p.m. Burning from stomach into belly. Shooting in r. hypochondrium. Cutting and rolling in belly, with a stool. After dinner, violent cutting in belly, and ineffectual call to stool. Pinching in whole belly, especially around navel, when sitting, p.m., relieved by walking. Audible rumbling from stomach up to throat. Ineffectual call to stool. Two ordinary stools in rapid succession. Urine rather scalding. Menes 3 d. 100 1000. Breathing rather oppressed. Frequent deep breathing. Shooting in r. side of chest,

which goes thence into r. clavicle, then into a r. molar, and finally into r. ear.
Tearing in muscles of neck and nape. Shooting betwixt shoulders as if in bone.
Long-continued shooting beneath l. scapula. Shooting into back, when sitting.
Tearing in coccyx when sitting. Tearing in l. shoulder. Tearing in shoulders
down to fingers. Weight in r. arm. Tearing in r. elbow and ankle. Tearing in r.
palm. Tearing in thumb. Gone-asleep feeling in fingers. Tearing in hip-joints.
A severe sudden tear in r. hip, when sitting. Tearing in outer side of r. thigh to
heel. When sitting gnawing in posterior side of thigh. Tearing in calves. Tear-
ing in r. outer ankle. Tearing in r. heel and thence to outer border of foot to
litt'le toe. Long-continued tormentation in heel. Tearing in sole. Twitching in r.
big toe, when sitting, e. Such violent tearing in r. big toe, she could cry out, when
sitting. Feet as if beaten and trembling, when walking. Frequent yawning, with
sleepiness. Sleepy early in e. Restless sleep for 3 n. Constant tossing about
in bed, in half sleep. Anxious dreams all n. for several n. On awaking at n.
imagines she is in a strange and solitary place. Often warm and anxious all over
body. Frequently heat and sweat all over body. Sweat on awaking at 3 a.m. (*ibid.*)

11. RUECKPRT.—1st d. Contractivepressive pain in forehead. His eyeballs feel too
large. Cool feeling in r. eye. Gums feel loose. Ball-like pressure in throat while
and while not swallowing, frequently recurring,—and d. All worse e., headache
involves whole sinicupis, feels as if the skin of forehead were drawn together and
the bone scraped raw, the eyelids have a red border and are heated; feels as if a
thread were firmly drawn through eye to middle of head, very painful. Pain as if
teeth were full of holes and the air blew cold into them, at same time gums feel
corrugated and pain as if burnt. Trembling of hands. Constant feeling of coldness
as if the inward parts were quite contracted by cold, and as if they seemed to and
fro.—*No time stated.* Frequent persistent pressure in head, especially in both temples.
Pressure in occiput. Shooting pain in centre of head and in temples, later heavy
pressure on forehead, especially when stooping. Some stitches through middle of
eye, the sight of which is misty. Swimming before eyes. Unsteady vision, as though
he had been weeping. Ringing in ears and carache. Hot face. Shoots in upper
lip, nape, hands and feet as if beneath skin. Chapped and swollen upper lip, and
teeter about mouth. Every m. pain as if a knife cut into gums. Drawing and throbb-
ing in teeth. Pain in palate as if exoriated. Pressure in r. tonsil. Pressure out-
wards in throat on ironing and in e., as if a ball were continually growing bigger
and would burst the throat. Sharp shooting scraping in throat, mostly e. Nausea
and sour taste. Sinking in stomach. Frequent sneezing. Some hoarseness. Fre-
quent stitches through lungs. Frequent pinching in heart and lungs; on stooping
feels as if a stone lay on back. On turning round neck feels stiff and swollen.
Stitches through and through on both sides of back and nape. Paralytic pain in
finger-joints, later in arm and other joints. The fingers are sometimes hot, some-
times cold, death coloured and dying away. Fingers often as if gone asleep. Draw-
ing in inner side of l. thigh. Drawing burning under toes, especially e. Many
tendons are painful when touched. Cramp-like pinching in joints almost always.
Constant stitches in all limbs, especially e. On every movement, feeling as if joints
were broken, and on stretching out as if they had been pressed in, on twisting and
turning as if swollen and sprained. All the skin feels sore when touched. Great
heaviness in all limbs and increased cold, e. Short broken sleep. Chill as if he
trembled inwardly, e. and also a.m. Feet always cold, especially n. Here and there
icy cold spots, like finger-tips, on skin. Sometimes of an e. heat from nape along
back. (*ibid.*)

III. *Experiments on animals.*—1. Twenty berries were given to a dog and the
oesophagus ligatured; soon the dog made efforts to vomit, and spat up the accumu-
lated viscid mucus and unered piteous cries. For 1½ h. no further symptoms was
observed. Then the symptoms became worse, the efforts to vomit recurred several
times with renewed intensity for 4 h., then the ligature was removed and the dog got
quite well. (SCHUBARTH, *Horn's Archiv*, 2te, H. 5, p. 67, 1822; also in *Franz's*
Mag. ii, 196.)

PETROLEUM.

Rock-oil, *oleum petre album*. (For preparation see *Brit. Hom. Pharmacopœia*.)

I. *Proving*.—1. HAHNEMANN, *Chronic Diseases*, part iv of original, vol. of translation. Contains 776 symptoms from self.

2. Dr. P. C. O. BENSON took 10 dr. of r , dil. at 9.30 p.m. Before midnight felt pain in frontal region, with slight nausea, increasing, and inclination to belch wind, with slight pain in transverse colon and l. lumbar region. Awoke at 5 with pain below umbilicus, rumbling, belching, and disposition to stool. Arose at 6; all symptoms increased; on movement pain in bowels became sharp and cutting, and increased desire for stool. Soon had a free movement, loose, lightish-brown, and very thin; pain returned just after. Headache, frontal, dull and disagreeable. Before 7 sickness had increased so much that at one time he thought he should vomit. Still much rumbling in bowels, and at 7 again urgent desire for stool, but repressible. No more movement of bowels occurred till 6 p.m., when he had a natural stool. During d. there was at times much sickness of stomach, almost to vomiting, so that several times he was obliged to lie down. The attacks came on every 10 or 20 m., and lasted 3–5 m. Frontal headache, at times quite severe, especially while the nausea remained, belching of wind, and constant feeling of weakness in rectum. At 3 next m. awakened by urgent desire for stool; movement very free and watery, with a gush; a little pain just before and after. Same occurred at 5 and 6. At 8 ineffectual inclination, and nothing more during d., but weakness was felt, especially in rectum and anus. Dull headache continued till 11 a.m., where it was relieved after a slight epistaxis. Tongue was coated white in centre, with dark streak along edges. Symptoms all passed off during 2nd d. (*Trans. N. Y. State Hom. Med. Soc.*, vi, 29.)

II. *Poisonings*.—1. A peasant woman, æt. 30, had long suffered from endemic ague. She took, Oct. 18th, e., a tablespoonful of P ., hoping thereby to cure her fever. Soon she had violent pains in stomach followed by persistent vomiting of bile and blood and profuse diarrhœa. This continued all n. and next d. It sometimes ceased for a while, but was renewed by taking anything warm, as soup or milk. Seen on 18th, about 4 p.m., the following was her state:—Face distorted, features sunken, pale, cold as marble, cold sweat on forehead, eyes deeply sunk in sockets. Tongue thickly furred, dry; unquenchable thirst, but as soon as she took any drink it was thrown up mixed with bile and sometimes with blood. Respiration gasping. Stomach and whole abdomen very sensitive to touch, severe burning in stomach, great restlessness, frequent tossing about and occasionally screaming. Stools watery and contained shreds of bowels and blood. Urine scanty and passed with violent pain. Constantly increasing anxiety, extremely small thread-like pulse, coldness and cyanosis of all the body, especially of the extremities, which were cramped down to toes and fingers, along with the other symptoms looking like cholera. After leeches for stomach and abdomen, poultices and various medicines, the patient

recovered, but the urinary secretion remained scanty for some d., and the catheter had to be used to empty bladder. (JELLINCK, *Wien. Mediz. Halle*, 1861, No. 44; in *A. h. Z.*, *Mtbl.*, v, 6.)

2. A journeyman baker, æt. 23, on Sept. 11th, thinking he had got hold of a bottle containing brandy, whereas it contained petroleum, swallowed down three mouthfuls before stopping. A violent burning in his throat showed him his mistake. He rushed off to the doctor, and complained of violent contractive pains about navel and scrob. cordis, and of a disgusting bitter taste. His breath smelt of petroleum, pulse quick. He was put to bed, and had warm water to drink and cold compresses to abdomen. He soon began to vomit, a small quantity of petroleum was thrown up; the pains in the abdomen were relieved, but the burning in throat increased. After a few h. he had chills without subsequent heat, great thirst, and dryness of throat. During n. he only slept 1 h., burning pain on passing urine, which smelt of petroleum. Burning in scrob. cordis, griping about navel. No stool. During n. violent headache over eyes, which was relieved towards m.—12th. Pain in head and abdomen and burning in throat relieved. Thirst, no appetite, disgusting taste, frequent eructation, but without petroleum odour. The urinary symptoms better; feeling of weight in lower extremities. In m. chill and trembling of whole body, face cool, cheeks livid, fingers and nails blue. Pulse 66, hard. Temp. 36.6° C. He got *Nux. v.* 2 every 4 h.—13th. During d. much eructation, last e. verugo and noise in ears for 1½ h. Appetite returned. Tongue still furred. Yesterday and during n. 2 liquid stools. Frequent urging to stool. Pain in navel gone. Only slight pain when passing urine, which is clear, yellowish, and contains no albumen. (GROOS, *A. h. Z.*, *Mtbl.*, xxi, 27.)

3. After a poisonous dose of petroleum there came on inflammation of throat, violent colic, with inclination to vomit; a short time afterwards violent tetanic fits. The patient twists about in horrible pain, soon followed by stiffness, crying, and howling. After 10 m. of tolerable ease a similar attack of greater severity, during which he can take nothing to drink and makes violent efforts to vomit. The convulsions were so violent that 4 people could scarcely hold him. (HUMBERT, *Journ. de Chimie Méd.*, in *A. H. Z.*, *Mtbl.*, xxii, 48.)

4. A case diagnosed as nephritis died under the care of Dr. O. Lassar. The urine had been highly albuminous, and contained "hyaline and granular cylinders." At the necropsy body was extremely œdematous, and the epidermis in places was raised in little blebs. Dissection showed dropsy of the cavities and œdema of lungs, but no lesion of any organ to account for the dropsy, the kidneys being perfectly normal. "The most scrupulous histological investigation failed to find a trace of interstitial growth, proliferation of nuclei, amyloid degeneration, or more than traces of fatty degeneration of the epithelium." The man dated his illness from an extensive inunction of the body with petroleum, used for scabies about 4 mos. before his death. He used the petroleum for 4 d., and at end of a week noticed swelling of feet, rapidly extending to abdomen and chest. In the course of 14 d. it disappeared, returning again after 8 d., and persisted until

death. While in hospital the radial pulse was noted to be small, empty, and of low tension; the blood-corpuscles were few, but the proportion normal. Temp. normal. Histological examination of skin showed localised areas of inflammation; along veins and lymphatics a small-celled growth existed, and in all the layers of the cutis there was a widely distributed nuclear proliferation. Lassar said the dermatitis was doubtless the result of the petroleum inunction, and albuminuria was the result of the skin affection, the renal disorder being purely functional. The quantity of urine passed is not stated. (*Lond. Med. Record*, 1878, p. 163.)

PHELLANDRIUM.

Genus *PHELLANDRIUM*, Lambk. Fine-leaved water-dropwort. Nat. Ord., Umbelliferae.

1. *Provinge*.—1. NEMING. (See vol. i, p. 30.) The usual alternations of mood, with great predominance, however, of depression, apprehension, and ill-humour. Vertigo marked, even to falling; in one prover, after 3 m., head was so heavy and giddy that it threatened to fall to side to which he turned it; in another, after same interval, worse when walking, seeming as if something projected from forehead and she could not see over it. Heaviness, sense of intoxication, and various headaches occurred—most of these troubles relieved during dinner and by open air; vertea was special seat of pain, which was burrowing pressure, (almost burning) constriction, throbbings, or stitching,—in one a painful heaviness, as if a hard body were lying on it. Eyes burn, bite, itch, and water. Ears itch, and there is painful tearing or boring in them; one was awakened at 5 a.m. by a sound in brain as if one were beating on a freely-swinging bell, it gradually died away. There is coryza, with hoarseness, and some suggestion of prosopalgia. The common symptoms of irritation of alimentary mucous membrane obtain, among which may be noted—red vesicles, burning like fire, on tongue; soreness of throat on empty swallowing, rather relieved by swallowing food; sense of coldness in abdomen. There is some diuresis or vesical irritation. Stomach came on too early, and were accompanied with unusual weakness, in one with (equally unusual) violent bruised pain in inner part of thighs. There are many stitches in walls of chest, and in mammae; one woman had violent stitch through mamma near sternum, extending to back between shoulders, and then downward into sacrum, hurting her when breathing. Teasing and stitching are felt in neck, back, and limbs. There was itching at various spots on surface; sleepiness; and much chilliness. (HARTMAN v. TRINKE, *Reins Arznei*, II, 162.)

II. *Painings*.—1. From eating the plant there has been observed intoxication, confusion and heaviness of head, and vertigo. (RICHTER, in *Ibid.*)

PHOSPHORUS.

Common transparent phosphorus.

1. *Provingi.*—1. HAHNEMANN, *Chronic Diseases*, part v of original, vol. of translation. Contains 1915 symptoms, 1169 from self, 662 from 9 fellow-observers, and 84 from authors.

2. ALPHONSE LE ROU took from 2 to 3 gr. Ph. in treacle. Was tormented by very disagreeable affections for some h., felt heat and gnawing pains in stomach, which seemed to him to be distended with air, and he had frequent ineffectual efforts to vomit. Relieved by sipping cold water. Urine deep red colour. Next d. had great increase of sexual power and scarcely resistible desire for coitus. (*Mém. de la Soc. méd. d'émulation de Paris*, 1797, t. i, p. 171.)

3. C. E. WETZEL took 1 gr. of Ph. dissolved in oil. After $\frac{1}{2}$ h. pulse increased in rapidity by 12 beats, on repeating the dose by 20 beats per minute. Increased heat of whole body with feeling of internal itching and great congestion of blood to head. (*Dis. inaug.*, 1797, p. 14.)

4. FRANZ BOYTATZ dissolved $\frac{1}{2}$ gr. Ph. in zjv naphtha vitrioli, and took of this 20 dr. every 2 h. The 1st dose caused slight nausea, relieved by drinking water. The 2nd dose caused ravenous appetite, pulse became more lively, heat of whole body increased, felt a peculiar comfort and lightness of whole body. After $1\frac{1}{2}$ h. ate with the greatest appetite; 2 h. after eating continued the med.; he took in all 5 doses. Nothing disagreeable ensued, he felt extremely well towards e. Passed much flatus, felt increased muscular power and unusual excitement of the genital parts. The quantity of urine passed was increased. (Quoted by SORGEZ, *Der Phosphor*, 115.)

5. SUNDELIN took, 2 h. after breakfast, $\frac{1}{2}$ gr. Ph. in oil. Soon great heat in stomach, and later in whole abdomen. After 1 h. painful vomiting and diarrhoea with febrile symptoms. For several d. stomach remained very tender, could only bear light food. (BRARA and v. GEIST, *Krank. d. Arb. in d. Phosphor. Zündh.*, 225.)

6. Dr. A. L., æt. 40, phlegmatic temperament, well, with the exception of a slight catarrh, took, October 10th, 7 a.m., $\frac{1}{2}$ dr. of 3rd dil. After $\frac{1}{2}$ h., when washing, heaviness of r. arm, it cannot be easily raised, as if stiff in shoulder-joint, lasting $\frac{1}{2}$ h. Frequent rumbling in bowels.—12th, 8.30 a.m., 6 dr. After $\frac{1}{2}$ h., when washing, slight pressive pain in muscles of ulnar side of r. forearm, followed by heaviness of whole arm, more persistent than yesterday. Stiffness of shoulder located in deltoid muscle. Drawing in r. hand. In e. burning pricking in finger-tips of r. hand, several times repeated. At n. unusual and vivid dreams.—13th, 7.45 a.m., 8 dr. Recurrence of stiffness in r. shoulder, a kind of tension extending up to occiput.—15th, 6.45 a.m., 10 dr. After 5 m. a shoot upwards in r. half of brain towards r. parietal protuberance followed by pressure and heaviness of r. arm.—18th, 6.45 a.m., 10 dr. While washing, a slight burning pressive sensation in r. shoulder-joint when raising arm. In deltoid muscle, as also in upper dorsal muscles, up to nape, a tensive-pressive sensation.

Heaviness of r. arm, sensation when it hangs down as if it were drawn downwards. During a somewhat unsatisfactory thin stool burning in anus; after 2 h. flat taste and frequent eructation with taste of food.—19th, no med. On two successive n. emission with confused dreams.—21st. 12 dr.; when washing, and for some time afterwards, the same sensation in shoulder and nape and heaviness of arm. In occiput heaviness and pressive pain. Frequent eructation, taste of food even some h. after eating. Next n. uncommonly vivid and persistent dreams.—22nd, no med. Tension in all dorsal muscles. 6 p.m., after discharge of fetid flatus, cutting in abdomen and a thin brownish stool. Frequent eructation with taste of food during d.—24th, 7 a.m., 10 dr. After 10 m. in 2nd phalanx of r. middle finger a slight burning going to and fro in bone. A pressive sensation along extensor digiti medii up to middle of forearm. Later the same in 2nd and 4th fingers. During and after washing, the usual heaviness in r. arm, tension and pressure in shoulder and nape muscles of r. side. Noon, recurrence of slight gnawing pain in 2nd phalanx of r. middle finger.—25th, no med. Soon after rising in m. usual heaviness in r. arm felt when writing. P.m., spirits depressed, disinclination for work. In e. suddenly violent sneezing with heaviness of limbs and confusion of head.—30th, 7 a.m., 10 dr. Soon pressure in stomach and rumbling in bowels. When brushing teeth, the tensive stiffness and heaviness of r. shoulder so severe he had to let the arm fall several times.—31st, 6.30 a.m., 10 dr. No symptoms.—Nov. 1st, no med. Catarrhal symptoms without having had a chill.—2nd, no med. Last n., as generally during the proving, uncommonly vivid dreams, remembered in m., which was unusual. When washing the stiffness and pressure in shoulder and heaviness of arm, also felt when writing. P.m., occasionally transient pressive pain in side of occiput as if in bone.—3rd, no med. Same sensation in l. side of occiput, frequently recurring. 9 a.m., on outer side of r. leg, about the middle of m. tibialis anticus, in crossing legs four stabs as with a knife. The same pains repeatedly during d. at varying intervals, but more of the character of burning shooting. They were chiefly felt when sitting and when crossing legs, and when standing, not when moving. In addition, transient, sometimes shooting, sometimes pressive sensation in various joints and other parts of body.—4th, 7 a.m., 4 dr. After $\frac{1}{2}$ h. painful stiffness in hands, particularly r. middle finger. When brushing teeth and combing hair or raising arm, the sensation in shoulder, the stiffness, tension and pressure were worse than ever, so that he must let his arm fall several times; these feelings lasted all the m. Transient pressive and boring pains as if in bone in l. thigh and leg. When sitting unusual numb feeling in feet, especially when covering them.—5th, no med. When washing, brushing teeth and combing hair the usual heaviness of r. arm, stiffness and pressure in r. shoulder were much felt. The burning shooting pain in r. m. tib. ant. recurs frequently in course of a.m. No more med. taken.—6th. The above-described pain in m. ant. tib. several times, which once extended to m. ext. comm. The sensation in r. shoulder, back and forearm was very marked on 7th and lasted to some extent for four weeks. The consequence of the proving was a diminution of the

sexual desire and too speedy ejaculation during coitus. This lasted at least four months. (Sorcez, *op. cit.*, 123.)

7. a. Dr. B—, æt. 54, began from Jan. 16th to 25th with the 25th dil., which he took for 5 d. without much effect. He only felt slight urging in isthmus or neck of bladder, which was relieved by passing urine. A similar symptom occurred when taking the 12th dil. On Jan. 22nd to 29th he took every morning at 5 a.m. 5 dr. 2nd dil. without any effect.—Feb. 7th, 5 a.m., 6 dr. During d. had several times sudden urging to pass urine. Some prostatic fluid and urethral mucus came away.—8th, 9 dr., several times urging to pass urine, which smells of violets.—Till 14th every day a dose, rising to 15 dr. No symptoms referable to the med.—21st to 23rd, recommenced taking the Ph.—24th. Pulsation in l. hollow upper canine tooth when the cold air comes to it, frequently repeated (he has never had tooth-ache). After continuing to take the same dil. up to 15 dr. the only noteworthy symptom he experienced was on March 24th,—the last r. upper molar somewhat loose, sensitive, and sunk down.

b. April 7th, began to take 12th dil., which he continued with interruptions till May 24th. The only noteworthy symptom occurred repeatedly soon after ingestion; it was burning in tongue, which on the 24th May lasted all d., and in e. spread all over palate.

c. May 27th, 5 a.m. 3 dr. of "alcohol phosphoratus." Soon burning in palate, less on tongue, in forenoon.—28th and 29th. 4 and 6 dr., slight burning.—From 29th to June 5th took daily from 3 to 10 dr., which only caused slight burning on tongue and palate.

d. Oct. 9th, 5 dr. 10th, 6th dr, 11th, 7 dr. 3rd dil. On last d. p.m. occasional dull stitches in l. side of chest, relieved by deep inspiration.—12th, 8 dr., soon transient burning on tip of tongue, later vertigo on quickly turning and raising head.—13th, 3 dr., slight burning in tongue. On going upstairs bruised feeling in legs.—18th, 3 dr., no effect.—29th, 6 dr., burning in throat.

e. Nov. 3rd, m., 3 dr. alc. pt. Transient burning in tongue.—4th, 5 a.m., 6 dr. Burning in tongue all 2 m. In p.m. this extended to larynx, causing repeated cough; it extended upwards to choana, causing there false smell, urine of violet odour. E., 3 dr., and also 5th, m.; slight burning.—5th, 9.30 p.m., burning in tongue till 12 p.m., and burning smarting sensation in palate, with dryness of throat; urine of violet odour.—6th, 4 dr., burning in tongue and in throat, great relaxation of genitals, weak erections, transients oppression of chest, and dull pain in l. thorax like rheumatism.—10th, 5 a.m., some dr. Burning in tongue extending to palate. P.m., dry feeling on tongue and thirst; increased urging to urinate, shooting drawing in middle of urethra.—11th, 3 dr., after coffee p.m. great thirst and frequent micturition; feeling in urethra as if prostatic fluid came to orifice, for $\frac{1}{2}$ h., wetting him while walking. At n. dry feeling in mouth and burning on tongue.—12th, 4 a.m., 3 dr., after which he fell asleep. At 6 a.m. nightmare, so that he cried out, as he dreamt he was in danger. P.m., much thirst, dry feeling in mouth, frequent urging to urinate, urine of violet odour, acid. Towards e. for a short time glassy mucus in orifice of urethra. Restless sleep at n., disturbed towards m. by a

drawing pressive pain involving l. side of thorax and abdomen, relieved by rubbing and removed by eructation of air and discharge of flatus. Tongue all d. as if burnt. P.m., dryness of mouth with thirst, tongue swollen, especially on l. side; it is red and the papillæ swollen into vesicles.—14th. Tip of tongue still as if burnt, and l. border of tongue swollen. P.m., wet feeling at orifice of urethra, dryness of mouth and thirst. Increased urging to urinate.—15th. Tongue sensitive, its l. border still swollen, yellow moisture at orifice of urethra. Dryness on tongue. E., pruritus in glans penis, early drowsiness, sleep restless. At midnight emission without dream, after that slept better.—16th, p.m., after coffee frequent urging to urinate, thirst and dryness of mouth moderate. After the proving he had insufficient erections during coitus. (*Ibid.*, 126.)

8. Otto B—, æt. 15, took, Nov. 5th, 6th, and 8th, every c. 3 dr. 1st dil. Transient burning on tongue. Pain in r. side of head and pressure in r. temple came on on waking, m., worse on moving, especially stooping, only in room, went off in open air.—11th, c., 3 dr. undiluted alc. pt. Soon burning on tip of tongue.—12th, m., on rising hoarseness, crawling in throat that became scraping when speaking. P.m., scraping in throat causes frequent coughing till c.—13th, m., occasional short cough. A.m., repeated sneezing. P.m., thirst. E., repeated sneezing.—14th. Voice rather affected. A.m., frequent sneezing, nose stopped up in r. and l. nostrils alternately. In room, c., nose more stopped up and sneezing.—15th, 8 a.m., dry heat of face, head, and feet, fluent coryza and frequent sneezing all a.m., better in open air. P.m., in room sneezing and increased coryza.—16th. Coryza very slight. (*Ibid.*, 130.)

9. Otto R—, æt. 17½, Oct. 1st, 1 dr. 1st dil.—2nd, 3 dr.—3rd, m., 5 dr. 10.30 a.m., heaviness of head with vertigo and indifference, and heaviness of feet; standing was tiresome, and he had to sit down, better in open air. ¼ h. after dinner he was better, and quite well in another ¼ h.—4th, 5 dr. 9 a.m., same state as yesterday, only worse. At same time felt in both renal regions pressure, and sometimes deep shooting pains. Strong pressure there was painful. 11 a.m., could not rest in house. Open air relieved head, but not kidneys, which got rather worse. Soon after dinner he felt quite well.—5th. 5 dr., same symptoms as yesterday, well after dinner.—6th. 4 dr., relaxation of body and vertigo, lascivious thoughts and dreams with strong erections.—7th. 2 dr. 2nd dil., slight feeling of weight in feet, which went off at noon.—28th. 4 dr., languor of body and heaviness of feet from 9 a.m., becoming gradually so severe that walking was disagreeable. A.m., pain in head and vertigo. At 11 a.m. sensation as if a fluid went from trunk into limbs, especially knees, elbows, and wrists. All went off after dinner.—29th, 4 dr.—30th. 5 dr., noctu semini ejaculatio cum somnio sordido conjuncta.—Nov. 1st, 7 dr.; 2nd, 8 dr. Pollutio sine somnio.—3rd, 10 dr.—4th. No med. Transient pain while urinating.—5th. No med. Persistent shooting pain in whole penis, especially urethra. At n. pollutio sine somnio.—6th. No med. Same as on 4th, writes, "Non possum quin credam cogitationes libidinosas, quibus vexor, a Ph. oriri."—27th. 5 dr. 1st dil., rheu-

matic feeling in sacrum and knees. The most external part of urethra and penis itself painful, the pain was worst during micturition, with also occasional dull headache and feeling as if he had not slept enough.—28th. After midnight, pollutio. At dawn took more than 5 dr. Great weakness of whole body, anorexia, dull frontal headache, better in the cold. Pain in urethra and glans penis. Towards e. nausea as if stomach was deranged. A glass of beer removed all these symptoms. About a fortnight after the last dose, after dinner a very disagreeable sensation of flaccid distension of stomach, as if it were full of air and dilated, with feeling of hunger but little appetite; this was repeated for 5 successive d.—Dec. 26th. Scill felt drawing and sometimes burning in penis and urethra during micturition and at other times. No emissions or lascivious dreams in Dec.—Jan. 4th. 3 dr. 2nd dil., weight in feet. During micturition several times violent burning but transient pain in fore part of urethra, frequent erections, lascivious dreams, and emissions.—5th. 5 dr., sometimes when not urinating severe burning pain in urethra from scrotum forwards, lasting several m. Frequent erections, lascivious dreams, 2 emissions.—6th. No med. In m. for 1 h. feeling as if someone pressed strongly on head; weakness and weight in feet. Frequent erections. Pollutio in somnio se cum puella coire, which had never happened before.—7th. Exhaustion. 10 p.m., feeling as if stomach was strongly pressed, aggravated by actual pressure. Frequent erections.—8th, 5 dr.; 9th, 5 dr. Emissions without dreams.—10th. No med. A.m., slight pain in apicæ glandis for 1 h. E., slight pain in scrotum occasionally.—11th and 12th. 5 dr., frequent pain in orifice of urethra lasting long, sometimes also in upper part of scrotum. Since commencing the proving eats less than formerly; has blue rings round eyes.—From 22nd to 28th, daily, 5 dr. On last d. great formication on 2nd knuckle of 3rd l. finger.—29th. 5 dr., pollutio.—30th. 5 dr., pollutio.—31st, 5 dr.—From Feb. 1st to 10th, 5 dr. Weakness and exhaustion of whole body, heaviness of feet, so that walking is repugnant. In head heat, and m. dull headache, disinclination for thinking and mental work. Better in cold and open air than in room. P.m., well. In bed m. and e. cogitationes et phantasmata libidinosæ.—2nd. P.m., weakness in whole body, especially feet. Scalp of vertex painful as though he had got a blow there, worse when pressed, and lasting the next 2 d. If, when sitting, he keeps his feet still for some time, one thigh gets numb and insensible; this goes off on walking. In e. a feeling in pubes as if one testicle was drawn up.—3rd, m., weakness.—4th. Heaviness of feet.—5th. Great itching in anus while walking, going off in room.—6th. Violent headache from m. till noon. When walking, itching in anus. On coming into room the whole upper part of body, especially chest, nape, and occiput, felt as if beetles were scratching with their feet; this soon ceased. All d. stomach felt deranged, in e. as if it were compressed, worse on pressure. No inclination to work all d.—7th. All d. dull headache. The same on 8th.—9th, m., knees felt trembling.—10th. Took last dose.—11th. All d. very languid and prostrated, without the least desire to do anything.—13th, e., as if one testicle was drawn

up and pressed; same on 15th.—16th. From m. occasional spasmodic pain in urethra and upper part of scrotum. The urine during proving was sometimes dark, sometimes clear, often turbid, frequently with slimy sediment which disappeared when heated, sometimes acid, sometimes neutral.—24th, 2 p.m., pressure in stomach as if he had got a blow there.—25th, p.m., as yesterday. After 9 p.m. violent pressure in stomach, which was distended as if he would vomit, retching and eructation of air till midnight.—26th, p.m., as yesterday. 5 p.m., pressure with retching and eructation. After supper food rose several times. Urine very acid, sediment of reddish flakes, whitish slime on sides of vessel, urine turbid and dark yellow.—27th. Same state a.m., not p.m. At beginning of March reported that he sometimes felt as if he had eaten something rancid, so that his throat felt rough. In the first days of March often sour eructations, especially a.m. After the last dose he had often, especially in e., a feeling of tightness of chest with slight pain, sometimes a stitch in l. side above heart. These sensations occurred after sitting for some time, and lasted till e. From March 16th took daily, m., 10 dr. 1st dil. On the days he took the Ph. he felt nothing, but after leaving it off, from 24th, he had after dinner, and sometimes a.m., a pressure in stomach with feeling of fulness and nausea, relieved by eructation; had often to loosen his clothes.—26th and 27th. Pressive pain in last lumbar vertebrae and on the r. side when sitting and standing. Phantasmata libidiosa et erectiones penis per longum tempus, ad huc d. 29th, non habuit neque pollutiones.—28th and 29th. P.m. and sometimes a.m., in r. arm from elbow to wrist slight drawing pain; p.m., nausea with voracious hunger.—30th to April 3rd. P.m., voracious hunger, relieved by eructation. Urine often very dark, with bright red sediment.—2nd, e., r. thigh quite numb as if gone to sleep, for more than 1 h.; the following d. same in l. thigh.—From 3rd the hunger became gradually less, but nausea continued. Sometimes transient shooting pain in r. side of chest. The pains in urethra, which had long ceased, returned in beginning of April. They were shooting and burning, lasting 1 m., always causing urging to pass urine. At end of April had a slight attack of colitis, with slight fever, and stools consisting of pus and bloody mucus with cutting and pressing. The sigmoid flexure was painful to deep pressure, and felt swollen.—From 27th to May 1st he had often, especially in e., pains in abdomen, chiefly in stomach, with distension of belly. A pain in renal region at this period seemed to be located in muscles. (*Ibid.*, 131.)

10. G. MÜLLER, æt. 50, Sept. 15th, 7 a.m. took 2 dr. 1st dil. No effect.—17th, 7 a.m., 3 dr. After breakfast pinching pain round navel for $\frac{1}{2}$ h., then nausea, followed by rumbling in belly and urging to stool without result. Very weak in all limbs, cross without cause. 5 p.m., after eating a pear nausea with empty eructation.—18th, 7 a.m., 4 dr. Soon languid and prostrated in whole body, morose and cross. 10.30 a.m., dull pain in whole head, pressure in eyes and drowsiness, feeling of distension of belly, and loss of appetite, are little for dinner with relief to headache. 3 p.m., cutting in abdomen with urging to stool, which was not loose.—20th. $\frac{1}{2}$ h. before bedtime took about 4 dr. of alc. pt.

This only caused eructation.—22nd. 5 dr., no effect.—23rd. 7 dr., soon transient slight nausea with frequent empty eructation lasting several h. After coffee discharge of inodorous flatus with urging to stool, which was normal. (*Ibid.*, 137.)

11. TH. DE LA R.—, theological student, æt. 20. In Sept. he took every m. from 5 to 10 dr. of 1st dil. till the 21st. After pausing a few d. he began on 27th to take 5 dr. of 2nd dil. till Oct. 1st. Since the 17th Sept. he was often sick, acid water sometimes flowed into mouth, and appetite diminished till 2nd Oct. From 24th Sept. he had for several d. coryza with frequent sneezing and pressive pain on both sides of head.—29th. Frequent eructation like rotten eggs, and a feeling in bowels as if diarrhoea were coming on.—30th. Diarrhoeic stool with discharge of flatus, some cutting in abdomen and eructation like rotten eggs. When urinating slight pain in prepuce that lasted till Oct. 2nd.—Oct. 1st. Pressive pain in r. middle finger and elbow. E., gone-to-sleep feeling of r. arm and on 2nd formication in r. fingers. After this he had nausea till the 8th, and a drawing pain in bones of l. arm and in lower jaw like rheumatism. Exhaustion and prostration of whole body till 8th. A sensation of trembling in lower part of spine, in jaws and fingers, which plagued him on the 3rd and 4th, changed on the 5th to great nervous sensitiveness combined with a peculiar weak sensation, worst in lowest lumbar vertebræ and sacrum. Every little exertion fatigued him; carrying a small basket gave him pain in back. This lasted till 7th, and he then had pressive pain in occiput and feeling of shaking of brain when stooping and rising up again. During and after the proving he had every week on 2 or 3 successive n. emissions, which were previously much rarer.—19th, 8 a.m., 2 dr. of pure alc. pr. During d. drawing pains in the tendons of semi-membranosus and semi-tendinosus muscles of both thighs.—From Nov. 14th to Dec. 12th took daily 5 dr. of 2nd dil. From middle of Nov. appetite bad and frequent eructation of sourish bitter water. Heaviness in houghs till end of Dec. Formication in limbs frequent, and for a day or two weakness in lower part of back. In Nov. and Dec. more given to start than formerly. (*Ibid.*, 139.)

12. C. SZENK, coachman, æt. 27.—Sept. 16th, 3 dr. alc. pr. After ½ h. frequent empty eructation, twice of tasteless water. From 9 a.m., nausea, slight persistent pain in cardiac region. While driving complained of chilliness over whole body as though he was in cold water; the pressure in cardiac region continued till supper, after which it ceased.—22nd. 3 dr., no effect.—23rd, 5 dr. 1st dil. Till 10 a.m. frequent eructation, after that pinching, contraction, persistent pain in stomach, which was sensitive to pressure. The pain was worst from 11 to 12 a.m., so that he had often to bend forwards, and then came on pressive pain in forehead. The pains were relieved by eating. In e. nausea with empty eructation making his chest painful.—Oct. 1st. After breakfast 7 dr. Till 3 p.m. empty eructation; after eating two plums, nausea, water came into mouth, and he must spit frequently. For 1 h. moderate contractive pain in abdomen with some chilliness, till late in e., when he had inclination to swallow frequently.—2nd. This last symptom continued, tongue yellow furred. 3 p.m.,

constant slight pinching in abdomen for 2½ h, with pressure under l. short ribs and water in mouth. Felt prostrated and phlegmatic. After supper was quite well.—3rd. No med. 11 a.m., cutting in abdomen increasing, twice with drawing in stomach, lasting till late p.m. After a very moderate dinner feeling as if belly were too full, and loud rumbling in it. Tongue furred, and fetid smell from mouth which he had never before observed. By 3 p.m. all these symptoms went off.—24th. 3 dr. 3rd dil., no symptoms.—26th. m., 6 dr. From 9.30 a.m., pressure in pit of throat with nausea and frequent flow of saliva which he must spit out, till 11 a.m. After a few spoonfuls of food inclination to vomit. P.m., flow of water into mouth, heaviness of head and whole upper part of body with feeling of tightness of chest till e.—27th, 8 dr. From 10.30 a.m., heaviness and heat of head and dull pain in forehead down to root of nose and on upper eyelids, with vertigo, which was aggravated by turning and quickly moving head, so as to make him fall. Face and forehead red, watering of mouth. From 2 p.m. head lighter. From 3 p.m. stoppage of nose, making him blow it often, which caused pain to middle of forehead. 4.30 p.m., when in fresh air he felt well.—29th. 8 dr., slight pain in forehead, watering of mouth and frequent eructation, which sometimes brought up white, tasteless thin mucus.—30th. In bed, e., cutting in abdomen for 1 h. relieved by bending double and lying on r. side.—Nov. 1st. 3 dr. 2nd dil., empty, sometimes balked eructations with nausea. A.m., severe drawing pain in bone of l. side of forehead, which felt warm to the hand, till p.m.—2nd, 5 dr.—3rd, 1 dr. 1st dil. No effect.—5th. 2½ dr., some eructation.—6th. No med. From 11 a.m., contraction and cutting drawing-in pain round navel with inclination to vomit and flow of water into mouth. Stomach sensitive to pressure.—7th. No med. 9 a.m., dull pain in whole head and giddiness so that he cannot hold his head up, and cannot see well, worse on turning head, when the pain extended to the face, relieved by laying the head face downwards, with watering of mouth and prostration of whole body, which showed itself in his weary look. From 9 to 11 a.m. this state increased; was alleviated by a little sleep, and went off p.m. There then appeared in the middle of the forehead an irregular circle the size of a crown formed by a band ¾ an inch wide, of bright red, in some places papular, elevated turgescence of the skin of forehead, which was warmer than the surrounding skin; the redness disappeared under the pressure of the finger, but soon reappeared (eczema erythematosum). In the middle of the circle there was an irregular round patch of normal skin; washing with cold water or cold air blowing on it caused smarting.—8th. The eruption was not so well marked, but the smarting from cold water and cold air remained.—9th. Smarting gone, but the glabella felt warm and showed some red places.—10th. Weight and slight pain in cardiac region when coughing for about 2 h. In other respects well. From middle of March he observed that the gum of the upper and lower incisors was loose and bled easily and there was a feeling of fulness in it. On rising in m. he always observed that the anterior surface of all the incisors was covered with mucus and blood. The 17th April the gum of the upper and lower incisors and canines, which

was firm and sound, was swollen and redder than the rest of the gum and covered with a greyish-yellow, apparently purulent border. Blood easily came on pressing the gum, its posterior surface was all right. He thought his breath smelt ill, but others did not remark it. His teeth have always been quite sound. (*Ibid.*, 141.)

13. ROSALIE B—, housemaid, æt. 17½, took from 10th to 19th March every m. ʒ dr. 3rd dil.—10th and 11th. No symptoms.—12th. Since rising in m., has had severe pains in belly, with diarrhoea and heaviness and tired feeling in all limbs, could not do her work.—13th. Looked ill with blue rings round eyes, pains gone, menses came on. The weariness lasted till 16th.—From 14th to 17th. Pains in abdomen and diarrhoea every a.m., menses normal.—From 18th to April 9th was quite well. On the last d. menses came on and she took ʒ dr. 2nd dil., m. From 10th to 14th took no med. Menses normal.—15th. [Apparently resumed the med. every m., though not stated.] Good appetite, cheerful.—20th. Slight cutting in abdomen, and rush of blood to head. Same on 21st.—22nd. Tearing in r. arm.—23rd. Violent tearing pain in vertex and upper part of r. forearm as if it had been beaten, the pain felt in the flesh; grasping it hurt her, at same time tearing in leg and weariness in whole body.—24th. Same symptoms.—28th. Slept restlessly at n. on account of severe pain on commencement of menses. The pains in abdomen increased from noon and were accompanied by pain on sacrum and drawing in lower extremities, which she had never had before, and all her limbs felt bruised, so that she was quite depressed in spirits and had no desire to eat or work. P.m., gradually became better, the menstrual flux normal and lasting till May 3rd.—May 1st. Slight cutting in abdomen.—2nd. Blue rings round dull eyes.—4th. Occasional tearing pains for a short time in feet, and for 1 h. in face.—13th to 20th. Every m. ʒ dr. 2nd dil.—21st. Menses came 2 or 3 days too late, very profusely and for 6 d., quite unusual.—27th. Quite well.—From Aug. 16th to 31st took daily ʒ dr. 2nd dil. During all this time felt quite well except that on 23rd she felt fatigued in all limbs. The menses expected on 24th did not come on till 31st, and then with cutting pain in abdomen and sacral pains, they were scanty, and lasted only 4 d. She took no more Ph., and next menses came on at right time and were quite normal. (*Ibid.*, 145.)

14. Miss A. T—, æt. 32, April 26th took ʒ dr. 2nd dil. Great confusion of head, worst at noon, relieved by washing face in cold water, weakness in whole body.—27th. ʒ dr., great weariness of whole body, and a tensive spasmodic feeling in houghs till e. Appearance of menses 5 d. too early.—28th. Quite well.—29th. Menses stopped m., but returned slightly p.m. Hardly any on 30th.—May 1st. Menses gone. The scantiness and short duration of menses was quite unusual. Great weariness and spasmodic drawing in houghs till 2nd.—3rd. Recommended taking ʒ dr. After some h. great confusion of head and some feeling of catarrh, relieved by cold washing, open air and exercise, worse when sitting and when stooping. P.m., fulness of head. Cannot sleep at n. on account of excited imagination. For several n. has passed the n. half asleep with wild phantasies.—4th. ʒ dr.

A.m., confusion of head, chiefly in region of frontal sinus. After dinner was for some h. as if stupefied with vertigo, had to lie down; this was attended with great languor of whole body, and the spasmodic sensation in loaths. At n. slept soundly and as if stupefied, was not inclined to get up in m.—5th. No med. Dull pressure on eyelids with compression of head, chiefly posteriorly. Since commencement of menses strong urging to urinate and cutting and burning when urine passed.—12th. Well.—14th. 2 dr. of a dil. between 1st and 2nd.—15th. 2 dr. of same dil. Rheumatic pain in l. knee lasting some d., hindering her in bending it, e. g. when going upstairs. When she bent it quickly felt tightness of ligaments, and the inner condyle of femur tender on pressure.—16th and 17th. 2 dr.—18th. No med.—19th. 3 dr. Each d. confusion of head.—16th. Repeated tinnitus aurium, difficulty of getting to sleep at n., uneasy tossing about.—17th. Immediately after going to bed, tinnitus aurium for 2 h., accompanied by palpitation of heart and feeling as if blood were too restless, many disagreeable phantasies until she fell asleep.—From 16th to 18th slight cutting in abdomen with frequent but ineffectual call to stool. Great longing for acid and piquant things.—19th. Soon after dose, sensation as if blood were in mouth and loud rumbling in abdomen. Immediately after rising for about 1 h. small dark spots, changing their position, before eyes. Toothache, to which she was subject, much oftener and much worse than before. All through proving out of spirits and sad, very much affected by the crying of a child, which had never occurred before. Took no more after 19th.—25th. Great confusion of head and pains in sacrum.—26th. Confusion of head and toothache in m.—27th. Toothache with headache and excitement of circulation.—28th. Sacral pains.—29th. Toothache.—30th. Confusion of head and toothache.—31st. Disagreeable relaxation and heaviness of limbs. Severe toothache when heated.—June 4th. Nausea, great weariness and relaxation of arms and hands, disinclination for all occupation.—5th. Nausea, anorexia, heaviness in limbs.—6th. Same state.—7th. Menses 14 d. too late. (*Ibid.*, 147.)

15. Mrs. H. L., æt. 32, took, Oct. 24th, 7 a.m., 3 dr. 2nd dil. Some time afterwards continued formication and gone-to-sleep feeling in r. arm. After 4 h. single stitches in occiput, sometimes on one side, sometimes on the other.—25th, 7.30 a.m., 6 dr. From 21 a.m. till 4 p.m. remarkable numb feeling in l. leg from knee to toes, sometimes sensation as if hot blood flowed into it.—26th. No med. Transient numb feeling in both feet.—27th. In course of d. here and there, transient drawing and numb pains. P.m., without cause much excited.—28th, 7 a.m., 6 dr. Drawing forcing towards pelvis and rectum as if menses were coming on, some ineffectual urging to stool. Urine when passed quite clear, on standing quite cloudy and turbid.—30th, 7 a.m., 10 dr. From 2 p.m. on posterior aspect of thighs from lumbar region to knees a dull pain, such as is felt after lifting a great weight, worst when at rest, and increasing so much in e. that she had to leave a party and go home, relieved by movement, only going off when got to bed. Legs go to sleep on crossing them. Transient feeling of catarrh consisting of sneezing and stuffed nose. Since yesterday p.m., hurried call to

urinate with some forcing.—3rd, 7.30 a.m., 8 dr. At n. alternate going to sleep of arms and legs, waking her.—Nov. 1st, 7.30 a.m., 10 dr. After 1 h. violent shootings in l. ankle-joint, going off in 1 h.—2nd. No med. No symptoms.—3rd, 7.30 a.m., 9 dr. At n. going to sleep of arms, drawing and forcing in hypogastrium as if menses were coming on. Transient shooting and pressive sensation in various joints. Arms and legs easily go to sleep.—4th, 7.30 a.m., 8 dr. Almost all m. drawing and forcing down in hypogastrium as if menses were coming on, 8 d. before expected time. Drawing pressive pains in various joints of various degrees of intensity, always recurring, worst when at rest, relieved by movement.—5th. No med. No symptoms.—6th. Soon after rising drawing pains in joints. Very frequent going to sleep of limbs and numbness in arms when working; transient pains in joints.—7th. 10 dr. All d. violent drawing pains in various joints, relieved by movement. In e. finger-joints frequent stiff and swollen feeling, so that she must cease needlework. Soon after taking dose feeling as if catarrh were coming on, going off after sneezing. P.m., for some h. roughness in throat and stuffed nose till e. No more med. taken; after this slight pains in joints occasionally. On 11th, her usually regular menses came on 2 d. too soon and scanty. In Oct. and Nov. of next year took, every time 8 d. before expected menses, every m. 4 dr. 1st dil. She felt all d. before they appeared drawing and forcing in iliac region as if menses were coming on. The first time the menses came on 3 d. too soon and were more scanty. The second time the blood was darker than usual. During the days of the proving in the latter months she had frequent and persistent vertigo, so that she was for hours as if intoxicated, or there was heaviness and confusion of head with feeling as if she would have an attack of apoplexy. During the proving she was very irritable and excited, so that the merest trifle would irritate her very much. In the last proving she had pains in joints, especially shooting in ankles, often lasting for hours at a time, relieved by movement. She had frequently going to sleep of lower and upper extremities. Also frequent transient feeling of catarrh. (*Ibid.*, 151.)

16. Miss N. S.—, æt. 23, took each time, about 8 d. before expected menses until they appeared, every d. from 3 to 7 dr. 1st dil. From Sept. 19th she took daily for 8 d. 3 dr. without experiencing any effect. For 4 d., until menses came, daily 5 dr. On all 4 d. about 2 h. after the dose, chilliness all over body, lasting $\frac{1}{2}$ h., with such a staggering gait that she thought she must fall. At 1 p.m. dull pain and heaviness of head and perspiration for more than 1 h. The menses were less painful and more scanty than usual. In Nov. she took the first 3 d. 5 dr. without effect, then for 5 d. 7 dr. On each of these latter d., a.m., for $\frac{1}{2}$ h. chilliness and uncertainty of gait, and, p.m., heaviness of head and perspiration. These symptoms came on the proving 1 h. later in the intervals she felt quite well. On 9th d. of the proving the menses appeared, much scantier and without pain, but with sleeplessness, loathing at butcher's meat, and bad appetite. They lasted only 3 d. In Dec. she took for 8 d. 7 dr., m. From 4th d. she had feverish symptoms both a.m. and p.m., coming on each d. 1 h. later till the

menses appeared. They were painless, very scanty, and lasted only 2 d. She took no more med. after this.—Jan. 29th. Menses returned, quite painless and very scanty, lasting only 2 d. In the beginning of Dec. she was affected as never previously. At 10 p.m. anxiety about heart, accompanied by nausea, and peculiar feeling of hunger, removed by eating, but sometimes tormenting her for hours in bed. In Nov. she had another never before experienced ailment. A shooting began from sternum, and went through chest to below l. scapula, was aggravated by working, slighter by d., worst in e. when spinning. In the e. this shooting is generally ushered in by slight chilliness, soon followed by slight perspiration. If she did not keep quiet during this state she was seized with anxiety and palpitation of heart. Pressure on the part of head affected was very painful. She had frequent tinnitus aurium, sometimes changing into beautiful tunes. She had often palpitation of the heart, during which she was much inclined to weep, and felt very unhappy without cause. All the other symptoms went away by the middle of February, but in July, when seen, she had distinct sufferings in the canal of the spinal cord, which she had felt since the previous Nov. The spinal processes of the dorsal vertebræ betwixt the scapulæ were very sensitive to pressure, or else the muscles betwixt the dorsal spine and the l. scapula, less so on the r. side. Shooting pains commencing from the spot near the l. scapula went through the centre of the chest to the front or *vice versa*, and sometimes extended to upper arm. By leaning firmly on the back, by rest and warmth, the pains were relieved, but they were distinctly aggravated by lifting, working, during menses, and especially by disagreeable mental emotions, notably anger. These symptoms were not quite gone in the autumn, though they were milder. (*Ibid.*, 153.)

17. Dr. SORGE, æt. 34, subject to hæmorrhoids and congestion of choroid, took, Sept. 15th, 7 a.m., 2 dr. 1st dil. After 2 m. feeling in fundus of stomach as if something was going on there, with slight rumbling in abdomen. After 5 m. feeling of tightness over heart to thyroid gland, as if of incarcerated flatulence, frequent need to take a deep breath, and slight nausea. After 10 m., the tightness having diminished, there ensued a warming sensation above r. side of heart and below l. clavicle. This heat spread to apex of l. scapula and to acromion, when it left the heart. Then, those symptoms having ceased, there was, till 8 a.m., empty, tasteless eructation, with continual nausea, aggravated by drinking cold water. After coffee and roll repeated eructation, as if something liquid rose up from stomach, with sour taste. From 9 a.m. disposition to emit flatus, with continued eructation. 1 h. after dinner had no relish for tobacco-smoking. When returning home from a drive at 7, felt chilly in spite of a cloak, with cold hands, pale face, nausea, with frequent empty eructation and transient pressive pain deep in r. side of forehead and parietal bone, with peevish humour.—18th. Quite well; took, 7 a.m., 3 dr. After a few m. slight pinching in epigastrium to transverse colon, as if flatulence were incarcerated there, which gradually spread equally on both sides of abdomen, with slight warmth. All a.m. empty eructation, only once with feeling of nausea; sometimes rumbling in belly, with

discharge of flatus. Soon after coffee and roll chilliness in back and arms, followed by confusion of head, feeling of heaviness of head that extended to eyeballs, as though the head were drawn forwards by a weight; at same time feeling of fulness in head and face, as if too much blood were in them, as he is accustomed to when he studies too hard. Whilst the weight was worst, drawing in l. side of occiput. Head transiently relieved by smelling at spirits, and by shaking head, increased by work. 11 p.m., still some tension in forehead and face. All a.m. very irritable and cross.—17th. No med. No noteworthy symptoms.—18th, 7 a.m., 4 dr. Till 8 a.m., only flow of water into mouth. After usual breakfast, pressive headache, chiefly on r. side, as if head were heavy, with confusion and slight tension in both cheeks, as if too full of blood. Sneezed once, and water ran from nose. Headache went off during mental work. Feeling of exhaustion and prostration, almost amounting to trembling, twice slight formication in l. thumb. Better after dinner, in e. all right.—19th. Frequent eructation of sour fluid, and general prostration as if very ill. Loss of appetite for dinner and tobacco, which was recovered at supper-time.—22nd, 6.30 a.m., 5 dr. After 10 m. empty eructation, repeated later. After $\frac{1}{2}$ h. pressive sensation under r. short ribs. 8 a.m., when eating, scrapy feeling in palate and fauces, feeling as if heartburn would come on. After 9.15 a.m. feeling of distension of abdomen, oppressing respiration. After this heat of cheeks for $\frac{1}{4}$ h., with prostration and weariness, most felt in forearms. Then slight dull headache as after prolonged study, with some giddiness. Numbness in tips of r. index and thumb. At 10 p.m., along with these symptoms, a dull pain betwixt shoulders. After dinner pressive heaviness in head, spine, and all limbs in jerks, with ill-humour, till e.—24th, m., 6 dr. Some throbbing in 2 r. upper molars, and some empty eructation.—25th, m., 8 dr. Empty eructation, and after 2 h. throbbing aching in 2nd upper r. molar for a short time. 10 a.m., urging to stool, with soft pappy evacuation. P.m., sour eructation, scraping in throat like heartburn, rumbling in belly. 7 p.m., another pappy stool.—26th. From a.m. weight in occiput and nape, down whole spine a dull feeling, as if over-filled with blood, and in os sacrum a peculiar paralytic feeling like what one feels in limbs when exposed to some unavoidable danger. Along with this heaviness of feet, which were not placed on ground with usual energy. He walked less strongly and often stumbled on smooth road, so that his staggering gait was unobservable in e. Diminished sexual appetite, and feeling as if the penis could not become stiff when excitement was present. Indifference of mind, which was quite unusual. This, together with some tightness of chest, lasted all the 27th, till n., when the sensation in the os sacrum was especially tiresome. The symptoms are better during scientific conversation, but worse from drinking beer, which caused more severe and continued heartburn than he had ever experienced. In the n. of 27th was much troubled by a scraping feeling in throat.—Oct. 3rd. Feeling quite well, took, m., 10 dr. 1st dil. Soon, slight heat of stomach. During a.m. irritability of temper and slight paralytic sensation, with trembling feeling in whole body, heaviness of head and upper part of back, and

towards 10 a.m. paralytic feeling in upper part of os sacrum, and last lumbar vertebræ. Numb feeling in r. side of upper lip and tip of tongue, formication in r. 4th and 5th fingers. In r. lower jaw, from foramen mentale backwards, tearing for 5 m. Felt well and cheerful after dinner. 3 p.m., when driving in close carriage, felt for 5 m. a sharp shooting pain in bone of ball of r. little finger, repeated after 3 h. Frequent tearing in bones of r. forearm and r. metacarpus on its dorsal aspect, and extending to humerus. In e., almost all m., r. hand on its dorsal aspect was numb for a short while. The above symptoms came, not all together, but one after the other. 7 p.m., no appetite, nausea, with scrapy feeling in palate and flow of saliva into mouth. From being irritable became indifferent, with faint feeling and weight of head; m., 2 thin pappy stools; p.m., frequent empty eructation and discharge of inodorous flatus.—19th. Feeling quite well, took, m., 2 dr. 3rd dil. Soon, some oppression in scrob. cordis. All a.m. numb formication in last phalanx of r. little finger and thumb. 4 p.m., when driving in a close carriage and warmly clothed, felt chilly; relaxed in limbs till 8, little appetite for supper. During this time slight drawing pain on r. side of head, deep in malar, frontal, temporal, and parietal bones. N. very restless. The sexual desire, which had been strong during the previous 10 d., became suddenly weak on 19th.—20th. Rose quite refreshed, and passed water with the greatest ease. 7.30 a.m., felt gnawing and smarting from orifice to an inch back in urethra. Nothing abnormal in m.m. of urethra, but on r. side of apex glandis, beginning from upper surface and extending down to the urethral orifice, a pale red, soft swelling, about $\frac{1}{4}$ " above level of surrounding parts. This went off about 11 a.m., but after micturition drawing for $\frac{1}{4}$ m. from external orifice to membranous part of urethra.—23rd, m., 5 dr. 3rd dil. Soon a tightness in scrob. cordis, and all d. numb formication in all r. finger-tips, in l. thumb and r. little toe, not all together, but successively.—24th, 7 a.m., 6 dr. Soon, empty eructation and rumbling in abdomen, accompanied by a feeling of emptiness and weakness in scrob. cordis. 7.30 a.m., the formication in all r. fingers, in l. thumb and index, in r. outer toes, in middle of vermillion of upper lip, in r. thumb, combined with warm feeling, returned in succession, lasting, with occasional pauses, till e., whilst there was pressive pain in r. metacarpal bones, and a dull drawing in r. metatarsal bones for a short time. From 8 to 10 a.m. felt very cross and had a very striking sensation in muscles of r. upper arm to elbow, as if blown upon by a cold blast of air near a half-open window, or as if a strong wind blew upon a part that had been wetted. In the elbow this feeling became a numbness, which extended slightly to the fingers. This cold drawing was felt even to the 25th, on which d. he took 6 dr.—26th. 2 dr. 2nd dil., no effect.—27th. 6 dr., soon rumbling and working in abdomen till e., occasional formication.—29th. 2 dr. 1st dil., soon, tightness in scrob. cordis, with slight pain in stomach, and after $\frac{1}{4}$ h. with rumbling and transient cutting in abdomen, and occasionally with empty eructation. The rumbling and discharge of flatus worst before and after supper. Pruritus in ano occurred always on the d. when the med. was taken, this d. also accompanied by slight pressure in r. lobe of liver.

There was weariness and bruised feeling in all limbs, accompanied by some tightness in *scrob. cordis* and on chest, until n. Indifference changed, p.m., without cause, to irritability.—31st, 3 dr. 1st dil., all a.m., heaviness in back and sacrum, and p.m., greatly excited phantasy from reading a silly little story, so that he must make a great effort to go on with his work. In a.m., great sexual desire, and at n. restless, dreamful sleep, with much turning about.—Nov. 1st, 4 dr. 4th dil., after 1 h. pain in sacrum and in its connection with last lumbar vertebra, as after lifting too heavy a weight, only felt when standing, walking, coughing, and particularly when standing on one foot and holding the other turned inwards and forwards, or when stretching the back and then moving sideways. When the 2 last lumbar vertebrae were pressed, numbness and stiffness were caused in both feet. This sensation increased till noon, and then declined till e. In the forenoon there was transient numbness on the volar side of r. hand. P.m., frequent rumbling in abdomen, and discharge of inodorous flatus. E., great irritation, followed by severe urticaria and many large wheals.—2nd, m., urticaria and sacral pain gone, but both returned slightly in e., with much rumbling and discharge of flatus.—4th, m., 5 dr. 1st dil. After $\frac{1}{2}$ h. pressive pain under middle and r. side of sternum, with some tightness of chest, relieved by eructation, lasting only $\frac{1}{2}$ h. Frequent empty eructation, with heaviness and fullness in whole body.—7th, 5 dr., pressing pain in a l. upper molar, lasting 1 m. This symptom frequently occurred after taking 1st dil.—8th, 6 dr. A.m., dull tearing in bones of r. forearm and hand. For several months noticed a diminution of sexual function and frequent fornication and weakness in limbs, which was quite unusual with him. (*Ibid.*, 155.)

18. Of a sol. of 1 gr. of Ph. to \mathfrak{ss} of alcohol, Dr. HOLCOMB took 20 dr. at 4 and at 9 p.m. of Feb. 10th, 1858. Glowing sensation in stomach; slight fugitive pains during n., with many (intellectual) dreams. Had to pass a very large quantity of urine before daybreak. 11th, 9 a.m., same dose. After soft easy stool considerable discharge of blood, without pain. (Had been subject to bleeding piles, but had had no symptom of them for several months.) Sensation of heat in lungs; disposition to deep inspiration, with discomfort in it; shooting pains in r. chest; occasional sneezing, which aggravates feeling in chest; slight dizziness, with sensation as if muscles in walking would lose their equilibrium; frequent eructations; some twitches in decayed teeth; stitches in lumbar region. 4 p.m., same dose. Fugitive pains in both thorax and abdomen; very unusual and violent pain in teeth, immediately after eating some candy; some hacking, tickling cough; very tired feeling, without having taken even the usual exercise; involuntary starting on someone's opening door; noise very disagreeable. 10, repeated dose. Micturition more frequent than commonly; colicky flatulence in r. side; pains darting from small of back towards splenic region; sleepless, inclined to study much later than usual; violent starting of whole body when falling asleep; many dreams, character unremembered. 12th.—Woke with some hacking cough; took 20 dr. more at 9 a.m. First part of stool natural; last part soft, with much

Borid blood. An h. later, severe griping in bowels, with tenesmic inclination for stool. Headache with dizziness all d.; decided malaise, with feeling of exhaustion; flushes of pain in upper part of orbits; considerable tremulousness, especially of hands, while writing; severe pain at back of l. lung, sometimes aggravated on inspiration, sometimes not. Could eat no dinner. Deep-seated and very severe pains in bones of l. hand and fingers; deep-seated pain in eyes; mental irritability, uncommon vehemence in argument. 10 p.m., 40 dr. Glowing sensation throughout epigastrium and chest; very sharp stitches in sacro-iliac region posteriorly; sleepless, with prolonged disposition to study; restless n., waking frequently; erotic dreams. 13th.—9 a.m., 20 dr. Very considerable mucous accumulation in trachea, with some hoarseness; sharp stitches in lumbar and splenic regions; urgent stool, followed by about ʒij of florid blood (a less quantity than before); pain in epigastrium for about an h. after dose, with much eructation; frequent stitches through lungs, especially on deep breathing; tenacious mucus hawked up; great sense of fatigue, with mental depression, and a most uncommon fearfulness or timidity. During d. 3 or 4 attacks of violent cramp-like pain in breast, high up under sternum, lasting 15—30 seconds, and disappearing with flatulent eructations. At n. fearful dreams of being bitten by a ferocious horse, so vivid as to make a very painful impression on the mind. 14th.—Woke with considerable mucous accumulation in throat, expectorated with difficulty; stool partly bloody, as yesterday; violent headache on riding; pains going off. Took 30 dr. at 10 a.m., but no new symptoms occurred, nor were any of the old ones increased. On 15th there were only a few dr. of blood after stool, and on 16th this was perfectly normal. (No blood had recurred 3 mo. afterwards.) (*N. A. J. of H.*, 1st S., vii, 144.)

19. a. Having just prepared some tinct. of Ph. [strength not stated], I took ʒ dr. about 5 p.m. Thinking no more about it, I retired about 10, but was unable to sleep; desire for it was very great, but I could not find a comfortable position. My mind was greatly oppressed with melancholy; tears would start without cause; a feeling of dread, as if awaiting something terrible, while unable to resist or move, overcame me. Sometimes it seemed as if I was beginning to bloat, and then I could hear a multitude of voices saying, in high glee, "Fill him up a little more and he will burst," followed by demoniacal laughter, which made cold chills run over me. Darting, cutting pains gave me much distress, starting from separate points and flashing over whole abdomen; I imagined myself an aurora borealis, and seemed to hear distinctly voices shouting, "Beautiful, oh! was not that splendid?" as the pains became more severe and lasting. Soon, however, the agony became so great that it threw off in a measure the stupor that clouded my senses. Springing from bed, I hastily dressed and sat down to collect my scattered thoughts. My fingers were all thumbs; I felt a numbness of the whole body accompanied by sensation as if encompassed by innumerable needles that just touched, and on slightest motion entered, my body. Throat felt dry and parched; a flame seemed passing through me. When I attempted to walk my legs seemed glued to the floor; the slightest motion caused great pain.

With great exertion I reached the vessel. The moment the bowels began to move the pains assumed the form of cramps. The passages were like the scrapings of intestines and were almost constant, attended with tenesmus for upwards of 2 h., at end of which I lay down on bed weak, sore, and almost helpless.

b. Abdomen was now sore but not tender to touch. Thirst intolerable; drink did not quench it, but caused drops of cold clammy sweat to exude from pores of skin the moment water entered stomach. Lungs felt clogged up; troublesome dyspnoea; pleuritic pains through thorax extending into throat and down r. arm; vertigo; headache; involuntary passages on least motion; constant desire to urinate, but nothing passed. I lay in this condition for 8 h., when passages changed to mucus mixed with blood, still involuntary; muscles became flabby, skin dry and wrinkled; tongue was coated with a thick fur, dark centre and red edges; sordes on teeth; breath offensive, even to myself; at no time was I free from pain; could not extend my limbs, but lay with them drawn up; least exertion produced great prostration.

c. At end of 12 h., passages began to come periodically, at first every $\frac{1}{2}$ h., then every h., still involuntary, with tenesmus for half the interval. Rectum lost its sensibility, sphincter became paralysed, and there was slight prolapsus ani after each stool. About 6 p.m. passage of urine became frequent,—copious, scalding, high coloured, with strong ammoniacal odour; there was dull heavy pain in region of kidneys. After this symptoms began to abate. Appetite was ravenous; but smallest quantity of food the moment it entered stomach produced vomiting and action of both bowels and bladder. My mind now became very clear; memory of past was extraordinarily vivid. As darkness came on, I was disturbed by the most frightful visions and thoughts, constant fear of death, with almost uncontrollable desire to commit suicide. Pulse was thready, intermittent, and extremely variable in rapidity. During n. stools came every 2 h., still involuntary unless I anticipated them. Next m. I dressed with difficulty and went to office, feeling weak as from a long illness. Stools continued every 3 h. for 2 d.,—always (as before) inodorous, save for a slight mouldy smell. After 3 d. pains seemed to leave bowels and settle in joints, producing a crackling noise on movement. Every time I went from a warm room into open air my bowels would move. Could eat but little food, as a few mouthfuls satisfied my ravenous appetite. For some time I was not able to assume an upright posture while walking, or endure much fatigue. I did not regain my strength till 2 mo. were over, and during this time could eat nothing but the most digestible food,—spiced food and pastry invariably producing looseness of bowels. (Dr. E. R. HEATH, *Amer. Hom. Rev.*, v, 215.)

20. Mr. H. ROBINSON took 50 dr. of "tinct." (probably 3x dil.) at bedtime in a wineglassful of water, and had 2 emissions during following n. On another occasion, from 20 dr. taken in same manner, had peculiar kind of painful stiffness in nape of neck. (*Brit. Journ. of Hom.*, xxv, 327.)

21. Same gave to a young woman gr. j of r, dil. 4 times a d.

After 7 or 8 d. enlarged tonsils, with much dysphagia, and small ecchymosed spots on chest and face. In another, to whom he gave 2 dr. of 3x dil. 3 times a d., there was noticed, after several d., profuse lachrymation; nose feeling stuffed up; soreness of throat; tightness of upper chest. (*Ibid.*)

22. Dr. SHARR took at 8 p.m., pulse 74, 1 dr. of 1st dil. (probably prepared from the 3x as φ). Pulse rose to 76 during 1st and 2nd m., gradually dropped to 70 during 5—6 m., was 72 at 10th, and 74 again at 20th, where it remained. At 8.30 took another dr. Pulse fell at once to 72, and by 4th m. to 70, rising again to 72 from 8th—10th m., but at 20th found to be 70, and so continued. (*Essays on Medicine*, p. 720.)

23. After taking, in ethereal tinct., gr. $\frac{3}{10}$ each m. for 10 d., and then gr. $\frac{1}{10}$ for nearly 4 weeks, I experienced increased thirst and dryness of mouth with coated tongue, flatulent distension and eructation, and uneasy feeling in region of gall-bladder, without nausea or vomiting; motions were dark but healthy, urine natural. There was slight headache and sense of fulness along vertex and over l. temple, with increased restlessness and sleeplessness. On discontinuing the medicine, these symptoms disappeared in about 3 d., and on resuming it at the end of a month I felt them return in about 10 d. time. (*PHILLIPS, op. cit.*)

24. With special reference to the action of Ph. on the sexual organs, I have carefully experimented on 20 healthy men. Ten of them took $\frac{1}{10}$ gr. daily for a fortnight, 5 took $\frac{1}{4}$ gr. for a similar period, and 5 took $\frac{1}{2}$ gr. every 3rd d. five times. Toxic symptoms occurred in some of the subjects, but, except possibly in one of the last set, no sign or feeling of increased sexual excitement was observed. I have, however, seen men at 40—60, apparently in good health, but suffering from complete loss of generative power (in consequence either of previous sexual abuse, or of overtaxed brain and nervous system), in whom very small doses— $\frac{1}{10}$ gr. thrice daily—caused weak erections and involuntary emissions, but mental depression was developed to such an extent as to compel suspension of the drug. (*Ibid.*)

25. a. In a dose of $\frac{1}{15}$ to $\frac{1}{12}$ gr., a little nausea may be observed soon after its ingestion. This symptom is not constant. At some time about the 2nd h., sensations of exhilaration begin to make themselves felt. The capacity for exertion, both mental and physical, is increased, and that condition which the French describe as one of *bien-être* is experienced. If the subject have taken the dose while in a state of fatigue, then he feels his strength renewed; if while in a state of despondency, he takes a more cheerful view of things. The pulse becomes firmer and a little more frequent. These effects pass off gradually in the course of a few h., the period probably differing in different individuals. A state of depression does not ensue. My own experience, clinical and personal, agrees with the above description.

b. If the dose be repeated at regular intervals, so that from $\frac{1}{4}$ to 1 gr. is taken during the 24 h., some other symptoms may be observed in addition. Pulse and temperature rise, the former becoming fuller but not firmer; there are signs of peripheral capillary expansion; and subsequently to the first few d. the temp. is reduced by 3 or 4 degrees (Gubler). I have noticed symptoms of intoxication in my own person,

after solid phosphorus only. They came on about 45 m. after taking gr. $\frac{1}{4}$, and were shown by giddiness, and a tendency to roll in walking; they lasted about $\frac{1}{2}$ h., and were not accompanied by any confusion of intellect. The skin may become the seat of great irritation and itching (Lobell); it becomes moist, or perspires freely; and the urine is secreted in larger quantity than usual, and is reddish and loaded. The sensations of increased muscular power, intellectual activity, and lightness of heart, before mentioned, appear and are sustained. At the same time tactile sensibility becomes more acute. . . . The gums have been known to suffer; they may become inflamed and retracted from the teeth, especially from the incisors (A. Voisen). I have seen looseness of teeth in one patient, tenderness of gums and teeth in another. (J. ANHONTON THOMPSON, *Free Phosphorus in Medicine*, 1874.)

26. During the following experiments the medicine was prepared fresh every m. as follows: 20 drops of the 3x dil. were thoroughly mixed with 2 oz. of water, and put into the inhaler for use during the d.

a. Mrs. P—, æt. 22, began inhalation Dec. 5th. No symptoms until m. of 8th, when $\frac{1}{2}$ h. after inhaling for 15 m. she had a dreamy and indistinct sensation, as if objects were passing before the eyes; increased heat of head; moisture all over body, especially palms of hands and chest; feet very warm (usually very cold); a pricking sensation in the r. large toe, worse when walking; acute pain in joint of l. great toe; acute pain in l. side when taking a breath, worse on deep inspiration; soreness of scalp on crown of head, worse by pressure; raw feeling in lungs, especially r. At 5 p.m. a 2nd inhalation of 20 m.; no symptoms until 11, then flashes of heat and cold across shoulders; oppressive feeling at throat-pit; severe pain at base of spine; bearing-down and painful feeling of uterus and bladder, with smarting feeling on walking. 9th, m., another inhalation of 20 m.; felt exceedingly petulant all d., nothing went right, dissatisfied with self as with others, it seemed as if everybody did or said something to provoke her. 3.30 same d., inhaled 15 m.; about 3 h. after was seized, after eating, with severe vomiting and vertigo; about 20 h. after, increased pain with swelling and appearance of inflammation all round joint of l. great toe; slight cough immediately after rising, with large quantity of greyish phlegm as if mixed with dust; eyes gummy on awaking in m. 10th.—At 2 p.m. inhaled 20 m.; $\frac{1}{2}$ h. later violent pain in region of r. hip; pains in lower abdomen; severe pain in uterus and vagina; about 3 o'clock was taken with severe chill, followed by fever and flushed cheeks (especially l.); very thirsty; increased swelling of feet, with severe pain in bones of same, but they continue warm as at first; pricking in r. toe has entirely disappeared; head still sore on top; about 8 p.m. pains in back and uterus have increased greatly, and resemble real labour pains, particularly in lower part of abdomen; soreness of lungs much worse, very difficult to take a full breath. In afternoon (10th) pimples all over body, bright red, with intolerable itching, scratching relieved for a time only; feet very sore and painful. 11th.—Fever with headache, no chill; indolent all d. 12th.—Feet not so bad, dull

pain in joints; diarrhoea (very unusual). 13th.—Bowels still quite loose, feet sore, headache. 14th.—Whitish discharge from vagina, with considerable fever in e.; feet still sore. 15th.—Headache with fever p.m.; feet same. 16th, m., diarrhoea greatly increased with sharp cutting in abdomen before stool. 17th.—Diarrhoea and pain in abdomen less severe. All the symptoms of diarrhoea did not disappear for 2 weeks. The puffiness of toes and feet and the gouty pain in great toes also continued several weeks, making it difficult and painful to stand or walk.

b. Another prover, after 2 inhalations, became covered with an itching eruption of a troublesome character, severe pain in chest and head, great difficulty of breathing.

c. Another had pain in chest, cough with difficult expectoration, and pains in limbs. (MARCY, *N. Am. J. of Hom.*, Aug., 1885, p. 94.)

17. *Proving with amorphous P.*—(These were made on the healthy subject, and with the first three dec. trits.; but no further information is vouchsafed, and the results are given in schema form only.)

Dr. GUMPERT.—Disinclination to study; anxiety and oppression, as if he had heard bad news; dull, oppressed, ill-humoured; vertigo, with slight headache; bloody mucus from nose; dryness in throat and mouth, later tender also; stomach feels empty, without appetite; nothing tastes right; constipation, dry and sluggish stool; awoke at 4 a.m. with pain in bowels and diarrhoea, and had 4 watery stools between this and 6, pain in r. side, with occasional stitches; frequent and painful erections, awaking him several times; slight burning in urethra while urinating; some diuresis; lightness about chest as if air was fustably kept out; cannot fill lungs as full as usual (worse on l. side); feeling of fulness about chest; slight pain, like shicumatism, in both knees in m., by 3 p.m. this was gone, but he had same feeling in l. arm above elbow; painful feeling in l. instep; troublesome itching of both legs; restless n., 2 long while getting to sleep, though very drowsy when retiring,—woke at 7 a.m. unrefreshed; stitches in different parts, passing off soon. (H. N. MARTIN, *Home Monthly*, 21, 351.)

17. Dr. HAZO. (Took drug for a month.)—Frightened feeling, as though he were going to be run over; nervous feeling, as if he were going to die; inability to think; neuralgic pain from l. temporal to occipital region; pain in back of head and its l. side, lasting 3—6 p.m.; ringing in ears, roaring in r. ear; dimness of vision; nausea from 1 p.m. till retiring at 11 p.m.; belching of large quantities of wind raising like rotten eggs; appetite impaired and irregular; loose and frequent stools, with much offensive flatus; sexual desire increased; urine turbid and high-coloured; pain from l. to r. nipple, thence to r. shoulder, thence shooting down to r. little finger; pain $\frac{1}{2}$ in. below nipple, shooting like electricity, lasting 2 h.; hideous dreams; sleepy and stupid, hard to keep awake; chills at 1 p.m., lasting till 5, with ringing in ears, especially r. (3 d. in succession); nausea 1—5 p.m., then dull pain in occiput, followed by fever, flushed face, and thirst, till 9 p.m., also passing of great quantities of loud wind from bowels. (*Ibid.*)

18. Dr. J. W. KIRK. (Proved, apparently, from May to Dec.). Could not study, which caused headache, or keep his mind on any particular subject long at a time; could not keep still; disinclined to converse, yet did not like to be alone. Heat in head, with dullness, better by moving about; frontal headache with heat on waking, with disinclination to rise or move about; stupid feeling in head; headache on r. side from mental application; very heavy dull feeling in head after eating; dizziness, with feeling of lightness in head following it, increased p.m. Pain in r. throat at breakfast, relieved after swallowing a few times, but sore there till 11 a.m.; continual hawking and clearing throat, worse from singing, when also voice breaks on upper notes. Thirst for large quantities of water at rather long intervals; no appetite for meat; belching of large quantities of wind; sensation as if little lumps rolled up œsophagus to throat, relieved by swallowing, then returning again with slight nausea. Loose discharges from bowels, dark and offensive, accompanied with

pain before and after, and between-whiles, also with urging and very sick feeling; then for 2 or 3 weeks alternately constipated and loose,—costive stools difficult to expel, as from inactivity of rectum; pain in hypogastric region; rumbling in abdomen; soreness on pressure on both sides under short ribs,—when riding on horseback, stinging at r. side. Seminal emissions every other n., with dreams and dribbling from urethra at slightest provocation,—also strong desire for coition, but feeble erections. Pain in lower chest on drawing deep breath; slight oppression of chest; sense of constriction in chest, with painful, difficult breathing, m. (all chest symptoms worse on l. side); breathing rather hurried; towards 6 p.m. very weak feeling in chest, slight pains in different parts of chest, and disagreeable cough, lasting till retiring; cough of various kinds, with dragging feeling in lower chest, and sensation as if something was tearing loose in chest, worse from movement and from warmth. Soreness in nape, felt most on turning head to l. side. One glandular swelling in a. and 3 in l. axilla, two of which suppurated; from l. axilla small lumps size of pea, at irregular intervals, ran down inner arm to wrist, under on pressure; vesicles on hands; itching eruption on anterior surface of arm (forming crusts, under which surface was raw and bleeding, scratching caused smarting, burning, sore feeling), and skin was chapped, rough, and scaly on borders of axillary spaces. Legs heavy and weary; eruption on thighs and legs; numbness of l. leg while lying on that side. Dreams, few in m. and e. Pulse short and quick, whole surface very hot at n., alternating with chilly sensations, then profuse perspiration during sleep. (*Ibid.*)

II. *Poisonings*.—1. *a. F. P.*—*æt.* 24, took on April 27th, 1824, 3 centgr. of Ph. in some hot water. Experiencing no effect, he took, 3 d. later, 8 or 10 centigr. He breakfasted immediately afterwards, and felt no bad effects; but towards 5 p.m., being at table, was taken with violent pain in abdomen, and had painful and continued vomiting and abundant alvine dejections. He continued to attend to his business till May 4th, when at 7 a.m. Dr. Worbe saw him (no account of his condition during this time is given). Abdomen was very tense; epigastrium exceedingly painful; no priapism. Patient in state of extreme debility; could only lie on his back; speech slow and difficult; features had a sort of fixity, giving to his physiognomy a singular air of sadness, languor, and wandering of mind. Tongue and buccal membrane natural; lips and face of livid shade; conjunctiva deeply tinged with yellow. Eyes dull, opened with difficulty, could not bear light long; pupil normal, iris little sensitive to light. Pulse a little hard. Urine normal; but he had had no stool since the initial diarrhoea ceased. At 10 p.m. he recognised no one, was convulsively agitated, and tore off with violence everything placed on his abdomen. He carried his hands automatically to the epigastric region. Abdomen was contracted, and pressure elicited plaintive cries and disordered movements. Mouth was tightly closed; eyelids opened with difficulty; and at intervals he made deep sobbing inspirations. On 5th, m., stomach had become meteorized; patient grew worse every h.; there was involuntary dribbling of urine, and abundant alvine discharges, followed by extreme flaccidity of abdominal walls. Resp. became slow and easy; strokes of heart regular and full. At 10 p.m., no radial pulse; whole body intensely yellow and covered with cold sweat. He died next m. at 3.

b. P. M.—Skin yellow. Subcutaneous veins of abdomen and upper thighs large and arborescent; scrotum bluish. In thorax much coloured serosity. Lungs gorged; heart soft, collapsed, empty. Mucous membrane of stomach was the only inflamed part. About cardiac and

pyloric orifices much dark ecchymosis. Intestines full of gas. Head not opened. (WORRE, in Orfila, *op. cit.*)

2. A lady, *æt.* 30 odd, strong and healthy, swallowed at n., on going to bed, scrapings of lucifer matches containing about 3 gr. Ph. For 8 h. she concealed her sufferings. Her violent and noisy vomitings revealed her state to those in the house, and the doctor was summoned. The patient lay prostrated, cold, and pallid, as if moribund, and unconscious. Skin covered with cold clammy sweat, here and there of a waxy yellow colour, complexion leaden-grey. The eyes surrounded with dark blue rings, mouth closed, lips pale, respirations retarded, short, laboured; heart's impulse weak, hesitating, intermittent; radial pulse small, hard, slow, unrhythmic, now and then intermitting. Abdomen distended, all over very sensitive, the slightest touch caused violent pains, she could not bear the weight of her night-dress, and her hand constantly moved as if to raise it. She had vomited some 12 times with great effort and noise, at first watery slimy fluid, mixed with epithelium and shreds of m.m., later some clotted blood and blood-corpuscles embedded in mucus. Along with this there were diarrhetic stools of the same character. No urine was passed, nor did bladder seem to contain much. The utero-vesical region was very sensitive to touch. There was complete collapse, the limbs hanging down in a relaxed state, and were as flexible as wax. Senses and mind were in unconscious apathy, she could only be roused by calling loudly into her ear. After Acon. 1 every 10 m. she slowly revived. Afternoon, skin moderately warm, pulse freer, fuller, quicker, consciousness only disturbed for a few seconds at a time, otherwise quite clear. She complained of very violent burning pain in chest at its lower part (œsophagus?), in the stomach and whole abdomen; every touch and change of posture increased the pain. Vomiting and diarrhœa had ceased, but she had still retching and ineffectual straining at stool, when she felt burning like fire in large intestine and anus. She passed with difficulty small quantities of dark yellow urine smelling strongly of garlic, after micturition very severe burning. Abdomen very much distended in every direction, and very sensitive to touch. In e. there came on a violent exacerbation, accompanied by frequent and persistent delirium, generally hearing on anticipations and apprehensions of death. Sometimes there were convulsions with loud cries of anxiety. She tried to lean over the bed, but always fell back fainting. This was frequently repeated during n. Consciousness was completely gone. She now got Bell. 1, 4 dr. in ʒiv water, a teaspoonful every h., alternated with Acon. After some h. improvement set in. She had longer intervals of quiet, the convulsive movements were seldomer and slighter. No more cries, and she slept quietly for hours. Consciousness returned. The heart's beats became rhythmical and strong, the body became warm, and covered all over with gentle perspiration, the pain in abdomen was much lessened, and she could bear it to be touched. She gradually improved. The abdominal and other symptoms declined, but on the 10th d. she complained of drawing pains in r. upper part of chest which affected the breathing. After a short while this changed into deep persistent burning over spot size of a child's

hand in the region of the sixth and seventh ribs, which sometimes made it impossible to draw a deep breath. There was constant tendency to short cough, which she tried to suppress on account of the pain it gave. She now got Bryon. 3, and by the 12th d. all these symptoms were gone. From the 15th for 2 weeks she was tortured with boring burning pains in the bones which deprived her of most of her sleep at n. These pains were particularly severe in the skull, the palatal and nasal bones, both jaws, and the teeth. The boring burning toothache was aggravated by taking cold or warm things into mouth, or by chewing, so that she could only take tepid liquid nutriment. Sometimes the pain in teeth became of a numb character; the teeth then felt loose as though they would fall out. There was a similar burning sore pain in the soft parts of mouth and throat, affecting also the orifice of the Eustachian tube; the parts were bright red and slightly swollen, and she felt as if they were raw and covered with ulcers. There was a similar pain in internal ear, a buzzing noise affecting the hearing, humming and ringing occasionally. Swelling of concha and slight swelling of r. temporal and superior maxillary bones. Soreness of Schneiderian membrane; the opening to nostrils was covered with bloody scabs. Swelling of nasal bones and unusual blowing from nose of blood and mucus. The stools, which were passed with burning in anus and frequent tenesmus, contained bloody mucus, and small faecal masses covered with blood. There was almost always an urging to stool. The urine was passed in drops which burned like fire, and there was pain in kidneys and bladder. Sometimes the scanty urine was mixed with blood. These symptoms improved under Merc. 1 and Mez. 6. In the 8th week, when the patient was beginning to go about, she felt a peculiar sensation of general loss of muscular power. She could not walk upstairs. This condition increased until every movement was disagreeable and fatiguing. She took to bed and became quite apathetic, alternating with angry words and actions. During this time she was often very drowsy by d. No sooner did she fall asleep than she began to speak nonsense or she went into an erotic ecstasy, talked in a libidinous way, and touched herself so as to satisfy her sexual desires. The menses, which occurred twice during this illness, came regular as to time, but were very scanty and attended by spasmodic pains in uterus and renal region, which was quite unusual with her. After the menses she had burning leucorrhoea that made the parts sore. The urine was clear and in good quantity. Simultaneously with these nervous symptoms there came on what the patient called "gouty pains" in knees and ankles, which made walking very difficult. She had to take great care to avoid falling, and she said she felt a gelatinous substance between the parts of the joints that were in contact, which offered great resistance to her movements. The soft parts of the joints were indeed somewhat swollen, but not red or painful to touch. There was considerable rigidity of the joints. The skin, which had been pale and loose, now took on a yellow tint, there appeared bloated swellings in some places on the eyelids and face, which left a depression when pressed on with the finger. On the nape, back, and other parts the

skin could be raised up with the fingers in large folds, which slowly smoothed down again. Finally, a peculiar exanthem appeared, which affected the skin about the joints and was not of very great extent; it resembled ordinary eczema, it consisted of small vesicles closely collected in groups, which rapidly turned into scabs, and frequently recurred. Sulph. was given, and the patient gradually recovered. (J. O. MÜLLER, *A. A. Z.*, 1, 163.)

3. A youth, æt. 17, on Jan. 6th swallowed the Ph. from a boxful of phosphorus matches without feeling any bad effects.—7th, 10 a.m., he scraped the Ph. from 1½ boxfuls into a cup of milk and drank the mixture. Soon he had fetid eructations and weakness. At noon he drank 3 glasses of beer. P.m., had a normal stool. 9 p.m., great sadness and nausea. Midnight vomiting of a sour brown fluid. After a restless n. he felt next m., 8th, very uncomfortable. Chilliness, shivering in the warm room. Dazedness, pressure and dizziness in head at times. Total loss of appetite, sour taste, tongue slightly furred, dryness of throat, constant thirst, rather increased than allayed by drinking water. He vomited twice, at same time rumbling and discomfort in belly, great exhaustion. After a dose of *Nux v.* 4 the symptoms ceased for 3 h., then they returned as before. Next n. restless, woke often, frequent desire to change his position in bed. In the m. felt very exhausted and must yawn frequently, nausea still present, taste sour; milk tasted burnt; every smell, as of tobacco, wine or beer, increased the nausea. Tongue clean. Urine dark coloured. Next n., 9th, resembled the last. During d. of 10th vomited once. Next n. very restless.—11th. Exhaustion increased; he felt so weak, kept his bed most of the d., still some dazedness of head. The stomach pains were pressive from the beginning, rumbling in abdomen. Noon, a formed but not hard stool, same in e. In e. sour, sometimes fetid eructations; vertigo and stomach pain better. N. between 11th and 12th quieter, headache and eructations gone. Noon, took some milk, but soon threw it up. P.m., rumbling in belly and slight pressure in stomach. Great languor, constant yawning. N. between 12th and 13th restless, woke at 4 a.m. and could not get to sleep again. Head confused. No nausea, but eructations tasting of food. Slight pressure in stomach. Rolling and rumbling in belly. Urine dark, tongue clean, not so languid as yesterday. Bad appetite; distaste for meat and fat food. Still some thirst. Took another dose of *Nux v.* Better in e. N. between 13th and 14th better. Slept soundly till 4 a.m., fell asleep again but soon woke.—14th, 8 a.m., got up and felt stronger. Head free, taste and tongue normal. Appetite not so good as usual. Some discomfort and fullness in abdomen just above navel. Noon, normal stool. P.m., rumbling in abdomen and pressure in stomach. Greater languor, desire to lie down. Bitter taste, especially after eating bread. N. good.—15th. Slight pressure in stomach and rumbling in bowels. Languor. Skin of forehead and eyes slightly yellow. Urine dark. Says he has felt weak since 8th, cannot stand long, hands tremble so that he could not write.—16th. Felt well, but skin yellower, rumbling in belly and pressure in stomach. Dark sediment in urine, faeces greenish red. Next n. slept well.—17th. Urine clearer. Skin not so yellow. Stool

greyish red.—18th. Still languid, feces normal.—19th. Complexion normal. (ELWERT, *A. d. Z.*, liii, 171.)

4. LAURA M.—, æt. 21, July 13th, poisoned herself with phosphorus matches. From 13th to 15th vomited everything. Went to bed on 15th. Seen on 16th, when she complained of taste of Ph. in throat, colic, vertigo, and headache; chilliness when she got up, thirst, and great weariness. The doctor, not knowing what she had done, gave puls. and visited her on the 17th. Lay in bed, uncomplaining. Pulse not very quick, but soft, skin moderately dry and warm, tongue dry, red in middle and shining, frequent drinking of small quantities of water, abdomen only slightly tender, gastric region very tender to deep pressure, complexion yellowish, on rising up complained of vertigo and trembled.—18th and 19th. Got up, did light work, ate several times, and complained of nothing.—19th. One white fetid stool; vomited blood several times in e., and then lay down quietly in bed.—20th. M., her mother found her lying on the floor, half unconscious, screaming horribly and tossing about. 5 p.m., cool skin; chest, belly, face, and especially conjunctivæ very yellow. Pupils sluggish. Lay constantly on r. side, writhed about much with upper part of body and head, screamed frightfully, bit into pillow and tore it with her teeth, bit her own fingers, also the spoon with which she was helped to milk, and spat out all fluids given her, frequently mixed with blood. Lips quite dry and bloody, eyes expressionless. Had passed neither urine nor feces. She gradually grew colder, and died between 10 and 11 p.m.—*P.M.*, 21st. Body already smelt badly, and was covered with many cadaveric suppurations. Much dark blood had flowed from mouth, the linen was souled with grey feces. Abdomen distended, its veins full of black blood. Nothing abnormal in brain or its membranes. Lungs bluish black. Heart collapsed, contained a little black blood; duodenum reddened. A small quantity of bloody water in abdominal cavity, but no abnormal congestion. Stomach and intestines much distended, looked blue or bluish grey. The beginning of the duodenum and some spots in middle of small intestines showed dark red through their peritoneal covering. Liver felt soft and withered, when cut into appeared of an intense yellow colour; gall-bladder empty. Kidneys contracted, bladder empty. Uterus empty, the m.m. of its fundus bright red. M.m. of stomach was thickened, bluish red, and gelatinous, and the fundus where the spleen touches it blackish grey. Its contents were bloody fluid mixed with a number of little black pieces. Intestines firm, pylorus of intense bluish red colour; the very much swollen m.m. nearly filled the tube; at the top of small intestine there were blackish masses, m.m. congested but less swollen. In the large intestine the swollen m.m. completely filled the bowel. Whitish-grey, unctuous masses of feces without mucus in the colon smelt of Ph. (SÖRGE, *op. cit.*, 98.)

5. Mrs. K.—took a quantity of the heads of phosphorus matches in order to poison herself. She had repeated retching and vomiting. When seen 2 d. afterwards she was lying in an apathetic state, with intermittent pulse; after 3 to 6 regular but weak beats there was a pause. The tongue showed two slimy stripes; no appetite, could hardly be induced to take any food. The 3rd II., like the previous ones, was

restless. Next d. pulse still intermittent about every 25th beat, and very small and weak. Repeated diarrhoea. Tongue without the stripes but dry. She resembled a person affected with typhoid fever.—6th d. Constipation. Patient groans and sighs; very depressed in spirits. Pulse no longer intermits; r. conjunctiva very yellow, l. less so. Tongue moist and of a slate colour.—7th d. Both conjunctivæ very yellow; great sensitiveness of lower border of liver, when touched she screams with pain. Great tearing pain deep in chest. She feels the whole skin burning like fire. The burning pain seems to be in the œsophagus. Burning and tearing in r. ear.—9th d. Complains of stupid feeling in head; she says her head feels dead, but the intellect is clear. Great anxiety, which makes her wish to get out of bed, though she is unable to rise. Cold sweat of anxiety; rapid breathing without acceleration of pulse. Painful pressure in scrob. cordis. Wakes her husband at n. as she wants something to eat, must have some food every 10 m., though always something different. (Goulton, *Int. Hom. Pract.*, x, 496.)

6. A woman on March 21st ate an unknown quantity of Ph. rat-poison in food. After 1 h. felt very ill. She complained of great distension of abdomen, increased anxiety, later of burning and cutting in abdomen and violent thirst, with inclination to vomit, and soon afterwards diarrhoea, which lasted all n. and next d.—21st. 11 a.m., she had a wretched fallen-in face, could hardly keep on her legs, and began to talk nonsense in an unconnected manner. Soon afterwards became delirious, and died on the n. of the 21st.—*P.M.* Suffering expression on face, eyes sunken, surrounded by broad blue rings. The veins shone blue through the wax-coloured skin. The whole front of the surface of the body, especially the shoulders, chest, and abdomen, was studded with petechiæ of the size of a hemp seed, somewhat raised and of a bright red colour. When cut into they were found to be deposits of thin bright red blood betwixt epidermis and cutis. The finger-nails of a bluish-black colour. Peritoneum and omentum red and inflamed. Mesenteric veins distended with dark blood. Stomach externally dirty grey and reddish. Duodenum, jejunum, and ileum of reddish-brown colour, dotted here and there with verdigris-coloured spots; colon of a reddish tinge. Stomach contained 2 oz. of a greenish-grey viscid fluid. On posterior surface of stomach near pylorus two sloughing ulcers with elevated blackish-grey borders. A third ulcer, the size of a sixpence, on the cæcum had penetrated all the walls of the bowel and peritoneum. The m.m. from cardia to fundus ash grey or dark red, in some parts swollen and softened. The veins of stomach resembled thick cords. The m.m. of intestines had a dark inflammatory redness, that of the colon was not inflamed. The l. lobe of liver showed several bright red inflamed spots. The upper and under surface of diaphragm on the r. side of the furcraen œsophageum was inflamed and red to the extent of 1 inch. The upper lobes of lungs were slate grey and marbled; they crepitated. The lower lobes were full of venous blood, felt solid, and crepitated little. The r. side of heart was distended by dark thin liquid blood. The œsophagus had a dark red ramified colour, its m.m. inflamed and corrugated; at the entrance to stomach it was dark grey,

blackish, and could be easily removed in shreds. The blood-vessels of the pia mater congested with blood; between it and arachnoid a collection of yellow opalescent lymphous exudation as thick as pasteboard, welding together the two cerebral membranes in several places. (GRÖBENSCHÜTZ, *Med. Zeit. v. Ver. f. Heilk. in Preussen*, xii, 1843, No. 31, p. 137, in *Frank's Mag.*, i, 125.)

7. ELISE STARK, milliner, æt. 23, took, June 15th, m., the scraped-off heads of 1000 phosphorus matches [= 10 gr. Ph.]. She felt nothing till the n. of the 16th, when she had frequent vomiting, continuing on 17th and 18th, after which the pains in stomach, which had been severe, became less. On 18th pains in sacrum. She was brought to the hospital on the 19th. Her skin and conjunctiva were strongly icteric. Mucous membranes and cheeks very red. Countenance and demeanour indicated the greatest exhaustion. Pulse 92, hard and bounding. Tongue dry in the centre, and with a grey coating. Disgusting taste, anorexia. Abdomen distended, especially about epigastrium. Pain in splenic and iliac regions, and liver, which projects 1 to 1½ inches in l. lobe. Spleen enlarged. Stool retarded for some d. Urine brown, containing bile-colouring matter and some albumen. Six leeches were applied to epigastrium, and she got a mixture of decoct. althææ with aq. amygd. amar. Some vomiting, p.m. Temp. 38·1° C., pulse 108. Next m. pulse still 108, temp. 37·7°. Pains in stomach less; yellow firm stool. Though so weak, the pulse was full and strong. P.m., collapse, soon followed by death.—P.M., 30 h. after death. The icteric colour of skin and conjunctiva well marked. In all the serous cavities small quantities of bloody fluid. Mesentery, especially the appendices epiploicæ of sigmoid flexure, much congested, and the surrounding parts red. The endocardium, especially on the valves, shows bloody imbibition. Muscular substance of heart on both sides pale grey, on the l. side of a greenish hue. The blood in heart fluid. M.m. of pharynx, larynx, and trachea partly dirty red, partly greenish. Dark red suffusion on both sides of entrance to larynx. Both lungs in posterior parts airless and very hyperæmic. The greyish-yellow m.m. of stomach, when its blackish-brown contents were removed, showed shallow depressions the size of peas on fundus and both curvatures. Similar matter appeared in duodenum, and a thick pappy matter in jejunum. In the ileum the contents were of a pale yellow colour, further down the yellow colour was deeper. The fæces in rectum were dirty green. Some patches of red in intestines. Small prominent pimples on jejunum, which when scraped off left small pits. Gall-bladder empty. Thin dark brown bile in ductus choledochus, its m.m. at its entrance through the intestinal parietes corrugated and red. Liver large and heavy, under its peritoneal covering large emphysematous bullæ. Surface and interior of liver greyish green, the central part of the large acini green. Spleen enlarged, firm and chocolate coloured. Follicles hardly visible, trabecules numerous. The bladder, relaxed and empty, has ecchymosed spots in its fundus. Kidneys large, their glomeruli very red and the canaliculi very opaque. A red secretion can be pressed out of the papillæ. The cellular substance of the pelvis of the kidneys is deeply imbibed with blood. The

liver cells under the microscope were partly filled with fat molecules, partly destroyed and changed into drops of fat. Uterus enlarged; the blackish m.m. of the cervical canal shows a blackish slimy secretion. M.m. of uterus is blackish red with shreds of membrane attached to it. (Dr. E. MANNKOPFF, *Spital's Zeitung*, 1863, 26, in *A. h. Z. Med. Blatt*, viii, 16.)

8. SCHLAWIG, a servant-girl, æt. 27, scraped off the heads of 3000 lucifer matches (= 30 gr. Ph.) into a pint of water and drank the whole, April 2nd, 10 p.m. Next m. no symptoms. In forenoon fainted twice, felt sick, and after noon vomited continually blackish-green matter, at first slimy, and afterwards watery. Entered the hospital c. She got milk, magnesia usta, and mucilage, and on account of violent pains in head cold compresses to it. After cutting pains in abdomen vomited thrice. No sleep.—4th. M., skin slightly yellow and covered with profuse sweat. Conjunctivæ of a deeper yellow than skin. Cheeks very red, expression dull and aching. Heart's action and respiration accelerated. Tongue red, clean. Arch of palate and posterior pharyngeal wall slightly reddened. Abdomen distended. Burning pain in pit of stomach, increased by deep pressure; r. hypochondrium very tender. The vomited matter contains only bile, no blood. Liver enlarged, its lower border on the median line lies 4 inches below base of ensiform cartilage. Urine scanty, clear. Yesterday there were pains in renal region, to-day pain is only felt there on pressure. Cataplasm to stomach and decoct. althææ and aq. amygd. amar. The patient after this vomited thin bilious fluid. On the 3rd and 4th d. there were several thin liquid stools, and no more till 7th d., when an enema brought away a pappy, bright brown stool. Temp. rose gradually to 39.6° C., and the pulse became quick in proportion. Perspiration ensued, and the skin became more active. At the same time the liver increased in size. The spleen, too, increased in size. Pressure on the liver caused great pain. The urine during the last 2 d. became more copious, sp. gr. 1020—26, acid, at first copious triple phosphates, latterly much uric acid. The colour was dark, and contained a quantity of colouring matter of bile. From the 4th d. it contained albumen and hyaline casts and some fat corpuscles. The headaches increased, and there were often attacks of faintness. The limbs were at first as heavy as lead, feeling as if paralysed, with pains in the muscles. The countenance expressed great exhaustion; consciousness was perfect. On April 9th the symptoms suddenly increased in intensity, the pupils dilated and scarcely reacted, the extremities became cold, pulse intermittent and scarcely perceptible. At 8 o'clock she died. P.M., 3 d. after death.—Skin very yellow, with numerous suffusions. The fat brownish. Some reddish fluid in pleuræ. Bronchial tubes contain dark red mucus, and the m.m. red. Heart very lax, contains little blood. Endocardium, especially about valves, very red. Muscular substance of heart reddish grey, opaque, shows signs of fatty degeneration. Blood dark red, loosely coagulated. Peritoneal sac contained 1 pint of dark red bloody liquid, m.m. of pharynx and larynx of dirty grey colour. The distended stomach contained 1½ pints of greyish-red thin liquid. The m.m. on fundus red, at

pylorus and large curvature grey. Near an old cicatrix are two spots the size of peas, black in their periphery, not discoloured in the centres, lying under the m.m. In duodenum and throughout intestines grey masses, fluid in small intestine, of more consistence in colon. Gall-bladder relaxed and empty. The m.m. of small intestine is only red on the top of its folds, the rest of it is grey. The follicles are enlarged. The m.m. of uterus much swollen and reddened, covered with reddish secretion. The glomeruli of kidney much injected, the tubuli contorti filled with a granular mass consisting of fat. Spleen enlarged, firm, and full of blood; reaches to l. lobe of liver. The liver on the r. side extends 3 fingers' breadth below border of ribs. Its surface is smooth, some large red parts are sunken in; the remainder of it, especially the anterior border, is of an intense yellow colour. On cutting into it the yellow and red parts were abruptly delimited. The hepatic cells in the yellow part were larger and more rounded than normal, they seemed to be filled with firm fat corpuscles. In the red part there was free fat, chiefly in large drops. The yellow parts seemed saturated with yellow bile-pigment, but contained very little brown granular pigment. The red part was quite devoid of these pigments, but its acini were very large. (*Ibid.*)

9. A workwoman, æt. 26, Nov. 23rd, 4 p.m., swallowed the heads of 1000 phosphorus matches in a cup of coffee. After 8 h. anorexia, increased thirst, vomiting of phosphorescent masses, pains in epigastrium, which increased and extended to both hypochondria, and on the 24th, e., involved the lumbar region; urine scanty. The vomiting was promoted by an emetic, and magnesia usta caused profuse diarrhœa.—25th, e., patient brought to the hospital. Her expression and posture in bed show great exhaustion; skin dry; frequent dry cough; pulse quick, small, and soft; tongue thickly furrowed, no appetite, thirst great; pain in pharynx on drinking anything warm; abdomen much distended but soft, persistent pains, especially in epigastrium, both hypochondria and lumbar region, aggravated by pressure; spleen enlarged; liver shows as a firm tumour 2 inches below the ribs. It extends $5\frac{1}{2}$ inches below the base of the ensiform cartilage. The urine drawn off by catheter contains bile-pigment and a little albumen. Cataplasms to abdomen and a mixture of decoction of bark, red wine, aromatic tincture, and syrup. Next m. she had an icteric colour of skin and conjunctiva, which increased next d. The frequent consistent stools were tinged with bile. Urine scanty, contained a little albumen and some bladder epithelium; its sp. gr. had sunk from 1024 to 1012. The liver $\frac{1}{2}$ inch lower. Respiration 76, pulse 136. Temperature in axilla rose from 38.2° C. to 39.5° C. She complained of chilliness. Abdominal pains less. Vertigo and exhaustion increased. Headache, anxiety, and restlessness, no sleep for the last nights. The last d. her intellect was clouded.—29th, p.m. After extreme anxiety she suddenly became quiet, and after $\frac{1}{2}$ h. she died, 6 d. after the poisoning.—P.M., 4 h. after death. Brain and its membranes normal. Both pleuræ and pericardium studded with ecchymoses. In cellular tissue of mediastinum considerable suffusion, which extended along the greatly injected bronchial tubes into lungs, which showed some hypot-

rais but no fibrations. Nothing abnormal in stomach except an old cicatrix, nor in intestines. The contents of the bowels had a slight yellow tinge. Spleen $4\frac{1}{2}$ inches long, $2\frac{1}{2}$ broad, 1 inch thick. Liver $9\frac{1}{2}$ inches broad, the r. lobe $8\frac{1}{2}$ inches high, l. $5\frac{1}{2}$ inches, v. $3\frac{1}{2}$ inches thick, l. $1\frac{1}{2}$ inches, of doughy consistence; there were some reddish places on its lower border. Acini ill defined. Gall-bladder contained a little brown bile. Kidneys soft, when cut into they showed congestion of the vessels; the red glomeruli contrasted with the icteric coloured, very opaque urinary canals. M.m. of uterus, after the bloody mucus was washed off, appeared bright red. Blood very dark. Cardiac muscles doughy, of yellowish-red colour. The epithelia of kidneys were changed into firmly granulated detritus, no epithelial nuclei to be seen. The interstitial tissue appeared loose, and contained some drops of fat. The liver lobules large, no cells could be seen when cut into thin layers; they were all, from vena portæ to liver-vein zone, fatty-degenerated. Betwixt the acini were broad bands of cellular tissue, and betwixt its fibres a great number of star-shaped structures, where lay a large number of fat-drops. (*Ibid.*, 28.)

10. P. J.—, æt. 25, came May 2nd into the hospital. The previous day at 6 p.m., after drinking a quantity of spirits, he scraped off the heads of 3 packets of phosphorus matches, put them into a glass of beer, and drank the mixture. He continued drinking wine and beer till 10 p.m. At midnight he vomited a quantity of blackish-brown, metallic tasting fluid, and vomited 10 or 12 times before m. He came to the hospital at 7 a.m. He complained of headache, dryness and metallic taste in palate, slight burning sensation down œsophagus to stomach, anorexia, thirst. Tongue dry, brownish black, fauces red. Pulse full, regular, 72. Liver normal as to size, spleen somewhat enlarged. Stomach towards pylorus tender to pressure, an uncomfortable feeling in it, but no pain. Magnesia hydrica was administered, and he got milk to drink at his own request. When seen, e., he had had 3 stools, and had vomited once.—3rd. M., the pains in stomach increased, nausea repeatedly during d. Pulse quiet, 72—76. The skin, especially on chest, yellow; urine dark-coloured, contained a quantity of bile-pigment, no albumen. He got ice pills, mistura oleosa, and cold compresses to gastric region.—4th. N., copious vomiting and 1 purulent stool. Complained of increased headache, pulse 88. Skin jaundiced, covered with perspiration, albuginea of both eyes yellow, urine dark brown. Stool black, owing to decomposed blood. Liver increased in size, very tender.—5th. No change.—6th. The same. Urine brown, sp. gr. 1021, acid, great sediment, urophæin diminished, uroxanthin increased, urea diminished, uric acid increased, no chlorides, earthy and alkaline phosphates increased, sulphates increased, much albumen and urates, much bilophæin and uroerythrin. Sediment, urates and earthy phosphates.—7th. In the n. vomited 5 times, one stool, icterus increased. E., when lying asleep on l. side, his whole body shook violently synchronously with each heart's beat, a loud blowing sound could be heard in the aorta at each systole.—8th. After a sleepless n. he fell into a somnolent state, answered questions slowly and with difficulty, and his speech was dis-

connected. Colour of skin intensely yellow; temperature high. Tongue very dry, with thirst, blackish-brown fur. Liver projected below ribs, and the tenderness of it increased. Pulse 108. At the 6. visit the somnolence had increased, pulse softer and slower, sound in aorta as yesterday. Liver decreased in size.—9th. All n. cried out, made constant attempts to get out of bed, had to be tied into the bed. At 2.30 a.m. he fell asleep, and slept till m. Countenance fallen in, dull look; lips, nose, forehead, and extremities had a livid hue, temperature of extremities low. Respirations slower and accompanied by loud rales. Size of the liver much diminished; pulse very small, soft, 132; blowing sound in aorta very distinct. Since m. frequent convulsive movements of lower extremities; when this happened the feet were drawn into the appearance of club-feet. During a.m. convulsions of upper extremities also occurred; trismus came on, so that it was impossible to get liquids into mouth; there was loud rattling both in inspiration and expiration. A quantity of dark frothy blood was discharged from the nose and mouth during expiration, which, as well as the body, had a cadaverous odour; extremities cold, radial pulse could not be felt, and at 4 p.m., after a rapid succession of convulsions, he died.—P.M. Dura mater pale, icteric tinge, vessels moderately distended, brain soft, in its cavities some drops, in base of brain 1 drachm, of pale yellow serum. The intermuscular cellular tissue of neck and mediastinum, as well as the subpleural cellular tissue of the thoracic walls, studded with numerous patches of extravasated blood. Back of tongue and m.m. of fauces covered with a blackish-brown slimy substance. R. lung adherent at the back; both lungs inflated, mostly bright red, containing fluid blood, in parts oedematous; the lower lobes inferiorly somewhat swollen, dark red. In pericardium 1 oz. reddish-yellow serum; heart collapsed, at its base ecchymosed; the endocardium, especially of r. side, yellow tinged; cardiac muscular substance fawn-coloured, in heart's cavities fluid blood. Liver small, contracted, wrinkled, tough, bloodless; when cut into, fatty, yellow and red—that is to say, on a red basis of interlobular tissue the acini appeared as icteric-yellow granules the size of millet seeds. The acini under the microscope were seen to consist of large and small fat-drops with a few hepatic cells among them, whilst in the interlobular tissue no cells were visible. Gall-bladder contained slimy blackish-green bile. Spleen very long-shaped, reddish brown, some of the splenic elements changed into aggregations of fat-globules. Stomach, duodenum, and upper part of jejunum filled with blackish-red and black tar-like fluid. M.m. of stomach pale, numerous hæmorrhagic erosions on the pyloric end. In the rest of the small intestine yellow bilio-mucous matter, in the large intestine grey pappy matter. Kidneys large, their cortical substance swollen, yellowish red, fawn-coloured, the pyramids dark coloured. Under the microscope the urinary canaliculi of the cortical substance appeared dilated, filled with fat-globules, epithelium gone. In bladder $\frac{1}{2}$ pound of orange-yellow urine. The urine taken from the body of a reddish colour, acid, with sediment of urates. The chlorides were in diminished quantity. A small amount of albumen and a large amount of bile-pigment. (KARAJAN, *Wochenbl. d. Zeitschr. d. k. k. Ges. d. Aerzte in Wien*, 1863, 20; in *A. h. Z. Mt. Bl.*, viii, 29.)

11. a. On 5th June, at 8 p.m., 6 h. after eating, Maria L— swallowed the combustible matter of a box of matches suspended in a cup of coffee. In about ½ h. she felt severe pain in throat, sense of swelling in tongue and of pricking in epigastrium. Pain was paroxysmal, at intervals of about 5 m. The woman experienced great sense of fatigue, and there was a peculiar insensibility in the skin of the extremities. 6th.—Frequent and considerable nausea, without vomiting. The feebleness experienced did not prevent her from walking about all d. in the rain. Numbness of extremities with formication; sensibility of fingers so much diminished that she could not pick up a pin. Pain along pharynx and œsophagus. Towards e. an incomplete attack of syncope; was then brought to hospital. She was pale; features slightly changed; had lively thirst; epigastric pains more marked; skin dry; pulse normal. An emetic was administered, which occasioned a little vomiting. 7th.—Diminution of epigastric and pharyngeal pains; frequent painful regurgitations, with expulsion of gas having an alliaceous odour; commencing jaundice; chills. Very weak; intelligence intact; calls for food. 8th.—The pains are dull; bad taste in mouth, nausea, without vomiting; somnolence. The jaundice is very decided; the liver is sensitive to pressure, projects a very little beyond the false ribs; more chills. (A purgative was given.) At 4 p.m., chills more intense; febrile condition. 9th.—Same symptoms; pulse 50—60; no appetite. 10th.—Same. Upon arms some red spots, which disappear on pressure. Pain in hepatic region. (Leeches to anus, on 11th calomel and jalap.) 12th.—Pain in liver easier after leeches, and now better still. 13th.—Augmentation of hepatic pain; liver very tender on pressure, extends two fingers' breadth beyond edge of false ribs; formication in fingers. (Blister on r. hypochondrium.) In n. delirium suddenly supervened, followed by a comatose state, interrupted by occasional screams. 14th.—Delirium, coma, dyspnoea, yawning, difficult articulation. 15th.—Still coma; cries; trismus; death.

b. P.M., 24 h. after death. Very slight vascularity of cerebral pulp. Bloody serum in cavity of pleuræ and pericardium; ecchymoses on costal pleura; pulmonary engorgement; heart small, collapsed, empty. Ecchymoses under peritoneum, and bloody serum in its cavity; stomach and upper half of small intestines full of bloody mucus; in all this extent mucous m. tinged uniformly of a wine colour from imbibition of the contained liquid; no softening or ulceration of the surface. Liver larger than natural, of deep brown colour and softened; spleen also enlarged and softened, with ecchymosis under its serous coat. Bladder contained a very large quantity of bloody urine and many ecchymoses under its mucous membrane; kidneys healthy. Subperitoneal ecchymoses on uterus and its appendages, and also between laminae of mesentery. (LEUDET, *Arch. Gén. de Méd.*, Mars, 1857.)

12. a. A soldier, æt. 21, swallowed ends of 6 packets of matches. In 3 h. he was seized with vomiting, which recurred frequently and expelled much of what he had taken; pulse was frequent, tongue loaded, head hot; he complained chiefly of headache. (Emetic, cold to head, demulcents.) Next d. headache less severe; pulse 92; stomach but slightly sensitive to pressure, but there were pains in each

hypochondrium. P.m., turgescence of face had increased, also hypochondriac pains, but headache was gone; there was burning thirst, with dryness of mouth; urine was high-coloured and frothy, its sp. gr. was increased, and it was found to contain albumen and exudation cells; the colouring matter was augmented, as were also the sulphates and phosphates, while the chlorides were diminished. This state of urine continued throughout. Three d. after Ph. had been taken, thirst and dryness of mouth, with hypochondriac pains, had increased, and there were darting pains in chest; epigastric sensibility was increased, and tympanitic percussion-sound over stomach more extensive. Tinge of face was brightened. (Leeches and ice to epigastrium; ice and magnesia internally.) The above symptoms persisted, and face assumed a remarkable bluish-red colour, except a colourless band of about 1 in. in breadth, extending from highest point of forehead down median line to chin, sharply defined, and giving face a most peculiar appearance. An enema produced a yellowish evacuation. On 4th d. hypochondriac pains had somewhat diminished, but those of chest had become intolerable, without physical signs of mischief there. The bluish-red colour of face had changed into a perfectly cyanotic hue, median line continuing colourless. Epigastric pain had ceased. Patient sweated profusely, and exhalations from body gave out an intensely phosphoric odour (which breath and stool did not). Patient, who retained perfect consciousness, stated that in the horizontal posture he could perceive a feeble ray of light, but that when he sat up he could not see at all; pupils were so dilated that only a narrow ring of iris was visible, and they were uninfluenced by light; he complained of darting pains in eyeballs. Pulse was 100, moderately full and strong; p.m., 140, small and weak. At this time hearing was lost, sweat profuse, extremities cool, and second sound of heart inaudible; he complained still of severe pains in chest. Soon after, he died quite tranquilly.

b. P.M.—Brain was pale, bloodless, and softer than natural; ventricles contained a minimum quantity of serum; sinuses distended with dark fluid blood. Lungs dark red; in r. many patches of extravasation; sub-pleural and mediastinal cellular tissue presented same appearances; much bloody serum in pleura, and some in pericardium; heart soft, l. ventricle empty, r. and large veins full of blood, fluid or loosely enagulated. Liver enlarged, fatty, and perfectly bloodless, as also was spleen. In stomach much thick mucus adhering to lining membrane, but no inflammation here or in other parts of alimentary tract. Some sub-peritoneal ecchymosis on intestines. Cortical substance of kidneys was granular; Malpighian corpuscles showed as red points; on microscopic examination rete mirabile was found injected, and uriniferous tubules blocked up with exudation matter. Mucous membrane of pelvis of kidneys showed some ecchymosis. Bladder contained a little cloudy urine. (NITSCH, *Amer. Journ. of Med. Sci.*, Jan., 1858.)

13. *a.* MARIE S—, æt. 31, servant, muscular and robust, entered hospital Jan. 21st, 1859. On previous d. she steeped two boxes of matches in hot water for an h., and drank the liquid at 6 p.m. after stirring it. In ½ h. acute pain behind sternum and in epigastrium.

Towards 8, several vomitings of food, phosphorescent. By 11 pains had spread all over abdomen. Towards m., vomiting containing blood. She was given magnesia in water. At 9 a.m. her state was as follows:—Breath alliaceous; no buccal lesions; pain behind sternum; acute pain—both spontaneous and on pressure—in whole abdomen (which was distended), but especially at umbilical region; frequent desire to micturate, and pain in act; pulse 72, feeble. Face is little altered; patient only seems fatigued. Some tepid water with white of egg caused several vomitings containing a little blood. 22nd.—Odour gone from breath, dysuria and vomiting ceased, several stools (she had had a purgative enema). 24th.—A vomiting without blood-tinge, a semi-liquid black stool, rectal tenesmus; constant abdominal pains. (Cupping and poultices.) 25th.—No vomiting; otherwise same. 26th.—Constant rectal tenesmus; liquid bloody stools; vomiting of nearly pure blood, of dark colour. Liver is felt slightly beyond false ribs, tender on pressure; heart-sounds distant and dull, its beat feeble, but not abnormal; brain quite clear, but patient feels very weak. (Stimulants and astringents.) On the following days patient's condition seemed to improve; abdomen remained large, but less tense; no more vomiting; rectal tenesmus less; abdominal pains had much diminished, save for an occasional colic preceding a stool containing a little blood. She had grown thin, and was weak, but not prostrate. She now stated that she was pregnant, and had seen nothing since November. Cervix uteri was accordingly found soft and closed. There had been no blood from the vagina; nothing, therefore, to make one dread a miscarriage. Feb. 9th.—Reappearance of blood in stools. 11th.—Vomiting, or rather regurgitation without effort of nearly pure blood; very abundant epistaxis, and hæmorrhage from both ears—blood from all being very fluid and coagulating with difficulty. On the following days patient still threw off a little blood by the mouth, and there was always some in the stools. 14th.—Urine now tinged with blood. (Ice and cold affusions.) With return of hæmorrhages nervous phenomena appeared—at first, pain and numbness in l. arm, then in other limbs, cardiac pains, constriction of throat, and stifled feeling. 16th.—Vesical tenesmus; pains in kidneys and hypogastrium; always blood in stools, and sometimes nothing else (very fluid); still blood in urine, and occasionally in sputa. 17th.—To-day a slight yellowness appeared on face and limbs (not in sclerotics), and on the following days became more pronounced; urine was not icteric, and hæmorrhages nearly disappeared. On 27th, however, they returned—with stool and urine, and from nose. By March 1st patient was much weakened, lay supine, voice nearly extinct, eyes half closed, lips white; pulse 70, very feeble, extremities cold. Hæmorrhages now diminished again to complete cessation on 5th, but returned on 10th through all channels. From 12th to 15th they subsided anew; and patient, less weakened this time, desired to leave hospital.

4. While away her health was fairly good, save that she was weak and easily fatigued, and had neuralgic pains in her limbs. The vesical tenesmus had departed, but left in its place some incontinence of urine, especially while walking. On 30th blood reappeared in urine rather

freely, and on April 1st she returned to hospital. On that d. there was copious vomiting of blood; but it did not recur, and no fresh loss occurred save (up to 8th) a slight one by the kidneys. On 28th she left again in a fairly satisfactory state, save for some anæmia; incontinence and neuralgic pains had disappeared. She subsequently had copious uterine hæmorrhage early in July, but went on to full term, and was delivered without accident. She had scarcely recovered, however, when she was seized with diarrhœa—not sanguineous, which nothing would arrest, and she died in September. At the autopsy nothing was found amiss but a slate-coloured appearance of the intestinal mucous membrane. (TARDIEU, *op. cit.*)

14. Both the symptomatology and also the processes of the deleterious action of Ph. have been defined through the great activity of a large number of meritorious investigators, who have proved that by it sooner or later a fatty degeneration of the liver, kidneys, stomach, and heart, of the voluntary somatic muscles, of the non-striated fibres of the muscular tissue of the intestines, and even of the parenchyma of the lungs, is brought about, and that numerous sanguineous extravasations are found throughout the body. I have examined a considerable number of cases of acute poisoning with Ph., and should like to give a prominent place to the fact that it is not only the central organ of the circulatory apparatus that is involved in the fatty degeneration, but also the peripheral parts of the arterial system, even as far as the minute microscopic vessels. This can be observed in all the organs, but most easily in the brain, in cartilage, in the marrow of the bones, and in the liver. The principal symptoms of it are the sanguineous extravasations. When in a woman the poisoning occurs just before the menstrual periods, the physiological hyperæmia of the sexual organs strains the parietes of the vessels, which are lowered in their power of resistance by the fatty metamorphosis, and the hæmorrhages become more severe, often so severe that general anæmia is a consequence. The blood from the uterine walls escaping, we find at the autopsy only a more positively hæmorrhagic condition of the lining mucous membrane. It is, however, different in the ovaries. Here real blood-tumours are formed, and as probably the hæmorrhage does not occur all at once, but gradually, these at first remain within the ovary, gradually enlarging its circumference; not until later are they voided, either into the peritoneal cavity or—when adhesions have been formed—into the rectum. The process attains its maximum when highly vascularised connective tissue has been formed about the uterus in consequence of a pre-existing perimetritis; then the hæmorrhage is not only into the ovary, but also from the numerous thin-walled and now fatty degenerated vessels of the new tissue. In 1870 I had an opportunity of bringing before the Berlin Obstetrical Society 4 cases of poisoning by Ph., and of exhibiting preparations showing hæmatocœles of sizes varying from that of a cherry to that of a man's fist. In two of these cases they lay within the ovaries; in one there was a breaking up towards the pelvic cavity; and in the fourth perforation into the rectum had followed. (WEGNER, *Virchow's Archiv*, Bd. lv.)

15. *a.* Marie M—, æt. 34, married, was confined May 25th, 1864.

All went well till June 16th, when on account of some domestic troubles she determined to poison herself. She macerated in water for 24 h. the heads of a box-full of matches, and took the solution at 4 p.m., in her haste swallowing also some of the match-heads. There followed immediately acute pain along alimentary tract, but no vomiting or stool. At 8 a medical man who was summoned ordered an emetic, which acted freely upwards and downwards; and this went on during n., with some relief to the gastro-intestinal pains. On 17th, m., she had profuse epistaxis. She was taken to hospital, where M. Vernay saw her at 4 p.m. General condition seemed to have been good, and mind was unimpaired. Bad taste (as of Ph.) in mouth; sense of burning along throat and gullet; acute pains in abdomen, but especially at epigastrium; belly lax, not distended with gas, but least pressure aggravated pain; no nausea or vomiting since n., one stool in m. Acute frontal headache; she is drowsy, but cannot sleep; general bruised feeling; weakness; very distressing sensation of lassitude in arms and legs; neither anaesthesia nor hyperaesthesia. Slight cough, causing a little pain at base of sternum; but no physical signs in chest (or heart). Face pale, anxious; skin moist; pulse soft, compressible, regular, 72. (To drink egg water, and to have a purgative enema.) 18th.—Sleepless but quiet n. To other symptoms is added very sharp pain in renal region. No stool. (Castor oil and enemata.) 19th.—A stool on previous e. had calmed somewhat the gastric pains. Headache constant; insomnia; pains in legs; no fever. (Same, and milk with magnesia.) 20th.—Sleep restless; colicky pains, and those in renal region very acute; headache, nausea, very painful sense of lassitude. 21st.—Last n. free evacuations upwards and downwards, which have much diminished the colic; but headache persists, and she had during n. two very painful and long-lasting cramps in calves. (Stop magnesia.) 22nd.—A little better; complains only of headache and some renal and epigastric pains; limbs, especially legs, feel bruised. (Rice soup.) 23rd.—Pains worse; nausea; nervous twinges, which she attributes to emptiness. (Chicken.) 24th.—Had yesterday a slight hæmatemesis, which has relieved her; prostration more marked; sharp pains in epigastrium and kidneys; headache; more pain in limbs. (Perchloride of iron.) 23rd.—Catamenia appeared slightly yesterday; blood pale. Colic sharper, nausea, diarrhoea with blood. For first time liver tender on pressure; does not seem enlarged. Urine scanty and albuminous. Headache less, but pains in limbs—especially legs—worse; patient feels as if something were gnawing the bones. Sensibility intact; no fever. 26th.—Vomited this m. 100 grms. of pure blood, was relieved but weakened thereby; legs more painful, she can scarcely stand upright; stools always copious and bloody. (Continue iron.) 27th.—A fresh hæmatemesis this m., like that of yesterday; sharp colic, numerous bloody stools with tenesmus; pain in liver and kidneys (especially r.) more acute; no jaundice; increased prostration. 28th.—Blood from stomach and bowels, and with urine; greater hepatic and renal pains. 29th.—Enterorrhagia with very painful tenesmus; weakness more marked. 30th.—Same; more hæmaturia; slight pain in eyes, feeling as of sand below upper lids, vision somewhat troubled,

conjunctivæ of a dead white, pupils normal. July 21st—3rd.—Same; *anæmia* very pronounced; pulse sphygmographically normal. 4th.—Yesterday *e.* somewhat copious hæmatemesis; in n. 3 very painful cramps in legs; headache; sleeplessness; great weakness; blood with stools and urine; a slight icteric tint over surface. 5th.—Same state; sight much affected, with dazzlings, cannot see to thread a needle. 11th.—Sanguineous diarrhœa has ceased, and is replaced by constipation, but colic persists, as also hepatic and renal pain; copious hæmaturia; pains in legs; icteric tint more pronounced. 17th.—Some improvement; appetite and strength better; otherwise as on 11th. 21st.—Urine always very scanty and bloody, and its emission accompanied with acute pains in kidneys; till this m. she had passed no urine for 2 d. 25th.—General condition, including sight, now very fair, but urinary symptoms continue; liver is tender to pressure, and skin is decidedly icteric.

A. She now left hospital. Hæmaturia gradually diminished, and ceased early in September. Hæmatemesis recurred only on Sept. 28th, after emotional disturbance. Jaundice and hepatic tenderness persisted longer, but at last disappeared. Since her confinement catamenia have occurred regularly, but are very scanty. (L'ARDEUR, *op. cit.*)

16. M. J.—sempstress, æt. 29, affected with syphilis, resolved to poison herself on the n. of 27th March. She soaked a number of heads of Ph. matches in water, and drank the mixture. During n. and following m. vomited copiously. Seen 30 h. afterwards.—*Temperature and Circulation.* The first 5 d. her temp. rose slightly in *e.* and in m. was normal. Pulse ranged from 104 to 120. On 6th d. she got remittent febrile symptoms, which reached their acme on the 8th d., *e.* Then the temp. rose to 40·6° C. Pulse 136, very small and weak. Thereafter the temp. declined, 9th d., m., 38·6°; *e.*, 38·7°; 12th d., *e.*, 39·2°. Pulse, 9th, *e.*, 96; 12th, *e.*, 112. With the 12th d. the fever became more intermittent, rigor with increased temp., which gradually fell.—13th d. after poisoning. 1st rigor came on 8.15 a.m., lasted 20 m. Max. temp. 41·8°, pulse 144. Temp. fell with advent of profuse sweat to 40·1°, rose in *e.* to 41°.—14th d. 2nd rigor, m. Max. temp. 40·6°, pulse 112; temp. fell in profuse sweat, *e.*, to 37·9°; pulse 96.—17th d. 3rd rigor came on *e.*, lasted 25 m.; temp. not observed.—18th d. 4th rigor, m., lasted 30 m.; temp. 41°, pulse 140. Temp. fell, *e.*, to 38·8°; next m. to 38·2°, with pulse 84. There was then a cessation of fever till 32nd d. 5th rigor, m., slighter, and duration less than formerly. Max. temp. 38·9°. With sweat, temp. fell, *e.*, to 37·8°.—36th d. 6th rigor, m.; max. temp. 38·3°; fell, till next m., to 37°. After this the temp. was very low for a considerable time, 36·4° to 36·1° m., 36·8° to 36·9° *e.* Then 4 weeks elapsed without any fever.—63rd d. 7th rigor, lasted 20 m. Temp. 37·4°.—65th d. 8th rigor. Max. temp. 38·3°, fell during sweat to 37·4°.—71st d. 9th rigor. Max. temp. 38·4°, fell, p.m., during sweat, to 36·4°.—79th d. 10th and 12th rigors, 1st, 8 a.m.; 2nd, 10 a.m. Max. temp. 38·1°, fell, p.m., to 36·7°; next m. to 36·2°.—89th d. 12th rigor. Max. temp. 38·4°, fell during sweat to 37·0°. Then came 3 paroxysms in which the temp. never exceeded 38°.—129th d.

16th rigor. Max. temp. 38.8° , fell, p.m., to 36.4° .—130th d. 17th rigor. Max. temp. 38° , fell to 37° .—143rd d. 18th rigor. Max. temp. 37.8° .—144th d. 19th rigor. Max. temp. 37.8° .—146th and 149th d. 20th and 21st rigors. No particular rise of temp. For the next 3 weeks during which the patient was in hospital no more paroxysms occurred.—*Icteric symptoms.* 3 d. after poisoning skin quite dry, 4th d. it had an icteric tint, the conjunctivæ more yellow.—10th d. The skin began to perspire. The icterus increased until 17th d., then gradually subsided till it disappeared on the 48th d. The urine on the 4th d. was slightly coloured with bile, and showed a little albumen; its quantity decreased and sp. gr. increased. The bilious discoloration continued to increase, but albumen could not always be detected. On 18th d. the urine became more copious, was of a brownish-green colour, sp. gr. 1009, albumen present. With the 20th d. the urine became clearer, the biliary colouring matter less apparent. After 30th d. only some albumen and biliary colouring matter appeared in small quantity. Between 35th and 38th d. there was strangury with urgent call to urinate, which the patient could not satisfy. As soon as the urine is passed the urging recommences. The urine is clear and very acid.—*Senarium.* On 5th d., when the icteric symptoms were getting worse, there was great delirium, which lasted till the 7th d. She forgets to pass urine, respiration very laboured, very small pulse, dry skin, and brown furred tongue; says she is quite well. The nights were mostly sleepless. From 10th d. the sleep improves, and her mental state also. On the 15th d. there is still a dazed feeling in head, with great exhaustion, and on 18th a manifest improvement sets in, with the decline of the icteric symptoms and the diuresis. This improvement continues till the 38th, when the patient wishes to get up.—*Peculiar symptoms.* Copious epistaxis occurred on the 7th, 11th, 14th, 20th, 22nd, and 33rd d., and latterly was always attended with profuse sweat. A pustular eruption appeared on forehead on 20th d., which on the 22nd extended over face; the pustules were the size of a hemp seed and surrounded by a broad red areola; their centre was a hair follicle filled with pus. Ecthymatous pustules appeared on the nates and about anus, and some d. later on the l. natis a boil the size of a hazel nut, which discharged brownish bloody pus. This was all perfectly healed by the 32nd d.—On the 58th d. the menses, which had been absent 9 weeks, came on, the next time 27 d. afterwards, and the third time 21 d. after that. On the 105th d. after the poisoning there came on a gumboil in the 3rd v. carious upper molar, which caused the cheek to swell.—*Stomach and bowels.* Immediately after the poisoning there was copious vomiting, afterwards nausea, great tenderness of epigastrium, dry tongue with brownish-yellow coat, distension of abdomen, firm and lumpy stools of a clay colour. Purgatives caused copious stools of the same colour. On the 3rd d. there were 3 stools, 4th d. 8, 5th d. 6, 6th d. 3, 7th d. 3, some liquid, but most firm. After leaving off the purgatives the bowels became very sluggish, and could only be moved by enemata, which brought away copious evacuations, very loose, consisting partly of white, partly of yellow faeces. About the 10th d. the tenderness of epigastrium ceased, the

tongue became clear and moist. During the 1st and 2nd ague fits the epigastric tenderness increased, and there was on both occasions great vomiting of greyish-yellow half-digested food, and this was generally observed during subsequent rigors. From the 16th d. the stools became coloured with bile, and occurred without enemata about once a d. On the 23rd d. the tenderness of epigastrium gone; on the 25th d. the appetite returned. A few d. later there was constipation, which was overcome by castor oil and enemata. There were symptoms of accumulation of feces in colon descendens, tenderness to pressure above l. lig. Poupartii, and abnormal resistance in l. iliac region. The oil brought away hard balls of feces well coloured with bile. On the 40th d. there occurred quite watery stools mixed with purulent and cheesy masses, occasional vomiting, tenesmus; the stools are always more or less coloured with bile. These symptoms lasted till the 60th d., and then constipation again set in, which was removed by purgatives. The bowels only became regular after the 122th d.—*Liver*. Within the first 4 d. there was painfulness on pressure in the hepatic region. On the 5th d. the dull percussion sound became more extensive. On the 6th d., e., the lower border of liver can be felt just above the navel. On the 7th d. the extreme boundary of the l. lobe is 3" from the median line, the dull hepatic percussion sound is heard behind 5th rib, in mamillar line. The liver after this never grew larger, the painfulness on pressure declined, it only increased during the rigor. On the 17th d. the percussion sound of the liver became less intense, its upper boundary is still at the upper border of the 6th rib. A marked decrease in the size of the liver was observable from the 23rd d.; the lower border is perceptibly higher up, and cannot be felt so easily. On the 30th d. the size of the liver is nearly normal, the upper boundary is at the lower border of the 5th rib, its lower border reaches 2 inches below the ribs on the r. sternal line, 1½ in. in parasternal, 1 inch in mamillar line. On the 70th d. percussion showed the liver to be abnormally small. The lower border does not project below ribs. On the 98th d. the spleen shows an increase in size.—*Respiratory apparatus*. In the early days very decided increase of frequency of respiration, apparently owing to the tenderness in the abdomen; auscultation showed only rare catarrhal râles posteriorly and in r. side anteriorly. Soon a frequent dry cough came on, with scanty expectoration branched like the bronchial tubes. (nach den Bronchien verzweigten Auswurf), and the catarrhal sounds in posterior lungs, especially the r., increased. On 13th d. (1st rigor) percussion shows slight dullness posteriorly in lower part of r. lung, with masked respiratory murmur and fine râles. Change of posture alters the line of the dullness; diminished fremitus under line of dullness on r. side posteriorly, from 9th dorsal vertebræ downwards. 14th d. (2nd rigor), the dullness 1½ inch higher, bronchial respiration in the dull part. 17th d., the height of dullness somewhat lower, and the expansion of the lower border of the r. lung posteriorly is obvious on deep breathing. The râles diminished, but the cough continues unabated; it comes on in paroxysms, brings up a viscid muco-purulent expectoration, branched like the bronchial tubes; after every rigor the

paroxysms of cough increase. 50th d. Nothing abnormal in physical sounds of respiration, but there is still great irritation to cough, which only goes off at a later date. *Heart* showed no important physical abnormality. The second (arterial) sounds were at first very weak; in the first weeks a very rough first sound was heard over the pulmonary artery. (KNOEVENAGEL, *Berl. klin. Wochensch.*, April 19, 1869.)

17. Louisa K—, æt. 19, came into hospital July 4th, 1863; confessed on 11th that on the 20th June had taken a quantity of tops of Ph. matches, dissolved in hot milk, which she drank when cooled in c., making two draughts of it. Soon she vomited for $\frac{1}{2}$ h. Slept well at n. Next m. appetite gone, frequent eructations, sense of fulness and pressure in gastric region. After 2 d. these symptoms declined, and the stools were retarded. After 3 d. skin coloured yellow and this gradually increased. Appetite returned to normal state, and she could do her work. For the constipation she took pills.—July 2nd. Observed slight swelling of joints, and the next d. the swelling had spread up legs to abdomen. The l. labium majus was much swollen when she came to the hospital.—5th. Skin and conjunctiva deeply jaundiced. Upper extremities and l. labium majus œdematous. Pulse m. 88, e. 96; temp. m. $37^{\circ}7$ C., e. $38^{\circ}2$. Abdomen much distended, tympanitic all over, also in r. lumbar region, dull sound in l. lumbar region. On account of this distension the size of liver could not be determined. Spleen enlarged. Tongue clean, appetite so ravenous it cannot be satisfied. Stools clay coloured, partly soft, partly lumpy. Urine deep yellow, sp. gr. 1007, little albumen, much bilious colouring matter. Breasts and uterus show she is pregnant.—6th. M. temp. $36^{\circ}9$, pulse 96; e. temp. $37^{\circ}9$, pulse 100. Abdomen more distended, fluid can be detected. Patient slept well. One pultaceous clay-coloured stool. Urine not so deep coloured.—7th. M. temp. $37^{\circ}7$, pulse 100; e. temp. $39^{\circ}7$, pulse 120. Patient tossed about at n., and called for food to satisfy her hunger. Icteric hue remains. Lies all d. with closed eyes and sleeps much. Complains of headache, answers questions hesitatingly. Pain on percussion in middle of abdomen, where, as also in l. lumbar region, the percussion sound is duller than yesterday. A distinct clearing of the dull sound on percussion. Absolute dullness in r. side, not complete in l. side. The only tympanitic sound in abdomen is in its upper part to the l. of the navel. In chest posteriorly slight dullness of both lungs where the respiratory murmur is diminished.—8th. M. temp. $37^{\circ}5$, pulse 100; e. temp. $37^{\circ}8$, pulse 104. Last n. very talkative and restless, rather delirious the first part of n., became quieter afterwards. This m. she is quite sensible and seems well. Abdomen still rather tympanitic; 2 stools whitish in colour and of pappy consistence.—9th. M. temp. $37^{\circ}3$, pulse 112; e. temp. 40° , pulse 132. Last n. raved much and made a great noise. This m. she looks stupid, answers irrationally. Some effusion in peritoneum is perceptible. One stool. The œdema of labia majora, especially the l., is increased; latter has become gangrenous. At noon she had a rigor, followed by great heat; in e. is delirious. Tenderness of hepatic region on percussion. Liquid stool of a yellow colour.—10th. M. temp. $38^{\circ}9$, pulse 130; e. temp. $38^{\circ}1$, pulse 116. Raved much deliciously in the n. This m. quieter

but sings in a low voice. Abdomen continues the same. Yesterday she had a large putaceous stool, of yellowish colour, bilious. During n. and this m. has passed several similar stools. After puncturing the labia they collapsed; aromatic infusion was applied to the gangrenous part. P.m. 2 stools, partly dull yellow, partly bright yellow.—11th. M. temp. $36^{\circ}9'$, pulse 100, e. temp. $37^{\circ}4'$, pulse 120. Was quiet last n., and slept the greater part of it after an opiate. About 3 a.m. had a violent rigor, which lasted 25 m. and was followed by heat. Is quite sensible, appetite not disturbed, tongue not furred, no increase of thirst. Abdomen still tympanitic. Liver not painful on strong pressure. A yellow stool in the n.—12th. M. temp. $37^{\circ}8'$, pulse 116; e. temp. $39^{\circ}6'$, pulse 120. She had 1 gr. opium and slept well, no delirium. This m. still rational. Complains of nothing, appetite holds good; 2 stools yesterday and 1 in m., of a greyish colour and moderately consistent. Urine of reddish colour, contains biliary colouring matter and a larger quantity of albumen than before. The gangrenous sloughs are beginning to separate. This caused p.m. a considerable hæmorrhage from the labium majus, which was arrested by chloride of iron.—13th. M. temp. $36^{\circ}7'$, pulse 112; e. temp. $39^{\circ}6'$, pulse 140. After $\frac{1}{2}$ gr. opium she slept soundly and was not delirious. This m. rational. Yesterday many putaceous and yellowish stools. 8.30 a.m., a rigor. In r. side of thorax, posteriorly and inferiorly, there is some dulness with slight bronchial respiration, and consonant râles. At the base of the heart a blowing systolic sound is heard. Ecthymosis in abdomen, on the thighs two pustules with bright red areolæ and dusky centre. The liver does not project beyond the border of ribs. In the afternoon labour pains came on suddenly, and a fœtus of about 6 months was quickly expelled.—14th. M. temp. $39^{\circ}5'$, pulse 124; e. temp. $39^{\circ}8'$, pulse 136. Last n., after $\frac{1}{2}$ gr. opium, she slept quietly, but before dawn she had a rigor. She is quite sensible, and complains of pains in chest and r. side of abdomen. Percussion on the lower half of the e. side of chest posteriorly gives a kind of dull tympanitic sound; bronchial respiration cannot be distinctly perceived; many medium and small râles, rather dry, distinctly consonant; in the lower half of the l. side of the chest, the respiratory sounds are sharply vesicular, with some medium-sized moist râles. No expectoration. The systolic murmur in the heart is less than yesterday, not audible at all in apex. Abdomen very much distended. Percussion in hepatic region as before; signs of increased effusion into peritoneum. Some fecor from vaginal discharge. There have been two or three stools of a grey colour. Pulse of medium tension. All p.m. she spoke and sang in a quivering voice, and showed much restlessness. Complains of abdominal pains; the whole belly is painful when pressed. In spite of fomentations the pains increased. Next n. she was very delirious; towards m. she became quiet, and died about 6 a.m.—P.M. on the 15th. Endocardium stained with blood. Heart's valves act normally. A large quantity of æsthetic fluid of an icteric colour. In the fundus of the stomach beneath the m.m. there are depressed spots of the size of a pin's head, and of a dusky blackish colour. Liver very lax; gall-bladder collapsed, contains only some bile-tinged mucus. The length of the liver is 11", r.

lobe 6", l. 5"; its greatest depth in the r. is 6½", in the l. 5½"; thickness, r. 1½", l. 1". The colour of the r. lobe is reddish, of the l. blackish yellow. In the yellow parts there appear some hæmorrhagic points, as also upon the yellow parts of the peritoneal covering. In the yellow parts the hepatic tissue is extinct, whilst in the red parts the hepatic lobules are still visible. Their periphery is grey, and between this and the yellow cortex a reddish zone is perceptible. Spleen much enlarged, length 9", breadth 4½", thickness 1½"; its substance is of a bluish-red colour, its connections soft. R. kidney enlarged, length 5½", breadth 2½"; when cut through it has an icteric appearance. Its pyramids are a little more congested than the cortical part; they are rather opaque, and show a twigged form (*delineationem virgatam*). In the straight canaliculi many air-bubbles can be seen. L. kidney, length 4½", breadth 2"; same appearances when cut into. The capsules of both are easily detached. The uterus of large size, containing bloody mucus. Some ecchymoses in peritoneum. The intestinal m.m. is normal; it contains a greyish fluid. The muscular substance of heart has a greyish-red colour. (F. A. WENCK, *De Intoxicat Phosphor. Acut.*, Diss. inaug., Berolini, 1867.)

18. X—, a woman æt. 45, swallowed the Ph. from 120 matches in water. Half an h. later she was seized with violent vomiting, brought up almost all the poison, and, not wishing to betray herself, said nothing about it. After 3½ d. Dr. Ozanam was called to her. He found the following condition:—The general aspect was that of a typhoid febrile state, with profound prostration. Patient can with difficulty raise herself, and complains of vertigo. The tongue is red, dry and coated; much thirst. Stomach sensitive; patient had vomited several times each d., but had not taken much notice of it, as she often vomits when in her ordinary health. Pulse 90, skin cold; respiration painful, though no râles were found; there was a well-marked bruit with first sound of heart; urine red and scanty. Neither urine nor breath smelt of Ph. Next m. patient was less restless, pulse 90, slight general yellowness commencing to appear in eyes, chest and limbs; had vomited twice freely. The vomited matter was black like soot. It was chiefly fatty matter and blood-cells, mostly altered or even changed to shapeless molecules; it was acid. No other hæmorrhage found, or brown patches of skin, as is sometimes the case; patient complained of frequent palpitation. She did not appear to suffer much, and only asked to drink, calmly remarking that the poison had done its work, and that it was too late for remedies. She died on the 7th d. (*L'Art Méd.*, xix, 146.)

19. A man, æt. 58, had been employed for 3 years in making Ph. matches. Though his working-room was also his living-room, he never felt any bad effects until one d. a quantity of Ph. took fire, and in his efforts to extinguish it he inhaled so much of the vapour that he felt suffocated and fainted. Soon after this he felt extremely weak in back, as though he should fall in a heap; thereafter weakness of limbs, so that he tumbled when he walked or attempted to grasp anything; later, sensation as if something twitched under skin or was creeping betwixt

skin and flesh. The genitals were more excited than usual at first, but after a few months he was unable to have erections. Functions in other respects normal. On coming into hospital his state was:—On standing his limbs trembled and knuckled under him, he could only walk a few steps, staggering and uncertain; his arms trembled when he grasped anything or held them extended. When he lay quite still the muscles of all the body, especially those of the extremities, appear to twitch up and down under the skin; but the whole muscle does not twitch, only single bundles of fibres at different times, like playing on a piano. If they are quiet for an instant the slightest touch suffices to set them going again. It is these movements that cause the feeling of something creeping under the skin. The weakness of the back is such that he cannot sit upright. The tongue when speaking often refuses to move, so that he stammers. Pulse 112. Sulphur vapours and alcoholic baths, strychnine, &c., did no good. (Huss, *Schwedische Hygiea*, 1884; *A. h. Z.*, xxxiii, 58.)

20. A tradesman was engaged in unpacking large quantities of Ph. matches. He became suddenly so ill that he had to abandon his work. He had much nausea and vertigo. He had to lie in bed for several d.; whenever he attempted to rise, the vertigo made him fall back in bed. Thereafter he became emaciated, and his skin became yellow. Even after he recovered his skin retained a yellowish hue. For a long time he had anorexia and sleeplessness. (Goullon, *Intern. hom. Presse*, x, 496.)

21. Philip S—, æt. 2½, was suddenly attacked by weakness and exhaustion, complained of violent pains in stomachic region, slept restlessly, lost appetite, had occasional vomiting, perspired profusely, and grew perceptibly thinner. These symptoms had lasted 11 d. It was found that the child had been in the habit of playing with Ph. matches, which he sucked. The patient's skin was very pale, as also the mucous membranes; he was very weak and faint, but he could sit up and sometimes walk about. Tongue white, furred; he had frequent reaching without vomiting, complained of pains in umbilical region; he was constipated. Slight catarrh of chest. Very emaciated, perspired also by day, chiefly on head and chest. These symptoms increased day by day, especially the pain, sleeplessness, and weakness. On the 8th d. of treatment the gums appeared swollen and had a dirty brown coating; they bled readily when touched, and also spontaneously; the teeth had become grey, the m.m. of cheek showed several hæmorrhagic erosions, the breath was very fetid. It was now discovered that all this time he occasionally sucked the matches. On keeping the matches from the child and giving appropriate treatment he gradually recovered. (Kraus, *Allg. Wiener med. Ztg.*, 1857, 5; in Sorge.)

22. A girl, æt. 3½, ate some Ph. paste. At first slight sickness, little or no pain, no fever, but constant thirst, apathy, then convulsions and coma, jaundice with white stools, dribbling of coffee-grounds-like fluid from mouth, death on 5th d.—*P.M.* Liver much enlarged, and in a state of acute fatty degeneration. Heart and kidneys felt greasy on section. On 3rd d. no albumen, but some sugar was found in urine. (Grose, *Lancet*, Nov. 2nd, 1889, p. 302.)

23. CONCATO relates a case of poisoning with Ph. matches which terminated fatally on the 11th d. Soon after taking the poison there was pain in throat and œsophagus. Stomach symptoms came on much later, there was never any increase of temperature or of the velocity of the pulse till shortly before death, when it ran up to 146; peculiar odour of breath, urine and sweat, constant green colour of stools, though there was great icterus. P.M. showed destruction of m.m. of œsophagus, of anterior wall of pharynx, and of epiglottis; m.m. of stomach and duodenum intact, gall-bladder and gall-passages empty, increased size of the Brunner's and mesenteric glands, atrophy of liver, increase of white blood-corpuscles, and diminished size and change of shape in red corpuscles hæmatoidin crystals in liver, fat cells and margaric crystals in softened spleen. The urine contained biliary acids. (*Virchow and Hirsch's Jahresbericht*, 1868, i, 311.)

24. A child of between 2 and 3 had been caught in the act of sucking and swallowing the heads of lucifer matches. 2 d. afterwards she appeared unwell; there was some feverish excitement, but no active symptoms—no pain, vomiting, or diarrhœa. 5 h. after she was first seen she became violently convulsed, and died 3 h. later. On inspection a quantity of mucus mixed with blood, of a coffee-ground colour, was found in the stomach. The mucous membrane of the organ was very vascular throughout, and for the space of 2 in. it had a florid red colour, and was covered with mucus. There were no less than 10 invaginations in the small intestine, many of which included 2—3 in. of intestine, which was inflamed at the invaginated parts. There was no appearance of strangulation, and the bowels were empty. (SHEPARD, *Lancet*, Dec., 1843.)

25. VIRCHOW says that he does not agree with those who deny gastritis as an ordinary effect of Ph. poisoning. Sometimes it is unaccompanied by redness or hyperæmia, or extravasation, and there is complete paleness of the parts after death. The m.m. is moderately thickened and of a peculiar muddy appearance, opaque whitish, or greyish or yellowish white. This swelling has its seat in the mucous glands, which are enlarged; their epithelium fills the gland-ducts almost completely, and each single celi is larger, duller, filled with a fine granular mass, which by refracted light appears yellowish grey, by reflected light whitish. Later fat globules appeared, the cells became soft, broken down, and only granular detritus remained. There is here serious disease of the stomach glands, a gastritis glandulosa, or gastradenitis. (*Virchow's Archiv*, xxxi, 400. 1864.)

26. A scrofulous girl of 7 used to play a great deal with lucifer matches, lighting them, &c. Gradually a red swelling appeared upon under part of chin; at first size of a fourpenny piece, it quickly enlarged till it extended over face as far as eyes, becoming pale and doughy, however, as it left the chin. Upon original spot a group of pustules formed, from which—on their breaking—resulted an ulcer, size of a sixpence. At same time parts beneath became disorganized into a thin, slightly discoloured, offensive, purulent mass. A disagreeable smell emanated from mouth. Teeth, especially front ones of both jaws, became loose, and salivation set in. The child from the commencement complained

much of toothache and headache. Within 8 d. ulcer had destroyed soft parts, even to the bone. After removal of cause and suitable applications, in 10 d. 3 thin pieces of bone, size of a bean, came away, and on following days other small, very thin fragments of bone were observed upon the dressing. Upon this sanious discharge ceased, and ulcer in 3 weeks had cicatrised. (PLUSKAL, *Oest. med. Wochenschr.*, July, 1846.)

27. Since the establishment of the phosphorus-match manufactories, workpeople have occasionally been received in the hospital (de la Pitié) from them. All these patients agree in saying that since they went into the manufactory they have been affected with cough; they only seek admission when the cough has become habitual, grows worse, and is complicated with all the symptoms of acute bronchitis. In its nature this bronchitis does not differ from the ordinary kind; but the array of symptoms with which it is conjoined is different, inasmuch as functional derangements of other organs are present at the same time. Even those patients who are affected in a slighter degree are in a state of excessive weakness; they complain of want of appetite, which they allege occurs to them at the very commencement of their work, and at the same time as the cough. Others suffer at the same time from diarrhoea; the greater number from fever, even though there is no inflammatory chest affection present. Those who have been often affected with inflammatory pulmonary catarrh (and these constitute the majority) are strikingly emaciated, and sometimes suffer from palpitation of the heart, although neither heart nor large vessels are diseased. Their recovery from the attacks is very slow, and emphysema of the lungs often remains behind. (GENDRIN, in v. HIBRA und GEIST, *Kranth. d. Arb. in den Phosphorzünd-Holzfabriken*. 1847.)

28. J. Z—, æt. 52, tall, thin, but well made, with broad chest and robust constitution, had been engaged for 9 mo. in a match manufactory. At the commencement of his occupation he was affected with dry cough, which however went off when he put on warmer clothing and took some diaphoretic drinks. After 6 mo. he fell ill with the same symptoms, which were this time more severe, and at length compelled him to abandon his occupation. On examination, his face appeared congested; forehead covered with perspiration; tongue furred; taste slimy; frequent excitement to cough, with flying shootings under sternum and towards r. side of chest; copious muco-purulent expectoration, with constant tickling and scratching sensation at bifurcation of trachea; anxious, short, and hurried breathing, with elevation of whole thorax, and especially of l. side. Percussion gave a clear tone in middle of r. side; auscultation revealed diffused mucous râles with pectoral-logy. Pulse was rapid, full, and hardish; skin dry and hot; thirst increased. Besides these, great depression and debility. No gastric symptoms. After antiphlogistic treatment and expectorants, he slowly improved, and sputa became mucous only; but great debility and depression, with anorexia, still remained, and required a lengthened course of quinine to remove them. (GEIST, in *ibid.*)

29. *s.* The most notable effect of the action of the Ph. fumes on the workpeople is the development of a peculiar disease of the jaw-

bones. The first symptom is toothache. This begins after having been in the factory from 6 mo. to 12 years (one case, however, occurred after only 5 weeks); it attacks one or several teeth, or in some cases spreads over one side of the jaw like rheumatic faccache. Only in the rarest and most severe cases it attacks both sides. It is characterized by gnawing, throbbing pain, alternating with violent shooting, sometimes intermittent and sometimes continued. In some cases it comes on as soon as the occupation is commenced, lasts a few weeks, then leaves the worker for months or years, but afterwards recurs several times, until at length the more deeply-seated affection breaks out. With the exception of but few cases, in which the patients had not directed attention to the subject, or the teeth were extracted before coming under observation (as not unfrequently happens), it was ascertained that it is decayed teeth in which the pain commences, and whence it seems to extend. With the toothache, according to Neumann's observations, in some cases itching of the gums occurs. After this toothache has lasted for weeks or months, it spreads over whole side of jaw in which the carious tooth is situated, and in more severe cases over face and neck of same side. In some cases the cervical glands swell and become painful; the gum surrounding the diseased tooth reddens and swells, as also the cheek, and sometimes the soft palate. In other cases there is formed, amid drawing throbbing pains, a circumscribed phlegmon of the gum beside the diseased tooth; an abscess is produced, which discharges at first laudable but afterwards grey foetid pus, and changes into an ulcer, which grows always larger by gradual recession of its border. In either case the gums recede, and the teeth, whether carious or healthy, become loose and fall out (according to the extent of the diseased bone). The abscesses now multiply, discharging foetid pus; gums are livid, and undermined with fistulous sinuses, through which probe detects carious bone; at last they altogether disappear, and the denuded alveolar processes are seen projecting into the buccal cavity. The cheek, the throat and the parotid may become sympathetically affected.

b. At the commencement of the disease the patients are affected with slight febrile action, lose their appetite, suffer from increased thirst and irregularity of the bowels, constipation being the most frequent complaint. Gastric symptoms are not unfrequently present—furred tongue, slimy bitter taste, pressure in epigastrium with frontal headache. The febrile action may continue throughout the whole course of the disease; or it may go off completely; or, if there are tubercles in the lungs, it may cause them to soften, and turn into hectic.

c. The form of the disease differs according to whether the upper or lower jaw is attacked. In the former it pursues generally a chronic and mild course, ending in exfoliation, cicatrization, and cure. In the latter the necrosis may be either acute or chronic, but is always severe, and the patients usually die of "consumptive fever." Of 30 cases, the termination of which was known to the authors, 15 died. (*Ibid.*)

30. A countrywoman, who had always enjoyed good health, came to work in a Lucifer-match manufactory. After 14 d., during which she had been employed in dipping the wood spalls in the Ph., she

became affected with intolerable dry cough and later with violent bronchial catarrh. She now spent her time between the works and the hospital. On the 5th occasion of her coming into the hospital she suffered from frequent tiresome cough with muco-purulent expectoration, quick respiration, great oppression so that she had to sit up to cough, at same time severe pain under sternum and feeling of constriction; remarkable resonance in upper third of r. side of chest, with moist sibilant râles; ribs almost immovable, thorax distinctly arched. Besides,—complete anorexia, furred tongue, several loose stools per diem; earthy complexion, emaciation, fever. In others the same work caused cough, difficulty of breathing gradually amounting to violent bronchitis, at first without fever, very weak pulse, great debility, emaciation. (*Ann. de Therap., Févr., 1846, from A. N. Z., xxxiii, 58.*)

31. J. D.—, æt. 21, had been engaged 4 years in preparation of lucifer matches. For 2½ years, further than the laryngeal irritation produced by the acrid fumes he suffered but little. At end of this time, however, he began to cough very much, and to expectorate a thick white mucus. He then suffered much from toothache, which he describes as having become violent, and which was accompanied with considerable swelling on r. side of face. A double tooth was extracted, but without relief; one tooth after another dropped out; he became so weak that he was unable to walk; a swelling the size of an egg formed below r. orbit, and in a fortnight burst, discharging a large quantity of white pus. He continued to get worse; all teeth fell out, and gums of lower jaw were retracted. On admission to dispensary, May 4th, 1846, r. cheek was considerably swollen. At r. angle of lower jaw is an opening discharging laudable pus, and through which probe can be passed 2 in. along bare bone; and 2 in. anterior to this another aperture leads to same. On opening mouth whole lower jaw, as far as ascending rami and down to reflection of mucous membrane on cheeks, is denuded and of leaden greyish colour. On upper jaw, r. side, probe can be passed over a portion of bare bone. (*WALKER, Brit. Journ. of Hom., iv, 287.*)

32. LORINSER thinks that in Ph. workers the poison acts on the jaws through the blood, and states that individuals under its influence have a peculiar sallow bloated complexion, combined with a dull expression of the eye and gastric derangement. I have myself observed this remarkable appearance of the countenance in the dipper of a congreve match manufactory, whose jaws, however, were quite sound. (*PEREIRA, op. cit.*)

33. ANSTIE prescribed for a neuralgic patient gr. $\frac{3}{5}$ in pill 3 times a d. He took pills regularly for a week, but during last 2 d. suffered from constant and increasing burning sensation at epigastrium; urine was dark coloured, and on examination proved to be albuminous and bloody, but without casts. After omitting drug for 2 d. renal symptoms had almost disappeared, and stomach was much easier, though patient still felt a rather burning pain between scapular. (*Practitioner, xi, 105.*)

III. *Experiments on animals.*—1. BIBBA experimented on rabbits in three ways,—1st by Ph. introduced into the stomach; and,

by exposure to its fumes so as to induce either rapid or slow poisoning (according to concentration of vapour). The first series merely show the violent irritant action of the poison on the parts with which it came into immediate contact. Of the second the following are specimens :

a. *Rapid poisoning*.—On October 10th an old rabbit was put into the box employed for the purpose. It seemed to be pretty well, ate its food, and showed no signs of uneasiness. On the 20th, however, it was found dead. Dissection showed venous system enormously distended with blood; r. auricle and ventricle quite filled with a black coagulum, l. ventricle empty; lungs much reddened, in some places bluish; liver congested, but blood very fluid (under microscope normal); gall-bladder contained a little cloudy bright green fluid; intestines strongly injected. Other organs normal. A young rabbit was put into box Oct. 27th; it died Nov. 4th. Dissection showed circulatory system as before, but lungs almost completely hepatized, very little of their normal parenchyma to be seen, and on cutting into them some portions were found beset with tubercles; muscular parts much injected; stomach and intestines congested only, liver exhibited some pale spots on surface and throughout substance; gall-bladder very full, as also urinary bladder. Some of the rabbits that resisted the poisonous effects of the fumes longer exhibited an eruption, chiefly on abdomen, axillæ and genitals; hair fell off, and skin became covered with a scabby humid exanthem. In these rabbits the lungs were always healthy, whereas in the others there was often hepatization and tuberculous formation, and always congestion.

b. *Slow poisoning*.—On Oct. 8th an old rabbit was put into the box. After 3 weeks it began to emaciate, but did not lose its appetite; suppurating ulcers appeared on tongue and eyelids; the creature grew debilitated and apathetic. It was found dead December 4th. Dissection showed tongue almost entirely covered with ulcerations, and the blepharophthalmia had so much increased that the eyes could scarcely be opened; there was, however, no scleritis. Venous system was considerably engorged; lungs very much reddened, on some parts black; gall and urinary bladder both very full; all else normal. Another rabbit was put in on Oct. 10th; on Dec. 28th it was found dead. After being 3 weeks in box suppuration of r. eye had begun, and increased to such a degree that soon it could not be opened. Dissection showed eye to be sunk, lids adherent, cornea thickened and opaque, pupil filled with pus, but lens and vitreous normal. Veins were full of black fluid blood; muscular parts injected; lungs in some parts showed venous engorgement only, but were mostly hepatized, and here and there tubercles were observable; liver rather congested, and gall-bladder greatly distended with reddish-brown bile.

c. In order to ascertain if he could produce in rabbits the disease of jaws met with in the human subject, v. Bibra exposed to the fumes some whose jaws he had previously broken. On their death, after about 8 weeks, a large spongy callus was found around the seat of fracture, presenting exactly the characters of the disease in man. The periosteum also was found much separated from the bone, and the

whole bathed in unhealthy-looking pus. (v. BIERA und GZIST, *op. cit.*)

2. The anatomically demonstrable action of Ph. when given in relatively small doses, incapable of killing either sooner or later, extend principally to two major systems of the body—the digestive apparatus, especially stomach and liver, and the osseous system.*

a. Let rabbits, cats, or dogs be brought under the influence of Ph. in minimum doses, either by exposure to its fumes or by its introduction in pill form *per œsophagum*, and the dose be gradually increased (but always short of any obvious toxic effect); and very remarkable changes take place. The gastric mucous membrane becomes hyperæmic; it swells; hæmorrhages occur here and there, and later on real hæmorrhagic infarctions are seen, especially on the summits of the natural folds, where flat pat-like ulcers are found, whose dirty-brown margin and floor show their origin. After the irritation has been going on for months the mucous membrane becomes two or three times thicker than it normally was; it becomes indurated, and of a diffuse smoke-grey or brown colour that is most evident at the fundus. (Here the microscope shows whole masses of pigment in the form of black-brown granules imbedded in the tissue; the glands prolonged; and the interstitial connective tissue, which in the healthy condition is scarcely demonstrable, becomes developed into thick broad threads.)

b. Alterations in the structure of the liver go hand in hand with the above. The whole organ is swelled and feels harder, and within it and in the connective tissue around the portal vessels there is an intense cellular hyperplasia, and tough fibrous connective tissue is developed from the young cells, constituting a more or less broad stratum at the periphery of the acini. The peripheral zone of the hepatic cells undergoes fatty degeneration, and in the greater part of the acini the cells have an icteric colour, evidently in consequence of the pressure exerted by the new prolifically-developed tissue on the afferent ducts which course with the portal ramifications. In fact, we have interstitial hepatitis in *optima forma*, the result of which is atrophy of a three-fold kind,—either a smooth induration of the liver; or (as sometimes seen in syphilitic human subjects) a “hepar lobatum” with numerous strips of cicatricial tissue dipping deep into the organ and deforming it; or, finally, the typical granular atrophy, the classical cirrhosis. In all these forms icterus is present, and in the last we regularly find those secondary disturbances so well known in human pathology—venous hyperæmia of the mucous membrane of stomach and intestines, indurative hyperplasia of the spleen, and finally death from ascites and hydrothorax. (WEGNER, *Virchow's Archiv*, Bd. lv.)

3. a. Let rabbits be confined for weeks or months in an atmosphere pervaded with the fumes of Ph., and we shall see that, after the primary bronchial irritation has subsided, they get accustomed to it. In the cranial bones we see nothing abnormal except minute and hardly visible osteophytic sub-periosteal deposits on the bones forming

* Wegner did not find pneumonia in animals exposed to the fumes any oftener than under ordinary circumstances, and tuberculosis he never observed.

the boundaries of the nasal cavities. But in an insignificant minority of them there arises, generally without any evident external cause, a tumefaction on the upper and lower jaws; the bone pushes out processes, the soft parts often swell monstrously from extensive caseous infiltration, respiration becomes difficult, and mastication is interfered with. The thickening of the bone advances continually, the soft parts have become hard as a board, until, finally, movement of the jaws becomes impossible, and the animal succumbs from inanition. After the extremely firmly-adhering, caseously-infiltrated soft parts are stripped off (or, better, rolled off), we see extensive and often enormously thick osseous deposits of very dense structure on the superficies of the jaw, generally starting from the alveolar margin. There are in the old bone, and often enough in the new, infundibuliform ulcerations filled with caseous exudations, and having crateriform everted edges,—in a word, partial necrosis. The process is essentially the maxillary periostitis with masses of osteophytic new growth and necrosis, so well known from observations on the human subject. [Dr. Wegner now discusses the question why a few only among animals and workpeople are thus affected, and concludes that as carious teeth are generally the starting-point in the latter, some corresponding lesion must exist in the former, the process starting thus from a local irritation produced by the fumes. He admits, however, that there are exceptions to the rule of carious teeth being present in the workpeople, and that in one only of the animals affected could he discover any such; so that, he says, "we must fall back upon the hypothesis of an opportune wounding of the periosteum." If this is induced artificially, animals hitherto untouched become the subjects of the Ph. bone disease.]

b. If we give to a rabbit, dog, cat, or fowl—while yet immature—minute doses of Ph. in pill, so insignificant that they produce no changes in stomach or liver; or if we cause them to inhale air moderately charged with its fumes; and subsequently, after a relatively short time (10 d. in those that are quickly growing, 3 weeks in others), carefully examine their bones, we shall find changes of a more or less different kind, and which evidence their presence in different ways, according to the stage of growth of the animals. In all these places where, physiologically, there is developed from cartilage spongy osseous substance, having wide meshes and much red medullary tissue, there is formed under the influence of Ph. a tissue that, seen with the naked eye, appears perfectly homogeneous, solid, and compact, just like the cortex of the long bones. That part of the spongy tissue which was developed before the feeding began remains perfectly unchanged. The substance of the Ph. stratum shows itself under the microscope to be real well-formed bone.

c. If the feeding with Ph. be continued, dense osseous substance is always added to the cylindrical bone from the intermediary cartilage,* while the spongy substance formed before the feeding obeys the physiological law by being disintegrated and absorbed to form the medullary canal. Thus one sees, after a certain period, according to the rate of

* Intermediary, that is, between the shaft and its epiphyses and apophyses.—Eds.

growth, the entire normal cancellous structure at the extremities of the diaphyses replaced by a compact solid bony mass. If we continue the feeding still longer, we find that the abnormally formed bone-substance likewise follows the physiological law for the formation of the medullary canal,—the oldest layers, which are pushed nearest to the centre, again become rarefied, and at last melt down into red medullary tissue. (If the feeding with Ph. be arranged with intervals of abstinence, we find developed from the intermediary cartilage strata of dense compact substance alternating with others of ordinary spongy structure.)

d. If Ph. be given in small doses to animals after their bones have ceased to grow, the spongy tissue in the epiphyses, vertebræ, &c., gets a little thicker; the osseous spiculæ and lamellæ are a little broader and thicker, without, however, any approach to a sclerosis of the spongy part as we have seen it in the newly-deposited layers of growing animals. The compact substance, also, of the cylindrical and of the flat bones becomes more dense from the narrowing of the vascular canals. Just as the medullary tissue, in the meshes of the cancellous substance and around the circumference of the vessels in the Haversian canals, in part becomes changed into bone, so also, in consequence of continued feeding with Ph., does a part of the medullary substance which fills the large medullary canal undergo an ossificatory process; and it is the peripheral layers that ossify, so that while the circumference of the bones remains constant the medullary canal becomes contracted, and the compact crust grows thicker by the deposit of new layers within. In fowls we can at last succeed, by feeding several months with Ph., in obtaining a complete occlusion of the medullary canal with real osseous substance,—in this sequence: first the bones of the tarsus, then the tibia, the bones of the forearm, the femur, and lastly the humerus.

e. Analysis shows that the composition of the bones of the animals fed with Ph. does not differ materially from that of normal bones.* (*Ibid.*)

4. A young brown dog, after being kept for some d. without food, got from May 10th to 16th several doses of *alcoh. phosphorat.*, on 16th about ʒij . From 16th to 23rd no med., and as he seemed quite lively and ate with appetite, he got on 23rd ʒij ol. phos. Soon restlessness. After 1 h. slimy saliva in clear viscid drops came from mouth and fauces. 10 a.m., froth came out of mouth, and he vomited with much retching a little yellow slime like poppy-seed oil.—24th. Seemed pretty well. He then got at 7 a.m. another dose of ol. ph. Soon clear saliva dropped from fauces and viscid slimy froth hung about his mouth. 8 a.m., frequent ineffectual retching and then a thin, pappy, bright yellow slimy stool; 10 m. thereafter vomited twice much white mucus with pieces of bread, this was very acid, and fumed and smelt of Ph. His belly contracted regularly and rapidly, with occasional pressing on the rectum. Pressure on belly caused him to moan a little. He ran about, fell, had short convulsions, got up again and

* I have been in a position to prove the perfect analogy with the above of the processes in the human subject, though only in their earlier stages, in a child that had been treated during ʒij mo. with small doses of Ph. for bad development of the osseous system, and of whose body I performed an autopsy.

again fell down, and after a few convulsions with dilated pupils he died.—*P.M.*, 5 h. after death. No cadaveric rigidity. The salivary glands of one side showed strongly injected blood-vessels, as also the anterior surface of epiglottis. The brain and upper part of spinal cord showed distended blood-vessels. Trachea and bronchial tubes filled with froth, no reddening of m.m. Lungs had brownish-red and bright red spots, and dilated air-cells protruding on lower lobes; when cut into frothy fluid exuded. R. side of heart and large veins filled with dark coagulated blood. Liver large, reddish-brown. Spleen of consistence and colour of leather. Kidneys, especially L., showed under their peritoneal covering a number of white, millet-seed sized granules, looking under microscope like fat on the red brown cortical substance, which was traversed by visible vessels. The 2 lower thirds of m.m. of œsophagus were bright red. The m.m. of fundus of stomach was gathered into many folds and bright red, not so the cardiac and pyloric parts. The stomach contained white viscid mucus. The m.m. of intestines, as far as cæcum, slightly red in parts. From there to anus m.m. throughout injected bright red. (*SORCE, op. cit., 44.*)

5. Similar experiments were performed on several other dogs, which gave similar results. In some there appeared to be a kind of paresis of the hind legs. In one the rectum appeared to be distinctly inflamed. Exhaustion appeared in some, not to be wondered at as they could not eat. In some the liver had a gamboge yellow colour; the duodenum had pushed itself into the pylorus to the extent of half an inch. The convulsions that attacked a good many in one case assumed the character of opisthotonos. The urine in a few contained albumen. In one the small intestine was much congested, arborescent blood-vessels showing in the m.m., which was partly covered with bloody mucus; on washing off this there appeared a whitish or greyish-yellow layer, which could be scraped off with the finger and displayed the congested blood-vessels. In several many of the blood-corpuscles were irregularly shaped. (*Ibid.*)

6. A number of experiments on rabbits showed much the same phenomena. In one the largest part of the r. middle and l. upper lung was brown and hyperæmic, but not airless, as it swam in water. In this case the liver was nutmeg-coloured, the l. kidney blackish-blue, but yet showed no hyperæmia under the microscope. In one the convulsions were so strong as to jerk the body, as it lay on its back, a few inches from the ground. In this case the pupils were contracted. In most of the other animals they were dilated. In this one the spinal cord was softer than normal, and about the level of the middle dorsal vertebra there was a dark blood-stain of about 1 in. on the anterior wall of the spinal canal under the dura mater. In another case both brain and spinal cord seemed softer than normal. In this case there were hepatized spots in the lungs, which felt and cut like flesh and sank in water. Yet another case showed softening of the spinal cord. One rabbit showed on surface of brain and cerebellum many bright blood-spots the size of a pin's head, and at the posterior border of the r. lobe of cerebrum a large black firm blood-clot the size of half a bean. This rabbit also had hepatized spots in lungs, and both kidneys were

dark blackish brown and hepatized. The urine showed, besides bladder and kidney epithelium, a good many dark fibrinous cylinders, which were granular on their surface. (*Ibid.*)

7. a. LIEBNER applied to a wound in a dog's neck 3ss of granulated Ph. The animal showed great distress and exhaustion, had dilated pupils, refused food, and died on 8th d. Animals poisoned in this manner are stated to have the blood darker and more fluid than natural, the liver studded with minute specks of a lighter colour than the rest of the organ, and the kidneys firmer and yellower than usual. Ramier placed fragments of Ph. beneath the skin of frogs, rabbits, and guinea-pigs. No local inflammation was excited, but in the case of the frogs at least, which did not die for 2—3 weeks, liver and kidneys were found to have undergone fatty degeneration.*

b. Pelletier and Godman have seen unmistakable evidence of the aphrodisiac power of Ph.,—a drake, a bitch, and a boar being the subjects of experiment. † (*STRICK, op. cit.*)

8. Fatty degeneration was found by Munk and Leyden in the tissues of frogs and rabbits within 2 or 3 d. after giving Ph. In Tamassia's experiments it was still more rapidly induced. He injected 3—6 gr. into the rectum of 4 animals (dogs or rabbits); toxic symptoms occurred in about 5 m., death in 8 h.—the temp. falling 8° F. In all 4 the kidneys, and in 2 of them the liver also, were in a state of fatty degeneration. (*PHILLIPS, op. cit.*)

9. In the livers of young rabbits the glycogen disappears in 1½ d. after the giving of 0·02—0·03 grm. of Ph. (*NÖRTHACEL und ROSSBACH, op. cit.*)

Phosphorus hydrogenatæ, phosphoretted hydrogen, phosphene, PH_2 .

II. *Poisonings*.—L. DR. BRENNER, after inhaling the gas during 3 mo. while preparing hypophosphites, noticed flickering points in his field of vision, which rapidly enlarged, and in four weeks rendered it impossible to fix his vision upon any object, especially in reading. At the same time a diarrhoea developed, with weakness and unsteadiness of arms, that gradually rendered it very difficult for him to write. The unsteadiness of the lower extremities was associated with recurrent shooting pains in them and in abdomen, and his gait became very tottering. The teeth also, both healthy and carious, began to crumble, without any pain. There was no headache or vertigo; no sensitiveness of

* "The fatty degeneration produced by Ph. appears to depend on a more rapid splitting up of albuminous tissue, along with deficient oxidation. This was shown by Voit and Bauer, who produced fatty degeneration of the organs by the administration of Ph. to dogs absolutely deprived of food, where the fat found after death could neither have come from food nor from fat deposited in other parts of the body, as that had all been absorbed before the drug had been commenced. It must therefore have been formed *in situ* from the decomposition of albuminous substance, and these were shown to have split up more quickly than usual by the amount of urea in the urine being increased, while oxidation was shown to have diminished by the amount of oxygen absorbed and carbonic acid given off being lessened." (*BAUNTON, op. cit.*) The investigations of Lebert and Wyo, Favon and Struck, gave similar results.)

† Several other facts of the same kind are given or cited by SORREZ (*op. cit.*).

spine, no disturbance of hearing or of the mental powers. At last ataxia of muscles of articulation became apparent, so that it was necessary to make strong voluntary effort to pronounce a wished-for word; swallowing also became somewhat difficult. The patient exhibited a complete picture of ataxia. He stood with extremities separated; co-ordinated movement (as walking) was impossible; when eyes were closed, patient would stagger and fall. There was no anæsthesia of skin or muscles; the electric irritability of the muscles was indeed extraordinarily increased; there was also no muscular atrophy. The optic nerve was extremely irritable; reflex optic symptoms could be obtained not only through the trigeminus, but from nape of neck, from lower angle of scapula, and often from upper arm. The auditory nerve was normal, though showing some symptoms of hyperæsthesia. Patient gradually recovered under electricity. (*Schmidt's Jahrb.*, cxxvii, 263; from Allen.)

PHYSOSTIGMA.

Physostigma venenosum, Balfour. Calabar bean. Nat. Ord., Leguminosæ.

1. *Proving*s.—1. Dr. CHRISTIAN ate $\frac{1}{2}$ of a bean one afternoon. It produced only a slight pleasant feeling of numbness in limbs, like that which precedes the sleep of opium or morphia, and which he remarked when awake for a m. twice or thrice during n. "On getting up in m., I carefully chewed and swallowed twice as much, viz. $\frac{1}{2}$ of a seed (which originally weighed 48 gr.). A slight giddiness, which occurred in 15 m., was ascribed to imagination, and I proceeded to take a warm shower-bath,—which process, with the subsequent scrubbing, might take up 5 or 6 m. more. The giddiness was then very decided, and was attended with the peculiar indescribable torpidity over the whole frame which attends the action of opium and Indian hemp in medicinal doses. Being now quite satisfied that I had got hold of a very energetic poison, I took immediate means of getting quit of it, by swallowing the shaving-water I had just been using, by which the stomach was effectually emptied. Nevertheless, I presently became so giddy, weak, and faint, that I was glad to lie down supine in bed. The faintness continuing great, but without any uneasy feeling, I sent for medical aid. Dr. Simpson reached me within 40 m. of my taking the dose, and found me very prostrate and pale, heart and pulse extremely feeble and tumultuously irregular,—my condition altogether very like that induced by profuse flooding after delivery: my mental faculties, however, were quite entire, and my only sensation one of extreme but not unpleasant faintness. Dr. Simpson went to fetch Dr. MacLagan, returning with him in a few m. During his absence, feeling sick, I tried to raise myself on my elbow to vomit, but failed. I made a second and more vigorous effort, but scarcely moved. At once it struck me, 'This is not debility, but volition is inoperative.' In a third effort I was more nearly successful; and in the fourth, by resolute

exercise of the will, I did succeed. But I could not vomit; the abdominal muscles acted too feebly, nor were they much aided by voluntary effort to make them act. I then gave up the attempt; and at the same time the sickness ceased, and it never returned. There were now slight twitches across the pectoral muscles; and I also felt a sluggishness of articulation. Dr. Maclagan, on his arrival, thought my state very like the effects of an overdose of aconite; pulse and heart's action very feeble, prostration great, but mental faculties unimpaired. I had then no uneasy feeling of any kind; but presently my limbs became chill, with a vague feeling of discomfort. Warmth to the feet soon relieved this, and a sinapism over the whole abdomen was peculiarly grateful when it began to act. Soon afterwards pulse improved in volume, but not in regularity. I was now able to turn in bed, and happening to get upon the l. side, my attention was, for the first time, directed to the extremely tumultuous action of the heart, which compelled me to turn again on the back to escape the strange sensation. Two h. after taking the drug I became drowsy, and slept for 2 h. more; but the mind was so active all the while, that I was not conscious of having been asleep. On waking, the tumultuous action of the heart continued. In an h. more, however, I took a cup of strong coffee; after which I speedily felt an undefinable change within me, and on examining the condition of the heart, I found it had become perfectly regular. For the rest of the forenoon I felt too weak to care to leave my bed; and on getting up, after a tolerable dinner, I was so giddy as to be glad to betake myself to the sofa for the e. Next m., after a sound sleep, I was quite well." (*Pharm. Journ.*, xiv, 474. 1855.)

2. *a.* I ate 6 gr. of finely powdered kernel 2 h. after taking food. Pulse during previous 15 m. was found to average 68. In 6 m. it rose to 74, but thence fell gradually, till in 60 m. it was 62 only, and rather feeble. At 39 m. there was peculiar feeling in epigastrium, which recurred at 40 m. At 50 m. slight giddiness was felt, and epigastric sensation was much increased; it now resembled the somewhat painful sensation which is produced when large pieces of food are suddenly swallowed; it recurred at intervals, at first slightly indicated by sensation in thorax, near upper sternum, which extends downwards, becoming more and more intense till it reaches epigastrium, when it is almost painful; then eructations of gas occur, and this is followed by a reversal of the direction of the pain till it ends above. 60 m., dimness of vision and giddiness, which at 65 m. had increased, with a little perspiration. 70 m., pulse 60, very small and wiry, but regular; nausea. 75 m., copious perspiration all over body; unable to continue reading, especially because of dizziness; slight difficulty in walking. 80 m., pulse 60, thready, and difficult to count. 90 m., pulse 58; slight dyspnoea. 95 m., pulse 59, very feeble, with occasional intermissions. 100 m., pulse 56; eructations without the epigastric sensation, considerable nausea, and dizziness. 110 m., great difficulty in walking; breathing requires an effort. Pulse continued same till 130 m., when it was 60 and rather fuller. At 140 m. felt sick and went to bed; was conscious of having remained awake for some time, in a

dreamy state. Next m., felt uncomfortable, had bad appetite, and experienced some dizziness during d.

b. Took 8 gr. with similar results. At 20 m. a dumb-bell, previously used with ease, was found a great burden; the arm was with difficulty extended with it, and a steady erect position retained. At 80 m. pulse was 2; low as 54.

c. Took 10 gr. Epigastric sensation came on violently at 3 m., and muscular weakness was experienced at 10 m. There was no change in pulse till 20 m., when it began to diminish in frequency and strength. General lassitude and dizziness, had to stop reading; pulse soon afterwards could not be counted. In walking downstairs, great dizziness and dimness of vision; progression and gait very unsteady; encountered wall and handrail more than once on the way out.

d. Pulse averaging 70, took 10 m. of tinct. in water. In 5 m. pulse 76, and epigastric sensation. In 1 h. pulse 63, thready and feeble; in 1½ h. 54. It continued 52—60 for 1 h. longer. (FRASER, *Edinb. Med. Journ.*, 1863.)

3. a. Dr. H. L. CHASE, in good health, took, Jan. 5th, 1865, at 11 a.m., 1 gr. of 1st trit. In 15 m. sensation of contraction of lids, with difficulty in opening them, and a gush of tears when they were opened wide. In ¼ h. dizziness and sense of wavering in brain, while walking. Dryness and smarting of tip of tongue and lips all d. 6th.—At 9 a.m. 1 gr. Tongue as yesterday. At 10 a.m. sense of contraction of whole l. face, with slight numbness; effort required to keep l. eyelid open. This lasted till n., with occasional severe pain in r. upper jaw, like toothache, although all teeth on that side had been extracted.

b. Proving was suspended till June 12th, when, at 4 p.m., he took 3 gr. of same. Within 15 m., same numbness, tingling, and smarting of lips and tongue occurred, with constant desire to moisten them. There was pain in side of jaw where there were teeth. Wavering in brain not so marked as before. 14th, 11 a.m., 2 gr. Same symptoms of tongue; there was also sense of contraction in alæ nasi and upper lip, with frequent desire to rub them, lasting about 20 m. Then came deep-seated pain in forehead, with desire to rub it; dizziness in walking, effort of will being required to keep from staggering; sharp darting pain in s. elbow, extending down outer arm to 2 middle fingers; numb pain in knees and ankles while sitting, with desire to move frequently. 15th.—Took 3 gr. at 6 a.m. Tongue, after 20 m., as if scalded; severe pressing pain in forehead, as though something hard was bound tightly on it, accompanied by dizziness while walking,—this lasted all forenoon, gradually subsiding; occasionally severe sharp darting pain in r. malar bone and in ramus of r. jaw. Limbs felt weary, as after great fatigue, with constant desire to move; difficulty in concentrating thought; itching of l. palm. 16th.—No medicine, still some scalding sensation on l. side of tongue; occasional sharp pains in various parts. 17th.—3 gr. Nothing save tongue symptoms. 18th.—4 gr. at 10 a.m. and 3 p.m. At 4 severe cramp-like pain in l. popliteal space, making walking very painful, lasting 2 h., then gradually passing off; during rest pain ceased, commenced again on motion,

by continued motion relieved. Scalding of tongue continued 2 d. longer, though surface looked well. Took several doses later, without additional symptoms. (*Publ. of Mass. Hom. Med. Soc.*, ii, 457.)

4. Dr. CULLIS, June 20th, 1865, at 10 p.m., took 2 gr. of 1st trit. In 5 m. felt as if he had drunk a glass of liquor; head was confused, there was vertigo, and legs lost their strength. He staggered like a drunken man, and went to bed with head swimming; fell asleep, but awoke repeatedly during n. with terrible thoughts; he feared he was becoming crazy, and that he might get up and do some mischief; dreamed he was a lion. At 4 he rose with soreness in l. abdomen, which was painful on pressure. At 8 head felt clear, but soreness in bowels continued, becoming pain on moving about, and aggravated by riding; it coveted a spot as large as the palm, and continued 5 d. A small boil then appeared inside r. nostril, very painful; pain extending up to eye and r. side of head; it broke on 4th d., with but little discharge. (*Ibid.*)

5. Same gave to a lady, æt. 30, nervous temp., health good, 1 gr. of 1st trit. at 10.20 a.m. In ½ h. felt strange, indescribable sensation throughout system. After dinner there came on heavy pain in back under l. shoulder, which, after continuing severe for an h., slowly passed away. At n. strange dizziness, had to hold on to bedstead to keep from falling. Next d. whole frame seemed loosened and powerless; thoughts wandered, and she had difficulty in fixing attention. The strange indescribable feeling continued several d. (*Ibid.*)

6. a. Dr. C. WESSELSHOEFT, in good health, gave for disposition to headache after irregularities in diet, &c., June 9th, 1865, took 1 gr. of 3rd trit. at 8.30 a.m. 9, feeling of constriction around forehead and temples, changing into oppressive pain over l. orbit, which extended to the other parts, very troublesome in reading. Sharp twinges in r. instep, and various twinging pains about body, for ½ h. Slept well all n. Next d. an attack of usual headache, but accompanied with extreme desire to sleep, which was unprecedented. Repeated dose on 11th at 7 a.m. Drowsiness all forenoon, even while driving, increased p.m., so that he slept soundly for 2 h., though in uncomfortable position. Sleepiness continued for ½ h. after this, while walking. 10 p.m., took another gr., and slept well all n. (ordinarily a short nap in afternoon will spoil night's rest). Woke at 6 a.m., and felt bright for 2 h., when he became sleepy again while driving, with dull pressure encircling head, and dull weight along vertex, mostly l. After a light dinner, drowsiness became irresistible, and he slept some time. 12th, 3 p.m., another gr. Went to bed early and slept well; drowsy all next d., until 2 h. work in garden had caused profuse perspiration; this dispelled drowsiness in part, but he felt it slightly the d. after. 19th.—Took 1 gr. at 10 a.m. and 10 p.m., and same next m., with no perceptible effect.

b. 25th.—Took 1 gr. of 1st trit. at 10 a.m., and repeated dose n. and m. till 28th. After taking first dose, feeling of constriction around entire top of head, as if a tight cap were being pressed down as far as temples; at same time severe pressure along sagittal suture, as if from

fulness in longitudinal sinus, and dull aching in each temple. Similar effects occurred each n. and m. about 15 m. after dose. For two mornings he was sleepy while riding; did not feel usual flow of spirits, and conversed with effort. After dinner great drowsiness, which was very difficult to shake off; desire for sleep was uncontrollable, and he fell off to sleep so quickly that he was surprised, on waking, to find he had slept. Hard exercise would remove this drowsiness. He slept as well at n. as if he had not done so in afternoon. After last dose he felt pressing from within outwards in vertex and temples, which lasted 5 h. (*Ibid.*)

7. Same gave 6 similar doses to 3 ladies.

a. Mrs. P—, æt. 49, catamenia for 2 years irregular and profuse, reports:—"June 16th, 1865, took 1 gr. at bedtime. At 3 a.m. 10—12 sharp darts of pain through r. thumb, at root of nail, and several weaker ones through r. finger-joints. For rest of n. dragging pain on l. hip towards back. I slept, but was conscious of pain; in m. awoke free from it. Took the medicine at 11 a.m.; 2, dull, heavy pain over l. hip, extending to back, which continued through afternoon and e., with bearing down, as if courses would set in. Took 3rd dose at bedtime, pain diminished gradually in n., and I slept soundly. After 5th powder I felt irresistible drowsiness for a week, especially up to 2 p.m." Menses did not come on till 30th.

b. Miss H. C—, æt. 42, in good health, but had menses twice only last year, and is a very heavy sleeper. She reports:—"From 1st powder I perceived nothing unusual, save slight momentary pains in various parts a few m. after. Later, a short attack of vomiting and diarrhoea. From 2nd, nothing. From 3rd, slight twinging pains in lower limbs. From 4th same, especially sharp in ankle. A former pain in r. hypogastrium, which had now been absent for 2 years, returned more troublesome than it usually had been. No further symptoms."

c. Mrs. N—, æt. 40, health perfect. "Six h. after 1st powder felt drawing rheumatic pains through l. shoulder. After 3rd, very unusual feeling,—drawing pain low in back and abdomen, with bearing down, as if menses were coming, though it was a week before time. After 4 h. all passed off, and menses came at right time." During whole time of proving felt heavy and dull in head. (*Ibid.*)

8. a. Dr. H. B. CLARKE, æt. 38, health good, proved 1st trit. June 20th, at 8.30 p.m., took 1 gr.; next m. sense of distension of abdomen, with soreness. 21st.—At 7 a.m., fasting, 1 gr. After 15 m., feeling of weakness passed down from occiput through back to lower extremities; feeling in legs was like that known as being "asleep." During fore part of d. (which was sultry) he had at times a feeling of weakness, though there was uncommon mental activity. 22nd.—Took 3 gr. at 7.30 a.m. In 15 m. feeling in legs like that of yesterday, but sensation was less perceptible in back. (In e. colicky pains with copious loose discharge from bowels. As this did not recur, Dr. C— is doubtful whether to ascribe it to drug).

b. Five gr. on July 3rd, and 10 gr. on 11th, were without effect. On 13th took 3 gr. at 8 a.m., fasting (last 2 doses had been taken

later). Immediately, sensation as on June 21st, and slight exertion caused lameness and weakness in small of back. (*Ibid.*)

9. Dr. WILLIAM P. WESSERHOEFT gave to a lady, æt. 35, "of a very sensitive temperament," one dose of the 3rd trit. Symptoms came on immediately and continued for 17 d., when they seemed still in full force, though the narrative then stops abruptly. They are all subjective, and can best be presented in the prover's own *résumé*:— "The chief action of this medicine seems to me to be on the nerves; all the other symptoms have been entirely accessory and secondary. And it seems to me, so far as I can judge, to have a very curious double action on the nervous system. The nerves in front of the body it appears to excite to an involuntary motion, causing tremblings going up and down in wave-like motion. But the nerves at the back of the body it seems to paralyse and numb, and during this numbing process it causes a good deal of pain, very similar to the pain in a tooth when its nerve is dying or being killed." (*Trans. of Amer. Inst. of Hom.*, 1874.)

10. Dr. W. E. PAYNE, æt. 58, health good, took, Feb. 12th, 1874, 10 gr. of 30th trit. at 7 a.m. 12, general sense of great fatigue, as from long-continued labour, with fulness in forehead and tendency to ache, especially on r. side; face hot, flushed and suffused, with feeling as if change into a lower temperature would produce a chill; appetite not so good as usual, with occasional nausea. Above symptoms continued during afternoon. 8 p.m., shooting pains in l. iliac region; a few thrusts with aching sensation down thigh of same side; dull heavy ache still in forehead, more on r. 9, feeling as if undigested food were lying in stomach; smarting and tingling in nose, as if cold were coming on, with several sneezings; aching in wrist- and hand-joints, also in knees. Had comfortable n. and felt well next m. 13th, 7.45 a.m., took 20 gr. of same, and breakfasted an h. later. 9, breathless sensation at pit of stomach, with hard feeling as of undigested food, disposition to make deep inspirations, coming and going momentarily; deep-seated pain in head all d., aggravated by making a heavy or missed step, as if the brain were bruised; fierce pains in r. lower jaw. Good n. 14th.—Took 20 gr. at 8 a.m. An h. later breathless feeling returned, with same sensation at pit of stomach; undefinable pain in r. head, continuing same throughout d. Above symptoms passed away, and no more medicine was taken till 17th, when at 7.30 a.m. he took 20 gr. more. 11.30, dull, heavy, bruise-like pain in whole brain, but rather more severe in l. temple, with sensation of general fatigue, continuing throughout d. till e., together with general sensitiveness to cold or change of temperature. 6 p.m., a constrictive pain suddenly seized l. arm, extending around just above elbow. An h. later, similar pain round l. leg just above ankle. Both were transient. 7.30, shooting pain under l. knee in or near popliteal space, returning again and again, as did pain above l. ankle. On following d. symptoms had greatly abated, though still of same character. (*Ibid.*)

11. Same gave to a married lady, æt. 35, 10 gr. of 30th trit. She had sharp pains, first in l. head and upper extremity, then in r. Their

severity frightened her, and she declined to continue the proving. On following d. she felt a hard pain in stomach. (*Ibid.*)

12. *o.* GALE ALLEN, medical student, in good health, took 20 gr. of triturated bean, March 11th, 1876, at 7.30 a.m. 7.45, sensation as of rush of blood to frontal and temporal regions. 8.30, slight nausea; weight in stomach, as from undigested food; giddiness; sensation as if brain were loose and rolling about in skull. 9, pulse variable, full and strong; heavy pain in frontal region, worse from motion. 10.30, burning sensation in stomach, with hot eructations; slight nausea continues. 11.30, darting pains in epigastric region. 12, griping pain in pit of stomach. 1 p.m., last-named and nausea still continue, with giddiness. 2, darting pains in head; stomach still disturbed, and nausea. 3.30, griping in epigastrium continues, also darting pains in temples, worse from motion. 4.45, headache still; giddiness; nausea; cold feeling all the time. 6, still griping, with soreness to pressure; dull pain and disagreeable confused feeling in head, worse from motion. 12h.—Has felt epigastric pain all the time, except when asleep; sore and stiff all over, as if he had taken a severe cold; seemingly rheumatic pains in l. neck and shoulder (which he took aconite to relieve).

b. 19th.—Ten gr. of 3rd trit. at 6.30 a.m. 6.45, slight nausea; transient darting pains in frontal and temporal regions. 7, griping in r. hypochondrium; fronto-temporal pain, worse from motion; deep sighing. 7.30, head-pains still, with heavy feeling; pulse variable; giddiness; nausea; resp. still sighing. 9, griping pains in stomach, and great oppression; nausea and giddiness worse from motion, better in open air; darting pains in r. hypochondrium; constriction of head, as if a tight bandage were round it. 11, soreness and transient pains in epigastrium; soreness and pains as from rheumatism in l. side of neck; pulse variable; giddiness; stomach unsettled; sighing; feeling of soreness in lumbar region. 2 p.m., transient pains in stomach, with sense as of undigested food there; acute pain in l. elbow, and darts of pain from thence to 4th and 5th finger of same side (these pains seemed to begin in l. neck and extend to l. leg; they were constant for hours); epigastric region sore to pressure; giddiness with constricted feeling of head. 3, still pains in head, stomach, and arm. 8, giddiness has been constant. 9, some trouble in stomach continues; soreness in lumbar region, with dull, heavy pains; a kind of paralysed feeling in l. side throughout. 20th.—Quiet n., but on waking 2 or 3 times felt darting pains in stomach and paralysed feeling in l. side. Urine now pale and copious; stool lumpy, mixed with watery discharge; still soreness and pains in stomach. 10 p.m., during d. giddiness and nausea; dull pain in head; heavy pains and soreness in lumbar region; urine as in m. (*Ibid.*)

13. Dr. R. C. SMEDLEY took 5 gr. of 30th trit. once on Oct. 29th, 1873, and 3 times on 31st. No symptoms on these d., but on Nov. 1st bowels, which had been somewhat costive, moved twice, and appetite was diminished. Took same dose at 6 and 10 a.m. and 4 p.m. In forenoon sense of fulness and dull pain in transverse and descending colon; two soft stools after dinner, with same pain, and tenesmus, also again in e. 2nd.—Five gr. at 6 and 11.30 a.m. and 4.30 p.m.

Not much appetite; two soft stools after breakfast, with same pain; drowsy in forenoon, head heavy and dull. Same evacuations and pains after dinner; brain felt tired. Lay down and slept (which he is not wont to do); dreamt that head was full, brain revolving upwards from front to back, and that he was almost blind; after waking, brain felt confused, numb or tired feeling in limbs, pulse accelerated. Same stool and pain, with tenesmus (extending to bladder, as it did on previous e.), and at 10 p.m. slight epistaxis. 3rd.—Headache in m., with epistaxis, and same kind of stool after breakfast, with tenesmus of rectum and bladder during and after it. At 6 a.m., 3 and 8 p.m., 10 gr. each time. No symptoms except epistaxis while at supper; looseness ceased. On 4th took two doses of 10 gr., and on 5th and 6th two of 20 gr. each, without effect. Same absence of result followed repeated doses of 10 gr. of 3rd from 8th to 15th, save that he was constipated during days on which he took none, and freely but not loosely moved when he recommenced it. (*Ibid.*)

14. Dr. HOUGHTON took dose of 3rd trit. at 8 p.m. In 1½ h. uncomfortable sensation in r. ear, felt inclined to bore in with finger; then eructation, twice, each time causing sudden pain running from throat along Eustachian tube to middle ear, leaving in latter a transient stabbing. The desire to bore occurred repeatedly on several successive evenings. Next d. felt pains in r. arm, as from hitting the nerve, tingling, extending from elbow down ulnar surface and into 3rd finger; repeatedly for 3 d. (*Ibid.*)

15. Miss S— took same. Headache across top of forehead, increasing till she went to sleep at n.; pain in r. wrist (deep in bone) as if squeezed and gradually let go, also deep under r. shoulder-blade, transient, while sitting, and in r. great toe. (*Ibid.*)

16. Dr. HARRIS gave a man, March 17th (1865), 1 gr. of 3rd trit. at 5:30 p.m. Nothing following, he took 2 gr. at 8:20; in 5 m. dull pain in l. occiput, lasting 10 m. On 25th took several dr. of tinct. In ¼ h. heaviness in stomach; later, a stimulus, as he called it, in neck and occiput, going through whole head till it reached eyes, lasting an afternoon and e. Next d., sleepy, headachy, acted foolishly and said he felt crazy, and also as if he had taken a cold.* Next d. sick at stomach; prostrated; felt severely indisposed; had to lie down, and wanted doors to be shut; pains in eyeballs. (*Ibid.*)

17. Dr. BERRIDGE induced a gentleman to prove Ph. He took 5 gr. of powdered bean oil reticent; slept well; woke with considerable stiff pain in hepatic region posteriorly, tender on pressure and on first moving; it went off after moving about a little. Disinclined for breakfast, slight nausea; looked tired. 10:30 a.m., took 6 gr. Noon, great languor; very distinct nausea in throat, and feeling as if he would be sick. Tensive headache, brain and scalp felt tight; mental work difficult; hands feel tremulous, as if he must make an effort to keep them steady; in walking, feeling of unsteadiness from knees down-

* There is also noted on this day—"His eyes were worn as usual, the sight bad all the time. Rather dull; clouds passing over the sun interrupt his walking." It is not clear from this enigmatical statement whether the drug had anything to do with the phenomena in question.—EDS.

wards, so that he had to tread carefully, felt especially when eyes were shut, he must look to where he is going; can see farther than usual (he is naturally myopic), pupils contracted. On going out had to take a stick to steady himself, and had feeling of weakness in ankles. Determined exertion of will conquers the unsteadiness. In m. before 2nd dose, and lasting all d., noisy emission of flatus. P.m., whilst walking, stiffness in both recti femoris. Enjoyed dinner at r, but could not eat much on account of the nausea; this was relieved by lying, and he could eat a little more; after again resting, all symptoms passed off. Next m., same pain in hepatic region, and also stupid feeling in head. (*Ibid.*)

18.* a. R. W. Stone began, at 3 p.m. of April 3rd, 1873, to take 1 gr. of $\frac{1}{2}$ trit. hourly. 4th.—9 a.m., throat had become very sore, with feeling as of a fishbone lodged in it; swallowing of saliva very painful. At 8.30 p.m., violent and very unusual hiccough for 45 m., with great distress for breath. It was relieved at once by sleep, but on waking at 2 a.m. it recurred for $\frac{1}{2}$ h.

b. On 6th, at 2 p.m., began to take 4 dr. of saturated solution every $\frac{1}{2}$ h. 7, again painful constriction of throat, soreness felt all through back of pharynx, with painful swallowing of saliva; by 10 throat had become quite dry. 7th.—11.30 a.m., benumbed sensation of hands, very much increased by feeling pulse, which on r. side was double the strength of that of l. 4 p.m., pain and constriction of throat continued, and small ulcers with yellow centres were seen on r. side of pharynx behind tonsil; posterior nares also were dark red. 10th.—Throat very sore, very difficult to swallow, and examination shows pharynx studded with small ulcers, especially on r. side, where pain is greatest. Excessively nervous; cannot endure the pain. 12th.—Though medicine has been discontinued for 2 or 3 d., throat symptoms continue, but less violent; examination shows uvula considerably elongated. Sharp headache on r. side, transient.

c. On 14th, at 8 a.m., began taking every $\frac{1}{2}$ h. 1 gr. of 2x trit. 10 a.m., heavy, dull, and oppressive frontal headache, with peculiar inability to express thoughts clearly and intelligently. 17th.—2 p.m., sudden and severe headache over r. eye, with pulsation felt in occiput. 3.45, severe muscular pains beneath clavicles, extending down inner sides of both arms. 18th.—At 2 p.m., took 5 gr., followed in 5 m. by constriction of throat and dysphagia. During whole p.m. throat was very sore, examination showing enlarged tonsils and elongated uvula; swallowing or speaking was very painful, and posterior part of tongue was tender to touch.

d. 23rd.—No more medicine having been taken, this m. took 30 dr. of saturated solution, followed in 10 m. by severe pain in both mastoid processes. 24th.—At 8 a.m. repeated dose. 10 p.m., nausea on lying down, though none had been felt before; throat constricted as previously, but higher up. 25th.—7 a.m., throat very much constricted, and great difficulty in eating, passing away before breakfast

* The preceding 18—38 were made by students, under the superintendance of, for 18—21, Dr. T. F. Allen, for 22—24, Dr. Hoyle, for 25—26, Dr. C. W. Schickel, and for 27—29 Dr. A. K. Hill.

was finished. Examination shows posterior superior portion of mouth much injected. At 8.30, took 30 dr. more, followed by an all-gone feeling along œsophagus, and headache, with, at 3 p.m., sense of great debility. (*Ibid.*)

19. G. W. FLAGG took powder of 30th trit. one n., and next d. and the following had a sharp attack of colic and diarrhœa, which, however, he had had within a week previously, and which recurred more slightly, after 3 d. without symptoms, on 7th and 8th d. Nov. 22nd.—Feeling quite well, took a second powder in e. Rose on 23rd with heavy aching head; it was better after rising, but at 1 p.m. was heavy over l. eye and extended to whole forehead; by 6 it was somewhat better, but eyes were sore and pained on moving them from side to side. Had bad dreams and a restless n. On Dec. 5th, feeling well, took a dose at 11 a.m. Some headache in e., with which also he rose next m., and from noon till e. of 6th had persistent dull aching pain, worse from motion or pressure, over l. eye (pupils normal). No other symptoms save sense of looseness of bowels. (*Ibid.*)

20. a. CHARLES E. ROWELL, May 6th, 1874, took at 3 p.m. a powder of 1st trit. 7th.—Noise (a child crying) affects him, causing lateral headache; mind wanders from study; bowels constipated; amount of urine increased all d. At 7 p.m. repeated dose. 8th.—Pupils contracted; no appetite; no stool to-day; urine more frequent and copious, and contains mucus. Repeated dose at 7 p.m. At 9, lateral headache, which seems deep in brain. 9th.—Pupils contracted; no stool, but urging to it. In e. throat very sore; tonsils and soft palate dark red, with stinging pain. 10th.—Pupils still contracted; throat less inflamed; no appetite or thirst; much urging and straining to stool, but ineffectual. 6.30 p.m., headache in both temples, relieved by supper. 11th.—7 a.m., large light yellow soft stool; repeated at 9. In e. intense lateral headache, relieved by food. Urine scanty to-d. 8.45, took large dose of 1st trit. 12th.—Repeated dose at 8.30 a.m. and at noon. Soon after first, smarting of l. tonsil, which looked slightly inflamed; cough from tickling in throat; and twitching of upper eyelid. In e. pupils very much contracted. 13th.—Large light-yellow stool; pupils same; copious urine with mucus; twitching of upper eyelid; back part of throat very sore in e. Bowels were constipated next 2 d., and frequently moved on 2 d. following. On 15th increased flow of urine and lateral headache.

b. Nov. 6th—8th, took 4 powders of 30th, and, 11th—13th, same of 3rd trit. without effect. Same result followed 4 doses of 1st. On 15th began 1, trit., taking 1 powder in e. and 3 next d. Had 3 stools on 16th, and great desire for cold water all e. 17th.—Took 3 doses. Two stools. 18th.—Three doses. As yesterday. 19th.—One dose at 6.30 a.m. Prover had been constipated for years, no operation without an enema; since proving began, desire for stool every n., and copious evacuation every m., sometimes oftener.

c. Feb. 7th, at 9.20 p.m., took one powder of 1. Went to bed 1½ h. earlier than usual, being so sleepy that he could not keep eyes open. Slept an h. later than usual, and on rising passed un wonted quantity of water. At 11 a.m. very copious stool. Tongue slightly

coated, more heavily towards root. Three more stools came later in d. No desire for drinking, even at meals, to-day. Food lay heavy on stomach next d., and he continued for some time to have 2 or 3 yellowish evacuations daily. (*Ibid.*)

21. Same gave to a friend a very large dose of 1st trit. in e. Next m. he reported lateral headache, with fear of opening his eyes lest it should increase pain. Pupils were contracted, and there was slight increase in flow of urine. (*Ibid.*)

22. W. W. FRENCH took, e. of Nov. 6th, a powder of 30th trit. On waking next m. nausea and taste in mouth as of creosote, perspiration over whole body, pain in umbilical region. Was relieved by going out, but all excitement during d. brought on perspiration. Repeated dose* on e. of 14th and m. of 15th. 7 a.m. of latter, nausea, bad taste in mouth, which is full of saliva; tongue feels rough to touch; severe pain along transverse colon; drawing pain in r. iliac region, relieved by lying on r. side, by pressure, by walking in open air, and by eating, worse by lying on back or l. side. 10.15, pain in head over r. eye, dull and weary; profuse sweat on least exertion; pulse slow. (*Ibid.*)

23. G. S. FARMER took 30th trit. at 5 p.m. on Nov. 6th and 7th. No symptoms till 9 a.m. of 8th, when burning ache in forehead set in, and continued till bedtime. 11, heaviness and weakness of limbs, and general weariness of whole body; easily exhausted on going upstairs; burning spot in centre of forehead. 1 p.m., symptoms more severe, with fulness in ears and stupid feeling in head, relieved by closing eyes and keeping quiet, aggravated by mental activity and exercise. 4, after an h.'s tenesmus, soft thin stool, followed by great exhaustion. Violent hiccup, 5 to 8 p.m. Pupils dilated, and general weakness over body. On 9th still weak and easily exhausted, but other symptoms not so severe, and on 10th and 11th, save for weakness, was as well as ever. On 12th took another dose, m., on rising. Same headache, general weakness, and tenesmus with stool; with these in e. hiccup for 2 h. 14th.—Great weakness and stupidity, feels as if he had been out carousing previous n.; some headache, worse r. side; eyes weak and sensitive; ears feel stopped; 3 light-coloured thin stools. Weakness continued, but getting less, till 17th. (*Ibid.*)

24. P. N. CROSBY took dose of 30th trit., e. of Nov. 6th. Felt nothing till e. of 7th, when he had dull pain in bowels with feeling of looseness, and painful pressure on tympanum of each ear. Repeated dose on 8th at 7.45 a.m. By 9 stupelying headache had come on, worst over l. eye; it continued till 6 p.m.; no other symptoms. On 10th took a third dose at 7.40 a.m., and feeling no effect, repeated it at 6.40 p.m. At n. very restless, not feeling satisfied in any position; rumbling in bowels, and at 5 a.m. had a yellow stool with pain just below navel. 11th.—At 5 p.m. took another dose (or possibly of 3rd; see note to No. 22). 12th.—Pain in head, as before, commenced in m., and grew worse till 10 p.m., when it began to subside; head was at same time bathed in warm perspiration. Restless n., but woke

* Or, according to another statement, took 3rd trit. on these occasions.—Ebs.

quite well. 13th.—At 11.40 a.m. took a second powder. During afternoon some headache, increasing towards e., but nearly gone by bedtime; head felt strange and confused. Woke with it once more about 3 a.m. (*Ibid.*)

25. J. P. W.—, past middle age, took 3 doses of 30th at 24 h. intervals. Six h. after 3rd (usual m. stool having occurred) had quite a watery evacuation with pain in transverse colon extending through to back; pain increased at n. so as frequently to wake him, and he had constant desire to change from side to side; from 2 to 5 a.m. was wide awake. There are also mentioned, but without note of time, headache, neuralgic stitches in knees and arms, fullness of head, faint feeling at times, and raw feeling of tongue, very disagreeable on swallowing. On waking finally next m. very disagreeable feeling, as though he had slept too soundly, with pain in r. head and neck, as if latter was "stiff." In walking noticed 2 or 3 times, on raising foot, momentary feeling as though he was floating upwards, and on foot touching ground an unpleasant feeling, making a shuddering sensation pass over him. Mind was disturbed and unsettled; he could not concentrate it on his studies. For 5 d. inclination to looseness of bowels and diminished appetite. (*Ibid.*)

26. Dr. THEODORE FOOTE took dose of 30th, Nov. 6th, at 8.15 p.m. By 9.30 already felt great muscular prostration, as if he had taken a five-mile walk. 7th.—Awoke with severe headache in forehead. This, with the prostration, continued all d. and for part of 8th. The pain (Dr. F.— notes) was very severe, and never before experienced; he could not put his mind on anything, or recollect anything; it was mental exhaustion, not confusion. (*Ibid.*)

27. J. M. DART took powder of 30th, Nov. 6th, at 8.10 p.m. Before retiring had pricking and rumbling in transverse colon, and next m. had a large diarrhoeic stool (he is ordinarily constipated), with burning at anus, followed by sharp pains in stomach and bowels, at one time also in l. thigh and forefinger. 10.15, headache in l. frontal region, with sensation of heat in abdomen, and slight nausea. 4 p.m., headache has spread over whole head, with qualmishness and slight perspiration over body; very languid and dull, eyelids heavy. Headache and qualmishness continued till bedtime; also next d., with lame bruised feeling in region of kidneys. On 9th felt quite well, and on 10th, at 8 a.m., took another powder.* In e. rumbling and gurgling, with heat in abdomen and slight colic pains. On 11th, after a restless n., headache set in as before, with dull languid feeling and pain in region of liver. It continued next d., and was very bad; irritable mood with it, and he could not study for it. On walking he became excessively tired, and could hardly get along; vision also grew misty. D.— notes that the two provings were alike, and that he never experienced such symptoms before. (*Ibid.*)

28. L. L. BRAINARD took 4 doses of 30th without effect. Nov. 11th.—Took 3rd trit. at 5 p.m. 6, expansive sensation in top of head, r., slight aching pain in l. eye. 12th.—Awoke with aching pains in

* This may have been the 1st.—Eps.

whole brain, worst on l. side; same at back of orbit, extending into brain, worse on reading (so that he must stop), causing nausea; pulse 72, full; chills in paroxysms. A further dose on 14th, and one of 1st trit. on 19th, produced no effect. (*Ibid.*)

29. J. W. R.—(a woman) took 3rd trit. at 3 p.m. N. restless; pain in r. deltoid, only relieved by violent motion. On and d. similar pain in arm. N. again restless, and she woke with dull heavy headache over eyes, which passed off on rising. Third n. again restless, and on 4th d., e., felt soreness and pain at umbilicus, which on examination was found much inflamed. It continued thus 4—5 d., growing less gradually. On June 15th took another dose. Felt nothing till 8 p.m., when there came on deep pain in muscles of r. forearm and wrist; also pain with sharp stitches in ball of r. eye and in frontal bone, with a distinct pain running obliquely into temporal bone. 16th.—Return, e., of pains in eye and arm; former relieved by motion in open air. (*Ibid.*)

30. a. Dr. W. H. TRUSS took gr. $\frac{1}{4}$ of 3rd trit., m. Felt nothing during d., but woke next m. with bad taste in mouth, teeth feeling rough. While at church in forenoon was taken with chilly sensation in back, and soon began to yawn and feel bad; joints felt bruised; every movement and every draught of air made him shudder. Pulse was 93, temp. 100°. Throat now began to be sore on r. side at small spot; profuse salivation followed, and pain in top and forepart of head. This increased till he had to lie down. He could readily count his pulse by the carotids, and hear the two sounds of the heart as his head lay on the pillow. Soon began to have backache, which kept him restless all n.; pain seemed in region of kidneys, and he passed large quantities of colourless urine. No position favoured pain in back, but head was relieved when he sat up in bed; strong pressure also relieved, and walking, but this he had not strength to continue long. Next d. pain in bowels, which seemed distended with gas; darting pains in joints, more in legs than arms, extending up into body; felt great anxiety about friends at home, could not get them out of his mind; could sit up only a short time, when he would be compelled to lie down again, on account of pain in bowels; pain in knees when he flexed them; throat still sore on r. side; urine profuse and very clear. On 4th d. noticed l. eye red and swollen; submaxillary gland was tender and tumefied. Pain and flushing of face on rising from sitting position; strong-smelling sweat about genitals, prepuce tender and swollen, with a number of small vesicles on glans penis, causing burning-itching sensation (these disappeared in 48 h.). Petechial eruption on back and arms, size of fleabites; darting pains about body; tongue coated white, with oily feel and bad taste; curious feeling in face, extending to neck, like cramp,—at time when this was worst l. hand became quite numb, and it bothered him to hold anything. By next d. all troublesome symptoms had passed off, and he began to have good appetite—this having quite failed during proving.

b. Took 3 more doses in Jan., and again in Feb., with same symptoms, but less well-marked (there was no eruption). (*Ibid.*)

31. A. P. McDONALD, Dec. 29th, at 7 a.m., took dose of 30th.

6.30 p.m., severe pains in r. eyeball, darting from within outwards, relieved by pressure on eye, continuing at intervals till 10, when they seemed to shift to supra-orbital ridge, and continued so till about 12. 30th.—On rising same pains in both eyes; they went off after breakfast, but returned in l. eye when he sat down to study in e.; relief from movement. 31st.—Frequent paroxysms of twitching in *vastus externus* (lower 3rd), coming on every time he sat down during d. On Jan. 16th took another dose without effect. (*Ibid.*)

32. W. H. WILLIAM took 30th at 2 p.m. At noon of following d. chilliness in r. back; vomiting of acrid fluid; slow digestion; continued yawning, with drowsy feeling all d.; severe colicky pains in l. abdomen; neuralgic pain in r. face; dull pain in both temples, with pressing outwards in frontal region. Next d. head felt as if falling forward; vertigo; he stumbles on going up or down stairs; sharp pain in supra-orbital region, running off towards nose. Back very weak, unable to stand erect; dull pain in it, with almost constant desire to urinate, passing large quantities of reddish urine; oppressed breathing. Back continued weak for another d. (*Ibid.*)

33.* Mrs. NICHOLS took 1 gr. of 30th at 3 p.m. one Monday. In 15 m. brassy taste and increased saliva, which continued rest of d. In e. cough from tickling in throat. Tuesday.—Had slept better than for 6 mo. before. Took 1 gr. Felt quite exhilarated during m., very gloomy towards noon. At 1 took another gr. 3, felt as though stomach swelled, continuing rest of d. 4, hard sore pain in splenic descending to inguinal region and across hypogastrium, quite severe and increased by motion. In e. pain was so severe it caused her to extend legs. Took 2 gr. before retiring. Slept soundly. Wednesday.—Took 1 gr. in m. Had bad taste all d.; paroxysms of burning in palms; soreness in l. side and hypogastric region, hurting her to stand. 4 p.m., took 1 gr. Tongue felt sore on tip and rough; throat full; stomach pressed; sore pain in spleen for 2 h.; eyes smart, lids sore. In e., hammering in r. ear, while external ear felt as though hot air were blowing on it. Took another gr. before going to bed, and another on Thursday m. While writing, pain in r. ear; tongue dry, rough, and sore. P.m., pain at l. of sacrum. This last felt on Friday m., and headache Friday e. and Saturday m. No symptoms afterwards. (*Ibid.*)

34. C. S. COLLINS took 1 gr. of 3rd trit. Monday e. After 3 h. dull pain in region of heart, lasting nearly 1 h. On Tuesday m. 1 gr. 10 a.m., pain in back of neck reaching to first dorsal vertebra. 3 p.m., pressure on top of head; hot cheeks; eyes suffused with tears. 9, took 1 gr. On Wednesday repeated dose at 8 a.m. and 9 p.m. At 3 p.m. very sleepy, hardly able to keep awake, until relieved by sleep. On Thursday m. awoke with stitches in l. breast, and unable to draw long breath. This continued all d., and was so uncomfortable that no more medicine was taken. On Friday pain was gone. (*Ibid.*)

35. L. KANZBOV. On 2nd d. after beginning 3rd trit. slight contraction in region of stomach. On 3rd d. this feeling was more plainly

* These provings (33—36) represent the only results obtained from 14 students taking the 3rd trit. and 6 taking the 30th.

marked, continuing 4 or 5 d., attended with dull pain in l. side and forepart of head, not relieved by food. Appetite as usual. Symptoms began to diminish on 6th d. and had disappeared by 8th. (*Ibid.*)

36. Mr. DILLINGHAM took 3rd trit. for 4 d. (Jan. 8th—12th), and notes following results:—Pain over r. eye all e. of 8th; dull heavy headache in forehead before rising on 12th. Bright marks when looking at an object; dark yellowish spots on book when reading, covering one or two of the letters. Singing in ears, like escaping steam, after lying down at n. Nose stuffed and hot (8th). Face flushed and red (9th). Smarting of end of tongue; it feels as if burnt by hot liquid. Hunger, but can find nothing to satisfy it (12th); food has a flat taste. Stool irregular and loose; anus sore, disposed to protrude (as if from relaxed sphincter); return of piles, which have not troubled him for 3 years. Frequent desire to urinate, often ineffectual. Cannot fill l. lung, as inspiration causes dull pain in its apex, relieved by pressure; stitches under inferior angles of scapulae during expiration; slight constant inclination to cough from filling lungs. Cramp-like stitches up and down spine; stiffness of l. neck. Wrists feel weak, dull aching pain in them; hands first cold, then hot and red. Numbness in l. foot. Unduly profound sleep. Perspires very easily. Pulse, normally 60—65, during proving was 74—83, at first full and strong, then weak. (*Ibid.*)

37. A woman took powder of 30th, Oct. 25th, at 11 p.m. Next m. in church had dull tempora-frontal aching in fits, with tension of skin of nose and forehead. Felt little of it during d., but again at church in e. it came on, preceded by dizziness in passing people, and accompanied by nausea, heat in face and down back, with chilliness of legs, and lasted till bedtime. 27th.—While taking m. bath sudden stiff neck, r. side, which lasted badly all d., involving ear, shoulder, and even chest of same side. 28th.—Stiffness almost gone, but headache recurred from 1 to 6 p.m., with great sleepiness, and hung about her for 2 or 3 d. more. (*Ibid.*)

38. Miss GRIFFITH took powder of 30th on Oct. 21st. Next d. increased secretion of urine, with bruised sore feeling in renal region; reluctance to take ordinary bath and discomfort after it. (Fresh symptoms, at length of some severity, occurred from 24th to 26th; but as on 27th "fever blisters" on upper lip are noted, they were probably of idiopathic origin.—Eps.) (*Ibid.*)

39. H. A. W., woman, took same one n., and next m. woke with headache like that of No. 37, including skin tension, but with more fulness and arterial throbbing. P.m. there were attacks of sharp darting pain in r. parietal eminence, lasting 1 or 2 m., and leaving sore bruised feeling. Headache hung about her also for some time, relieved by mental application, worse when walking out of doors. On 2nd d. great aversion to cold bath, and severe aching in r. glutei; on 3rd d. same about r. scapula. (*Ibid.*)

40. Dr. HENRY G. TOPP took 25 dr. of tinct. every 15—20 m. till he had taken 200 dr. in 24 h. This produced a very marked sensation of languor and indisposition to move; but by an effort of will his muscles were as fully under his control as before. No contraction

of pupil was discernible, and pulse remained without change. (*Phil. Med. and Surg. Reporter*, Jan., 1873.)

41. When extract is applied to eyeball, it immediately causes copious secretion of tears, and in about 5 m. distinct contraction of pupil, confined to side of application. In about 30 m. pupil has become a mere speck, but still retains a certain degree of mobility. It continues in this state for 12—14 h., but in some degree for (it may be) 5—6 d. Slight headache and dimness of vision, with myopia, in affected side are almost always produced, but these only continue for 1—2 h., at commencement of the action. When extract is applied to edges and outer surface of lids, partial immobility of these is induced. (*FRASER, loc. cit.*)

42. Dr. ARGYLL ROBERTSON digested 30 gr. of bean in alcohol and evaporated, dissolving residue in 5j of water. One minim of this solution (=gr. j of bean) was dropped into eye. In 10 m., objects distant more than one foot were dim and indistinct; all objects seemed nearer and larger; pupil unchanged. In 20 m., pupil 1 line in diameter (normally 2 lines); objects distant more than 9 in. are dim; all objects seem one-half larger and nearer. In 30 m., pupil $\frac{3}{4}$ line (other pupil $2\frac{1}{2}$ lines); no distinct vision beyond 8 in. In 70 m., pupil $\frac{1}{2}$ line. On reading, heaviness and fatigue of eye; using it otherwise caused dull aching and heaviness; it felt strained. In a subsequent experiment, concave 8 enabled him to see at a distance, but not nearer than 5 in. (*Ed. Med. Journ.*, iii, 815.)

43. a. I touched my l. lower lid at 5.5 p.m. with a strong solution. (My eyes are alike in optical power, and in all respects normal. Pupils had a diameter of rather more than a line.) In 5 m. I experienced a decided tight feeling, referable pretty accurately to the ciliary region of that eye, as if something were creeping about in it. 5.15, this continued, with occasional rather sharp pains at same place. Attempt to read with both eyes instantly increased this pain, and type was confused. In 13 m. near point of l. eye (Jaeger No. 1) was at $6\frac{1}{2}$ in., that of r. eye being 15 in. Type looked rather smaller with r. eye than with l. Far point seemed as before in either eye. In 20 m. I could see Jaeger 17 at 15 feet, but with l. eye with remarkable oscillation in distinctness, now clearly, now the reverse, which coincided with the sensations present, as if ciliary muscle was undergoing irregular contractions. L. pupil was now observed to have become rather suddenly contracted to size of a large pin's head. This contraction continued to the full amount for 18 h., then gradually relaxed during about 3 d., after which it was like its fellow. With the sudden contraction came also a sudden twilight gloom, as of an eclipse of the sun. This lessened after a while, as the retina became accustomed to its reduced quantity of light. In 25 m., pupil being extremely small, astigmatism was noted. The vertical bars of a window were seen clear and sharp at 6—10 feet, the horizontal bars within the same range having thin edges, slightly hazy, but rendered clear by a concave cylindrical glass of 14 in. focus suitably placed. Distant objects, seen by l. eye through a concave spherical glass of 50 in. focus, were very decidedly diminished in size. In 30 m. near point by No. 1 of Jaeger was for l. eye at $6\frac{1}{2}$ in., for r. eye only at $10\frac{1}{2}$ in. (not nearer or further off), and even at this distance

indistinct; whereas with l. eye letters were crisp and clear. With l. eye near point for vertical lines was at $8\frac{1}{2}$ in., for horizontal lines at $6\frac{1}{2}$; with r. it was at $11\frac{1}{2}$ and $7\frac{1}{2}$ in. respectively.

b. Strained feeling of l. eye was less after $\frac{1}{2}$ h., but did not quite cease till next m. The attempt to read continued somewhat painful all e., and even next d. both eyes were somewhat uneasy in sustained vision of near objects, with both eyes or either of them. After 18 h. both eyes were alike as to accommodation, and in both near point for vertical and horizontal lines was 1 in. nearer than natural. At 24 feet each eye could read No. 18 of Jager, only the letters were more defined with the l., and looked rather smaller. (BOWMAN, *Med. Times and Gaz.*, 1863.)

41. On carefully watching the progress of the myosis, the iris is seen to contract convulsively with little jerks or twitches, very small and rapid. While iris was under influence of drug it was at all stages sensitive to light, *i. e.* it would contract still more from sudden strong light,—which shows sensibility of retina to be unaffected. The myosis lasts 2—4 d., and after it has passed off there is usually slight mydriasis for several d., especially in m.; this seems to depend on a kind of fatigue of the sphincter, which passes off during the d. under the reflex stimulus of light. The action on accommodation consists in the approximation of the far point and also of the near point. This, also, does not usually progress steadily, but by spasms or jerks, just as the pupil contracts. The far point is approximated sooner than the near point. If a very weak sol. is used, so that the accommodation is not markedly affected, we find that on attempting to use binocular vision, as in reading, there is pain, blurring, and straining, so that one eye must be closed (relieved by using a weak concave glass). It seems as though the ordinary will-impulse caused too great an action of the accommodation. The affection of accommodation lasts a much shorter time than does the myosis. The approximation of the near point lasts much longer than that of the far point. Visual acuteness often sinks to one-half the normal under its use; letters seem in constant motion, and can only be seen at a large visual angle. One observer could bring his vision to perfect clearness, but only with very great and painful exertion. The circulation in the fundus of the ball is not affected. Towards end of myotic action there is experienced a painful tension, partly in the equator of the ball, partly in the ciliary region; sometimes, also, there are nervous aching in the whole ball, which extend along the supra-orbital nerves and over half the head. (V. GRAEFE, *Arch. f. Ophth.*, ix, 3, 112. 1863.)

42. C. K., *et.* 29, who 4 years previously had lost the whole of the r. iris by an accident, but whose accommodation was still considerable, had strong extract of calabar instilled into eye at 2.58 p.m. This caused slight smarting in conjunctival sac for 1 m.—3 p.m. Myopia $\frac{3}{10}$, near point $5\frac{1}{2}$ ", A reduced to $\frac{1}{4}$. The myopia after this gradually increased, and the near point diminished slightly. 3.20 p.m., M increased to $\frac{1}{10}$, near point 5", A reduced to $\frac{1}{10}$. The sharpness of vision diminished to $\frac{1}{3}$. 3.30 p.m., the myopia had reached its extreme degree, *viz.* $\frac{1}{4}$, the near point $4\frac{1}{2}$ ", accommodation $\frac{1}{17}$, vision at dia-

tance very indistinct. 3.41 p.m., accommodation remains the same, myopia begins to diminish. 3.45 p.m., M $\frac{1}{10}$, A $\frac{1}{4}$. 3.50 p.m., M $\frac{1}{10}$, A more than $\frac{1}{4}$. 4.12 p.m., M $\frac{1}{10}$, near point 5", A nearly $\frac{1}{4}$. 4.50 p.m., M $\frac{1}{10}$, near point 5", A normal, i. e. $\frac{1}{4}$. After this the refraction disturbances declined, and were all gone in 1 h. (*Ibid.*)

43. Dr. SHARP rubbed over his eye and temple mixtures of 2 dr. of tinct. to 8 of water, and 4 dr. of tinct. to 4 of water, without appreciable effect on pupil. When 5 dr. of tinct. to 5 of water were employed, a slight, and when a drop of pure tincture was rubbed in, a decided, dilatation was soon noticed. When 10 dr. of pure tinct. were used, after about an h. pupil became very much contracted. (*Essays on Medicine*, p. 771.)

II. *Poisonings.*—1. A woman chewed and swallowed a piece, about the size of a green pea. A very few m. thereafter she felt sickish, and had the feeling as if a ball were coming up to the throat. She went out, and felt stupid and giddy as she walked along, with sensation of great feebleness over whole body, rendering progression a matter of difficulty. (MACLEAREN, from Fraser, *loc. cit.*)

2. A young man ate a whole bean. In $\frac{1}{2}$ h. he complained of violent epigastric oppression, inclination to vomit, and attacks of faintness. After copious draughts of water and mechanical irritation, he produced vomiting, with great retching, followed by collapse, with cold sweat in drops over whole body, and complete muscular relaxation, with continued fibrillary twitchings of the muscles. Pulse was small and frequent; pupils not contracted; vision not affected; consciousness perfect. (LINDEN, *Petersb. Med. Zeit.*, vi, 244. 1864.)

3. Two boys, æt. 6 and 3 respectively, broke a bean (weighing 65 gr.) in pieces, and swallowed these between them. At 7 p.m. the parents saw them playing with the beans. At 7.45 they entered the house. The younger child's head drooped listlessly, his eyes looked "sleepy-like," his hands were powerless. He staggered, and was scarcely able to walk. He complained of severe pain in epigastric region, and asked to be put to bed. His pupils were slightly contracted, his pulse feeble and slow, and he appeared thoroughly prostrate. A small dose of ipecacuanha wine was administered, and then some lukewarm water. He vomited freely, and four pieces of the nut were found in the vomited matter. Of the other boy, his father stated that "his eyes were working," or, as his mother said, "as if the nerves were upon him." He complained of severe pain in umbilical region; looked sleepy, listless, and depressed; and wished to go to bed. In a few m. copious vomiting ensued. He was so feeble as to be unable completely to eject the vomited matter, and a neighbour, on putting his finger in his mouth, removed 4 or 5 pieces of the nut. He then requested to be taken to the closet, but could neither stand nor walk. He was freely purged. Face was pale, eyes heavy, pupils and pulse natural. On the d. following the children complained of sickness and declined their food. On the 3rd d. they were quite well. (YOUNG, *Ed. Med. Journ.*, x, 192.)

4. A crowd of children ate of beans found among sweepings of a

ship from Africa. Forty-six of them were brought to Southern Hospital (Liverpool). Their most prominent symptom was loss of muscular power, and a state of prostration, characterised by feeble slow pulse, cold perspiring skin, and cold extremities. Vomiting was present in nearly all the cases, and diarrhoea in $\frac{1}{4}$ of them. Pain like that of colic was said to have been felt at the commencement of the illness, but subsequently there was a remarkable freedom from suffering. In a proportion, not stated, the pupils were contracted; in one case they were observed to be contracted during sleep, but dilated when patient was aroused. In no case was there any form of convulsion. Only one case proved fatal, and that was a boy of 7 already weakened by phthisis, and who was stated to have eaten 6 beans on an empty stomach. He staggered as he walked, and then fell, kicking and rolling as if in pain, but afterwards became quiet. He could not hold up his head, and complained of a heavy weight at chest. His pupils were not contracted. He was much purged; pulse barely perceptible; respiration rattling; skin cold and face livid. He was quite conscious, and able to swallow water. Directly after drinking he died without a struggle, some froth at the time issuing from nose and mouth. On dissection the body presented no peculiar appearances belonging to the poisoning, except a fluid condition of the blood, which also distended the heart, whose muscular substance was very flaccid. The mucous membrane of the stomach was of a pale pink colour. (*Med. Times and Gaz.*, 1864, ii, 406.)

III. *Experiments on animals.*—1. *a.* After a small fatal dose a slight tremor seizes the animal, beginning posteriorly and advancing forwards. The posterior limbs soon grow powerless, next the anterior extremities, and then the trunk, till muscular movement ceases, and the whole frame becomes limp and flaccid. The bowels and bladder are often evacuated, and the pupils generally contract. At this stage all reflex action of the cord is destroyed. Respiration grows stertorous in inspiration as well as expiration, and also slow and irregular. Consciousness is preserved as long as life lasts, and while paralysis remains incomplete signs of sensibility may be elicited. Immediately after death the pupils dilate. After death the muscles are found unaffected; they contract when cut, and respond to the irritation of their nerves. The heart continues to beat the usual time after death, its parts ceasing to contract in their regular order. The intestines exhibit their vermicular action. The large veins of the thorax are distended, as well as those upon the surface of the brain; the lungs, liver, and kidneys are engorged; cord normal.

b. After a large fatal dose, death occurs sooner, and the symptoms follow each other in quicker succession, but they are substantially the same. After a very large dose, death may be almost instantaneous, and it appears to be due to syncope; for when the body is opened, the heart is motionless, dilated, and flaccid, and contracts but languidly on stimulation. The vermicular movements of the intestines are also more sluggish. (*FRASER, loc. cit.*)

2. A great number of other experiments have been made upon the lower animals. Their results are on the whole so uniform that it

seems needless to present them separately; and the following may be stated as the result:—

a. The normal poisonous action of the bean is to cause speedy general paralysis, and death from failure of respiration—consciousness being unaffected. The seat of the paralysis is the spinal cord itself, the vital properties of the nerve-trunks and muscles being found intact. Reflex action is abolished, and also sensibility so far as pain is concerned; but tactile impressions are perceived, and the muscular sense seems perfect. The muscles themselves are the seat of tremors and fibrillary contractions of a very persistent character, which seem due to a direct action of the drug upon them. In those of the involuntary class this excitation goes on to active movements, so that stomach, bowels and bladder expel their contents with frequency,—the intestines being often twisted up in knots. All the secretions—sweat, tears, saliva, feces, urine—are somewhat increased.

b. In moderate doses the bean simply retards the heart's action, not regularly, but by prolonging the diastole, in which—when fatal poisoning is induced—the organ stops. The retardation seems due to an exaltation of the inhibitory power of the terminal extremities (not of the central origin) of the vagi. It is accompanied by heightened arterial tension, and the power of the heart is not diminished. But a larger dose perceptibly weakens the cardiac impulse, and a very large one may paralyze the organ at once.

PHYTOLACCA.

Phytolacca decandra, L. Poek. Nat. Ord., *Phytolaccaceæ*.

1. *Provinge*.—J. KUMATA (1835) proved tinct. of root, leaves, and flowers, taking 5 doses of ʒss—60 dr. Pressing pain in r. side of throat; occasional shocks of pain in region of heart, and, as soon as this ceases, a similar pain appears in r. arm; drawing pain in r. hand, now and then by shocks, upwards to elbow; rheumatic pain in l. hand, then in r. (2 d.); in end of l. thumb shooting like needles; similar sensations in legs and feet. (HERRING, *Mat. Med.*, vol. 2.)

2. GEAR (1835) proved tinct. of root (manner not stated). Shooting pains in r. ear, very quick; disposition to bite teeth together; mouth fills with water. (*Ibid.*)

3. BAUER (1835-7) observed following symptoms from triturating root, and from dilutions up to 3rd:—Vertigo with dimness of vision; dull feeling in head; dull pain in forehead; pressure in forehead after dinner, most in glabella; pressure in temples and over eyes; heaviness in head, especially in temples; drawing pain in r. temple; slight pain in forepart of head, with increased sense of hearing. Sensation in eyes like that caused by horse-railish; pressure in eyes; feeling in eyes and nose as if a cold would come on, continues all d.; pressure around eyes in afternoon as if eyes were too large. A painless tumour which he had under l. ear became red and painful; a pustule behind r. ear; a small boil behind r. ear, which appeared 4 weeks before and was healed, returned and suppurated, discharging blood and matter. Drawing sensation about root of nose; cold in the head, r. nostril stopped during whole d. and next m. Heat in face after dinner; face turns pale; very peculiar pressure and tension in parotids for several d. Eruption on upper lip under nose, l. side, forms a crust; irresistible desire to bite teeth together; shooting pains in molar teeth of upper and lower jaws of r. side, in one who never suffered with toothache before. Taste like nuts in mouth; flow of saliva into mouth; saliva yellowish, and has a mercurial taste; two small ulcers on inside of r. cheek, like those caused by mercury, so painful that he must chew on l. side. Unpleasant sensation of dryness in

PHYTOLACCA.

pharynx towards m., which makes him cough; roughness in pharynx; sensation in throat like that caused by racing choke-pears. Raging appetite; hungry soon after eating, several d. in succession; eructations with spitting of water. Cutting pain in pit of stomach and abdomen; violent pressure in stomach on waking in m., with accumulation of water in mouth, disappears after rising, the same next m. Violent dull pressing pain in spleen in e., so that he cannot remain in sitting posture, he lies on painful side all n., and the pain is gone next m. Gripping pain in abdomen like that before diarrhoea; gripping all d. long, followed by passage of offensive flatus, the gripping disappears in p.; cutting in abdomen; rumbling noise in abdomen. Hard stools; continual inclination to go to stool; 3 stools during d., first hard and preceded by gripping, others with pains moving about abdomen, 2 d. in succession. Gurgling sensation in prostatic gland, repeated p.m. Hardness of a mushy stool. Gurgling sensation in weight and pressure on both shoulder-blades as gland r. side of neck; sensation of weight and pressure on l. shoulder-blade as after carrying heavy loads, lasting several d.; a faving pain on l. shoulder-blade, as if from a blow; occasional sensation as if a small piece of cold iron was pressed on the painful shoulder-blade; painful boil on l. side of back. Slight drawing pains in r. upper arm; rheumatic drawing in r. forearm,—in l. along ulna, and same sensation in r. leg; rheumatic feeling in r. little finger, very annoying when writing; shooting in finger-joints, sometimes one hand, sometimes the other; occasional stinging sudden pricking in points of fingers as if from electric sparks. Rheumatic feeling in l. knee, with sensation of shortening of tendons behind knee when walking; heaviness in knee-joints, tired from a little walk; pain in spot on balls of toes of r. foot, which had been frostbitten years before, and in a corn never painful before; free sweating of feet, most under toes; heaviness in lower extremities as if they were asleep, p.m. Drowsiness; restless sleep at n., he lies on his stomach. (S&L.)

4. JENNER (1846) took 2x—4x dil. of a tinct. from root, leaves, and blossoms, 4 dr. on sugar at a p.m. (how often repeated is not stated). Aching pains throughout head; pain in l. region of "combativeness;" pain in l. temple, followed by burning in skin in l. region of "time." Increased long-sightedness; after discontinuing medicine was less long-sighted than before; great dimness of sight for several d.; smarting in l. eye; sandy feeling in eyes; itching at internal canthi, very severe, which caused application of finger to rub the eye, ball very painful from the slight pressure; pain just above eyebrows, with sickness of stomach, pain increased by looking down and by stooping. Irritation extending from posterior fauces into one Eustachian tube. Taste bitter at first, but leaving slight feeling of smarting and coldness towards tip of tongue. General soreness in posterior fauces, and apparent extension into one of Eustachian tubes; great dryness of throat. Eructation of flatus; feeling of sickness as if he would vomit. Pain in region of pylorus. Tickling in l. side of larynx with hacking cough, aching pain in r. breast, and great dryness of throat. Pain throughout muscles of l. shoulder; pain at humeral insertion of l. deltoid. (S&L.)

5. E. M. SMITH. (Manner of proving unknown.) Dull, steady, aching pain, principally in forehead; shooting pain in top of head, which passes off and returns at intervals; heavy aching pain about forehead after dinner. Photophobia in m., burning and smarting in l. eye, with great flow of tears; sensation as if a grain of sand lodged under l. eyelid, causing flow of tears from that eye, lasting 15 d.; soreness on closing eyelids; flow of tears from eyes all the time, relieved in open air; reddish-blue swelling of eyelids, worse on l. side and in m., cannot shut eye without pain whole forenoon, better p.m.; agglutination of eyelids during n.; many symptoms of eyes felt a month after taking medicine, especially on shutting lids at n. A flow of liquid mucus from one nostril while other is stopped, as in coryza. Tenderness and heat in roof of mouth and on tongue. Throat felt dry and sore, especially while swallowing, p.m.; dryness of throat on going to bed; soreness of throat, and sensation when swallowing saliva as if a lump had formed there—same sensation felt on turning head to l. side; sore-throat and swelling of uvula in m., with thick white and yellow mucus about fauces, after removal of which throat felt better, and still better after breakfast. Appetite not so good as usual. Pain in r. chest, so bad after

* This and the four following provings appeared originally in the 2nd vol. of the *Trans. of the Amer. Institute of Homoeopathy*.

midnight as to prevent sleep, worse by lying on r. side, after getting up in m. it passed off almost entirely; pain in r. side of chest, in region of nipple, passing through to back, felt on deep inspiration and on heaving shoulder backwards, better p.m. Stiffness in r. side of neck, worse in bed after midnight. (*Ibid.*)

6. NEUBARD took 30 dr. of 30x dil. Increased cheerfulness of mind. Slight pain in tuberosities of forehead. Catarrhal inflammation of eyes; coryza and cough, with redness of eyes and lachrymation, photophobia, feeling of sand in eyes, with soreness and burning. Dryness in throat, worse m. and e. (*Ibid.*)

7. WILLIAMSON. (Manner of proving unknown.) One-sided headache; pain in region of "temple" and "mouthfulness," r. side; shooting pain from l. eye to top of head; sore pain over head, worse on r. side and in damp weather, as if attack of sick headache were impending; sensation of soreness in interior of head, deep in brain; headache from walking; moving, transitory pains in various parts of head, almost constant for 10 d., generally one side at a time, but more frequently and most severe on r. side. Smarting in internal canthi of both eyes, but worse in l., and much aggravated by gaslight in e.; aching pain along lower half of orbit. Pain in both ears, worse in r. Discharge of mucus from one nostril at a time, sometimes one, sometimes the other. Heat and redness about face and head, with sense of fulness, coldness of feet at same time. Dryness of palate in m.; sensation of dryness of spot in fauces l. side, in m., till after breakfast; dryness of throat, worse in m. The usual appetite remaining, notwithstanding nausea of stomach. Sickly feeling in stomach; sickness of stomach, accompanying headache; nausea on waking less sleep at n. Digging pain in r. hypochondrium, in upper and outer portion of liver, preventing motion, at a p.m. and every m. before daylight for 30 d. afterwards, some soreness remaining p.m. and e.; violent lie on l. side after midnight on account of penetrating pain in r. hypochondrium. Boring pain p.m. to l. and a little above umbilicus, lasting but few m.; deep-seated but not severe pain in l. iliac region. Diarrhoea, attended with sickly feeling in bowels, but no tormina or tenesmus, evidently kept up by increased action of liver and redundancy of bile, copious discharges of bile from bowels. Dry bronchial cough, with sensation of roughness and slight increase of heat in trachea and bronchi. Rheumatic pain in r. knee p.m., increasing in open air and especially on a damp d.; coldness of feet, with increase of the capillary circulation about face and head. (*Ibid.*)

8. KITCHMAN took 4 dr. of 1 $\frac{1}{2}$ Jan. 8th and 10 dr. on 7th; 30 dr. of 2x on 10th and 40 dr. on 11th. Painful pressure on forehead and upper parts of eyes; slight constriction across forehead; slight fulness of forehead with constant gazing; neuralgic pain in l. groin; in middle of n. neuralgic pain shooting from anus and lower rectum along perineum to middle of penis, followed in a few m. by same in r. big toe; consecutive feeling at præcordia, with pressure on temples; lancinating pains in l. little and ring fingers; neuralgic pain in outer part of r. thigh. (*Ibid.*)

9. RUES. (Manner of proving unknown,*) On waking in m. sense of entire indifference to life and disgust for business of d.; pain in vertex and sensation as if brain were bruised, when stepping from a high step to ground; sense of obstruction in l. Eustachian tube, with rushing sound in ear of same side and feeling as if hearing were dull; whereas it is fully sensitive; total obstruction of nose, only when rising, obliging breathing through mouth, but relieved by blowing nose; pit of stomach tender to touch; tenderness of muscles of chest, as if they were bruised; dull aching and tenderness along top of r. shoulder, along upper edge of trapezius, increasing by pressure and by contracting muscle, dull aching and excessive tenderness, as from a bruise, in outer muscles of r. upper arm, most severe about 2 in. above elbow, felt particularly on pressure and during extension of arm,—in l. tenderness at corresponding spot, similarly excited; twitching and fluttering in muscles of r. upper arm, while hand rests on a table. (*Ibid.*)

10. Dr. BEAT proved both P. and its "concentrated preparation" phytolaccin, but in manner unknown. The following results are

* In Hering's chronological list of sources we have "1835-5, Bauer, C. Hering;" and in the information he gives as to process, &c., "C. Hering proved the tincture from the root." In the actual pathogenesis, however, we have no symptoms from him, but there are a number from Rues, who is not mentioned in the above lists. Possibly, therefore, Hering may have proved on his person (see Almsen, J., 2).

reported:—Dull heavy frontal headache (a constant symptom); sharp shooting pain in r. temple. Great smarting in eyes and lids (constant); dull heavy aching pains in eyeballs, aggravated by motion, light, and especially by reading; sensation as if there was a feather over the light; lids agglutinated every m. Tongue feels rough, with blisters on both sides, and very red tip; great pain in root of tongue when swallowing; teeth all ache and are very sore, and feel elongated; metallic taste in mouth. Great dryness of throat; roughness in pharynx (constant); sensation as of a lump, as if something had lodged, in throat, causing constant inclination to swallow; great congestion and swelling of soft palate and tonsils, r. tonsil half as large again as l., and both very dark red; great heat from fauces down œsophagus; constant choking sensation, and so much pain for 2 d. that he could only swallow liquids. Eructations of air, or of some fluid; great distress in stomach and bowels; pains at cardiac end of stomach, aggravated by full inspiration and by walking; nausea with very faint feeling, with severe pain in umbilical region; slight nausea with profuse and easy vomiting, followed by much prostration. Constant dull pain in umbilical region, worse by motion, severe colicky pains there, or burning distress; abdomen very tender on pressure, and pains severely on walking; stools of various kinds, sometimes with straining; pain in l. hypochondrium when walking; hiccup with great inclination to vomit. Urine at first diminished, afterwards increased; it remained acid, but became decidedly albuminous, with increased sp. gr.; bottle containing it became lined with white deposit, about $\frac{1}{8}$ in. thick. Severe pains between scapulæ when walking; constant dull heavy pain in lumbo-sacral region, aggravated by motion; back stiff every m. Arms ache; ends of fingers all throb and ache, as if they were going to suppurate (for 3 d.); legs ache and feel very stiff about knees, worse on walking, which he did with difficulty. (HALL, *New Remedies*, 2nd ed.)

11. a. Aug. 15th, 1864, Dr. H. B. FELLOWS put 10 dr. of saturated tinct. of dry root in $\mathfrak{z}\text{ij}$ of water, and took a tenth part about 1 h. before dinner. Slight fulness in throat was only symptom experienced. 16th.—Swallowed about twice as much of same preparation about 1 h. before breakfast. Again fulness of fauces and upper larynx, with sensation as of a lid there, which lasted till after noon. 17th.—Put 3 dr. into $\mathfrak{z}\text{j}$ of water, and took half about 11 a.m. Some fulness followed, with disposition to hawk; whilst riding, $1\frac{1}{2}$ h. later, aching in pyloric region, gradually working up into chest of same side. During n. very restless, though suffering no pain; could not get to sleep till late. 18th.—During forenoon severe headache, which began soon after breakfast, sometimes in whole head, sometimes in temples or occiput only, when in temples accompanied by slight vertigo. Walking or riding increased it, walking most. L. shoulder ached for some time about noon; towards e., whilst riding, laming pain began in l. back, below scapula, which by 9.30 had reached spine, and was pricking and stitching. In n. woke with lameness in l. side, near heart, with much nervous restlessness; could not get to sleep again for a long while; lameness was felt whenever he moved, and especially during expiration.

These pains in chest appeared occasionally for some time after. During proving, mind was gloomy and more than usually irritable.

b. Nov. 4th, took 12 pellets of 1st dil. (from green root) at 11.30 a.m. In a few m., smarting in fauces. At 5 p.m. headache in vertex, beginning while riding, motion increased pain and caused vertigo, pain lasted till he went to sleep at n.; forearms ached after going to bed, pain seemed in bones, and was uninfluenced by position. 5th.—Stinging pain in l. instep, relieved by pressure. 6th.—About 11 a.m. feeling of weight in head and vertigo began; heavy feeling extended down through shoulders and chest, and later in d. through legs. 7th.—Took 15 pellets of same at 10 a.m. While riding in forenoon sense of plug in throat, not relieved by hawking, later replaced by increased discharge of mucus from posterior nares, which was tenacious, and continually excited disposition to expel it. 1 p.m., striking pain in ball of l. foot for about $\frac{1}{2}$ h., then heavy aching in head, with vertigo and indisposition to mental exertion. From noon till n. feeling of general lassitude.

c. 14th.—Since last date sticking stinging pains in various parts of extremities, from without inwards, but not very deep. Took 8 dr. of 1st dil. at 9.45 a.m., and started on ride immediately afterwards. Soon heaviness of head came on, accompanied by feeling at back of tongue as if burnt, sensation of throat being so full that it felt choked, followed by much hawking and raising of mucus. Sense of fulness and as if something had lodged on l. side of throat came on after bending head forward in writing, and was aggravated by turning it to l. Regurgitation of food through e. and until l went to sleep; feeling of weakness at stomach, causing frequent yawning, attended by stitching pain through part. Itching on l. calf, afterwards on r., with, later, a lichenoid eruption. Itching lasted 2—3 weeks, always worse first part of n. (*Ibid.*)

12. Dr. A. V. MARSHALL, in perfect health, pulse 80, took sinct., 10 dr. at 9 a.m., 20 at 11, 30 at 12, and 60 at 2 and 9. After 2 o'clock dose felt dryness of larynx, and sensation as if trachea was strongly grasped. These feelings grew worse in e., and after last dose there was added heaviness at top of head. On 2nd d. awoke with stiffness about neck, tonsils sore and somewhat swollen, profuse saliva, dryness in trachea, dry cough. Took 3ss at 8 a.m., 3iij at 3, and 3iv at 6 p.m. After 2nd dose pressure at top of head, lasting an h. After 3rd, headache, very dry cough, sense of dryness in lower trachea and upper bronchi, redness and soreness of throat, tonsils swollen; pulse 84, at which rate it continued throughout proving. 3rd d.—At 6 took 3iij. and at 11 a.m. 3iv. Slight headache all d.; dryness of trachea, dry cough, without relief; heat in stomach after taking drug; at noon sharp pains running up each spermatic cord; profuse saliva each d. 4th d.—Took 3iij at 8 a.m., 3iv at 12 and 2. In m. hard grinding pain shooting up both spermatic cords; for last 2 d. urine double in quantity and clear as water; throat dry, sore, cough, and red all the time; hoarseness at times but not continually; saliva profuse; metallic taste in mouth; cough dry, with but little expectoration. 5th d.—Took 3iv at 7 a.m., 3iij at 2 p.m. Same symptoms as yesterday. 6th d.—

Symptoms declining. Continued soreness of spermatic cords, instead of paroxysmal pains experienced on preceding days. A white coating on tongue, which appeared 3rd d., still persists. 7th d.—No trace of drug disease remaining. (*Ibid.*)

13. Dr. E. COOLEY took, March 1st, 1869, at 4 p.m., 5 gr. of powdered root. 6, pain and pressure in temples, pain and suffocating feeling in throat and lungs; cough, with expectoration of tough mucus. 8, severe pain in temples; much coryza; feeling in throat as though it was burned; severe pain in r. lung; feeling as though he were breathing through a sponge; almost constant expectoration of tough mucus. Restless through n., with pains in knees, arms, and chest; pain in forehead and temples very severe, with feeling of lassitude. and.—7 a.m., felt sore all over, from head to foot; pain in temples and forehead, in lungs, and in transverse colon; pulse hard and full. 11, all symptoms, save pain in bowels, somewhat aggravated; pain in back of neck, running down spine, in upper jaw, and in teeth. 3 p.m., pressure in head, as if it would burst; rheumatic feeling in all joints; pulse 110, full but soft; slight nausea most of the time. By 10 most of the symptoms were subsiding. 3rd.—At 8 a.m., 10 gr. 11, pain in temples with pressure outwards; pain and suffocation in lungs, throat, and fauces; severe coryza; pain in upper jaw and l. lung; heat in head with slight dizziness and nausea; tongue coated yellow and dry; pain in loins and diminished urine. From this point symptoms began to abate. (*Trans. of N. Y. State Hom. Med. Soc.*, 1870, p. 332.)

14. Dr. W. M. WILLIAMSON, Nov. 26th, 1870, about 5 p.m., chewed and swallowed juice of a small piece of fresh fleshy root. 5.30, general disturbed feeling in stomach, with dulness of head, increasing till 6.30. Went home, feeling better immediately upon going into open air. On then sitting down to tea unpleasant feelings in head and stomach returned, and he could eat nothing. 8.15, these symptoms nearly gone; dry sensation in upper pharynx; disposition to hawk and clear throat, without affording relief; sensation in r. nostril as if tickled with a stiff feather. 27th.—9 a.m., dryness and hawking continue, several small pieces of tough sticky mucus raised; smarting and stinging in nostril. After riding, 10—1, in an open carriage sensations in throat and nose almost entirely gone, but they returned after being in a warm room about 2 h. Had 3 natural stools this d., very unusual. 28th.—All symptoms gone. (*Trans. of Penns. Hom. Med. Soc.*, 1870-1, p. 179.)

II. *Poisonings*.—1. Dr. W. WARREN chewed 3 or 4 gr. of a freshly gathered root about 3 p.m., and another gr. or two an h. later, swallowing only the juice. At 4.30 felt dull pressing pain in forehead, with slight nausea, cool sweat on forehead, and sense of weakness. Took a meal with usual appetite. Nausea and headache, somewhat relieved by eating, soon returned with increased severity, and at 5.35 he began to vomit ingesta at intervals of 10—15 m. Nausea hereby relieved, but pain in forehead increased; dull bruised pain in occiput; constant flow from mouth of thick, ropy, tenacious saliva. 6.20, vomited an acrid substance, which caused sense of scraping and excoriation in throat; cool perspiration, especially on forehead and

hands; great muscular debility and lassitude, with desire to lie down. 7, continued acid vomiting, in intervals empty retching; muscular weakness increasing; dull pain through whole head; rawness in throat; all symptoms worse on motion and in open air save headache, which air relieved. 7.35, same; vertigo and dimness of vision set in, and increased; warm water and coffee were both rejected. Went to bed, which relieved all symptoms save sore-throat and salivation; sleep restless, disturbed during first half of n. by scraping and tickling in throat, which occasioned frequent disposition to cough. Next m. lassitude and indisposition to move; sense of rawness and scraping in throat and tonsils, as if something were lodged at root of tongue; feeling of intoxication and weakness on rising and moving about; appetite at breakfast fair, all symptoms relieved by eating. His countenance looked sickly; sclerotics and face of dark yellow colour; bruised and sore feeling at pit of stomach, with pain there. He gradually improved, and by 4th d. was quite well. (*N. Y. Trans.*, 1865, p. 324.)

2. Dr. BARENHUNG ate small portion of root, about size of cherry, and gave some to several friends, about noon. Soon after, all who had eaten it began to vomit. Matter ejected was first aliment and then a dark bilious substance, which came away freely. Purging now set in, and continued, with considerable griping and cramps, all p.m., vomiting also occurring every 15—20 m. Towards e. all were confined to bed; extremities cold, pulse very low, eyes deeply sunk in orbits, vomiting and purging still continuing. Some black coffee was taken, and after this vomiting ceased, but purging (painless) continued. All passed a restless n., with some fever and considerable thirst; but next m. all dangerous symptoms had passed off. They felt very weak, especially in abdomen, with little or no appetite, for several d., during which the diarrhoea continued. (*HALL, op. cit.*)

3. Feb. 19th, 1865, at 8 a.m. I was called to a deaf and dumb boy, æt. 6, who had swallowed an h. or so previously 1—2 drachms of tinct. of P. His extremities were stiff, hands firmly closed, feet extended and toes flexed; eyes bleared and dancing; pupils contracted; lower lip drawn down; teeth clenched; general muscular rigidity and opisthoronos; pulse 85, soft; breathing difficult and oppressed, mucous râles audible throughout room. A messenger was despatched for cupping case and mustard. During his absence (2 h.) muscular rigidity increased generally; chin was intermittently drawn down to sternum and relaxed again. Cold had been applied to scalp; and he was now cupped freely over temples and upper spine, with sinapiam on neck and sternum, a stream of water being allowed to flow gently upon head. After an h. of this symptoms began to abate, and by noon jaws had so relaxed that he could drink a cup of milk. He then slept 20—25 m.; on waking, slight jerking and twitching of muscles, especially of legs. He made signs indicating pain in back of head and stomach. Cold water applications were continued, and at 4 he again fell asleep, and remained so for 1½ h. The distressing symptoms had now almost disappeared, and next m. he was up and frolicsome, though sore and somewhat stiffened. There was no vomiting or purging, and urine was retained for 10 h. (*GALLES, in Ibid.*)

4. I was called, Sept. 25th, 1865, to see a boy of 8, suffering intensely, from cause unknown. I found him in great agony, saying that his stomach was "pinched together;" there was nausea and violent vomiting. He acknowledged to having eaten a number of poke-berries, and their seeds and skin were found in the egesta. His throat felt sore and dry; fauces were congested and of dark colour, tonsils a little swollen. After vomiting ceased he had severe purging; stools were dark brown, and thin; there was severe pain in stomach on pressure, causing him to cry out. Vomiting and purging stopped $\frac{1}{2}$ h. after my seeing him. He afterwards complained of slight nausea; burning griping pains in umbilical region; dimness of vision; tongue coated white, and spasmodic jerkings of arms and legs. He was put to bed and slept well during n., and next m. was well as ever. (C. H. LEZ, in *Ibid.*)

5. a. A woman, æt. 45, sanguine and robust, had had good health till a year ago, when she was laid up with rheumatism, followed by anasarca, &c. She was ill several months, but finally recovered, resumed active duties, and was to all appearance well save for a slight pain in r. hip. A month later I was called to see her, and found her suffering intensely with pains in the joints, and in the bones of face and head,—suffering from which was so intense that she had not slept for nights. In addition, she was covered from scalp to soles with an eruption the like of which I never beheld. It consisted of erythematous blotches, of irregular shape, slightly elevated, of a pale red or pink colour, very sore and painful, itching slightly only on desquamation, but too sore to allow of any scratching for relief, and terminating in a dark red or purple spot,—taking about 30 d. for each spot to pass through its stages, and the same time for the whole to advance from head to feet, so that it could be seen at one place or other in all stages of its development. There was no fever, or swelling save in face, and appetite was good. On examination I found "nodes" at the painful spots. Syphilis was absolutely excluded, and no mercury had been taken; but inquiry elicited the fact that about a month before she had been induced to take a "blood-purifying remedy," consisting of a pint of whiskey with 3 oz. of poke-root in it. Of this she had taken a "swallow" three times a d. until I was called.

b. I made her discontinue the drug, and gave mercurius solubilis, 3x tris., which relieved the sleeplessness at once and finally also the pains. The eruption, however, grew worse rather than better, and even invaded the conjunctiva and the mucous membrane of nose and mouth. After 3 mo. it had left the external surface, but was visible on fauces and pharynx. (GRASSMUCK, in *Ibid.*, 4th ed., vol. i. Dr. G— mentions that in a similar case a severe rheumatism of l. shoulder was induced, but gives no particulars.)

6. A family, consisting of father, mother, and three girls of 6—12, were poisoned by eating poke-root grated with horse-radish. The following symptoms were observed:—Dread of movement; dulness, giddiness, and vertigo; semi-stupor, falls asleep immediately after a paroxysm of cramping has ceased; pains in forehead, worse after eating; sense of soreness in interior of head; headache with sickness at

stomach, coldness in head; pallor of face, which looked blue and suffering; dryness of fauces; throat very dry, rough, and sore, with feeling of a lump therein; constant thirst; violent vomiting of clotted blood and slime, with retching, intense pain, and desire for death to relieve; violent cramps, vomiting, coldness, and diarrhoea, with most intense distress at stomach ($\frac{1}{2}$ h.); cutting, tearing, straining pains in stomach, followed by soreness to pressure; griping in abdomen, as before and after diarrhoea; bearing-down pains; continued inclination to go to stool, with much straining; diarrhoea with sickly feeling in bowels; copious discharges of blood, mucus, and what looked like scrapings of intestines; involuntary stools, from straining, which continued even in sleep; weakness, pain and soreness in region of kidneys; straining to pass water; involuntary straining and hæmorrhage per vaginam; uterine pains, returning at intervals for 2 d., uterus could be felt contracting under hand (woman was in 7th mo. of pregnancy, and came near having a miscarriage); intense griping pain in small of back; cramps in lower extremities, muscles gathered into great knots, hard and rigid, coming and going suddenly, followed by drowsiness and stupor, even full sleep, muscles left flaccid and sore; great coldness and withered appearance of extremities, they felt like those of a corpse; whole body cold. (W. L. GILMAN, in Hering.)

7. A medical man dug up, in season for obtaining it, a root as large as his fist, and on his return began slicing it up. Being interrupted by a call, it was 2 h. ere he had finished job. In course of another h. eyes became much inflamed, and tears flowed continually; they were relieved by going into open air. He also felt general weakness and discomfort. Next m. eyes were agglutinated and oedematous, as if poisoned; and he had fluent coryza. This state of eyes and nose lasted about 2 d. After it had passed off he had a diarrhoea which recurred 3 m. The dejections were very abundant, and did not cease until they became almost watery; they came on at 1—2 a.m., and lasted until after breakfast; flatus was abundant. There was no loss of appetite and no pain. (Besides inhaling emanations, Dr. — took a few dr. from macerating jar before much of the virtue had been extracted.) (HALE, 2nd ed.)

8. A druggist pulverised dry root. Soon after he felt burning sensation in nose; then dryness of throat, soon becoming soreness; thin, watery discharge from nostrils, increasing till nose became stuffed; headache, commencing in frontal region and extending back; dysphagia, even for water, every attempt to swallow was attended with excruciating shooting pains through both ears; saliva increased; difficulty of breathing, inability to breathe through nostrils; pulse over 100; vertigo. Dyspnoea being so great, he took ʒj of sweet spirits of nitre with ʒij of liq. ammoniæ acetatis, which so relieved him that in 1 h. nearly all the symptoms had vanished. (J. LESTER KEEF, M.D., in *Ibid.*)

9. Last month I was called to attend ten young women who were all employed in one of our wholesale drug houses. They were engaged in packing the ground or powdered drugs. For some d. past a large quantity of poke-root was ground up—the fine dust filling the room

and being inhaled by the girls. They all presented the same symptoms, with but slight variation:—Intense headache; eyes much inflamed, red, with flow of hot tears; throat red, tonsils swollen, painful to swallow; constant irritated feeling in throat, producing desire to cough, worse from exposure to cold air and better in the warm room and after going to bed; tendency for the cough to produce nausea; nose sore, with profuse acid watery discharge; no appetite; food inclined to produce pain in stomach; tongue much coated and feels as if scalded; slight diarrhoea in two cases, in others no special effect on bowels; menses suppressed in 4 cases, it had never been delayed before with them. The irritation of trachea and larynx persisted in some of the cases for 10 d., but in the others lasted only until 7th d. (Dr. W. ST. JOHN HARRIS; communicated.)

III. *Experiments on animals.*—1. When given to animals in large doses it produces vomiting, purging, bloody stools, perspiration, drowsiness or stupor, cough, tremors, convulsive movements, increased urination, and distension of abdomen. The flesh of wild pigeons and other birds which eat the berries acquires a highly red colour and disagreeable flavour, and is destitute of adipose substance. (SCHULTZ, in Hering.)

2. Dr. BURT experimented on animals—manner not stated. Effects mentioned as observed are—many convulsive symptoms; nausea and violent vomiting; vomiting of worms. *P.M.*, trachea and lungs filled with mucus; stomach highly congested at base, as also colon and rectum, liver and kidneys. (HALL, *op. cit.*, 1st ed.)

PLANTAGO.

Plantago major, L. Greater plantain. Nat. Ord., *Plantaginidæ*.

I. *Proving.*—1. Dr. FRANKLIN proved tinct. of whole plant.

a. He took, one m. at 7.30, 1 dr. in water. During d. griping with (inodorous) flatus. A little after retiring to rest at n. was suddenly awakened by urgent call to stool, of quite unprecedented intensity. Passed matter at first soft, then liquid, with smarting and fresh tenesmus; also itching in urethra and much borborygmus. After 1 h. sleep awoke with repetition of same in every particular, and the same thing occurred at 6.30 a.m. During d. he had 3 more stools, at 10 a.m., 7 and 8 p.m., followed by great weakness.

b. Some weeks later repeated dose at 7 a.m. At 12, griping and very soft stool. Craving for food not long after *dinner*, making him anticipate hour of dinner. For rest of d. slight borborygmus, dryness of throat, thirst, and no further appetite for food. After a good n. sudden waking with desire for stool, as before; stool loose, without tenesmus; slight smarting along urethra during passage of urine; nausea alternating with desire for food; eructations with odour of rotten eggs (he had eaten none). He had 3 more stools at hourly intervals, quite liquid, without smarting or tenesmus, but showing numerous albuminoid flakes, like those of cholera. At 9.30 p.m., after somewhat tiring mental work, lassitude followed by general heat, pulse 100, moderate headache. At 10. later, after a 7th evacuation in all respects like the others, there was great decline of fever and return of appetite. Next d. still some evidence of action in shape of a soft grey stool. (*Bull. de la Soc. Méd. Hom. de France*, ii, 397.)

2. a. Mr. A. HEATH, Nov. 9th, 1866, took 1/2 dr. of 75th dil., and repeated same on 13th. On 13th, severe headache over l. eye and side of head, with great irrita.

tion; cannot bear being spoken to. 16th.—Took 6 dr. of 6th dil. On waking in m. of 18th, violent bruised sort of headache over scalp and back of head; was unable to rest long in one place on pillow; relief for a time by resting on part in pain. On next repeated dose, [Nothing noted till 24th, when a long list of symptoms is recorded, which continued to be observed, with variations, during the next six weeks. On Jan. 8th he reports, "All symptoms relieved or gone;" but on 23rd and 24th another hatch is given, and here the narrative suddenly stops.]

b. June 21th, 1867, took 20 dr. of 2nd dil. 24th.—2 a.m., slight discharge of bright blood in the stool, no pain. 9, pain over l. eyebrow and deep in scalp, a bruised dull aching, relieved by shutting eye; irritable feeling in head, with soreness of eyes; transient drawing pain under r. breast; inclination to diarrhoea; feeling of nausea; coldness and shivering. 10.45, repeated dose. 12, shivering; felt very cold. 1 p.m., inclination to diarrhoea, with cutting pain under navel; diarrhoea with discharge of bright blood, and painful urging as if gut would protrude. [Remainder of record of this proving has been lost.]

c. June 25th, e., took 6 dr. of tinct., and repeated dose at 8.40 next m. 9, huskiness in throat, with accumulation of very tenacious phlegm; unable to clear throat, with slight sore, burning feeling. 10, bruised feeling, with fulness, in both temples; feeling of suppressed irritability. 11.30, violent gripping in bowels, causing perspiration, and diarrhetic stool, brown, fermented, frothy, with urging. 12th.—At 12 a.m., 3 dr. 12th.—Awoke with huskiness and soreness in throat, with rawness and irritation; difficulty of clearing throat; feeling as if he had taken cold. 9.30, very sharp, sudden, gripping-drawing pain at l. of navel, causing him to cry out.

d. Oct. 23d, at 12.30 p.m., took 10 dr. of 10th dil. and.—On waking, feeling of rawness in throat as if he had taken cold. 11.30, sudden discharge of yellowish water from r. nostril, repeated twice within h.; great soreness and tenderness of navel, as if ulcerated, cannot bear contact of clothes; feeling of irritation in forehead; impatient to get anything finished. At n, repeated dose. 3rd.—9 a.m., inclination to diarrhoea, with slight hypogastric cutting. At n, repeated dose. 5th.—In m. awoke with aching in loins, worse on movement; l.-sided headache, mostly in temple, and bruised sensation. By midday this feeling had spread over whole head, pain extending to top of nose; great irritability, cannot bear to be spoken to; neuralgic pain in r. face; nausea, with inclination to diarrhoea; cold sweat at bottom of back; chilly feeling, with flushed face; sense of swelling about head; least noise seems to go through him. Bad taste and odour of breath in m.; pain in head was relieved by pressure for a few seconds, or by contact with anything cold. Feeling in throat as of a slight swelling deep down on r. side. 6th.—Still slight headache and irritability; inclination to diarrhoea; feeling as if slight pressure with fingers would sprain them. 7th.—Pain over r. kidney on waking, worse by movement. At n, repeated dose, and did so again in e. of 10th, only slight rawness of throat with acid expectation having been noticed in the interim. In n. he awoke with sharp attack of (r.) faceache, throat also being much worse. Next d, burning heat of face; after tea much flushed, with headache in l. temple and bruised pain in spot above eye. He continued to have flushing of face in e. for several d., and inclination to faceache, with occasional sharp attacks of it. On 15th bright blood passed rather freely at stool; this recurred daily from 21st to 24th, and again about middle of Nov., preceded by a violent attack of the faceache. Much weakness was left. [These symptoms were quite different from the long train reported as occurring in the first proving, and which we have omitted.—ED.] (*Med. Monthly*, iii, 332.)

3. n. Dr. HUMPHREYS took 12 dil. (manner unknown) on 1st, 2d, and 5th d. First n. was somewhat rawness, and d., in e., some weakness and scraping in throat; a light supper of biscuit and tea sat heavy on stomach till late in n. (never before); had some throbbing of arteries at n., with rawness till 12—1; oppression deep in head and sense of something digging there from one temple to the other. 4th d., unusually profuse discharge of urine. 5th d., woke at 6 a.m. with severe pain in l. hypochondrium, lasting ½ h.; on rising, unpleasant sensation of bruised soreness and tension in integuments of face, especially forehead and around l. eye, with sensitiveness on rubbing or pressure, lasting some time. At 6 p.m., while walking and driving in cool air, pain from over l. eye back towards occiput, somewhat sharp, soon passing off; slight appetite and speedy satiety; integuments of face and head seem unnaturally rigid. At 10 p.m. weakness and pain in loins and lower extre-

mities (this also next d.) 6th d., pretty severe pain from l. forehead deep into brain, coming on sh paroxysms; unnatural sense of dryness in eyelids for several h.; severe painful stiches first in l., then in r. eyeball, more at internal canthus, for an h.; ringing in ears; some chilliness (with slight headache), cold hands and feet for some time; bleeding of gums, quite profuse, on retiring. 7th d., woke with some stiffness in cords of neck (had felt same 3 m. before); jaws uneasy, and some qualmsiness at breakfast, rumbling afterwards; twinges of pain, now in r. temple extending backwards, then through occiput from ear to ear, then in other parts of head, more or less severe; sharp pain in l. temple, transient (while sitting by fire after having been out); itching of r. eyelid; aching of some decayed teeth after dinner; slight appetite; on shaving, face (which is quite tender) is observed to have an eruption of small, reddish, rough, scaly, erythematous patches, size of pea, on l. side usually, and most near commissure of lips,—no decided pain or itching with them, but unpleasant sense of tension; tingling itching in various uncovered parts of skin all the time; at n. many dreams, mostly disagreeable. 8th d., unpleasant sensation in bowels, yet no stool; eruption on face less prominent, yet rough. At 10 p.m., occasional headache, l. side, somewhat deep in brain. 9th d., at 10 a.m. some pain in l. head, and stiffness and itching of eyeballs. On 10th, same headache at intervals; at 4 p.m. severe colicky pains deep beneath l. floating ribs, increased by deep breathing and by lying on that side, continued all n. and next d., occasional eructations without relief. 11th d., stool, which on 4th d. had been quite loose, but passed with much straining and effort, on 8th and 10th d. absent, on 9th loose after much uneasiness in bowels, was this m. loose and urgent; painful weakness of loins, worse on standing, at 10 p.m. 12th d., occasional l. headache; lips livid, dark, and rough (thus for many d.); little appetite, with speedy satiety; occasional sensation as if neck was stiff; lead-like heaviness of limbs at 1 p.m.; burning heat of face, flushed after tea, with headache in l. temple; felt very unwell to-day. 13th d., sometimes flexing pains in both temples, passing in and upwards; sexual power and desire diminished, as throughout proving, no erections for several d.; pains through chest, more l. side and behind; weakness of loins after exercise. 14th d., general depression and despondency, though weather is bright and beautiful; head clouded, heavy, and dull; pains in head, most in l. temporal region, all the time, with but little intermission; rumbling in abdomen after eating; occasional pains through both sides of chest, transient but frequently returning; itching between fingers of l. hand, more or less constant, but worse e. and n. 15th d., 10 a.m., pains begin in head, and often center in ear, mostly l.; soreness of some sound teeth at breakfast; colic pains while eating, not severe but constant.

b. From taking tincture,—up to urinate twice in first n., and passed each time a pint or more of light-coloured urine (never before); restless tossing about pretty much all n., could get no sleep till towards m. Next d. toothache on l. side, before and after breakfast; went off in forenoon, but returned after dinner for an h. or two; again all m. 3rd d., involving sound and decayed teeth of both jaws; again, after rising and washing, on 4th d., and, slighter, on 5th; then no more till 6th d., when it affected him all no. till 2 p.m. There was bleeding from gums on 3rd and 6th d., and again, after preparing some tinct. from plant, on 5th d. On 3rd d. there was painful weariness and prostration, especially in loins and lower extremities, lasting all d. and n.; and on 4th d. almost irresistible desire to lie in bed from general depression and weariness. (Monograph, 1871; from Allen's *Encyclopædia*.)

a. EARNHART, subject to rheumatic pains in damp weather,* took 5 dr. doses of 12 dil. on 1st, 2nd, 3rd, 4th, 6th, 8th, and 14th d. and d., at 6 p.m., frequent sneezing, with sanious mucus from l. nostril; at 10, roughness and sense of erosion in throat; sleep somewhat disturbed with feverish tossing about. 3rd d., discharge from l. nostril profuse all d.; dryness of throat in m., went off p.m.; frequent empty eructations, with flatus in abdomen; slight uneasiness in epigastrium; pains for a few m. in upper border of r. ilium; orgasm of blood to chest, with sensation of heat, occurring twice; vague pain in chest; pulse 92. 4th d., nasal discharge not so copious, but r. nostril is now affected; occasional darting pains in head, 5th d. shooting pains in l. parietal region, several times, p.m.; drawing pain in r. malar bone, also recurring more than once; slight pains in r. hypochondrium; uneasiness in bowels at 2 p.m., as

* All symptoms of this kind have been omitted.—EDP.

if he would have to go to stool before breakfast,—also, on arising, urgent desire to micturate, with slight tenesmus of bladder, but very little urine passed. 6th d., 75 m. after dose transient dull aching deep in r. orbit; in 2 h. uneasiness in epigastrium, with slight nausea, while walking or reading; in 4 h. shooting pain in crest of l. ilium, recurring several times at irregular intervals; after 7 h. on rising after being seated 3 h., chilliness with sensation of heat in chest and crizic pains in limbs, chest, and head, continuing 2 h., with disposition to stretch, hands cold in a warm room. 7th d., nasal discharge still, but not so copious or watery; frequent shooting pains in head, mostly in parietal regions; several papules have sprung up around nose, which are red, and smart when touched. 8th d., papule round a yellowish humour, which soon forms a crust; soreness and slight swelling of both submaxillary glands; rumbling in bowels (10 m. after dose). 9th d., shooting pain in head (parietal region), continuing all d., but not so bad p.m., generally lasting only a few m.; pains of same character in mastoid process; dryness of throat on rising in m.; pains in hypochondria, continuing all d., not so bad p.m.; at 9 a.m. boring pain in or near umbilicus, lasting 15 m.; about 3 h. after breakfast uneasiness of bowels, as if diarrhoea would come on. 10th d., still nasal discharge, less profuse, but of greater consistence; pain in head at different times during d.,—still felt, but at longer intervals and with diminished intensity, on 11th d.; eruption drying up. 12th d., a new eruption broke out about hips and thighs, of papule, isolated, hard, white and flattened, some having a small red point in centre; they itch slightly on first appearing, on scratching itching becomes more violent, and burning supervenes, also deep redness of part, lasting 5 m.; at several h. they are more elevated and accumulated, and finally, in about 24 h., disappear gradually, others springing up; several come also on wrist and between fingers. 14th d., 2 h. after dose, shooting pains in r. parietal region (recurring at 3 h.), and slight orgasm of blood to chest; after 3 h. dull pains in occiput, soon passing off; sticking pain in r. hypochondrium, boring pain in l. intercostal spaces, and twitching of muscles of arms and legs; after 4 h. rumbling in hypogastrium and pain in region of l. ilium; after 5 h. pains in head continue at irregular intervals; pain also in r. abdominal muscles, soon passing off. 15th d., on m. on arising dryness and huskiness of throat, lasting about an h.; p.m., while walking in open air, sense of heat in precordia, with fullness in abdomen, going off soon after sitting down. 16th d., urine of deep orange colour, secretion being somewhat increased. At 4 p.m. felt dull and stupid, with inclination to stretch and yawn frequently, oppression of chest, aversion to mental or physical exercise (though walking in open air relieved); sensation across bridge of nose as if nasal bones were being pressed together or inward, sharp cutting or pungent pain at lower end of rectum, pain in muscles of neck and shoulders, and violent beating of heart for 5 m. on ascending stairs. 17th d., pains in head; sometimes sharp cutting pain in throat, in rectum, and in lumbar region; still increased urine; skin of whole body sensitive, leaving burning sensation when scratched. 18th d., occasional shooting pains in r. parietal region; several times sharp momentary pains in throat. 19th d., occasional dull stupifying pains deep in orbits; sometime excessive redness of skin. (Cont.)

5. JOHN FOX, æt. 30, took 1st dil. n. and m. for 4 d., 1st n., restless sleep, with anxious incongruous dreams; woke up shedding tears, having dreamed of hearing of death of a brother, and could not get over emotion for some h. 2nd d., mind somewhat confused, dull feeling in head; on waking in m. abdomen distended, followed by abundant and loud flatus, continuing 24 h. and d., muddled and confused feeling in head, with inability to think, lasting all d., worse in e.; in m. tingling with unpleasant itching in orifice of urethra, coming on suddenly and lasting a few m. N. again restless, with anxious and unpleasant dreams, unremembered in m. 3rd d., impatient and restless mood, with stupid feeling as before in brain, very sensitive and morose temper, worse in e.; itching as before in urethral orifice, e.; at n. involuntary seminal emission, which has not occurred for many years. 4th d., disposition same, also state of brain; slight transient pains in l. hypochondrium. At n. impossible and incoherent dreams. 5th d., same state of brain, with inactive mind; shooting pains, dull in arms, boring in hands, for several h., disappearing on getting up and moving about. Same kind of n. 6th d., dull pains over frontal region and eyes; pain in l. hypochondrium; increased flow of pale urine, forenoon; soreness and stiffness along l. sternomastoid; sudden transient boring pains on lying down at n., shifting from wrist and hand to ankle and foot for 2 h. in rapid succession, sometimes extending

along arm to shoulder, more frequent and painful on l. side,—at same time or alternately similar pains in temples. 7th d., on waking in m. unpleasant constrictive sensation in pharynx, soon passing off; pain in both orbits, worse on pressure; nausea, with rumbling in abdomen, &c.; while sitting, sudden darting pain up urethra and sharp pleuritic pains under l. sternum, relieved by exercise; contractive pain in l. tendo Achillis, relieved by motion. 8th d., dull stupefying pain in whole head, relieved by motion and aggravated by study; pain in forehead over eyes, with tenderness on pressure; dull boring pain in small spot on l. temple; pulsating pain in l. ear; no stool for 3 d.; sharp stitches or catches in lower l. lung on deep inspiration, &c. in bed; transient shifting pains on r. side, from wrist up into body, then down through trunk to foot, relieved by motion; pulse strong, full, intermittent, 70—80 recumbent, 95—100 erect. 9th d., aching in l. frontal protuberance, frequent but transitory, with tenderness on pressure; frequent eructations of wind (this continued 3 weeks); gripping in upper abdomen, with frontal headache; faint and tremulous feeling, especially on least exertion. 10th d., very irritable and easily vexed, with excitement of nervous system; boring pain in l. frontal eminence; shooting pain in l. ear, lasting several m.; nausea, with faint and tremulous feeling; rumbling and gripping in bowels, with abundant flatus; sudden arthritic pain in knuckle-joint of l. then of r., ring finger; drawing pain in posterior muscles of r. thigh, with tenderness on pressure; burning pain in r. knee; dull pain in l. ankle, relieved by motion; tearing pain in r. ankle, coming on while walking; transient rheumatic pain in dorsum of l. big toe, shifting to l. ankle; impossible to keep quiet a m. in any one position, lower extremities especially fidgety, they become numb, tremulous, and painful when quiet, and are relieved by shifting about. 11th d., restless disposition and dull feeling over sinapit; meditative mood or internal reverie, inability to associate mind with any external object, with feeling of great prostration; transient boring pains in r. frontal eminence and in small spot in l. temple; rumbling in bowels, followed by gripping pains, in m.; feeling of great oppression in chest, with hurried breathing and prostration; on talking or reading aloud was obliged to stop several times in a sentence to take breath—all &c.; pulse 80, strong and full, while recumbent, 110 when erect; transient pain in l. shoulder and in extensor muscles of r. lower arm; chilly sensation in e., with cold feet. 12th d., disposition, &c., as before; dull pain over eyes, relieved by movement; dull stupefying pain in sinapit, finally extending to both sides of occiput; dull boring pain in occiput; dull pain in r. orbit, as if bruised, worse on pressure; gripping in bowels, with nausea almost to vomiting, for 4 h. in e.; tenderness to pressure over renal region; sudden darting, stinging pains running up urethra while sitting; frequent micturition of colourless urine; sharp pleuritic pains in l. chest while sitting, lasting a few m.; soreness and stiffness of r. sterno-mastoid, worse on moving head to affected side, and *vice versa* (continued 12 d. more); tenderness on pressure along whole spinal column; great weakness across small of back, extending round trunk, as if body was broken. 13th d., pain in bowels; great weakness and oppression of chest, with shortness of breath, followed by nausea even to vomiting; excessive and continued yawning for an h. after going to bed; restless sleep, with much grinding of teeth (this symptom occurred frequently during proving), and every variety of fanciful dreams. 14th d., great nervous excitability and trembling of whole body, with pulse at 120 (previously 70, intermittent, irregular, and almost imperceptible); panting breathing on least exertion, particularly on ascending stairs, with violent palpitation; frequent involuntary deep breathing; mind confused, and entirely unable to listen to lectures, feeling of great prostration and utter inability to think, attempt to exercise mind increased depression and brought on hurried breathing and great anxiety; at noon was obliged to leave college and lie down; at p. highest degree of restlessness; vivid, sometimes congruous, sometimes incoherent and disgusting dreams in rapid succession. From 15th to 17th d. found it too difficult to take notes, mind being so confused and inactive. State was as from 12th to 14th d., if anything growing worse as to nervous symptoms. On 18th a. highest degree of excitability, with fever, oppression of chest, and anxieties, till 2 a.m., when he fell asleep, but woke frequently from most vivid, horrible, and frightful dreams; on rising next m. passed a very large quantity of very dark red urine, of very strong odour; during d. urine gradually diminished in quantity and colour, and he felt in every respect better. 20th d., mind was still confused, making study for any length of time impossible; temporal arteries much distended, as also superficial

vessels of frontal region (a symptom somewhat present during whole proving); pulse now 80. (*Ibid.*)

6. S. WARREN took a dose of ʒ dr. of and dil. Dull pain in r. side of head, rather on r. parietal protuberance and frontal eminence; sense of beating more acute, pulse is painful; tongue slightly coated, whitish; food tasteless, sense of scraping in throat on swallowing, m., and as if some foreign body was in throat; sense of dryness in fauces and continued desire to swallow; not much appetite; sleeplessness at n. (*Ibid.*)

7. S. J. B. WOOD took repeated doses of ʒ dil. for 7 d. 3rd d., itching of scalp, with slight eruption on forehead, which soon disappeared; at n. rest much disturbed, horrid dreams, pain in bowels, copious urination. 4th d., dull feeling and slight aching in head; looseness of bowels. 5th d., soreness of teeth; bowels still loose; copious urination. 6th d., bowels same; slight headache; sense of weight in arms; drowsiness in day time, sleeplessness at n. 7th d., rumbling sensation in bowels, with slight pain. There was some recurrence of the symptoms between 17th and 19th d.

8. Took ʒ dil. every 4 h. (how often not specified). Loose stools, but with straining, and only passed with much effort. This symptom remains after 3 weeks; largely increased secretion of urine for 24 h., quantity was enormous; through 1st n. restless tossing about, no sleep till towards m.; same thing on 7th n. (*Ibid.*)

9. Dr. F. BISHOP took repeated doses of and dil. for 3 d. Became restless and unable to sleep on 1st n. about 1 to 4 a.m. (very unusual). 2nd d., languid and uneasy throughout; dreamed all n.; excessive itching of scalp for 3 h. 3rd d., eyes looked very red and inflamed; aversion to study or thought; teeth of l. side felt elongated and sore; violent pains in upper molars (sound teeth), boring and digging, with profuse flow of saliva, worse on walking in cold air and from contact, also from heat of high degree, partial ease from lying down in cool room,—took mercurius ʒo with relief; dryness and soreness of throat and mouth, and of mucous membrane of nose; no stool (very unusual); urine free; great restlessness and inquietude; fugitive pains through l. side; very restless at n. (as also on 2nd and 4th); frightful dreams, as of death, much affected by them. 4th d., loose stool, grumbling in teeth of l. side before breakfast, and violent pain after eating; urine free and pale; same dreams. 5th, n., entire sleeplessness after 4 a.m. 6th d., itching of scalp (this more or less every d.); soreness and pain in throat; copious urination. A month after, profuse secretion in throat, with constant hawking, urine very profuse, pale, and depositing a white sediment; restless at n. after 4 a.m. (*Ibid.*)

10. S. WARREN FREEMAN took and dil. twice daily for 2 weeks. First symptoms he noticed was constant dreaming at n., after going to bed; dreams were of ordinary occurrences of d., sometimes mixed with the fantastic. Also dull oppressive feeling through forehead, with sometimes dull pain extending across from temporal bones, apparently at base of brain; had loose stool every d., sometimes twice a d., with some pain in rectum, and slight color before stool.

11. He now took repeated doses of ʒ dr. of a ʒ dil. for 3 d. On 5th d., on rising in m., and laying throughout d., evanescent eructation, tasting, a.m., of sulphur, p.m., of carbonic acid gas; after supper flatus passed into intestine, causing boring pain, and smelling of sulphuretted hydrogen when emitted. About 10 p.m. a very watery stool, and again at 1 a.m. and about daylight, with much flatus. On 7th and 8th d. similar operations of bowels, and on former, slight toothache on rising in a decayed tooth, increasing till noon, when it was severe, cheek considerably swollen, and saliva running freely from mouth, neighbouring (sound) teeth felt elongated; after dinner, dull, painful, stupid feeling in head, with considerable fever; pulse 88; toothache subsided towards n., but he had a similar attack next d., and cheek remained swollen up to 10th d.

12. He last took ʒ dr. of same dil. twice daily (for how long is not stated). Whilst doing so had for 3 d. acute pain in r. hypochondrium, especially on laughing or movements, when pain would be of a darning, sticking kind. Afterwards he had a peculiar indescribable sensation at cardiac orifice of stomach, especially after eating a heavy meal,—a coolish painful sensation, as if parts were over-distended; it lasted about a week. (*Ibid.*)

13. MORTIMER SLOCUM took repeated doses of ʒ dil. for 5 d., and on 9th,

tooth, and 13th d. 3rd d., 3 h. after 1st dose, slight headache, heavy sensation in head, and inclination to drowse. 4th d., pain in abdomen, worse on stooping, in e., continuing, with distension of abdomen, nearly all next d., and recurring, with flatulency, on 6th e., when also he had salivary expectoration. 7th d., inability to think, with restlessness at n.; dry parched throat all d., with sense of scraping; pains in l. hypochondrium at 6 p.m.; frequent dreams of gloomy character, rousing from sleep. 9th d., heavy frontal headache. 10th d., dry parched throat in e., a draught of air irritates and produces cough. About middle of 11th d. return of l. hypochondriac pain. (*Ibid.*)

11. *d.* T. C. BUNTING took repeated doses of ʒss dil. for 4 d. and d., which in heart, after dienes. 4th d., soon after 1st dose, dullpressive pain on both sides of abdomen, about Ponsart's ligament. 3 h. after, partial prolapse of rectum during stool. 5th d., heaviness as from a stone in stomach, with some pain and tenderness; flatulence; has been restless for some nights, dreaming much, and waking up—all contrary to habit.

6. Took same, a dose on 1st, 3rd, and 6th d. After going to bed 1st d., sharp pain for some moments over r. eye, extending to temple; before falling asleep a kind of tingling in front and upper jaw, and sensitive feeling in teeth. 3rd d., pain in caposed nerve of a front tooth for a short time only; on rising, hoarseness, as if from dryness in larynx, it went off after breakfast. 4th d., bruised pain in l. eye, especially on light pressure, for an h.; still hoarseness, whose continuance next d. led him to take no more of the drug. 7th d., sore and loose sensation in front incisors, as if chilled by cold air (is not subject to pain in teeth); feeling as if diarrhoea would set in; blood passed during stool.

7. Took two doses of and dil. Pain in r. iliac region, as if a stone were in inguinal canal. (*Ibid.*)

12. W. A. LEAVANWAY took repeated doses of ʒi for 4 d. 4th d., dull aching pain in l. shoulder, not continuous; also in r. shoulder, alternating with same in r. hip, passing down the limbs. 7th d., frequent empty eructations; dull aching pain over sacrum, a little below its union with the lumbar vertebrae, worse during motion or standing. 8th d., same pain in l. knee, at upper outer angle of patella, extending beneath it; dull darting pain in r. side, from within out. 9th d., intermittens, pulsating, aching pain on vertex, in small spot beneath scalp; similar dull subcutaneous aching near l. side of sternum, a little below centre, worse from pressure and while sitting, passing off on movement. 11th d., sharp cutting in urethra, e., from within outward; sharp darting pain in upper and outer part of r. orbit, and same at end of l. great toe. 19th d., scraping tickling sensation low down in bronchiae. 22nd d., sharp darting several times during d. in l., then in r. side. 24th d., itching over body, rubbing felt grateful but did not relieve, rather adding a burning sensation. 27th d., e., sharp pain in l. side, sometimes extending to r. shoulder, ebn to r. side, then spreading over upper part of back,—continuing a long time; frequent chilly sensation, also for a long time. All symptoms are worse while sitting, and pass off on movement. (*Ibid.*)

PLATINUM.

Including the pure (precipitated) metal, the chloride—*P. muriaticum*, $2\text{HCl}, \text{PtCl}_4$, and the chloride of P. and sodium—*P. muriaticum natronatum*, $2\text{NaCl}, \text{PtCl}_4, 6\text{H}_2\text{O}$.

1. *Provinge*.—1. HAHNEMANN, *Chronic Diseases*, part v. of original, vol. of translation. Contains 527 symptoms from self and one other.

2. *d.* HÜBER rubbed skin of hand with concentrated solution of chloride. After 2 or 3 m. spot becomes seat of itching like that of scabies; and skin, coloured yellow by the chloride, becomes covered with small rose-red elevations, which disappear in 3—4 m. more. On washing glans penis and prepuce with same, there followed

great itching, soon associated with heat and annoying prickings; some urethritis followed, with a little dysuria. After some h., there were seen around glans slight elevations, of somewhat livid hue, size of a pin's head, which a casual glance might take for commencing chancres. After 8—12 h., all had returned to its normal state.

k. H. now took 5 centigr. in a glass of water. This producing no effect, he increased dose daily till he took 2 decigr. From this dose he experienced some acidity of stomach, with slight headache. Pulse was normal, and all went off in 25—30 m. Next e, he took 4 decigr. at a dose. In $\frac{1}{2}$ h. he had slight shuddering; pulse was quickened (85); heat and weight at stomach; violent headache, especially towards occiput; constriction of larynx, sufficiently strong to embarrass speech and breathing; nausea, with inclination to vomit. These symptoms went on increasing for 5—6 m., but then disappeared rapidly, leaving only metallic taste in mouth, which lasted some h.

c. 2 d. later, H. took same dose, but in open air (former experiment having been made indoors). Same symptoms supervened, but less strongly; there was also for some h. slight sudden fibrillary twitching in occipital muscle, and in those of back and extremities.

d. H. now took 1 decigr. of the double chloride of Pl. and sodium. This having no effect, he next d. took 2 decigr. In 15—20 m., heat and sense of weight in region of stomach, borborygmi, transient colics; passage of flatus upwards and downwards; headache scarcely felt. Later in d. he took 4 decigr. in two doses, with 2 h. interval between them. To previous symptoms were added nausea and inclination to vomit, with considerable augmentation of saliva and of urine. This last was still marked on the following m. (*Gaz. Méd.*, 1840.)

III. *Experiments on animals.*—1. HIFER gave a rabbit 1 grm. of chloride in water. 42 m. after it the animal died in very strong convulsions. On opening body, parts of gastric interior were coloured yellow; and its whole mucous membrane, as also that of œsophagus, was softened, in parts destroyed, and throughout easily detached. Blood in heart was fluid. Viscera of cranium, thorax, and abdomen shewed nothing abnormal. (*Ibid.*)

2. To a large rabbit H. gave 2 grm. of the double salt. Death occurred after 2 h. 50 m., preceded by copious purging. Stomach was found only slightly tinged with yellow, but softened, and at one spot (in greater curvature) perforated. Blood in heart was coagulated. (*Ibid.*)

PLUMBUM.

Including the metal, the carbonate— $PbCO_3$, and the acetate— $Pb(C_2H_3O_2)_2 \cdot 3H_2O$.

I. *Proving*.—1. BETHMANN. [The only information given as to this and the four following symptom-lists is that they are the result of "a careful proving on the healthy with moderate doses of the acetate."] Fermentation in bowels, with cutting. Diarrhœa with rumbling, but without pain. (*Hartl. u. Trinks' Arzn.*, i, 1.)

2. HARTLAUB.—Great confusion of head; a mixture of dulness and gloominess, so that he often passes his hand over forehead (1st h.). Heaviness of whole head, especially occiput, with slight shaking in sinciput (after 3 h.). The hair becomes very greasy (1st d.). Redness of eyelids (2nd d.). Acute drawing under *r. ala nasi* in flesh of upper lip (1st d.). Frequent itching in face (1st d.). Pricking here and there in skin of face (6th and 7th d.). Very pale face (1st d.). Violent grinding of teeth, *n.*, with frequent waking (1st d.). Slight pain in spleen (2nd d.). Flatulent pains (2nd d.). Stool harder or more difficult (1st d.). Easy stool in a costive person (1st d.). Drawing pain from pudendum to middle of spine. Constrictive pain in l. testicle, which sometimes comes from spermatic cord (4th d.). Very scanty emission in coitus. Fluent coryza (3rd and 4th d.). Moist viscid mucus in nose which he draws through posterior nares (2nd d.). Dry mucus at top of windpipe, which is coughed away with effort and slight pain in chest, at same time whistling in top of chest during inspiration (2nd d.). Slight cough from dry mucus in top of chest, *m.* (1st and 2nd d.). Oppression of chest, *m.* (2nd d.). Violent obtuse pressure as from a piece of wood pushed against anterior and lower part of l. side of chest, superficial, as if on surface of lung, during inspiration, much increased by deep breathing and laughing, from *m.* on rising till after dinner; when he lay down on sofa he could not bear the pain, nor find relief in any position; at same time a drawing shooting in l. upper arm and shooting betwixt scapulæ, that lasted a couple of *m.* and then suddenly went off along with the pain in chest (9th d.). Great itching on coccyx above anus, going off when scratched (1st d.). Single, burning pricks on *r.* shoulder (1st d.). Dull but very painful drawing in bones of upper arm, hand and fingers (4th d.). Painful drawing in *r.* humerus (8th d.). Itching betwixt *r.* thumb and index (1st d.). Violent pricking itching between l. middle and ring fingers (1st d.). Painful drawing in *r.* hip-joint when lying (1st d.). Paralytic pain or painful lame feeling in hip, knee and ankle joints, when going upstairs (1st d.). Stitches first in *r.* then in l. thigh when walking (3rd d.). Slight boring pricks in inner side of l. knee when sitting (1st d.). Throbbing in a small spot on outer side of *r.* calf when lying (1st d.). Painful dislocation-feeling on outer side of *r.* ankle-joint when treading, *m.*, after rising and all *m.* (5th d.). Weakness in lower limbs when walking (1st d.). Sleep restless, many dreams, turns about (1st d.). Voluptuous dreams with erections but not emission, *p.m.* (6th and 7th d.). (*Ibid.*)

3. HEARING.—Very low-spirited and weary of life. Discontented with his fate, on waking, m. While walking in open air, a.m., increased feeling of health and diminished myopia. Dull shooting pain in r. temple, which is painful externally (1st d.). Hair of eyebrows falls out. Hair of moustache falls out. In eyes difficulty of moving, and backward drawing pain in rectus internus muscle (1st d.). Pressive pain above eyes when moving, for several days. Feeling as if there were something under eyelid and as if eyeball were too large, pressive pain. Must often wipe eyes, they seem dim for $\frac{1}{2}$ h. Increased myopia. Transient pains in interior and in meatus of l. ear. Pain in tip of nose, erysipelatous redness of nose. Vesicle on reddened ala nasi with thick matter on pressure (1st d.). Cold nose for several d. The air in a crowded room is very disagreeable to him, he feels as if he should faint; afterwards darkens before eyes (1st d.). The skin of face looks and feels greasy. Vesicles on forehead and nose. Desquamation of lips without pain or dryness. A tooth became more decayed, had a bad smell, and then broke off; one of its walls, which was the thickest, became very brittle. When eating bad smell from mouth proceeding from decayed tooth (2nd d.). Feeling as if something moved quickly up in throat to base of skull and thence to l. eyebrow, when it became shooting (when smoking) (1st d.). Dryness of mouth, closing mouth, m., l. border of tongue furred yellow. On waking, m., much viscid mucus in mouth (2nd d.), much sweetish slimy saliva in front of mouth with dryness of soft palate and fauces, going off on swallowing saliva (1st d.). Tongue coated with frothy saliva (2nd d.). Tongue coated yellow. Great appetite, e. (1st d.), all the time great longing for bread and pastry even a few h. after a meal, also e. and m. Tobacco much relished (1st d.). Thirst. Great thirst for cold water. Jerking eructation repeatedly. Eructation of sweetish water from empty stomach. Fine pinching in portal region. Pressure in stomach after eating. Pressure on scrob. cordis, a sharp anxious pain (1st d.). Dull pain in liver. Shooting pressure in liver; shooting pain in liver first in front, then in back. Oppression in abdomen (1st d.). Pressive pain in a spot on abdomen in a line from crista ili to symphysis pubis but nearer the former, all d., as if in muscle; the spot was swollen. Bruised pain in abdominal muscles across below ribs and about navel, felt when pressed on, coughing &c. and worse in m. Movement about navel (after $\frac{1}{2}$ h.), much flatus. Short half-loud flatus of penetrating odour (1st d.). After eating fish stinking flatus. No stool. Stool every other day. Viscid, slow stool, latterly with streaks of blood. Stool at first liquid, afterwards small lumps of penetrating odour (1st d.). Feels as if a liquid stool would pass but nothing comes (1st d.). Urging to stool which comes slowly, viscid feces. Painful forcing pain, deep in abdomen and rectum, a kind of painful desire to pass wind but none comes. The piles itch, anus drawn in. Slight twitchings in spermatic cord, m., shootings in it at its exit from belly (1st d.). After sweat soreness in skin of scrotum and thigh where they touch. After drinking wine unnoticed emission in sleep, with soft penis; afterwards, m., exhaustion and painful erections at slight excitement: for several successive n. Frothy mucus easily hawked out of

larynx, it is transparent, in lumps, and in yellowish-green masses (1st d.). After exercise a pressive squeezing in chest inferiorly, is very weary. Dull sensation and pressive pain in l. side of chest in front and back, ceasing and recurring. Obtuse pressure on l. side of chest. Obtuse pressive stitches in l. chest, going and returning. Pressive pain where sacrum is attached to os ilii. Bruised pain in deltoid muscle. On a spot on inner side of r. wrist itching, with burning, especially after scratching; after scratching for a longer time numb feeling for several h. (1st d.). When walking, each time he extends leg, pain on a small spot in middle of l. thigh a hand's breadth below groin, as if a sinew would snap. Dull pain, deep inwardly in r. knee, m., when going upstairs. Transient pain in tibia when walking (1st d.). Tormenting pains by jerks in bones, repeatedly recurring, especially in l. thigh above knee and in l. forearm and l. thumb. Sensitiveness of skin to air (1st and 2nd d.). Painless, red pimples on chest, that run a slow course. Small red papulæ on chest, which desquamate after 24 h. A small cut inflames rapidly, suppurates and heals quickly. Weariness in knees when going upstairs (1st d.). Unusually tired and worse after exercise. Trembling of limbs and facial muscles. Exhaustion, on lying down feels the beating of arteries in neck and belly, and can sleep but little (1st d.). Great prostration in e., he lies down, feels the throbbing of arteries in body, face gets hot and burns in many spots without thirst or perspiration, at same time trembling in hands and vertigo, as though the bed moved, renewed by thinking of it, and sensitiveness to noise; at last he falls asleep, and awakes after 3 h. with weariness which goes off after moving, but there remains confusion of head and bruised feeling in sacrum (this was in great contrast to the previous feeling of bien-être). Before going to sleep at n. longing thoughts about a distant friend. Many agreeable dreams at n. After midnight pleasant dreams about a distant friend (1st and 2nd d.). Speaks with some one in dream. Speaks in sleep, but has no recollection of it in the m. (2nd d.). Chilliness from m. till p.m. Chilliness, which always becomes worse in e., even when near the fire, head confused and giddy, with thirst, red face, and soft quick pulse over 100; in bed extreme heat with internal chill; the heat increased, skin dry and hot, pulse quick, no thirst; after midnight skin became gradually moist, and perspiration broke out on cheek, belly and head; after 2 a.m. sleep with confused dreams; in m., tongue furred, head confused, face pale, and at every step a shoot through head from below upwards; this attack recurred after ten weeks. (*Ibid.*)

4. TRUNKS.—Anxiety and sighing (4th d.). Inclination and capacity for work perceptibly diminished (after 3 d.). Vertigo when stooping or looking up (8th d.). Heavy feeling in occiput. Pressure under skull as from rush of blood to head. Itching in canthus of l. eye and pain there as from rubbing. Congestion of blood in eye (6th d.). When eating drawing feeling in œsophagus as though it would be torn away (6th d.). Constriction and cutting in œsophagus down to stomach, before and after eating. Dry feeling in throat, n. Eructation of air and nausea, e. (7th d.). Feeling of great hunger in œsophagus down to stomach, recurring after eating (3rd d.). Great

hunger, he eats a great deal (after 5 and more d.). Hunger and nausea, e. (6th d.). Pressure in stomach as from eating indigestible food, with feeling of weight in occiput, increased by moving head, from dinner-time till e. Cutting in abdomen and anus, with soft stool (6th d.). Cutting in abdomen as from flatulence, m., in bed. Slight drawing in side towards back, as from distension. Movement and rumbling in bowels, e. Discharge of flatus after slight cutting in bowels, m. (5th d.). Constipation for 2 d. Hard and scanty stool. Ineffectual call to stool. Pain in urethra at its exit from bladder (5th d.). Erections, m. Emission of semen in m, sleep with voluptuous dreams (6th d.). Stopped nose (3th d.). Difficult breathing (4th d.). Dyspnoea with anxiety. Dyspnoea with dry cough (4th d.). Pressure like shooting in both pectorales majores. Ebullition in chest, on walking quickly (5th d.). Heart's beats distinctly felt. Cramp-like contraction in muscles of l. sole, when at rest, relieved by lifting foot and movement, lasting several d. Persistent tendency to go to sleep of foot. The feet tend to go to sleep (6th d.). Fetid perspiration of soles. Itching in a dry, painless eczema on e. tibia. Heaviness of legs, especially knees. Heaviness and weariness of feet, especially felt when sitting. Heaviness of limbs (8th d.). Feeling of weakness in forearms (5th d.). Easily fatigued by walking (5th d.). Feels the arteries beating in feet, hands, and head after dinner. (*Ibid.*)

5. NENNING.—Eunui; silent, lazy, disinclined for work. Loss of memory. Cheerfulness, but of short duration. Very busy, absorbed in her work, reflective, p.m. Stupidity and heaviness of head, gradually going off. Vertigo, going off in open air (after 2½ h.). Headache in l. parietal region (after 1 h.). Dull headache in forehead and tearing in nape. Transient heaviness in forehead. Heaviness in head; is inclined to fall forwards (after 2½ h.) Pressure front occiput to forehead, with feeling as if eyes would close with weight, going off when standing (after 1 h.). Pressure in forehead, more externally (2nd e.). Twitching and tearing in r. temple, then before r. ear (after 1 h.). Tearing and shooting in l. temple (after 2 h.). Tearing in forehead, with heat in head and redness, pain. Tearing and contraction in forehead (after 6 h.). Shooting in forehead. Shooting, beating and tearing in r. parietal region. Shooting here and there in head, especially in r. ear. Heat in head and redness of face (after 5 h.). Heat rising from belly into head (after 3 h.). Itching in l. upper eyelid (after ¼ h.). Tearing in eyelids, with drowsiness (after ¼ h.). Quivering of r. upper eyelid (after 1 h.). Twitching tearing in l. eyeball, a.m. Violent stitch with burning under l. eyeball, 2 p.m. Burning in r. eye as if snuff had got into it (after 2 h.). Quivering in both eyes (after 2½ h.). Eyes misty. Tension in r. aural region and down cervical muscles (after 2¼ h.). Tearing in r. aural region. Shooting in lobe of r. ear. Scraping in r. ear as from an ear of corn (after ¼ h.). Tearing in ears. Boring and shooting in r. ear. Transient dulness of hearing. Stitch in r. zygoma (after 6 h.). Tearing in upper and lower jaw and corresponding teeth. Tearing in l. lower maxilla up to ear, removed by rubbing, which causes a shock in l. occiput. Tearing in r. lower jaw near chin, after rubbing it goes into r. lower ribs, then it returns to

jaw, then stitches below r. scapula (after 2 h.). Boring in angles of lower jaw (after 1½ h.). Transient flush of heat, with redness of face and sweat on upper part of body, p.m. Pale gums. Jerking pain in a r. lower molar, m., aggravated by cold (3rd d.). Tearing in two r. lower molars (after 2¼ h.). Heat and burning in mouth and tongue (4th m.). Some burning pimples on tip of tongue from 6 to 10 p.m. (1st d.). Roughness in throat (after 6 h.). Feeling of swelling in throat when swallowing, with choking. Feeling of a foreign body in throat, which makes her sneeze; it seems to go down on swallowing, but comes up again immediately. Feeling of a foreign body in r. side of œsophagus, with smell of sulphur. Feeling as if a foreign body in œsophagus moved downwards (after 2¼ h.). A small body often rises up in œsophagus, which she must swallow down (after ¾ h.). Sulphurous and sour taste deep in throat. Hawking of acid phlegm (after ¾ h.). Abortive eructation and yawning (after ¼ h.). Eructation of air after breakfast, then burning in stomach (after ¾ h.). Eructation with taste of food, or bad taste. Hiccup (after 5 h.). Anorexia (2nd d.). Thirst m. and after dinner. Nausea and retching (after 2 h.) and eructation (after 2½ h.). Belching of tasteless water (after ¼ h.). Empty feeling in stomach (after ¼ h.). Contractive feeling in stomach (after 6 h.). Transient burning in stomach (after ¼ h.). Pain from scrob. cordis up to middle of chest (after 2¼ h.). Shooting and boring in stomach. Shooting in r. and l. hypochondria. Tearing in l. hypochondrium through to back, where it shoots, p.m. Nipping in upper part of abdomen, and feeling as if something were torn off there and fell down, afterwards rumbling in belly (after 6 h.). Fulness in abdomen. Painful distension below navel, going off after emission of flatus (3rd d.). Feeling of incarcerated flatus in abdomen, p.m. Contraction across middle of abdomen when sitting bent forwards (after 5 h.). Nipping in abdomen about navel, then fruitless call to stool, going off after emission of flatus (1st d.). Cutting in abdomen (2nd d.). Whilst pressing at stool cutting about navel, which is drawn in, going off after stool (after 5 h.). Pricking about navel and in l. side of abdomen. Feeling as if something had fallen down in l. side of abdomen, p.m. Feeling as if she were sitting in cold water up to abdomen, soon afterwards heat in abdomen (after 2¼ h.). Heat and burning throughout abdomen (after 2¼ h.). Burning inwardly about navel (after 1¼ h.). Burning in whole belly and twitching about navel, with shooting in back and feeling as if a weight lay on it, with pain in scrob. cordis (after 2 h.). Tearing in l. lumbar region, p.m. Pain in l. lumbar region on bending to l. side; stitches there when laughing, and in r. lumbar region. A stitch in l. iliac region when stooping, in umbilical region when rising up. A movement on l. side of belly like a mouse (after 2¼ h.). Rumbling in bowels and call to stool, only flatus passed, p.m. Slow movement to and fro below navel, like a rough body (after 1 h.). Audible rumbling in bowels, m., on rising, after ¼ h. a consistent stool, then strong purging (2nd d.). Movement in hypogastrium, with cutting pain (2nd d.). Hot flatus, which burns like fire (2nd d.). Neither stool nor urine passed (1st d.). Hard, scrapy stool (2nd d.). Hard stool, with straining and feeling as if a prickly body passed, m.; 3 soft stools,

p.m. (4th d.). Frequent purging of yellow feces, with pain (3rd—6th d.). Urging to stool, with watery feces (2nd d.). Constant urging to stool without result, p.m. Fornication and pricking in rectum (after 2½ h.). Boring in anus while at stool. Urging to urinate, but urine is retained (2nd d.). Frequent micturition, p.m. (1st d.). 4 a.m., wakes to urinate, urine copious, thereafter pains in belly as from a chill; this goes off after discharge of flatus, then shooting in belly (2nd d.). Burning during and after micturition (2nd d.). Itching in l. nostril, tearing in r. nasal septum, sneezing. Stopped feeling in nose (3rd d.). Fluent coryza. Roughness in throat and hoarse voice, m. (4th d.). Her breathing is arrested, and there are stitches in sternum on moving r. arm to l. side, p.m. Pressure on chest. Shooting in l. side of chest through to scapula. Shooting under r. chest through to scapula. A stitch in middle of sternum (after 6½ h.). Pressure externally on lower part of sternum (after 1 h.). Shooting in mammae. Jerking in cardiac region (after ½ h.). Præcordial anxiety. Tearing and tension in nape (after 5 h.). Dislocation pain and tearing in r. scapula. Shooting in both scapulae. Boring in r. scapula. Stitches in spine and sacrum. Shooting in r. hip-joint. Shooting pain in r. shoulder. Shooting and tearing under r. arm. Tearing in arms. Boring in r. arm. Twitching above l. elbow (after 1½ h.). Twitching in back of l. hand (after 2½ h.). Shooting in back of r. hand. Tearing in r. wrist. Twitching, tearing, and stiffness in l. thumb. Itching between l. thumb and index (after 5 h.). R. thumb goes to sleep (after 7 h.). Tearing in several fingers. Twitching in l. thigh. Tearing in middle of inner aspect of l. thigh (after ½ h.). Tearing above l. knee when standing. Shooting through r. knee. Bruised pain and tearing in legs. Twitching in r. tibia (after 2½ h.). Shooting in calves (3rd d.). Tearing from r. heel upwards (after 2½ h.). Fornication in r. big toe (after 2½ h.). Drawing in l. big toe. Tearing in 2 first l. toes (after ½ h.). Painful drawing inwards of 2 r. big toes, then drawing in r. hough, then in l. hough, where it shoots when standing and sitting, then the toes become numb. Fornication and going to sleep in l. toes up to instep. Two itching papules on back of index, also on outer side of l. wrist, containing clear water (2nd d.). Weariness of limbs. Trembling of thighs and legs. Frequent yawning and drowsiness. Sleeplessness and early waking. Confused and frightful dreams. Coldness in room and in open air. Heat throughout body (after 2½ h.). Heat rises up to head (after 1 h.). (*Ibid.*)

6. Great anxiety, during which she cannot take a deep enough breath, increased palpitation of heart, pain betwixt shoulders, heat and pain in sacrum, feeling of heat and burning in liver and spleen, heat and then sweat on knees, trembling (½ h. after taking ʒss gr. of acetate). (*HALBIG, Heraklides, i, 51.*)

7. Dr. SPENCE began by taking gr. ½ of the acetate 3 times a d., gradually increasing dose till at end of 3 weeks he was taking ʒ gr. daily. His symptoms were costiveness, spongy gums, a livid appearance around the incisors, diminished saliva, fetid breath, looseness of teeth without soreness of mouth, and blackened feces. Neuralgic

pains now affected upper and afterwards lower extremities, appetite failed, and an attack of lead colic supervened, with loss of muscular power in limbs. Pulse fell from 80 to 60. (*Philad. Med. Trans.*, 1805, from Stillé.)

B. Mrs. LAIDLAW, in good health, took 60 gr. of acetate* in course of 4 d. The symptoms developed were—metallic taste in mouth, some tenderness of gums, diminished frequency with feebleness of pulse, and, on taking last 10 gr. at a single dose, weakness of knees, increasing pain at epigastrium, with nausea. A dose of salts put an end to these symptoms, and no subsequent disturbance occurred. A month later experiment was repeated, and 70 gr. were taken in 8 d. Metallic savour began to be perceived on 2nd, tenderness and swelling of gums on 3rd d.; bowels were constipated and urine high coloured. On 4th d. a purge caused abatement of symptoms, but on 6th d., medicine having been continued, they returned, accompanied by constriction of thorax and abdominal pains. By 9th d. they had increased, and in addition to them there was pyalism, and sensation of tightness or numbness of hands and feet, especially in fingers and toes. Pulse was slow and weak as before, and respiration proportionately retarded. (*Lond. Med. Repert.*, 1828, vi, 36, 292.)

II. *Poisonings*.—1. A man, æt. 28, took, before going to bed, 1 oz. Pl. acet. Soon afterwards he had violent pressure in stomach, dry mouth, great oppression of breathing, and anxiety. After 6 h., having drunk much water, he vomited with some relief. Next m., after some slight convulsions, the previous symptoms returned. A physician, not knowing what he had taken, ordered bloodletting and an emulsion with ext. hyosc. Next d., the doctor having been told what the patient had taken, found him suffering from anxiety, great mental uneasiness, the stomach painful, the chest oppressed, dryness and sweet taste, slight convulsions, abdomen distended, liquid stools after much oil had been taken. Emulsion with magnesia; complete recovery in 4 weeks. (*ZOPPELDO, Casper's med. Wochenschr.*, 1835, No. 38, 615, in *Frank's Mag.*, i, 276.)

2. A labourer, æt. 46, took, on 4th Nov., 1835, m., $\frac{1}{2}$ lb. of Pl. acet. dry. Immediately nausea and vomiting, which was kept up by drinking copiously of milk. At noon he was brought into hospital. Head confused, giddy, face fallen in, tongue thickly coated, thirst moderate; pressive, tensive, and constrictive pains in gastric region; umbilical region drawn in, very sensitive to pressure, skin covered with cold sweat, pulse 60, contracted; constipation and persistent vomiting. An emetic brought away lumps of mucus and Pl. acet. In afternoon inflammatory symptoms came on. Bleeding, calomel, opium, castor oil, sulphur, sulphuric acid, alum, and baths of hepar sulph. were administered. The sensitiveness of stomach went off, except at pylorus, which was moderately swollen. Chronic vomiting ensued, which brought away food or brown fluid. He emaciated to a skeleton, got paraplegia, and died on January 4th, 1836.

3. *P.M.* Cranium 4—6 lines thick, compact, dura mater thickened,

* Some opium and gentian were combined with the lead in the pills taken, but do not seem to have influenced the result.—Eus.

with effusion of lymph in sinuses, arachnoid opaque, pia mater firmly adherent to it, under the latter and in cerebral cavities a moderate quantity of serum; the grey substance all over brain changed into a greasy tallow-like mass, the white substance unusually firm. Thorax normal; heart small and firm; umbilical region drawn in; peritoneum dry; stomach distended to 5 times its normal size, reaching from one hypochondrium to the other, and pushing the liver up to the 5th rib; its contents were partly air, partly a brownish-green flocculent fluid; its walls at the patent cardia and in their whole extent to the pylorus dilated, thickened, the m.m. without corrugations, and of a brown lardaceous consistence, in many parts entirely absent, the underlying cellular tissue traversed by numerous varicose veins and livid spots; the pylorus quite closed up, its surrounding walls to the extent of several lines thickened, adherent to the extent of an inch, and changed into a cartilaginous tissue; the duodenum contracted to the calibre of a quill, with thickened walls; the jejunum throughout contracted to the smallest calibre, in some parts extremely narrow; the colon, down to the extremely contracted sigmoid flexure, distended with gas, the m.m. everywhere easily detached; liver and spleen very small, firm; pancreas and kidneys normal, bladder walls moderately thickened. Dura mater of spinal cord imbibed with dark fluid blood, arachnoid opaque with a little serous effusion, the substance of the cord much softened and defective in parts, the nerves of the cauda equina much diminished in size. The extremities showed a want of fat; the muscular substance dark-coloured, easily torn, the nerves with very little marrow. (HORNUNG, *Med. Jahrb. d. k. k. österr. Staats*, Neunte Folge, xii, S. 4, 606, 1837, in *Frank's Mag.*, i, 800.)

3. A young woman, æt. 24, March 6th, 1841, took instead of Glauber's salts $\frac{1}{2}$ oz. Pl. acet. in a glass of water. Immediately violent burning in stomach, nausea and incessant vomiting. After $\frac{1}{2}$ h. she was seen, and had suffused face, carotids beat violently, epithelium of whole mouth white, tongue thickly coated; internal nausea and vomiting, violent burning pains in stomach; epigastric region very sensitive, skin dry, pulse rapid, small and weak. Ipec. in large doses was given. After vomiting more than 10 times she got violent diarrhoea 20 times in the n., with slight rumbling in bowels. Next m. great debility, anorexia, pasty taste and slight burning in stomach; epithelium of buccal cavity white, stools less frequent, pulse not so quick. Milk was given her to drink, and in a few d. she was quite well. (MELION, *Progr. Vierteljahrsh. f. d. prakt. Heilk.*, ii, 5, 85, in *Frank's Mag.*, iii, 612.)

4. A young girl took by mistake ʒij Pl. acet. in a cup of beef tea at 2 a.m. After 2 h. violent pains in belly, then continued vomiting till e., latterly bilious. After 3 d., as the abdomen was much distended and the bowels constipated, she took epsom salts without effect. She then got castor oil, a dose daily for a fortnight, and only gruel for food. This caused a daily evacuation, the abdominal pains disappeared, and she quite recovered. (OTTO, *Oppenheim's Zeitsch. f. d. Ger. Med.*, xxv, 4, 576, in *Frank's Mag.*, iii, 887.)

5. A drummer drank by mistake a lotion of Pl. acet. on April

22nd.—The next d. he was extremely pale, and complained of constipation, anorexia, great weakness of limbs, and general prostration.—24th. These symptoms increased.—25th, m., colic, sinking in of abdomen, nausea, frightful convulsions, cold clammy sweat, aphonia and trismus. He died at 6.30 p.m., having been unable to take the medicine prescribed on account of the trismus.—*P.M.* Body pale yellow, belly hard and drawn in. Stomach highly inflamed, its vessels distended with blood, its m., especially towards pylorus, softened; œsophagus near the cardia, duodenum, ascending and transverse colon, pancreas, part of mesentery and of jejunum, concave surface of liver and spleen considerably inflamed; gall-bladder distended with bile. In stomach nearly ℥ij of reddish-brown fluid. (*KERKHOFFS, Journ. univ. d. Sc. med.*, xx, pt. 3, 351, in *Frank's Mag.*, iv, 677.)

6. M. A.—æt. 41, was admitted into Guy's Hospital, May, 1846, labouring under symptoms of poisoning by sugar of lead. It was ascertained that 2 h. previously she had swallowed about ℥iss dissolved in some water. She felt ill almost directly; had nauseous metallic taste in mouth, with burning heat in mouth, throat, and stomach. She took some more water to wash down the taste. This made her vomit, and thus she was detected by her friends. Her mouth became very dry; she had great pain at pit of stomach, and excessive vomiting. On admission, i. e. about 2 h. after the poison had been taken, she felt sleepy and stupid, alternately perspiring and shivering. Complained of violent twisting pain in the abdomen, but this was relieved by pressure; with this there was a sensation of sickness. She felt exceedingly weak and languid; complained of a feeling of cramp in the thighs, and numbness all over the body, with giddiness. The gums felt to the patient to be in lumps, and there was apparently a blue line on the edge; they were very tender. The saliva seemed rather in excess, and the breath was foul. Magnesia mixture and sulphate of zinc were given to encourage the vomiting, followed by some castor oil, which acted 2 h. afterwards. The pulse was hurried and the tongue coated; countenance anxious and excited; skin dry, cold and hot alternately. The urine passed very freely. Was menstruating at the time, and this stopped the discharge. Breathing impeded from pain in the bowels. The next d. there was pain all over the body, with numbness and sickness. On the 3rd d. she was very sleepy, but in less pain. For several days the abdomen was excessively painful on the slightest pressure. She left the hospital in 5 d. (*TAYLOR, Poisons*, 1st ed., p. 431.)

7. A robust man-servant, æt. about 20, swallowed by mistake instead of chalk, for heartburn, 5—6 drachms *Pi. carb.* After some h. violent burning pains in gastric region and vomiting for several h. After 24 h. complained of violent pains in abdomen, especially in scrob. cordis and umbilical region. Face red and puffed, eyes sparkling and projecting, tongue dry and, together with rest of mouth, red; thirst, with desire for cold water. Abdomen distended and very sensitive to slight pressure. Stronger pressure relieved pain. Vomiting had ceased for several h., constipation. He soon recovered. (*SCHUBERT, Casper's Wech.*, No. 36, 588, 1844, in *Frank's Mag.*, i, 277.)

8. A pregnant young woman swallowed, Oct. 8th, about ℥ij white-

lead. In afternoon ate a cake, and felt well till 8 p.m. She then complained of nausea, vomited several times. Seen next m., she was found to be suffering from inflammatory pain and jaundice. In n. of 10th she gave birth to a dead 7 months' child, and following m. she died.—*P.M.*, 30 h. after death. Features very much distorted, skin dirty yellow, joints movable. Bloody frothy ichor escaped from nostrils in large quantity, and from genitals to such an extent that the bedclothes were saturated with it and several oz. had fallen on floor. The mouth, too, from which the tongue-point protruded, was filled with bloody ichor; the gums discoloured. Abdomen distended and of stony hardness, external genitals swollen and discoloured, brain markedly bloodless, pleura contained about 8 oz. bloody water, lungs distended, filled with frothy decomposed blood, heart empty, very soft, of dirty brown colour, m.m. of trachea dark cherry colour. Pectoral muscles very soft and brown coloured, the blood that exuded was black and of greasy consistence. Small intestines pale, large intestines of dirty blue colour, small intestines in several parts visibly narrowed and contracted, œsophagus pale, stomach, externally and internally, blackish-brown. Stomach and small intestines contained several ounces of viscid dark fluid. Colon contained a mass of thickish fœces. Liver dirty brown, very soft, gall-bladder empty, spleen filled with black tar-like blood, pancreas discoloured, both kidneys very soft and full of blood, bladder empty. Blood in vena cava ascendens black and tar-like. (*CASPER, Ibid.*, 1835, No. 29, 458, in *Frank's Mag.*, i, 277.)

9. A girl, æt. 13, burnt both hands so that epidermis came off. Wounds were dressed with ungu. ceruss. After 4 d. she had frightful convulsions that lasted some h., constipation, suppression of urine, and drawing in of abdomen. She soon recovered. (*BRESSLER, Ibid.*, 1837, No. 8, 87, in *Frank's Mag.*, i, 277.*)

10. Five members of one family were poisoned about the same time with vinegar that had been kept in an earthenware pot glazed with lead; six of the remaining vinegar contained gr. v of Pl. acet.

a. The mother, previously quite healthy, had been confined to bed for 3 months before the doctor saw her. Her malady had commenced with obstinate constipation, vomiting, and frequent retching, and these symptoms still continued, though she was occasionally pretty well for 3 or 4 d. at a time. For the last 8 d. she had obstinate constipation in spite of purgatives and clysters, violent pain in umbilical region and back, difficulty of passing urine, no appetite, dry tongue, great thirst, drawing pains in extremities, abdomen usually drawn in. Still occasional vomiting of the small amount of food she took; transient paralytic affections, such as immobility of arms and legs, inability to speak, insensibility of limbs, absence of mental power, &c. It was long before she recovered, and even now she is not so well as she was previously.

b. At about the same time the eldest daughter fell ill with the same symptoms, which, however, came on more gradually; her pain in

* Several cases in which colic, muscular spasms, and other saturnine symptoms have resulted from the local application of Goulard's extract, may be read in *Perival On the Poison of Lead*, 1774, pp. 12—17.—Eds.

umbilical region was much more severe, and towards the end there came on vomiting, which could hardly be allayed, but she had no paralytic symptoms.

c. The second daughter, a very healthy robust girl, had similar symptoms some weeks later. Everything she vomited tasted like liquorice, though she had not taken any. She recovered after a few weeks.

d. The third daughter and the father had only frequent pains in the bowels, inclination to vomit, and slight constipation. (HORNBAUM, *Hencke's Zeitsch. f. Staatsarzneikunde*, xiii, H. i, 152, in *Frank's Mag.*, iii, 308.)

11. Miss A—, æt. 23, had been troubled for some d. with her eyes; she could not see anything distinctly, and objects appeared double except when she was very close to them, but there was no pain or photophobia. She was otherwise well, save for some lassitude, weary feeling in back, and slight tendency to constipation. Treatment was without effect, but change of air on two occasions benefited, improvement ceasing on return home, and lassitude becoming more pronounced. Lead was now discovered in the drinking water, and on ceasing the use of this, symptoms permanently departed. (v. TUNZELMANN, *Bris. Journ. of Chem.*, xxxii, 17.)

12. A servant (cook) in a neighbouring house had (June 18th) been ill 3 weeks. She was unable to retain any food on stomach; there was constant nausea, and even when no food was taken frequent vomiting of greenish watery fluid, especially at n. Skin had a yellowish tint; conjunctivæ also decidedly yellow; tongue furred, coat at back being very yellow; horrible taste in mouth and fetor of breath; abdomen normal and painless; bowels very confined. She was extremely debilitated. Nothing did good till *hydrastis* ʒ was given, which checked vomiting greatly, and under its continued use bowels became regular. By July 21st vomiting had quite ceased, but it returned from time to time, nausea never leaving her. On Aug. 9th she complained of loss of power in hands, which led to drinking water being examined, and found to contain about gr. 1½ of lead in the gallon. Its disuse, with change, soon restored patient to health. (*Ibid.*)

13. Mother of No. 11, subject to rheumatic pains for some years, had latterly suffered much from palpitation, with distressing craving for air, especially at n. Medicines did little, till *lachesis* ʒ was given with considerable benefit. On Aug. 14th she complained of considerable lumbar aching with lassitude, and secretion of a large quantity of watery urine, with pellicle on surface (which she had noticed occasionally for a year past). This, examined, was found of fatty nature, with a distinct metallic lustre. Urine itself was normal, but after standing for an h. deposited a light flaky sediment, showing under microscope a few mucous corpuscles and one cell of renal epithelium containing several fat-globules. Just at this time the plumbic contamination of the water was discovered, and with its disuse symptoms soon subsided, but up to Oct. 18th there was still some aching in back, and diuresis. (*Ibid.*)

14. In the house adjoining that in which No. 12 lived, the house-keeper complained in Feb. of swollen ankles, and said they had been in

that state for 3 to 4 weeks. She had sallow complexion, and suffered from nausea, but otherwise appeared to be in good health. The anasarca extended about halfway up the legs. Urine was found normal. Arsenicum 6 reduced the swelling, but it returned 6 weeks later, again to yield to same remedy. The presence of lead was now discovered, but 4 d. after the use of the drinking water had been stopped she was suddenly seized with loss of power in hands, having felt numbness in them during previous n. Lachesis 6 was given, and next d. there was some improvement in habits, but she felt numbness of legs also, with which later some neuralgic pain was conjoined. All passed off in a fortnight. (*Ibid.*)

15. The mistress of the above consulted Dr. v. T— frequently from Feb. onwards, on account of troublesome and constant diarrhoea, at times accompanied by much colic and tenesmus. She had lived in India for 12 years, and had had dysentery there. Various medicines were given, with some benefit; but bowels continued to act 3 or 4 times a d., stools being quite liquid; no blood was passed, but mucus sometimes. About the time of the lead being discovered, the abdominal pain had become more continuous. Improvement began as soon as poisoned water was stopped, and complete recovery speedily ensued. (*Ibid.*)

16. A son of No. 15, æt. 12, tall and very thin, had had a bronchial catarrh, from which a loose cough remained. On examining his chest Dr. v. T— found evidence of consolidation in l. apex, but no breaking up of lung tissue. He was very weak and much constipated. Latter symptom increased so much that fissure of anus occurred. As soon as use of poisoned water was stopped, improvement was so rapid that in a month he looked almost as if nothing had been amiss. There was at no time any rale, moist or dry, and there was very little cough; but the upper l. chest scarcely rose in inspiration, and the respiration was very harsh, almost bronchial. (*Ibid.*)

17. An elder brother of the above came to Dr. v. T— about same time, saying that he had coughed up blood for 3 d., having lost altogether about half a pint. On examination of chest nothing very distinct could be detected, save that respiration was very feeble in both apices; he had no cough. Three months later, after a day's rowing, he had a fresh hæmoptysis, this time with epistaxis. A distinct though slight dulness was now found in r. apex, and he looked rather pale and thin. The poisoned water was at this time stopped, and he rapidly regained his good looks, and had no return of the bleeding. (*Ibid.*)

18. The effect of lead on those who work in it shows itself under four principal forms—colic, arthralgia, paralysis, and encephalopathy. As regards their relative frequency, it may be said that, out of 14 subjects of the poisoning, 12 will have the colic, 8 the arthralgia, 2 the paralysis, and 1 the cerebral affection. Although they may combine in the same individual, they are distinct and independent affections. They are preceded by a primitive intoxication, whose symptoms are—coloration of the gums; peculiar taste and smell, and odour of the breath; icterus; emaciation; and slowness with feebleness of the circulation. [The first two being effects of the deposit of lead in the mouth, we

pass them over here.—Eps.] The icterus is, in its highest degree, a dirty or earthy yellow tint of the skin; when less pronounced, the yellowness is pale or a little ashy. It is most marked on the face, and involves the conjunctiva, where it is combined with a bluish tint. The urine is of a dull yellow, but nitric acid strikes none of the colours indicating the presence of bile-pigment; nor is the linen stained. The feces show a tawny-yellow tint, very marked. The serum of the blood has a slight yellow reflection, but not one verging on green. After death, this earthy yellowness may be found more or less in all the organs of the body. It is unaffected (during life) by ablution. It sometimes develops very rapidly, as in 10—25 d. after beginning work, but more commonly months or even years are required. It appears due to an alteration in the blood, and is comparable to the tint induced by syphilis and cancer, and that seen in the malarial cachexia. It is not a real jaundice. The emaciation is general, but most marked on the face, where it gives rise to wrinkles, making its subjects look old and saddened. It runs *pari passu* with, or comes a little after, the icterus. It is accompanied by some loss of strength. The pulse is small, narrow, soft and compressible; and, less frequently, the pulsations are reduced in frequency from 60—70 to 55—40.

a. The saturnine colic may be defined as a neuralgia of the digestive and urinary organs, characterised by intense abdominal pains, which are continuous but become more acute paroxysmally, diminished or at least not materially augmented by pressure, accompanied by hardness and retraction of abdomen, obstinate constipation, vomiting or nausea, flatulent eructations, anorexia, dysuria, slow and hard pulse, agitation, and anxiety. It may be brought on in whatever way lead is introduced into the system, save through the unbroken skin. It is most frequent in summer weather and at the ages 30—40. The pain begins in a grumbling manner, with slight development of the concomitant symptoms; then suddenly sets in in all its severity. In certain cases, before the manifestation of the colic, the workman from gay becomes morose; his features become sunken rather than shrivelled; all exertion is fatiguing; sleep is fitful and unrefreshing.

The pain is most frequently at the umbilicus, and next at epigastrium, but may affect any part of abdomen, pelvis, or thorax. It consists ordinarily in a violent sense of twisting; sometimes it is described as tearing, shooting, burning, boring, or it may be felt only as constriction, or as compression from a supposed weight on the abdomen. It is mostly so severe as to throw the patients into the utmost agitation, and sometimes to render them insensible to all that is around them, slow to respond when addressed, and even tempted to suicide. The paroxysms are more frequent by n. than by d. The constipation—rarely absent or replaced by diarrhoea—is obstinate, in spite of frequent desire for and attempts at stool. Even with drastic purgatives the motions come only in scybala, and are scanty. It follows, and does not precede, the supervention of the pain, which also may last for days after purgation has been effected. *Retraction of abdomen* appeared in 649 out of 1217 cases; only in 123 was the belly large, and it was never inflated. There is no constant quantitative

relation between the retraction and the pain, but they coincide in point of time and of seat. During the paroxysms, both abdominal and intestinal walls feel like muscles in cramp: this may at times be clonic, but is ordinarily tonic. Painful tenesmus is sometimes felt in the rectum; it seems drawn together, and the finger can with difficulty be introduced, on account of the tightness of the sphincter and the narrowing of the calibre of the gut. *Nausea* is more frequent than vomiting, and nearly always precedes it; the latter is specially apt to occur when the colic is seated in the epigastrium; it is effected with much retching and straining. The vomited matters are of a dirty green colour, a viscous consistence, a foetid odour *sui generis*, and of extreme bitterness. *Flatulents* is shown by eructations and borborygmus; little passes from the anus. It sometimes becomes incarcerated, forming a *quart-tumour*. Hiccup was observed in 115 cases. The tongue becomes coated white, perhaps yellow at back, and may be larger than normally; more seldom it is red and dry. Toothache is sometimes observed, unconnected with carious teeth (28 cases). There is thirst and loss of appetite—the latter being so far an advantage, as solid food provokes the pains.

When the colic is seated in the hypogastric or renal region, there is nearly always functional disturbance of the urinary organs. Painful contraction may be felt at the neck of the bladder; a sound is passed with difficulty, and micturition—during the paroxysms—can be effected *guttatim* only, in spite of urgent desire. A biting or hot sensation is often felt in the urethra before, during, or after micturition. Urine is redder than normally; in two cases only was it alkaline. The pains may involve the genital organs—the testicles, generally both, with retraction, which also may affect the penis. In two women affected with the malady the pains were severely felt in the vagina and uterus. None but temporary interference with menstruation has been observed. The genital pains do not necessarily coincide with those in the abdomen, and must be regarded as having an independent centre. The chest has pains radiating from the abdomen, and also a sense of constriction around the *præcoria* quite its own. The mamma in women may undergo a painful contraction during the paroxysms. The respiration is embarrassed by the abdominal contraction when in the epigastrium, but sometimes the diaphragm and thoracic muscles seem themselves in a state of spasm. Some patients experience palpitations; a little nervous cough, which fatigues; and even symptoms analogous to angina pectoris. In one case the pain mounted from epigastrium into chest, and spread right down the arms; the patient then felt palpitations and a very marked stifling sensation. Resp. was 35—40. In 51 cases jaundice has supervened upon colic. Pulse is most frequently diminished in frequency, and in more than half the cases observed was also hard. It may intermit or become irregular. In some cases an energetic pulsation of the aorta in the epigastrium has been observed; in 13 instances epistaxis occurred. Temperature is rarely affected, but patients may complain of sensations of cold or heat; they always feel these pains increased by cold.

In 49 cases of uncomplicated lead colic ending in death, and where

an autopsy has been made, no lesions of any constancy or significance have been discovered.

b. We give the name of "saturnine arthralgia" to an affection of neuralgic character, which the preparations of lead set up after absorption into the system. It is characterized by sharp pains in the limbs, without redness or swelling, not following precisely the course of the nerves; continuous, but becoming more acute by paroxysms; diminished by pressure, increased by movement, accompanied by divers disorders in the motor sphere, as cramps, hardness and tension of the painful parts, &c. These neuralgic pains may likewise show themselves on the trunk, and even in most of the organs of animal life. Arthralgia is the most common result of lead poisoning, after colic; the author has observed 755 cases, in 201 of which it stood alone. It arises under the same circumstances as the colic, which it frequently accompanies. It is generally announced by a feeling of numbness and lassitude in the parts it is about to attack. The pain usually sets in during the n. Its most frequent seat is the lower extremities, then the upper, the loins, the thoracic walls, the back or neck, and the head. It affects by preference the flexor surfaces of the limbs, and the joints (especially the larger ones) rather than the intermediate lengths. Its character is tearing-asunder, contusive, or a composition of extremely painful shootings, as sudden and rapid as electric shocks. Patients compare these to needle-thrusts, or even to the boring of a gimlet. Some say that they feel as if a live coal were in the painful parts; others complain only of pricking, of disagreeable stumbliness, a fatigued or bruised feeling, a sort of constriction or irritation; others speak of formication. There are, further, a few who imagine a burning liquid to be coursing through their veins, or that an ice-cold body is touching the parts. There is great agitation during the paroxysmal exacerbations, which commonly last a few m. only, and are most frequent at n. The muscles of the affected part are thrown into painful rigidity and cramp; sometimes they are disturbed by tremblings or shudderings. The heat of bed, but also undue coldness, increases the pain. It may feel superficial or deep, and seems to be seated in skin, muscles, bones, or nerves; when it is felt in several parts of a limb it may have a different character at each. In one case, where the face was its seat, oalgia coexisted.

c. Lead may paralyse either the motility or the sensibility of parts—paralysis vel anæsthesia saturnina.

We have observed 102 cases of paralysis. It is ordinarily heralded some time in advance by certain disturbances of the system—lassitude, sense of weight or coldness, torpor accompanied with weakness or a shattered feeling, an unwonted heaviness, a certain inaptitude to movement in the parts about to be invaded by the paralysis. Sometimes tremors, more or less intense, with the heaviness and dulness, serve as prodromata. These feelings will often go off as the patient is warmed by work. The paralysis, when it sets in, is sudden and complete. It is usually limited to one or several muscles, or to the muscular apparatus of one limb. It most frequently attacks the upper extremities (especially their terminal portions), then the lower, rarely the trunk, less

rarely the vocal apparatus. It is the extensors of the limbs which are affected. The initial tremor consists rather of a slight agitation of the muscles than of their alternate contraction and expansion. It is a "tremblement," never reaching to the degree of the mercurial trembling. When the paralysis has lasted a long time, months or years, there is noticed a flaccidity, a wasting, an extraordinary emaciation of the parts deprived of movement; the skin is whitish, pale, of livid, often earthy-yellowish look, rough to touch, dry, harsh, as if scorched; it seems to have lost its natural thickness. The epidermis often desquamates. The subcutaneous cellular and adipose tissue entirely disappears; the skin is then lax and flaccid, and seems too wide for the parts it covers. The flesh is soft, the volume of the muscles is diminished; they no more stand out in relief. When this atrophy has reached its height the skin seems glued to the bones, whose prominences can be readily felt; and if a whole limb be attacked, it drags down by its own weight, and may even become dislocated. If the case be prolonged the whole body becomes the subject of this atrophy, and resembles a veritable skeleton in a transparent envelope; there then follow infiltrations, eschars, gangrenous patches. In general emaciation the urine often becomes colourless; in 3 cases we found it alkaline. We have not observed any involvement of the bladder in the paralysis. The palsied parts are often bathed in the m. in copious viscid sweat. Lachrymation is sometimes unusually active, without other ocular disorder. All the lead paralyses are slow, gradual, and progressive in their course. They are always amenable to persistent treatment (sulphurous baths and strychnia) if the muscles are not altogether atrophied. In the few cases in which death has occurred, *p. m.* examination has revealed no constant or characteristic morbid changes, unless it be an excess of serosity in the cranium and the vertebral canal.

Saturnine anæsthesia may be limited to the skin, or may extend to the subjacent parts; it may be common sensibility that is affected, or special—as that of vision. We have seen 23 cases of it; in 4 the deeper parts were affected, in 7 the skin only; 12 consisted of amaurosis. Of the first 11, 3 had paralysis of movement coinciding with that of sensation, in 4 the two affections occupied different seats, in 4 others the loss of sensibility stood alone. Like the paralysis, the anæsthesia affects limited tracts, as a finger or two, the palm, &c.; it may be more extensive, but is never general. It usually comes on suddenly; may be complete or partial; is very mobile, shifting seat and extent quickly; and rarely lasts more than a week or two. It may co-exist with arthralgia, even at the same spot, but is then superficial only. In two patients dying while anæsthetic, no alterations were found in the nervous system which would account for the phenomena.

Of the amaurosis we have seen 12 cases, in 2 of which no other cerebral symptoms co-existed. It seldom, however, exists apart from other manifestations of poisoning. It usually appears suddenly (14 times out of 19), but may be preceded by some frontal headache. It is double, and complete or partial, the pupil behaving accordingly. It seldom lasts long (6—8 d.), and usually goes off as rapidly as it has

supervened. Three autopsies, performed in such cases, showed no alteration in retina, optic nerves, or brain.

d. The saturnine "encephalopathy" is characterised by delirium, coma, and convulsions, singly or combined, and accompanied or not by loss of one or more of the senses. It is without fever, and has a physiognomy so mutable that the manifestations may change from one d. to the other, or between m. and n. Their brusque, instantaneous appearance and disappearance constitute its most remarkable feature. We have seen 72 cases among workmen. Of these, 6 were attacked primarily; the rest had already, or had previously had, other plumbic affections. It may surprise the workman without warning in the midst of his occupation, or may announce its advent by several functional cerebral or other derangements. Thus in some cases severe headache is felt, with vertigo or tippy feeling; in some there is insomnia, or restless sleep troubled with baleful dreams. We have observed disorders of sight and hearing,—as dazzling, cinnitus, diplopia, strabismus, dilatation or contraction of pupils; or an unnatural look—astonished, stupid, or pensive. One patient complained of fulness and weight, with atrocious pain in orbits. The disposition may become sad, unquiet, indifferent, morose, lachrymose; sudden fears may assail the mind, and lead to restless changing of place with the view to banish or escape them. Lastly, stupor, an indescribable malaise, embarrassment and slowness of thought and movement may precede the advent of this malady. Out of the 72 cases observed 19 had prodromata of this sort. Sometimes they appear elsewhere than in the cerebral sphere, as in the form of dysphagia, or a sense of constriction in the pharynx.

The *delirium* may be quiet or furious. The former presents every variety of simple mental aberration, passing rapidly from one to another, sometimes accompanied by hallucinations of sight or hearing. In the furious form there is a kind of mania. The face is slightly reddened, sometimes distorted or convulsed. There is much talking. The tongue sometimes becomes dry and brown; and yellowish or even blackish crusts form on teeth and gums. Either is paroxysmal, with intervals of somnolence.

The *coma* may be with or without some degree of delirium. In either case it is sudden in its onset. It is rarely profound.

Convulsions are the most frequent cerebral phenomenon we encounter, though rarely (5 cases only) occurring alone. They may be irregular, whether partial or general,—i. e. resembling no recognised malady of the kind; or, more frequently, they consist of epileptic, epileptiform, tetaniform, or cataleptiform attacks. In nearly every case the intellect is consentaneously affected, whether before, during, or after the convulsions. Irregular, partial convulsions may consist of clonic or tonic spasms of the face or of a single limb: they come on suddenly, at short intervals, and are accompanied by delirium or somnolence, or by intense headache and hallucinations of sense. General convulsions of this kind are most apt to seize those exhausted by the colic. They are taken at first with agitation, characterised by general trembling with clashing of the teeth, as in the cold stage of ague. Then come

spasmodic shocks through the whole body, and these are followed by general stiffness. Consciousness has not been altogether lost; but they look wild, with fixed eyes; and if questioned, stare awhile and utter only a cry. After a few m. the pale face regains its expression, and the limbs relax. Sopor, more or less deep, usually succeeds the attack; more rarely delirium. In the saturnine epilepsy, mental distraction, giddiness, restlessness, frontal headache, amaurosis, may precede the attack; or it may set in unannounced. No *aura* has been felt. One patient uttered a cry at the onset, one a groan. The attack differs in no respect from that of idiopathic epilepsy; but the sopor that follows it is a coma, which may last for days, and may be broken by fresh attacks—one patient had 34 in 24 h. Sometimes delirium replaces it. A part only of the full *cortège* of epileptic phenomena may occur, when the convulsions may be styled "epileptiform." They are cataleptiform when, consciousness and sensibility being lost, the limbs retain for a time any position in which they are placed. We have seen but 2 cases of this kind. Recovery set in with various movements of head, face, and body, as if to express feelings, the eyes still being closed; then cries were uttered; finally lethargy again supervened. After several of such alternations consciousness returned, but was of a delirious character.

The encephalopathy may co-exist with the other saturnine maladies, in various combinations. There are no other derangements of health characteristic of it, save such as might be expected from the violence of the attacks; but there is rapid loss of flesh. The course of the disease is very irregular, abounding in surprises. The delirious form affords the best prognosis; the comatose and convulsive forms may end in dementia, or in death. We have never seen meningitis or encephalitis supervent. Of our 72 cases, 16 died. Combining their autopsies with those on record, we find 32 cases in which no noteworthy cerebral lesion was found after death, while in 21 there was a subsidence or flattening of the convolutions, with augmentation or diminution of the consistence and size of the cerebral mass. We are inclined, from the facts, to think the latter change a secondary one. (TANQUEREL DES PLANCHES, *Maladies de Plomb*. 1839.)*

19. a. A man, æt. 30, who from a boy had worked among preparations of lead, was admitted to the Vienna General Hospital the end of March, 1840. He had had 10 attacks of lead colic, the last 10 years ago. Two months ago was attacked by repeated violent headaches and vomiting, afterwards by marked dimness of sight and great weakness of lower extremities, and for the last few days has had oedematous swelling of face and feet, anorexia, pressure on chest, and dry cough. The headache was in the occiput, often extending to forehead; objects appeared to him as in a fog; pupils contracted, sclerotic leaden coloured; taste like clay, great thirst, gums spongy, swollen, teeth dirty grey; breathing often interrupted by sighing; abdomen fallen in; pulse small, slow; frequent vomiting of greenish-grey matter. After a few d. considerable swelling of face, especially of eyelids and abdomen; frequent headache

* The above is a résumé of all the pathognostic facts contained in the work above cited.—Eos.

commencing in occiput, and accompanied by bilious vomiting; dry cough on taking a deep breath; serous infiltration of almost all the skin; during the vomiting great pain in umbilical region, pains much increased by pressure. He often fell into a soporous state; eyes dull, voice scarcely audible. After a few more d. staring look, vision dim, eyes projecting, features sunken, extremities convulsively agitated, eyelids extremely swollen and sensitive, conjunctiva of l. eye much suffused with blood; respiration rapid, anxious; epigastrium very tender, frequent vomiting of green matter, frequent copious epistaxis, nocturnal delirium alternating with sopor, frequent cough with bloody expectoration, great debility, voice hardly audible, great pain in extremities, dryness of mouth, meteorism. After a time the anxiety increased, as also the difficulty of breathing, often to fear of suffocation. He could only breathe in a sitting position; every part of the skin, especially of the arms and eyelids, very sensitive to the slightest touch; he sometimes lay quite apathetic, complaining of nothing and somnolent, and at length died after being moribund for 24 h. on the 26th April.

♂. *P.M.*—Skull long-shaped, its bones compact, in the sinuses a little fluid blood, the inner membranes much thickened, opaque, filled with much grey serum, devoid of blood; cerebral substance pale, soft, bloodless, in the central cerebral cavities 3 drachms of brown clear serum; vascular plexuses pale, pineal gland soft, not gritty; in base of brain $\frac{1}{2}$ oz. of clear serum. Thyroid gland pale, tough; in trachea much fluid mixed with mucous flakes, m.m. pale; both lungs pale, tough, bloodless; in the pleural cavities several pints of brown serum mixed with fine lymph-flakes, in pericardium 2 pounds of dark brown serum; the serous investing membrane of pericardium and heart covered with a layer of greyish-red, fine villous, firm exudation of lymph in meshes; the heart more than twice the normal size, the walls of the l. ventricle more than 1 inch thick, pale brown, firm, valves normal; in the auricles, besides firm pale lymph, much blackish-red coagulated and fluid blood. Liver brownish red, soft; bright yellow, fluid bile in gall-bladder; spleen swollen, pancreas soft, stomach contracted, containing a little brown opaque fluid, its m.m. very corrugated, thick, tough; intestines very contracted, grey, yellowish, containing feces adherent to their walls; mesenteric glands soft; both kidneys diminished to half their size, the surface of their cortical parts studded with prominent granulations of the size of hemp-seeds and larger, dirty yellowish-white, very firm, tough, and between them blackish-blue deposits like pigment, and among them single cysts the size of peas containing brown serum; bladder contracted, containing a few drops of opaque urine. In the peritoneal cavity 6 pounds of grey serum. (BER, *Oester. med. Wochenschr.*, No. 35, p. 817, 1841, in *Frank's Mag.*, i, 799.)

20. A journeyman painter, æt. 24, who had formerly had 3 attacks of colica saturnina, came into hospital for a 4th attack. For 4 months had noticed weakness of hands, which now amounted to complete paresis, so that he could not feed himself. The weakness also affected lower extremities, so that his gait was uncertain and staggering. Stools very costive and scanty. Since 7 d. pains in umbilical region and lower extremities, and obstinate constipation. Abdomen hard and tense,

umbilical region drawn in, with tearing pains, and very sensitive to pressure. Tearing pains in lower extremities. Urine dark coloured and turbid; strong fever, pulse 110, large and tense. He got 6 oz. of quicksilver, followed by enemata and castor oil, which brought away much feces, but the quicksilver did not come away till after the lapse of 3 d. He then recovered, but the paralysis of the hands remained. (KNAPP, *Russ's Mag.*, ix, H. 2, 294, in *Frank's Mag.*, i, 604.)

21. a. A. Duhamel, æt. 56, a house-painter for 40 years, of middle height, born of healthy parents, was admitted into La Charité, Paris, 14th Aug., 1863. Every 2 or 3 years he has had attacks of colic, the last being in June; otherwise he has been in good health. Present condition—trembling of voice (for now 12 years); the colics have nearly disappeared; characteristic blue line; slight diarrhoea; abdomen is soft, and not painful to pressure. The hands tremble a little when extended; paralysis of extensor muscles. Marked loss of muscular power of both arms, sensation intact; pains in knees and ankles, without swelling or redness; occasional cramps. No trace of œdema. Heart and lungs normal; special senses intact. Skin dry, cool; pulse 80, regular, full. The urine is pale, and contains much albumen and a considerable number of renal cells; lead found in the urine. 17th.—Same condition of urine and other symptoms; pulse 96. 24th.—Complains of weakness; the urine is hazy when treated by heat and nitric acid, but gives no deposit. Sept. 2nd.—The paralysis of extensors is less marked; the urine still albuminous; the patient, feeling better, wishes to leave. He resumed his work for 16 d., but the return of colic and increase of paralysis obliged him to desist, and he re-entered the hospital Sept. 28th. He looks very pale; extreme emaciation; sharp colic and constipation; paralysis of extensors of arm, forearm, and hands; great weakness of lower limbs. Embarrassment of speech, trembling of tongue, twitchings of muscles. Intelligence and sensibility not affected. Pulse 120, small; respirations quick; nothing abnormal in heart or lungs. The urine very albuminous. 29th.—Passed a delicious night, but is now calm; symptoms as before; spleen normal, but liver retracted. Urine very albuminous, containing numerous casts. At 9.30 p.m. he took soup; at 10 he attempted to leave his bed to go to the closet, and suddenly expired after crying out, "I am dying," and making half a dozen noisy inspirations; the tongue projected from the mouth.

b. Autopsy made 28 h. after death. Very marked rigor mortis. *Head.*—Sinuses of dura mater gorged with blood; absence of serosity in arachnoid; membranes of pia mater congested. The lens shows congested capillaries on periphery of brain and cerebellum, and minute extravasations of blood. Arteries at base of brain and cerebellum give negative results. *Thorax.*—Nothing in lungs to report. Heart has no blood on r. side; aortic valves healthy, mitral a little thickened and rough at their base. *Kidneys.*—Notably diminished in size; numerous granulations on surface, colour yellowish, the cortical substance opaque. Microscopic examination found the alterations present in Bright's disease arrived at the stage of atrophy of the cortical substance. (OLLIVIER, *Album. saturn.*, 1864.)

22. *a. L.*—*æ.* 43, a house-painter since he was 8, had at 15 his first attack of colic, since then he has had five. About 4 years ago he was attacked with paralysis of extensors of forearm; this has never wholly disappeared. When 37 he was suddenly seized with acutely painful swelling of l. big toe; this disappeared in 8 d., and was replaced by similar affection of r. toe. He had had three similar attacks since, the last Aug., 1869; this was not confined to the big toes, but affected also the tibio-tarsal articulations, heels, and finger-joints. This attack lasted about a month, and the feet were swollen during that time. He then returned to his work, which in November he was forced to quit owing to palpitations and oppressed breathing, especially on going up-stairs. He was admitted into La Charité, Jan. 5th, 1870. The skin is of a distinct yellow colour, lips livid; face very slightly swollen, but there has never been œdema of the limbs. Paralysis of extensors of both forearms; if he raises wrist he cannot without great difficulty extend fingers. Breathing oppressed, respiratory sounds normal; pulsations of heart strong, sounds normal. Urine pale, almost without colour, albuminous; has never noticed deposits of uric acid. His father died, asthmatic, *æ.* 56; one sister died from chronic pulmonary disease. (*Pot. brom.*, sulphur baths.) 10th.—Mucous vomiting, in c. vomiting of food; constipation, headache, drowsiness; vision cloudy. Urine a little over two pints; sp. gr. 1020. (*Ol. ricini.*) From 10th to 22nd vomiting of bilious matter and food continued. On 24th sudden loss of consciousness, followed by convulsions of muscles of face and limbs, with foaming at mouth, leaving swelling and congestion of the face. Seen in forenoon, his features are swollen, dull look, speech embarrassed, head heavy. He complained of violent one-sided headache, like migraine, which he has been subject to for a year. Slight epistaxis; pulse 100, strong and vibrating, cardiac impulse strong; vomiting, obstinate constipation. Urine becoming very hazy on addition of nitric acid; this disappears on adding an excess of acid, and a reddish colour appears; no sugar. Microscopic examination shows a few hyaline granular cylinder casts, and phosphate of lime; about a quart of urine passed daily. This state and recurrence of frequent epileptic convulsions continued until Feb. 6th, when deafness and great diminution of sensibility were present; the speech is laboured; sleeps very heavily, with snoring. Urine reduced to a pint, pulse 84. On the 9th the symptoms increased, a small quantity of urine passed in bed. On the 10th epistaxis, involuntary motions, urine still albuminous; the patient rises up without knowing what he is doing, at other times he is drowsy; during n. of 11th coma increased, and he died suddenly at 6 a.m. without the slightest movement.

b. Autopsy.—Absence of œdema or anasarca. The metatarsophalangeal articulations are lined with numerous whitish deposits of urate of soda. Articulations of big toes have their cartilages and ligaments encrusted with abundant deposits of same salt. Very fine deposits seen in finger-joints. Extensors of the fingers, extensor proper of little finger and index, long abductor and short extensor of thumb, are pale, yellowish, and atrophied. The other muscles of forearm are healthy. Microscopic examination of the atrophied muscles shows a

great number of the primitive fibres much diminished in volume but retaining their striæ: at some points the muscular fibres present only the sarcolemma, showing in its thickness nodules which are more numerous in proportion to the atrophy. The branches of the radial nerve show gradual degeneration of their myeline. Brain and spinal cord are normal. Lungs show old adhesions; bronchial glands are enlarged. Heart shows patches of fat on its anterior surface and sides; large milky-looking patches at root of aorta and on anterior surface of auricles. L. ventricle is firm, red, and considerably hypertrophied. Mitral orifice is normal, but aortic is insufficient owing to thickness and adhesion of the valves. Internal surface of the aorta is covered with atheromatous patches; carotids and some of cerebral arteries are similarly affected. Kidneys are atrophied, reduced one half in size, granular, affected by interstitial nephritis. Stomach presents the appearance of uræmic gastritis. It is enlarged. Liver and pancreas are normal. (E. LANCEREAUX, *Mém. Soc. de Biologie*, t. ii, 5^e série, 1870.)

23. A painter, æt. 35, had colic when 25; 10 years ago, after the first attack of colic, the sight became affected. For 3 years he has complained of malaise; constant pain in limbs; intense occipital headache, coming on in paroxysms; suborbital neuralgia, occasional; the urine is albuminous. The sight, especially in r. eye, has been gradually getting weaker; during the last 7 weeks this diminution of vision has prevented him working. He looks ill and thin; there is no œdema. *Muscæ volitantes*, circles of fire, difficult to see objects in e., impossible to read; these symptoms worse in r. eye; pupils dilated, especially r. Ophthalmoscope shows—in l. eye localised granular degeneration, exudate masking the papilla and exit of vessels; r. eye, degeneration more limited, but exudates more numerous, masking the vessels in a great part of their course. (L. DANJOU, *Arch. gen. de Méd.*, 1864, i, 402.)

24. M. ZULMA, æt. 37, was admitted 22nd May, 1872, under M. Vulpian's care. The father died at 55, probably of alcoholism, the mother at 58, of paralysis. The patient has been a house-painter since he was 17, and enjoyed good health until 6 years ago, when he had violent colic, followed in about 10 d. by paralysis of hands, cramps in hands, and wandering pains in body. He had a second attack 4 years ago; the following year another, and his 4th a year after. His 5th attack commenced 15 d. ago, the colicky pains very severe, with increase of paralysis. On admission the pains are slight; thirst, white tongue, no appetite, constipation, no fever. He complains of cramps and continued pains in all the limbs, especially in deltoid region. Extensors of forearm are completely palsied; slight trembling of hands. Electric sensibility has disappeared. Breathing normal, but complaint is made of slight pain in region of diaphragm on inspiring. Strong palpitations of heart, slight blowing murmur with first sound towards apex. Sensibility not affected. Decided albuminuria. The patient presents a marked yellow cachectic look, and blue line on gums. He was treated by electro-magnetic currents and iodide of potassium, which were continued up to June, 1873. In July, not feeling well, he kept

his bed for a few d., and on getting up on the 10th he complained of confusion, and stumbled against things. At 11 a.m. he was seized in bed with a severe epileptic attack; no aura, marked cry; tetanic stiffness of neck and limbs; complete loss of consciousness; respiration ceases for a moment; face purple, with congested spots on forehead and face; convulsions of muscles of face; slight clonic convulsions; foaming at mouth, tinged with blood. This condition lasted 3 m.; the limbs then relaxed, and after $\frac{1}{2}$ h. of coma and stertorous breathing semi-consciousness returned, but with great drowsiness. During d. 2 more attacks, but less severe. Urine contains much albumen. The administration of iodide of potassium renewed. July 11th.—He looks exhausted and is drowsy; he makes no complaint of pain; the vision is very indistinct, he distinguishes nothing; remembers nothing of yesterday. 12th.—Still marked albuminuria; the intelligence returned, and vision restored; he complains of distressing pulsations in the temples; action of heart rapid and vigorous; pains in both shoulders. 14th.—The albuminuria has nearly disappeared, abundant deposits of urates and uric acid; strong traces of iodide of potassium. 22nd.—General state of health good. Electric appliances were used up to March, 1874, when he left much improved. It is to be remarked that 2 years after having ceased to work with lead, and though so long under the influence of iodide of potassium, he was attacked with epilepsy. (RENAUT, *Intoxication saturnine chronique*, 1875, p. 156.)

25. J. DUSOY, æt. 46, worker for 18 years in white-lead, was first treated at La Pitie, May, 1871, for lead colic. He was readmitted March 4th, 1874, suffering from severe colic. He had given up working in lead since 1871 owing to frequent attacks of colic; he had, however, resumed this work 6 weeks previously. He has never suffered from cerebral disease or paralysis; he is temperate; and he is not syphilitic. For the last 15 d. he has been feeling sense of weakness in r. side; he is not intelligent, but answers questions distinctly. He has frequent headache; slightly deaf on r. side. All the r. side of face is affected by marked anæsthesia; insensibility to touch, to temperature, but especially to pain. The facial hemiplegia is not very evident. The arch of the palate is insensible to touch, the uvula is drawn to the l., the muscles act indifferently, and reflex movements are not excited; deglutition is impaired. The tongue is strongly diverted to the l., and bent to same side. The voice is nasal, and words are not pronounced distinctly. Blue line on gums is very marked. The motility of the r. upper extremity is diminished, and there is a certain amount of atrophy of the posterior muscles of the forearm. The extension of r. wrist is more difficult than of l.; the sensibility over the extensors is destroyed, as regards touch, temperature, and pain. Walking is difficult, he drags the r. limb, and on examining him in bed the weakness of this leg as compared with the l. is evident. The toes of r. foot are contracted like claws. Complete anæsthesia and analgesia of r. limb; these conditions extend up r. side of abdomen, of loins, and of thorax, keeping to r. of median line anteriorly and posteriorly. A prick gives the sensation of rubbing, and a pinch that of simple touch. The umbilical region is painful to touch; constipation for 8 d. Blowing

murmur very marked in vessels of neck; urine normal. He was treated with strychnine and iodide of potassium; up to May 10th there was no appreciable change; electric contractility is much diminished in r. compared with l. side; this is especially evident in the extensor muscles. June 1st.—He has gained strength and walks much better, the r. leg now shows hardly any trace of dragging. In 6 months all the symptoms had almost entirely ceased. Raymond remarks on this case that the diagnosis *lead paralysis* was indisputable. There was no question of hysteria; the paralysis came on slowly without any precursory symptoms, no apoplectic attack; the electric sensibility disappeared in the paralysed limbs; and, contrary to what occurs after cerebral hæmorrhage, the limbs were irregularly affected and the groups of muscles unequally palsied. It reminds him of similar symptoms in another lead case, where the signs of paralysis (sensibility and motility) were more marked on one side than the other, loss of hearing, smell, taste, &c. (*Ibid.*, p. 166.)

26. L. I.—, æt. 46, of a healthy family, has worked for 3 months in a lead manufactory at Clichy; towards the end of this period he had severe attacks of colic. A few days after this he was seized, on March 23rd, with a marked encephalopathy; while washing his hands he fell down insensible, he then had convulsive movements; this attack lasted 2 h. Five d. after he had another similar attack which lasted an h. He then ceased working in lead. About April 2nd he remarked that he could not use his hands when he wished to eat; if he attempted to lift a glass to his mouth his arm shook so that he was unable to drink. Next d. he experienced slight formication in the lower extremities, and in 4 d. he walked with difficulty, was obliged to lean on something to avoid falling; he also felt sharp one-sided headache, with diminution of sight and hearing, especially on l. side. As the legs became worse the lack of co-ordination in the arms diminished. He was admitted into the hospital April 8th, 1874; he had enjoyed fair health previously to working in lead; had not suffered from syphilis or alcoholism. Marked blue lines on gums. Violent left-sided headache, with nocturnal exacerbations. Slight anæsthesia of l. side of face, otherwise face normal; l. pupil is more dilated than r.; slight deafness of l. ear, with buzzing noises. Considerable loss of muscular power in arms, especially l.; no apparent atrophy. Pressure on last cervical and first dorsal vertebræ excites pain; no hyperæsthesia. There is marked loss of co-ordination of both arms, especially of l.; the patient cannot, on closing the eyes, carry hand to a point in face without feeling the way. Analgesia of both arms. In lower extremities marked inco-ordination; when he wishes to make a movement it is executed with difficulty; on shutting his eyes and trying to walk he strikes his heel against the ground, he trembles, and would fall were not some one at his side. There are painful zones over the articulations of the neck, the knees, and the feet; anæsthesia to touch, to temperature and to pain over both limbs, especially l. Increased reflex excitability, especially of l. side. Iodide of potassium; sulphur baths twice a week. The symptoms continued much the same, the headache though persistent was less severe, until April 18th, when

walking was easier, but still trembling and the want of co-ordination. April 20th.—Pain and swelling over wrist and back of l. hand; the ring and middle finger are bent, to extend them causes pain. 26th.—The swelling of wrist is confined to the tendons of the flexors; the skin is red, and very painful to the touch.* The power of movement and co-ordination improved. May 26th.—He walked well, and showed no loss of co-ordination; he left the hospital on the 29th of June almost completely cured; it would have been difficult to trace any remains of the symptoms for which he had been admitted. (*Ibid.*, p. 170.)

27. A. Tisson, æt. 50, a worker in a lead manufactory for 4 months, began soon to suffer from colic, for which he was admitted into the hospital. On being discharged he returned to work where he was less exposed to lead influences, but after 5 d. he began to suffer from sharp pains in the joints, and was readmitted Feb. 21st, 1875. Very acute pains for now 15 d. in many joints; the most painful are those of the lumbar spine and shoulders, but all are more or less affected except in jaw, fingers, and toes. Little felt when at rest, the least movement excites them; pressing the surfaces of the joints together causes severe pain; pressure round the joints less felt. The muscles are free from pain; no redness or swelling. Sleep generally good, but he sometimes wakes with starts; he also wakes when he moves; he has nightmares nearly every n., he thinks he is pursued by assassins and cannot escape. Continued headache and frequent vertigo for 15 d. He feels weakness in all his limbs; buzzing in ears; he sees showers of snow or of fire; he nearly loses consciousness, and must get hold of something to prevent himself falling. These attacks occur two or three times in the 24 h.; they are followed by very severe headache. Weakness of r. hand; he can extend the ring and little finger very much less than the others; it is with great difficulty he can lift a chair with his r. hand; the l. is not so much weakened. Sense of numbness and formication in fingers, especially of r. hand, which is followed by painful prickings. No loss of sensibility in legs, but r. is weaker than l. Anæsthesia and analgesia of all r. upper extremity; skin can be pierced with a needle without causing pain. Pupils equal and contractile; tongue clean and moist; bowels costive; pulse regular, 64; urine normal, no albumen. 23rd.—One vertiginous attack yesterday; increase of paralysis of extensors of r. hand; still the anæsthesia, extending as high as insertion of deltoid. Sensibility less in r. lower extremity than in l., but no anæsthesia: the sensibility of each side of trunk is equal. Sight of r. eye feebler than that of l.; is unable to read with r. alone; no diplopia. Hearing of r. ear less than that of l. The articular pains are as strong on one side as on other. March 2nd.

* M. Gubier has pointed out an unusual variety of deformity and lesion of tendons, which he has observed in two patients suffering from lead-poisoning. This lesion consists in a sort of plastic and fungoid synovitis, seated in the sheaths of the extensors on the dorsal surface of the hands. Legros, who examined the second patient, recognised necrosis of the primitive tendon sheathed in a cartilaginous tissue of new formation. M. Gubier has seen a similar condition in paralysis *à frigore*, in a coachman suffering from the effects of cold rain falling on the hands. (*Brit. Med. Jour.*, 1878, ii, 141.)

—No vertigo for 4 d.; constant headache. Sleep good but for nightmare; pains in articulations still great, no myalgia; the paralysis is less. The report ceases at this date. (*Ibid.*, p. 175.)

28. J. Clarke, æt. 30, was admitted in a state of profound epileptic coma; and from Oct. 18th to 20th he had five convulsive fits, accompanied and followed by coma, which continued for 2 d., when he began to recover. . . . I viewed the case then as one of those in which the cerebral affection was due to the presence of some irritating matter in the blood which ought to be eliminated by the kidneys. There are very good grounds for believing that when urea is retained in the blood, the brain is very likely to be affected so as to cause coma and convulsions. . . . As soon as recovery from the state of coma took place, we observed a paralytic affection of the upper extremities, and of these alone; the legs were in no way involved. Nor did the paralysis involve all the muscles of the upper extremities; those of the arm and shoulder were only very slightly affected; the muscles of the forearm were chiefly engaged, and of these the extensors were most distinctly paralysed. All were wasted; but the extensors most so, as was obvious from the hollow which existed over those muscles on the back of the forearm. His power to flex the wrist and grasp with his fingers was very feeble, but he was wholly unable to extend the wrist or fingers. When the arm was stretched out from the trunk, the hand hung, as if lifeless, from its articulation at the wrist. Both upper extremities were affected in precisely the same way, although not precisely to the same degree; for the r. forearm was evidently weaker than the l. The muscles which form the prominence of the ball of the thumb (the *thenar eminence* of anatomists) were also paralysed and greatly wasted, and the power of flexion, or extension, or adduction of the thumb was almost entirely destroyed. . . . He was admitted on the 18th of Oct.; on the 22nd he was quite free from any comatose symptoms, and there now remained to be dealt with the condition of the kidney (the *focus et origo* of the cerebral disturbance) and the paralytic state. The urine had increased considerably in quantity; it was still, however, very highly albuminous, becoming almost solid by heat, and of low specific gravity; and, under the microscope, contained casts of tubes and epithelium, and some blood-corpuscles. . . . He exhibits precisely the character of that form of palsy which results from lead-poisoning, more commonly known as the 'painters' wrist-drop.' All the characteristic signs of this form of palsy were as well marked in this case as in any case I have ever seen. When you make him hold out his arms, you see both hands hang down, and he has no power to bring them to the state of extension. A practical man could not see such a case without asking if the patient was a house-painter. Yet we found, on inquiry, that not only was he not of that trade, but that his proper vocation, that of a waiter, did not particularly expose him to the lead contamination. . . . It appears that a part of our patient's duty was to clean and keep bright the pewter pots belonging to the public-house to which he was attached. This he did by friction with his hands. Now, pewter very commonly contains lead in considerable quantity, and no doubt the frequent contact of this with his hands

would lead to a gradual absorption of a sufficient quantity of the metal to produce the poisonous effects; or the repeated frictions might cause the separation of minute metallic particles, which might be inhaled. (TODD, *Clin. Lect.*, 1856.)

29. *a.* A man, æt. 21, admitted September 5th, 1875, into the hospital, complained of the usual symptoms of lead-poisoning, headache, constipation, vomiting, pain in abdomen; on his gums a well-marked line. He stated that he had worked seven years in a lead factory, and had had many previous attacks of colic, but that otherwise he had been a healthy man. He was anæmic, and complained more than usual of headache; indeed, that was his most urgent trouble. His discs were examined, and it was found that he had well-marked optic neuritis, his discs having an opaque, white, glistening appearance, the opacity concealing portions of the large vessels and the margin of the disc. This material extended with an irregular and somewhat abrupt outline into the adjoining retina. Both arteries and veins were larger than normal, but no hæmorrhages were seen. On the day of admission he was very dull and stupid, and on the day following he was delirious and had a convulsive attack followed by coma; some days later more attacks with great complaint of acute pains in the head. He died on September 20th. Contrary to what is usually seen in cases of optic neuritis which come under the physician, this man was quite blind.

b. At the autopsy the brain was carefully examined, but no abnormal naked-eye changes were found. Portions of brain were analysed by Dr. Tidy, who found in each portion examined an appreciable quantity of lead. He calculated that the brain, supposing the lead to have been equally disseminated throughout it, would contain at least 5 gr. of that metal. The kidneys were healthy. (*Lancet*, 1878, i, 784.)

30. In professional intoxication with lead, the number of the red corpuscles of the blood is much reduced, even by one half. This hypoglobulia is the more marked as the workmen are more exposed to the lead dust, as they have been long engaged in their occupation, and as their age is advanced. It is least in the arthralgic, most among the paralytic, very variable among the enteralgic subjects. It is not appreciably improved by the dispersion of the acute attacks; in a patient not exposed to any fresh poisoning it existed still 3 mos. later. There is no hydræmia. (MALASSEZ, *Arch. de Phys.* 1874.)

31. Dr. CARSON has observed that house-painters and others, with either paralysis or great muscular debility from lead-poisoning, had uniformly a more or less weakened impulse of the heart, and generally, on going upstairs, complained of some faintness and cardiac distress. These heart symptoms were absent in the earlier stage when lead colic only existed. He gives 10 well-marked cases where the poisoning had produced paralysis of the extremities, and where much alarm was excited by the great feebleness of the heart, with palpitation, consequent fainting, weak and soft pulse. He regards its cardiac action as similar to that of digitalis, tobacco, *upas antiar*, *woorara*, tending specially to paralysis of that organ. (*N. Y. Journ. of Med.*, 1856, p. 325.)

32. According to DECRUZZ, the cardiac sounds are at first purely chlorotic, then alter a time in a certain number of cases the sounds

are reduplicate, becoming rough and blowing. As cure takes place this course is reversed, the rough murmurs disappear and become chlorotic, and these in time may cease. He has noticed that the femoral artery is sometimes the seat of a double intermitting bellows sound. This was noticeable in the case of a house-painter, aged 21, who had for seven years been in contact with lead; there was slight hypertrophy, the sounds reduplicate, the second sound was rough and altered, almost like pericardial friction sounds. He considers that stethoscopic examination most generally indicates disease of the aortic valves. (*Gaz. des Hôpitaux*, 1869, p. 565.*)

33. In persons exposed to lead influences the pulse is small, thready, soft, and easily compressed,† It is never intermittent or quick, except sometimes towards the fatal termination of cerebral disease. With the attacks of colic there is generally a peculiar hardness and vibration of pulse; with marked diminution of frequency, sometimes falling to 40. This is probably a reflex phenomenon, caused by irritation of the sensory fibres of the splanchnic nerve. (BLACK, in *Mat. Med. Phys. and Applied*, vol. i. §)

34. The difficulty of respiration which sometimes accompanies colic, and is described by older writers as metallic asthma, is attributed by Tanquerel to paralysis of the intercostals, and according to him is a very rare affection. A patient affected by lead paralysis or colic without any previous pulmonary disturbance suddenly feels a great difficulty in raising the ribs; they seem almost immovable. When urged to move them the clavicles are raised and the parietes of the chest follow, but like a fixed mass, without action of the intercostal muscles; the action of the diaphragm is increased, the respiration becomes more and more laboured, mucous râles are heard, no expectoration, and gradually the patient dies from asphyxia. With this condition there is sometimes aphonia. This aphonia Tanquerel attributes to paralysis of the laryngeal muscles; and it is a question how far this condition of the larynx contributes to the extreme dyspnoea occurring among lead-workers, and independent of the intercostal paralysis. Grünther, Gurle and Hertwig have found in horses who have been employed in lead-works, that the recurrent nerve and its terminal ramifications were atrophied, and the dilator muscles of the glottis affected by fatty degeneration. (*Ibid.*)

35. RENAULT quotes LEWY as having (1811) contributed some remarks on lead asthma, which is a rare affection, as he met with only

* Addison reports a case under his care in Guy's Hospital, of a pale exanguined man, who had long suffered from heart symptoms, chiefly palpitation, and failing power of the limbs. At first this patient was supposed to be suffering from cerebral mischief consequent on cardiac disease, but a later examination of the case showed the symptoms to be due to lead impregnation. (*Med. Times and Gaz.*, 1856, ii, 643.)

† The sphygmograph indicates tricrotic, even polycrotic pulsation. This tricrotism is due, according to Marey, to abnormal ventricular systole, and he views it as characteristic of the action of lead on the heart.

‡ With this there is increased vascular tension, which pilocarpine relaxes and simultaneously relieves the pain.—Eos.

§ The phenomena of lead-poisoning which have been observed since Tanquerel's time we have given in the excellent summary, contained in a volume too little known, from the pen of our valued and lamented colleague, Dr. Black.—Eos.

21 cases out of 1186 saturnine poisonings. He divides the cases into acute and chronic. The acute form is seen in those constantly exposed to the dust of lead, especially white-lead; it is characterised by extreme dyspnoea, attended with great anxiety and restlessness, deep inspiration, accompanied by epigastric pains and palpitations. The cough is painful and convulsive; percussion normal; the face pale, and covered with cold sweat; no expectoration. There are frequent intervals of 10 or 15 m. between the short attacks. It is generally accompanied by discharge of nasal mucus, which always contains lead. The attack lasts at least 8 to 12 h., but may be prolonged to as many d. It resembles very much hay asthma. The chronic form is seen in very confirmed old cachectic cases. It is characterised by dry cough in violent long intermittent paroxysms which wholly prevent sleep. The cough is often attended with dyspnoea, which at last becomes severe, complicated with chronic bronchitis and œdema of the lungs. The autopsy reveals cirrhosis of the lungs, and the presence of lead in the pulmonary tissue. The chronic form is generally attended by cold creeping sensation of the skin and great shivering; no perspiration can be excited. (*Ibid.*)

36. When lead-poisoning is confirmed the skin assumes a dirty pale yellow colour, which is due to anæmia; it has the characteristic of being fixed, and not affected by any emotion. This colour has been described as that of jaundice, but no bile is present in the blood or in the urine. Tanquerel, who designated it as *icterus saturninus*, states that this colour has nothing to do with the biliary pigment. He has observed it disappear for a time during severe attacks of colic. There is also, sometimes, in confirmed cases a more decided yellow colour more akin to jaundice. This discoloration affects the sclerotic and stains the internal organs, intestines, brain, &c. It is not a true hepatic icterus, for no bile is present in the urine. The discoloration is due to the breaking up of the colouring matter in the blood, such as is present after the effects of ether, chloroform, and phosphorus. It is a hæmatogenous icterus; it is the choleic icterus of Frerichs, the *ictère hémoptérique* of Gubler. (*Ibid.*)

37. Of the disturbances of general sensibility the most characteristic is anæsthesia. It is not very common, for Tanquerel in his own experience only met with it in 11 cases. It has also been described by Beau, by Gubler, and by Renaut, who draws his observations from cases treated by Raymond and Vulpian. It is generally confined to the skin, rarely affecting the deeper tissues; it appears with, but more generally follows motor paralysis; sometimes it is present with colic or arthralgia; it rarely exists independent of these affections. It is always partial—that is, it is limited to one portion of the trunk or limbs; it may change its site from d. to d. It is never complete, always most marked on the r. side. It affects generally the skin of the back of the hand and the extensor aspect of the forearm, the external side of calf, the skin of thorax and abdomen; sometimes it has its seat in the arch of the palate and uvula. On these isolated patches there is not only diminution or loss of tactile sensation (anæsthesia), but there is also diminution of sensibility to pain (analgesia); to temperature (therman-

æsthesia), rare; and to tickling (hypopallæsthesia), rare (Gubler). The electric sensibility is also completely lost. Manouvriez, who has minutely investigated this loss of sensation, considers the analgesia as the characteristic change. The insensibility to pricking or burning is almost always complete; it very rarely extends over all the body, generally affects one half, and is most marked on the *r.* hand or wrist. The attacks rarely last beyond 14 d. They are regarded by Gubler, Rosenstein, and Hitzig as dependent on the contraction of the cutaneous arterioles. Vulpian obtained experimentally the same effect by slowly arresting the circulation of a part: Gubler shows that it disappears for the time after exciting redness by friction, and when sweating is excited the anæsthesia disappears. Renault is informed by Albert that in his experiments with jaborandi he found the same result in lead cases. But the singular distribution of anæsthesia demands another explanation than the simply vascular one, *e. g.* Tanquerel describes a case where it affected one half of the hand, the muscles preserving their mobility; Renault describes three cases under Vulpian where hemianæsthesia was present with hemiplegia. (*Ibid.*)

3B. The occurrence of blindness in lead-poisoning has long been known; in addition to the cursory mention of it by several writers it has been described by Tanquerel, and more accurately discussed by Hirschler and by Meyer. Attention has been especially called, in England, to this affection by the publication of a series of cases by Hutchinson (*Oph. Hosp. Rep.*, vii, 6). Renault has divided this affection into three different groups: 1st, where there is no cerebral disease; 2nd, alterations consecutive on lesions of neighbouring organs; 3rd, alterations dependent on albuminuria.

a. Inflammation and idiopathic atrophy of the optic nerve.—In this group there is no cerebral disease; it will be best illustrated by the following case. A painter, who had another time had colic, has lately been grinding lead colours without adopting any precaution. For 6 d. his sight has been diminishing; the pupils are a little dilated; visual acuity, to the *l.* = 11:00, to the *r.* = 12:20; the field of vision normal to the *r.*, central scotoma badly defined to the *l.* The papillæ are strongly injected, not swollen, they have lost their transparency; their edges are badly defined in the inner portion, where a light reddish veil covers them; this opacity scarcely exceeds the limits of the papilla. Arteries of normal diameter, but very tortuous, especially towards the left; veins very difficult to distinguish from the arteries. Blue lines on gums, constipation, greyish colour of the skin. Amelioration of the sight after purgatives and iodide of potassium. This case and another, which Renault also quotes from Schneller, prove the existence of idiopathic alterations in the papillary portion of the optic nerve. Amausis due to lead may exist, according to Horner, independent of any inflammation; he believes there is then, from the first, atrophy of the optic nerve, similar to that in drunkards and anæmic subjects.

b. Alterations consecutive to neighbouring organic lesions—enlarged papilla (Grafe) or false neuritis (Lindcott).—This consists in an œdema of the papillæ, due to pressure on the optic nerve by liquid

collected in the intervaginal space. A worker in lead has had an attack of encephalopathy, and rapidly his sight diminishes. Examination by the ophthalmoscope shows typical engorged papillæ (*i.e.* very swollen), veins dilated, opacity extending scarcely beyond the papillæ to the retina. The sight is restored in a few weeks; no albuminuria present at any period.

c. Albuminuric retinitis, and anæmic amaurosis.—These are met with in cases of chronic lead-poisoning suffering from albuminuria. The prognosis is more unfavourable in the first and second group, especially when there is pronounced atrophy of the papillæ, and much more favourable in the third.

d. Gower mentions a transient amblyopia, without ophthalmoscopic changes, which is usually sudden in onset, and may be complete. It has been observed in some cases of acute saturnism after but short exposure to the exciting cause. It commonly soon passes away, and is probably due to a direct effect of the lead on the nerve centres, analogous to the temporary amaurosis of uræmia and diabetes. In one case recorded by Fano there was, for some months, a periodical transient failure of sight at the same h. every day (*Medical Ophthalmology*, Lond., 1879, p. 206). (*Ibid.*)

39. a. The elimination of lead takes place principally through the kidneys; this has been proved experimentally on animals, and by observations on patients. The appearance of albuminuria in chronic lead-poisoning had been casually noticed, from time to time, by various physicians, but Ollivier was the first to show its dependence on lead. His experiments on animals demonstrated the presence of lead in the kidney and in the urine, and to its elimination he attributed the morbid lesions of albuminuric nephritis. In his examination of 37 lead cases in La Charité he found in 13 of them that albuminuria was present in various degrees. In 8 the albuminuria was temporary, not lasting more than 10 d.; in 1 it was intermittent, in 4 it was persistent. In one case which died, the kidneys showed the lesions of Bright's disease in the stage of atrophy of the cortical substance. The anatomical appearances in this case, and in the animals poisoned by lead, presented the same differences which exist between the first and last stages of albuminous nephritis.

b. Dickinson in this country has fully confirmed the observations of Ollivier. Out of 42 deaths occurring in St. George's Hospital, among workmen suffering from lead, 26 had distinct granular degeneration of the kidneys; in most of these cases this renal lesion led to their death. Granular degeneration is (with few exceptions, which take the form of tubal nephritis) the only form of renal disease which lead appears to induce. Granular degeneration, in consequence of lead-poisoning, frequently is present when there are no external signs of gout. The constancy with which permanent albuminuria and granular degeneration are produced by saturnine occupations is one of the most definite points in pathology. Dickinson thinks that lead may also set up a temporary tubal nephritis. The stage of the lead impregnation has to be considered in estimating the condition of the urine. According to Bouchard, in the early stages the urea, uric acid, phosphoric acid,

and chlorides are diminished; the colouring matter is increased. When the impregnation is confirmed the same changes continue, together with a diminution in the quantity and sp. gr. of the urine. He at the same time examined the blood, and found the urea, uric acid and phosphoric acid increased in quantity. On these grounds Bouchard supposes that the changes in the confirmed cases are due more to loss of the eliminating power of the kidneys than to disturbances in disassimilation. Garrod had previously shown that, in chronic saturnine impregnation, the blood contains uric acid in excess, and that the administration of lead diminishes the excretion of uric acid by the kidneys.

c. Renaut, under the clinique of Gubler, at the Beaujon, Paris, has carefully noted the urinary conditions in 49 cases, with additional observations from other sources. Without following his divisions it may be stated that if the lead influence has not caused much cachexia, the urine may be normal in colour, density, and quantity. Sometimes, but rarely, the acidity is diminished and the urine is alkaline. As the cachexia advances the urine takes a colour like old Rhine wine, no change in quantity, clear, and containing no excess of uric acid. As the cachexia is confirmed, so the urine changes to the type which Gubler calls "hæmapheic." This hæmapheic urine is generally accompanied by more or less yellow tinge of the skin. These two symptoms appear and disappear together. Whenever saturnine icterus is present the urine is always hæmapheic. Gubler attributes this appearance of the urine to the destruction of blood-corpuscles, hence an excess of hæmoglobin which the liver ought to convert into bile. Hæmaphein is an intermediate step between hæmoglobin and the colouring matter of the bile. It indicates either excess of corpuscle destruction or hepatic insufficiency; probably both causes operate. The hæmapheic urine resembles in appearance that in hepatic jaundice, it has no greenish reflection, nitric acid gives it a mahogany colour; signs of biliary acids absent; the quantity of urine is diminished; it stains the lichen a rose salmon colour. If acute symptoms now come on, such as colic or encephalopathy, there are considerable changes in the urine. The characteristic appearances are a brick-coloured sediment and albumen. The latter may, however, appear, in advanced cachexia, without the occurrence of an acute attack. This albuminuria may be either temporary or permanent, and be attended with more or fewer microscopic appearances of renal disease.

d. Ollivier, Dickinson and Bouchard consider the albuminuria to be essentially renal. On the contrary, Gubler attributes it to changes in the blood, and ranks the kidney lesion as secondary. There is not, as yet, sufficient evidence to determine this point, but probably further experience may show that, as in Bright's disease, so in lead-poisoning, Gubler's theory may in many cases, but not all, be correct.

z. When lead excites colic, especially in the renal form, the cramp-like pain sometimes causes more or less retention and even some amount of suppression of urine. Adams (*Trans. Am. Med. Ass.*, 1852, p. 163) reports a rare circumstance in the case of a man, æt. 38, temperate and previously healthy, who from drinking water conveyed in lead pipes

suffered from lead-poisoning. He had colic, arthralgia, and slight paralysis; then he suffered from paralysis of the sphincter of the bladder which allowed the urine to pass guttatim. Soon after this he had epileptic attacks. The recovery was tedious; the paralysis of the bladder was the first symptom which disappeared.* (*Ibid.*)

40. *a.* The circumstance that lead is a predisposing cause of gout has been noticed by various early writers—Musgrave, Huxham, Falconer; and Dr. Parry in 1807 wrote a paper headed "Gout from Lead" (publ. Lond., 1825). In later times various writers, especially Todd, Charcot, and Garrod, have established the prevalence of gout among workers in lead. The last writer suggests the question, Can lead impregnation induce gout without the co-operative aid of other predisposing causes? To ascertain the manner in which lead acts, he made several observations and experiments, consisting first in ascertaining in several instances the condition of the blood and urine of patients under the influence of this metal, and secondly in determining the effect which lead has upon the secretion of uric acid when administered medicinally. From a table of 12 cases it will be observed that uric acid is almost invariably present in the blood in cases of lead-poisoning, not only in those who have previously suffered from gout, but even where no symptoms of that disease had ever shown themselves. Nine never had gout, in one of them no uric acid was found in the blood, but in the others it was noticed—in some moderate, in the others abundant. He had two opportunities of testing the action of lead upon the secretion of uric acid by the kidneys. In both patients a well-marked diminution occurred; in the first it was most marked, being more than one half. A peculiar phenomenon was observed, namely, that after the drug had been given for a day or so a sudden arrest of the excretion of uric acid ensued, and the function of the kidneys then became more or less intermittent. "It would appear, therefore, that in individuals impregnated with lead the blood becomes loaded with uric acid, not from its increased formation, but from its imperfect excretion; and this is of much interest in connection with the fact that the subjects of lead-poisoning are, *cæteris paribus*, more liable to be affected by gout, and that those who inherit the gouty diathesis are more likely to become poisoned by the imbibition of lead." He has seen several cases where the medical administration of lead salts has caused severe attacks of gout in patients who had previously suffered from the disease.†

b. That lead is a strongly marked predisposing cause of gout there can be no doubt. Garrod is not at present prepared to assert that the metal cannot of itself occasionally lead to the development of gout. Charcot, with a full knowledge of the views of English writers, has come to the conclusion, founded on his experience of lead-poisoning in France, that though it is a predisposing cause of gout, he has not

* "After the administration of lead, as of that of iron and other metals, an increased quantity of the metal is detectable in the urine; an increased amount of mucous too, simultaneously with signs of irritation of the lining membrane of the bladder, even to the extent of inducing a catarrhal condition." (*RINGER, op. cit.*)

† RINGER reports a similar experience. —EDS.

met with any proof that independent of other factors (e.g. excess of meat and beer) it has the special power to create gout. Renault states that since then Charcot noticed a case under Pidoux's care in which they were unable to find any cause whatever for the gout except the action of lead. G. Moore, who has had a large experience in lead diseases in the Staffordshire Potteries, writes: "My conviction is that when a man the victim of plumbic impregnation is, as he may be, seized with gout or with rheumatism, the event is not a sequence" (*Brit. Journ. of Hom.*, xxiv, 76). As far as present evidence goes it is more probable that lead predisposes to but does not create gout. Lead arthralgia has no resemblance to gouty swellings and pain. (*Ibid.*)

41. a. The pains of lead colic affect the uterus and vagina, they have been compared to severe labour pains; during the continuance of the pains the vagina is much contracted. Dr. W. Nestel, of New York, has published a brief outline of vaginismus occurring in three young American ladies, of good position, who had for long employed a cosmetic heavily charged with lead. One lady had been married a year, but coitus could not be effected; the two other cases were unmarried. But for his experience in the first case he would have viewed it as an hysterical hyperæsthesia. The only sign of lead-poisoning he reports is paralysis of the extensors of the hands; no mention is made of colic. As the paralysis disappeared, so in proportion did the vaginismus. Treatment: galvanism and iod. pot (*Centralbl. f. die med. Wissensch.*, 1868, p. 819).

b. The influence of lead on menstruation is not sufficiently investigated. Young girls working in white-lead manufactories, long before they get colic, suffer from retarded menstruation, and in older subjects there is suppression of the menses. All show marked anemia-chlorosis, and are styled by their neighbours "white-lead ghosts." Hysterical states are extremely prevalent, and the paroxysms particularly violent; chorea and epileptiform convulsions are alarmingly prevalent (*Lewis, Med. Times and Gaz.*, 1877, ii, 538). Dowse, from a large experience among women working in the white-lead works in the north-east of London, states that amenorrhœa is very frequently and rapidly produced in the married and unmarried (*Ibid.*, 1876, i, 357).

c. According to Constantin Paul (*Mém. de la Soc. de Biologie*, 3^{me} Série, t. iii), women who work with lead, especially polishers, are subject to metrorrhagia; this, however, is attendant on abortion. His investigations in this direction show the unfortunate results of lead on the pregnant uterus and offspring. Of 141 pregnant women whose husbands worked in lead, 82 aborted, 4 had premature delivery, and 5 had stillborn children. Of the 40 living children 20 died within a year, 15 between one and three years. Out of 43 pregnancies in women who had suffered from lead-poisoning there were 32 premature births, 3 stillborn children, and 2 exceedingly pale. Out of 27 pregnancies occurring in five women, 22 aborted—4 children died—1 living. One woman, who had aborted five times, left off working in lead, and afterwards bore a fine healthy child. The influence of the father seems less marked than that of the mother. Roque, in a series of observations carried out at the Salpêtrière and Bicêtre, traced a number of cases of

idiocy and epilepsy among the children of parents who had suffered from lead-poisoning, and were temperate. He traced the history of sixteen families in which one or more of the children were affected as above. When the parents had ceased to work in lead, and recovered their health, the children born thereafter were healthy and free from brain disease. (*Ibid.*)

42. *Microbid anatomy.*—*a.* Post-mortem appearances in the digestive organs after chronic lead-poisoning are not characteristic. According to Kussmaul and Mayer the gastro-intestinal membrane gives evidence of chronic catarrh. The gastric glands are sometimes atrophied or the seat of fatty degeneration (?). The same lesion with atrophy of the mucous membrane extends to the small intestines and upper part of colon. Peyer's glands are affected by fatty degeneration. The cellular coats of the stomach and intestines are much thickened. The muscular fibres of the intestines show fatty degeneration in a number of points; more or less limited or wide-spread contraction of the intestines. Tanquerel and Segond drew attention to the condition of the sympathetic ganglia. Kussmaul and Mayer confirm this by describing a proliferation and sclerosis of the connective tissue of several of the sympathetic ganglia, principally in the solar plexus.

b. The knowledge on the subject of the alterations existing in lead palsy is imperfect. Such authors as Charcot, Gombault, Westphal, Vulpian, and Raymond, though in accord as to the condition of the muscular tissue, have different views as to the nervous lesions. Kussmaul and Mayer first noticed a peculiar rigidity of the muscles. This has been confirmed by the observations of Gombault, who describes three different conditions in the muscles of those dying from lead paralysis and cachexia:—1st, muscles pliant and healthy; 2nd, of a yellow colour and atrophied; 3rd, some like smoked flesh, so hard and rigid that a long muscle, detached from its insertions, could be held horizontally without bending. True fatty degeneration has very rarely been seen. Olivier and Lancereaux have observed granular degeneration, consisting partly in simple atrophy, the muscle preserving its structure but showing diminution of contractile substance. The adipose vesicles increase between the primitive muscular fasciculi, which then become yellow and pale. Side by side with these changes, and succeeding them, the nuclei on the internal face of the sarcolemma are multiplied, pushing back the contractile substance, forming accumulations at various points, giving the muscular fibre a mossiform appearance. The examination of the central nervous system has given no results. Raymond and Vulpian found in one case that the cervical portion of the spinal cord was altered. The anterior roots, as also the muscular nerves, were normal; the anterior horn of the cord presented on its external aspect various atrophied cellules, shrunken, deprived of nuclei, and everywhere pierced with small vacuoles. Lancereaux has pointed out a granular adipose degeneration of the myelina, and the spinal cord showed a little atrophy in the centre of the anterior roots; there was no lesion of the horns of the grey substance. Gombault has been unable to find any changes in the medulla. Dejeffre (*Lond. Med.*

Rec., 1879, p. 112), from a careful examination of five cases, confirms the description above given of the intra-muscular nerves and radial nerve. In two cases he found alterations in the anterior cord. In two cases he was able to trace distinctly the degeneration of a certain number of the nervous tubuli similar to that met with in the intra-muscular nerves. In one of these cases, where the patient was only paralysed on one side, the roots had degenerated on the corresponding side, the other being perfectly healthy. In the three other cases no distinct change could be found.* (*Ibid.*)

III. *Experiments on animals.*—1. ORFILA found that in large doses the acetate acted on dogs as an irritant, and caused vomiting, pain, and death. When the action was slower, and absorption took place, an affection of the nervous system was observed, marked by difficult progression, and, in some cases, convulsive movements. When injected into the jugular vein 13 gr. killed a dog almost immediately, death being preceded by no other symptom except convulsive respiration. Another was killed by 5 gr. in as many d.; the leading symptoms were weariness, languor, staggering, and slight convulsions, none of which symptoms appeared till the 3rd d. In neither animal could he find any morbid appearance on dissection. (*Op. cit.*)

2. *a.* The experiments of Gaspard coincide with those of Orfila in assigning to the acetate considerable activity when directly introduced into the blood, the quantity of 2—4 gr. generally causing death in 3—5 d. The experiments of Campbell further show that death may be induced by applying it to a wound, and that the symptoms antecedent to death resemble those remarked by Orfila when it is injected into a vein. But these two experimentalists differ from Orfila in assigning to sugar of lead a property like that possessed by arsenic, of acting on the alimentary canal even when applied to a wound, or when directly introduced into the blood. For Campbell found the stomach congested and red, and the small intestines also vascular; while Gaspard not only observed analogous appearances after death, but even also witnessed all the symptoms of violent dysentery during life.

b. Wibmer poisoned 2 dogs, one with small doses of the acetate daily to the amount of ʒij gr. viij in the course of 37 d., the other with white-lead given to the extent of ʒij in 14 d., at end of which periods the animals died. In both there was frequent vomiting and gradually increasing weakness and stiffness of the legs. In the dead body the only unusual appearance was an overflow of dark greenish-coloured bile, which distended the gall-bladder, and lined the whole stomach and intestines. I myself gave a rabbit ʒ gr. of acetate daily for 5 d., and on the 9th d. 16 gr., which killed it in ¼ h. The symptoms were

* "In speaking of the pathogenesis of lead paralysis I have sought to show that its origin is probably spinal instead of peripheral, and E. Remak has established this more accurately and in a more detailed manner by the sifting and critical examination of a larger amount of material. He comes to the conclusion that quite circumscribed alterations in the grey anterior horns probably lie at the foundation of lead paralysis. These alterations might well be of a degenerative or chronic inflammatory nature, but are, as a rule, capable of resolution. Bernhardt has also recently given in his adherence to this view." (*ERB*, in *Ziemssen's Cyklopadia*, viii, 285; see also 31, 346.)

extreme flaccidity, weakness, and torpor, without coma. (CHRISTISON, *op. cit.*)

3. HARNACK induced acute lead-poisoning in various animals with the triethyl lead acetate, with the following results:

a. Lead affects the contractility of all striped muscles; not that it makes all contraction impossible, but that it produces a rapid exhaustion of the activity of the muscle, which finally loses its irritability, dies, and falls into a death-like rigidity.

b. Lead has an irritating effect upon a part of the central motor apparatus, probably the medulla and cerebellum; and thus causes peculiar ataxic movements, together with twitchings, spasms, and finally convulsions, consciousness and sensation being maintained.

c. Lead irritates certain nervous apparatus situated in the intestinal walls which control the movements of the intestines, and thus produces general contractions and powerful peristaltic working, attacks of colic, increased sensibility of the whole abdominal region, and sometimes even purging.

d. No effect is seen upon the unstriped muscular fibres of the intestines and blood-vessels. Respiration and circulation are not directly influenced, though finally both the cardiac and respiratory muscles take part in the general muscular paresis. (NOTHLAGEL and ROSSBACH, *op. cit.*)

4. a. HETHEL poisoned dogs in 4 weeks by gradually increasing doses of 0.2—0.5 grm. of acetate. But few retained their normal appetite to the time of death. Most of them soon lost it, and began to vomit; their thirst increased; sometimes they suffered from diarrhoea, frequently from salivation. These symptoms diminished in intensity or entirely disappeared after a short time, only to return again. Both these and the others who retained their appetite showed great wasting of the whole body, and particularly of the muscles of the back and hind legs. The weight of the latter class was diminished 20—40 per cent., that of the former 50 per cent. Attacks of colic were rare; they generally occurred suddenly, while the animal was seemingly well. They were evinced by violent cries of pain, and disappeared after $\frac{1}{2}$ h. as suddenly as they had come. The dog then again lay quietly as before the attack, ate with appetite, and drank a great deal. Relapses often occurred. Actual lead palsy has not yet been observed in animals. The muscles, it is true, waste away, and evident weakness of the hind legs occurs, often even tremor, but never complete muscular paralysis—perhaps on account of too short a period of experiment. In the 4th or 5th week eclampsia saturnina makes its appearance,—again without warning, except that the urine is often diminished for a long time previously. The animals fall suddenly, generally with a loud cry, to the ground, and are seized with violent convulsions, sometimes lasting an h. Saliva and mucus flow from the mouth; the pupils are dilated and inactive. Urine and feces are passed involuntarily. During the intervals of the convulsions the animal is in a sleepy or comatose condition. Albumen is never, and blood seldom, found in the urine. Fæcal evacuations, even at the very beginning, become fewer, and towards the end almost entirely stop. The feces are darker, almost

black; of firm consistence, but not dry. Only when severe digestive disturbances set in were these evacuations more frequent and fluid.

4. At the autopsy a general disappearance of fat was found. The greatly reduced muscles had a normal appearance. Brain and spinal cord were of a softer and more fluid consistence. Lungs, heart and blood-vessels were normal; the heart muscle was not atrophied. The liver was generally well-supplied with blood, the gall-bladder always distended and filled with a dark green bile. Spleen, kidneys and pancreas were smaller, and contained less blood than usual. The gastrointestinal mucous membrane showed no change with the exception of a light grey discoloration. (*Ibid.*)

5. In large doses lead acetate has a depressant effect upon the secretion of bile. Of all the substances employed in this research, it is the only one which depresses the action of the liver without producing purgation. It seems to be a direct hepatic depressant. (RUTHERFORD, *Brit. Med. Journ.*, 1878, ii, 945.)

6. GRISOLLE states that domestic animals are affected as injuriously as man by the emanations of lead. Cats and dogs frequenting lead manufactories nearly all die in convulsions, being sometimes stricken down suddenly; but sometimes they become blind, and run wildly about, striking against everything in their way. In the midst of this course they are often seized with convulsions, and generally they die in such an attack. These phenomena sometimes manifest themselves after the animal has been for several d. dull and dejected. In certain cases they have been observed after animals have drunk water impregnated with the carbonate. (STILLÉ, *op. cit.*)

PODOPHYLLUM.

Podophyllum peltatum, L. May apple, mandrake. Nat. Ord., *Berberidaceæ*. (The resin, Podophyllin, is the part mainly used.)

1. *Proving*.—1. Dr. SNOW made 3vj of extract from 3iiss of leaves, and formed from this pills of 2 gr. each. Taking one of these, pulse, which was 76, fell in 1 h. to 65, and continued so for about 2 h. Another time he took 2 pills, pulse being 74, full and strong; in 2 h. it had fallen to 61, and 2 h. later it was the same, weak and small. In a third experiment 3 pills were taken, pulse 76, full and strong. In 1 h. it fell to 64, and in 2 h. more was the same, small and feeble, and there was some nausea. (Thesis, 1819, from *Mat. Med. of Amer. Proving*.)

2. WELLS. [The only information given as to this proving is that "the attenuation made use of in collecting the symptoms were the 1st, 3rd, and 15th."] Sudden shocks of jerking pains. Sleepiness in daytime, especially in forenoon, with dulness and headache, and rumbling in bowels; sleepiness early in e.; restlessness in forepart of n.; too heavy sleep at n.; distress after first sleep; rising up in bed during sleep, without waking; moaning in sleep with lids half closed; drowsy and difficult to wake in m.; unrefreshed in m. Giddiness, with sense of fullness in eyes; momentary darts of pain in forehead, obliging one to shut eyes, with giddiness; pain on

top of head, with heat and heaviness of eyes, when rising in m.; pressing pain in temples in forenoon, with drawing in eyes as if strabismus would follow; stunning headache through temples, relieved by pressure; sudden pain in forehead, with soreness of throat in e.; vertigo with inclination to fall forwards; headache alternating with diarrhoea; heavy dull pain in forehead, with soreness over seat of it; pain in l. frontal eminence, worse p.m. Smarting of eyes; pain in eyeballs and temples, with heat, and throbbing of temporal arteries. Teeth are covered with dried mucus in m.; copious flow of saliva; taste of dried liver in mouth at d.; sourness of mouth; dryness of mouth and tongue on waking in m. Soreness in l. throat, especially painful on swallowing liquids, worse in m.; dryness of throat; soreness of throat extending to ears. Indifference to food; desire for something sour; thirst towards e.; acidity, pain, with unpleasant sickly sensation in stomach; extreme nausea, continuing several h.; vomiting of hot frothy mucus; heat in stomach; sense of hollowness in epigastrium; throbbing in epigastrium followed by diarrhoea. Fullness in r. hypochondrium, with flatulence; stitches in r. hypochondrium, worse while eating, sense of weight and dragging in l. hypochondrium, close under ribs; pain in transverse colon at 7 a.m., followed by diarrhoea; pain in bowels at daylight in m., relieved by external warmth and by bending forwards while lying on side, but aggravated by lying on back, at first attended with coldness, which is followed by heat and warm perspiration; sense of heat in bowels, accompanying inclination to go to stool; twisting pain in r. hypochondrium, with sensation of heat in the part; faintness with sensation of emptiness in abdomen after stool. Diarrhoea early in m., which continues through forenoon, followed by natural stool in e.; diarrhoea immediately after eating or drinking; green stools in m., 6 to 8 evacuations in d.; stool in m. attended with strong urging in bowels, with heat and pain in anus; flashes of heat running up back after stool; too much bearing down at stool, as if from insensibility of rectum; secretion of mucus from anus. Scanty urine, with frequent voidings, sticking pain above pubes and in course of spermatic cords. Pains in chest, increased by taking a deep inspiration; snapping in r. lung, like breaking a thread, when taking a deep inspiration; inclination to breathe deeply (sigh); shortness of breath; sensation in chest as if heart were ascending to throat; sense of suffocation when first lying down at n.; sticking pain in region of heart; palpitation fugis exertion or mental emotion. Pain in small of back when walking or standing, with sensation of back bending inwards; pain in lumbar region, with sensation of coldness, worse at n. and from motion; pain in loins, increased by a mis-step and by walking over uneven ground; pain between shoulders, with soreness worse n. and m., and increased by motion; pain under r. shoulder-blade; stiffness of nape, with soreness of muscles of neck and shoulders; pain in nape with soreness, increased by motion. Weakness of wrists, with soreness to touch; pain and weakness in l. hip, like rheumatism from cold, increased by going upstairs; pains in thighs, legs, and knees, worse from standing; weakness of joints, especially of knees; sticking in knee-joints from motion; heaviness and stiffness of knees as after a long walk; stiffness on beginning to move; aching of limbs, worse at n.; pain in l. knee, leg, and foot; sharp pain in upper and outer portion of l. foot; coldness of feet; perspiration of feet in e. The symptoms generally, but especially the abdominal symptoms, are aggravated in the m., but better in the e. (*Ibid.*)

3. a. Dr. PIETRO took 5 centigr., which caused nausea and a little irritation of stomach, but these symptoms disappeared when he went to bed. He had also an evacuation of liquid yellow matter, and every h. for 5 h. this was repeated.

b. On a second occasion he took 10 centigr. Immediately nausea and attempts to vomit, which lasted 2 h. After 4 h. shivering and a feeling of prostration. Next d. violent colic, followed by liquid stools, which were repeated till 9 o'clock (7 a.m. or p.m.). (*Brit. and For. Med.-Chir. Rev.*, 1869, ii, 516.)

4. From 3 doses of gr. $\frac{1}{2}$ each, l. eye sore, uncomfortable, and red-looking, especially at inner canthus. (*BARRIDGE, M. H. R.*, xv, 298.)

5. S. A. Moore, student, æt. 21, nervous-sanguine temp., not easily affected by medicine. Took 4 dr. of tinct. before going to bed, and had no unpleasant feeling till about 3 a.m. Was then awakened by violent pains in stomach and bowels of griping stitching character, relieved for a short time by pressure on bowels. About 4 a.m., stool of yellow undigested feces mixed with mucus, of offensive odour. Temperature was considerably increased; pulse quicker and smaller than usual, with slight palpitation and much feeling of oppression of chest, causing constant inclination to draw a deep breath, which, however, was hindered by a sense of constriction in chest. After rising, sick feeling at stomach; appetite much impaired, with unusual thirst for cold water; tongue coated white, with much viscid mucus in mouth. After breakfast, violent burning in stomach, as if caused by hot steam. About 10 a.m. had another evacuation, accompanied with violent tenesmus lasting for some time after; stool was of burning acid character. After this, feverishness, with frontal headache and sensation of great dryness of forehead and eyes, relieved for a short time by bathing parts in cold water. No more symptoms till after dinner, when same burning sensation was felt in stomach; thirst also, but cold water caused much oppression and uneasiness, and small quantities of it were ejected, tasting very bitter, and giving rise to much burning in œsophagus. Felt feverish during afternoon, with occasional spells of chilliness, not relieved by heat of stove, but going off on covering up warmly in bed. Before supper empty feeling in stomach, but did not feel hungry. After supper, sensation as if there would be evacuation of bowels, coming and going at short intervals till he went to bed. Nothing now felt till 2 a.m., when he woke with slight stitching pains in bowels and desire for stool, resulting at 2.30 in an evacuation. Pains continued at times for rest of n., relieved by flexing thighs on abdomen; with them sense of weakness in epigastrium. Had bad taste in mouth for several d. after the most prominent symptoms had disappeared, with diarrhoea and constipation alternating every d. or two. (*Trans. of Amer. Inst. of Hom.*, 1872, p. 499.)

6. Dr. WALTER SMITH took gr. ½ of resin before breakfast, Oct. 5th. A good deal of flatulence was caused in e., but no purging. 7th.—Took same without decided effect. 8th.—Took gr. ½. No catharsis. 29th.—Took 1 gr. No palpable effect till 5 p.m., when he felt some wandering pains in abdomen; at 9 a small solid evacuation was produced, and at 12 a copious loose stool. Next m. two thin dejections, with griping and uncomfortable feeling of chilliness. Nov. 8th.—Took gr. ½ at bedtime. Flatulence in m. and increased action of bowels. 9th.—Repeated dose with like results. (*Pharm. Journ. and Trans.*, 2nd ser., x, 462.)

7. Same gave 1 gr. to a young gentleman, in good health, at bedtime. Next m. had a free motion. During d. was annoyed with flatulence, loss of appetite, chilliness, and griping pains, and bowels were opened twice loosely. On following m. and d. after cathartic action was still manifested, and 6 stools in all resulted. (*Ibid.*)

11. *Poisonings*.—1. "On August 4th, 1860, I was called to visit two children who, the messenger said, were vomiting themselves to

death. In $\frac{1}{2}$ h. I reached the house, and found two girls of 6 and 8 respectively stretched upon their beds bathed in cold perspiration; faces pale as a corpse's, eyes sunken in orbits, noses pinched; pulse very weak, and scarcely perceptible at wrist; great thirst; and stomach contracting so hard and rapidly, in efforts to vomit, that the wrenching pain would cause them to utter hard screams, one after another, for 5 m. at a time. I was told that the vomiting had been going on for the last 4 h. almost without intermission; it was now noon. On examining the matters ejected, I found them to consist, for the most part, of the seeds, pulp, and membranous covering of the ripe May apple, having the peculiar odour of the fruit." They were treated with morphia, blister or sinapism to abdomen—which was tympanitic and very tender, hot flannels with mustard to extremities, carbonic acid water to sip, and, as bowels had not been moved, enemata of castor oil and molasses in warm water. "In $1\frac{1}{2}$ h. the younger child had fallen asleep, but the elder vomited bilious matter mixed with blood—the bile dark green and very thick, the blood dark and coagulated. She complained frequently of burning in throat. Injections having failed to move the bowels, I gave her 12 gr. of calomel and 1 gr. of sulphate of morphia. In both extremities were now becoming warm. I left powders of morphia and camphor, one to be given after each vomiting; and enjoined that the heat was to be kept up in the extremities. I was called next d. at 7 a.m., and found elder child past all hope,—eyes glazed and motionless, the death-rattle in her throat, abdomen swelled almost to bursting, and under jaw fallen. She had continued to vomit thick bile, with more or less blood mixed with it, about every h. during n. At 2.30 p.m. she expired. The younger was much better, save that there was considerable tenderness over stomach. To remove this I applied a blister; gave Dover's powder to keep her quiet, and slippery elm water for drink; kept the bowels solvent with sulphate of magnesia; and by m. of the 8th she was convalescent." (D. C. OWEN, from Hale's *New Remedies*, 2nd ed.)

2. Not a week since the writer was called up at n. to visit a lady apparently seized with a severe attack of cholera,—watery purging every 2 or 3 m., vomiting, coldness of surface, and great prostration. On inquiry he found that these alarming symptoms were due to a pill containing Podophyllin. (*Brit. Journ. of Hom.*, xxi, 454.)

3. Mrs. H., æt. 45, strong and healthy, had been constipated for a week, and was feeling badly in consequence. A bottle of Podophyllin was in the house, and from it she took as much as could be held on the handle of a teaspoon, mixed it with a little water, and swallowed it, 5 p.m., April 9th. At 7 she had cutting pains on both sides of abdomen, with desire for stool. At 8, feeling very badly, went to bed. Pain had ceased; there was great exhaustion, with relaxed muscles and feeling as though body was bathed in sweat (which it was not); then came a fearful pain in occiput, "as though the head was being split open," lasting about 2 m., and followed by dull throbbing ache and feeling of heaviness so that head could not be raised from pillow. At 8.30 vomiting began, first contents of stomach, then thin, bitter dark green fluid, from Osa to Oj each time. There were 6 or 7 such

attacks between this and 4 a.m. ; with each bowels moved, first constipated, then thin watery stools, but no blood and no pain. Frequent sensations of heat passing over face and head were noticed. With each vomiting exhaustion was so great that patient felt as though dying. She could not raise her head to assist in the act of emesis. Dr. Prentiss was called to the case at 1 a.m. He found patient in a state bordering on collapse, features pinched, extremities cold, pulse very feeble, disposition to drowsiness. The greatest distress was from the exhaustion and the pains in the head ; the intellect was unaffected ; eyesight and pupils normal ; no involuntary discharges. Mrs. H. kept her bed on the 10th, but got up on the 11th, feeling well, but with tingling in extremities and weak as from a long illness. (*Philad. Med. Times*, 1883.)

4. A girl, æt. 20, took 3 gr. of Podophyllin. After 3 h. severe pain in bowels ; after 9 h. vomited contents of stomach, and then much bile ; felt better, but after 12 h. vomited again, and bowels were moved twice, not copiously, but with very much pain and deadly nausea. In 2. pain in stomach, which continued to increase in severity, and was attended with much thirst and sense of burning, and great feeling of prostration. On 2d and 3d took a number of drugs to antidote effects. On 2d d., p.m., had a chill, followed by some fever and headache. The two latter continued on 4th d., pulse being 100 ; great tenderness over stomach and bowels, could scarcely bear pressure of bedclothes ; pain in bowels occasionally, but not severe ; no stool since 2nd d., but feeling every now and then as if it would come ; urine very red ; tongue white ; great thirst. On 5th d., white fur on tongue, except on centre ; everything tasted sweet ; still great thirst, also tenderness over stomach and bowels, increased by least motion, could not bear to be touched ; pulse 100. Soon after eating some toast pain commenced in stomach, extending into bowels, increasing to such severity that she could not resist screaming at every breath ; by afternoon it had extended into lower bowels and r. ovary, pulse being now 136. Sporadic sensation in r. thigh and leg in m. ; p.m., more pain and cramp in r. leg. On 6th d. still very tender over lower bowels ; micturition painful ; pain in r. ovary and uterus. On 7th d. two green watery stools. On 8th d. five thin watery green discharges, with considerable pain and gripping ; intolerable itching of skin on body and arms, scratching produces blisters, as in urticaria. (Kearse, *Trans. of Pacific Hom. Med. Soc.*, 3, 55, from Allen.)

5. T. C., æt. 17, while powdering the resin got some in his face and eyes. Next m. he noticed that his face and eyes were red, and the skin about the latter discoloured. This discoloration extended during d. over whole face, forehead, and front of neck, and at n. eyes were so painful as to prevent sleep. On following d. all parts which had been in contact with powder were of yellowish-red colour, but not appreciably swollen. The ocular conjunctivæ were much injected, the palpebral only slightly ; pupils small ; eyes painful, and sensitive to light. (Weaster, *Lond. Med. Record*, 1877, p. 357.)

6. It appears from the statement of a patient now under Mr. Hutchinson's care at Moorfields that P. dust is well known in the trade to produce "inflamed eyes" and an eruption of "scabs" on the arms and legs of the men who attend the mill in which the root is ground. This man came with extensive superficial ulceration of each cornea, attended by intense general conjunctival congestion. The ulceration of cornea was central and large in extent. He had had several other attacks of the same sort, but not nearly so bad as this one. He showed also one or two dusky spots on the arms where there had been scabby

places a few d. before. The day's work which gave rise to the present attack occurred about 10 d. before he came under care at the hospital. No symptoms of irritation appeared while he was at work or during that e., but on waking next m. his eyes were inflamed. He was not purged by the dust.* (*Med. Times and Gaz.*, 1872.)

III. *Experiments on animals.*—1. HUGHES BENNETT experimented on dogs. His conclusions are—

a. Doses of Podophyllin, varying from 2 to 8 gr., diminish the solid constituents of the bile, whether they produce purging or not.

b. Doses which purge lessen both fluid and solid constituents of bile. (*Brit. Med. Journ.*, 1869, i, 478.)

2. ANSTIE made 10 experiments on dogs, cats, and rats, injecting the drug (Podophyllin) in sol. into peritoneal cavity. His conclusions are as follows:

a. P., when so injected, has no irritant action on the serous membrane unless it remain unabsorbed, lying for some time in contact with it.

b. P., when so injected, passes into the blood, and exerts a special influence of an irritant kind upon the mucous membrane of the intestines (usually of the small intestine only).

c. As a secondary result of this irritation, or perhaps as a mere consequence of the squeezing of the gall-bladder by the abdominal muscles, in repeated efforts at defæcation, bile is occasionally poured out in large quantities, but this is by no means necessary.

d. Neither poisonous doses, nor those which produce what may be called a medicinal effect, appear capable of exciting any inflammatory process in the liver.

e. (The following is a typical specimen of the experiments.) Half a fluid drachm of the sol., containing 2 gr. of drug, was thrown into a full-grown dog. The animal was not discomposed by the operation, and a few m. after was eating food. Until 10 h. later he was perfectly lively, and showed no signs of uneasiness. He now commenced retching violently, bringing up only a little mucus. This symptom continued, and was soon accompanied by purging; stools consisted of glairy mucus, and after a time were mixed with blood; he whined constantly, and seemed in pain, also drank water eagerly. Four h. from commencement of symptoms breathing was shallow and hurried, pulse rapid and feeble. After 4 h. later animal was found lying on side, totally insensible, with glazed eyes, heart's action very slow and weak, respiration consisting of 4—6 convulsive gasps per m. In this state it lay with little change for the next 8 h. At end of this time a slight general convulsion occurred, and breathing ceased about 2½ m. later. Thorax was quickly opened, and heart found beating; it continued to pulsate for 5 m., and its irritability persisted for some time after this. No fluid of any kind was found in the peritoneal cavity, and the membrane was quite smooth, polished, and transparent. Kidneys were rather congested, and liver moderately so; gall-bladder contained very little bile. Pharynx, œsophagus and stomach were healthy, save that last

* Other observations of this kind will be found in *Amer. Mag.*, 1852, i, 63; *Pharm. Journ.*, 1862, p. 461.)

contained some bloody fluid. Mucous membrane of whole small intestine was intensely inflamed, especially that of duodenum; in latter situation were nine ulcers, rather less in size than a threepenny piece, and there was one smaller ulcer near lower end of ileum. Inflamed surface was covered with tenacious bloody mucus. Inflammation ceased abruptly at ileo-cæcal valve; large intestine was healthy. Nowhere was any bile observed in bowels. Mucous membrane of bladder was slightly congested. (*Med. Times and Gaz.*, 1863, i, 326, 487.)

3. RUTHERFORD finds that Podophyllin introduced into the duodenum of a fasting dog increases both the fluid and the solid constituents of the bile; and this increase is greater when the bile is allowed to flow into the intestines than when it is drained off by a cannula. The augmentation is greatest when the drug does not purge much; if the purging be severe, it may lessen the biliary secretion. (*Pract.*, 1879, ii, 335.)

PROPYLAMINUM. See TRIMETHYLAMINUM.

PRUNUS.

Prunus communis, Huds. (commonly known as *P. spinosa*). Blackthorn, sloe, Nat. Ord., *Rosaceæ*.

1. *Proxims.*—1. (Of a tincture of the buds gathered in April.) (The following pathogenesis by Dr. WALTER, who gives no information respecting the doses taken, the number or character of the proxims, and very rarely mentions the period of the occurrence of the symptoms.)

a. Dazed and gloomy in forehead. Head heavy and giddy. Pressive pain under skull as though the skull were pressed outwards with a sharp peg. Pressure outwards in one part. Pressing and aching pain as after exposure to great heat of sun. A painful striking blow through r. side of brain on moving. A violent nervous pain in l. side of occiput, depriving him of thinking power. Outward-pressive pain in occiput. Outward-pressive pain in l. occipital bone (after $\frac{1}{2}$ h.). On stooping, such a violent pain in occiput that he loses power of thinking. Asunder-pressing headache almost depriving him of thinking faculty. Feeling as if brain were pressed together from all sides, not painful. Pressive sore pain in l. side of occiput, extending into some teeth of same side. Pressive sore pain in sinicput, which goes off when he thinks of the pain. In upper part of r. temporal bone a very acute nervous pain, aggravated by external pressure. Out-pressing pain in sinicput. Outward-pressing pain under upper part of r. temporal bone. Outward-pressing pain under z. temporal bone to frontal bone, aggravated by external pressure. Squeezing pain in r. temporal bone, extending into ear and causing earache. Outward-squeezing pain under r. temporal bone. Outward-pressing pain in r. side of sinicput after dinner. Pressive pain on r. side of top of head as if pressed on by a sharp corner. Pricking as with a needle in skin of occiput. Jerking shooting pain on l. parietal bone posteriorly. Outward-pressive pain in r. frontal protuberance. Outward-pressing pain under l. side of frontal bone. Jerking pain, commencing in r. side of frontal bone, darts like lightning through brain out at occiput. Pressive pain from r. frontal bone, through brain, to occiput. Outward-pressing pain in forehead, so that he loses his senses. Painful jerks in forehead, extending backwards. Itching in l. internal canthus. Itching in r. outer canthus, especially in edges of eyelids. Pain in r. eyeball as though the interior of eye were torn asunder. Itching pricking in upper part of malar bone. Aching in l. ear. Outward-pressing pain in r. ear like earache. Outward-pressing pains above nasal bones. Tickling in middle of r. nasal cavity as though he would sneeze.

4. Pinching pain in r. submaxillary gland. Shooting pain in l. lower incisors. A very penetrating nervous pain in last l. upper molar. Pressive pain in second l. upper molar. A nervous pain in last l. lower molar, as though the tooth were torn out. Throbbing pain in last r. upper molar, as though the tooth were forced out. A dislocative pain in last r. lower molar. Dislocative pain in some molars when he takes something warm in his mouth. Pain in l. lower canine and incisor teeth, like that felt when he has had something warm in mouth, and immediately thereafter drinks cold fluid. Pains in teeth as though he had had cold water in mouth. Pains as though the teeth were forced out, the pains go from one tooth into another. An indescribable sensation in several teeth, causing him to bite them together frequently, which relieves. Pains in several teeth as if they were forced up. Pricking pains in several teeth. From speaking she gets pain in chest, with sensation as if she became hoarse and lost the power of speech. Itching formation in tip of tongue and first teeth. A prick as with a needle on r. side of tip of tongue. Burning on tongue as if it were scalded, not felt when eating, but at other times. Tongue covered with white mucus, but it is clean in the middle posteriorly. Pasty taste after dinner. Strong taste. Bitter taste, m. She feels always satiated. When she has taken a few spoonfuls of soup, she is as full in the pit of the stomach as though she had eaten a great deal. She sometimes feels hungry, but is satiated after a few mouthfuls. Fullness and distension in scrob. cordis. Distension of scrob. cordis with such thinness of breath that she must rest 3 or 4 times when going upstairs. Oppression in scrob. cordis so that she can hardly breathe. Pain in abdomen as in cold wet weather. She cannot lie on either back or side on account of a dreadful contractive pain in abdomen. On account of abdominal spasms he must walk very cautiously and softly so as not to shake the abdomen, otherwise the urinary troubles become much more severe. Cutting across the abdomen as though diarrhoea were about to come on, which prevents sleep. Breathing-pains and abdominal spasms relieved by bending upper part of body forwards, leaning crawling under abdominal integuments. Colicky pain an inch to r. side below umbilicus. Pressive colicky pains in r. side of abdomen, or as if single small parts of it were pinched. Abdominal pain as if he had eaten fruit, and drunk water afterwards. Pressive pain in r. side of abdomen, so that he cannot lie on it, n. Pain as if something would be forced through in r. side of abdomen just above navel. Pressive colicky pains in upper part of abdomen. Stitches in quick succession in r. lumbar region, extending towards navel, which take away his breath. A stitch as from a splinter in r. posterior lower lobe of liver, which takes away his breath when walking. Pressive pain under r. lobe of liver. Violent pressive pain in hepatic region. In the back of r. side of abdomen a fluctuation like a bladder full of fluid. Painful pressure in hepatic region, felt most when standing. Twisting pains in abdomen during discharge of flatus, as if diarrhoea would come on, which soon goes off. Displacement of flatulence causing trifling abdominal spasms. Flatulence settles down on bladder, causing vesical spasms, so that he must cover together. Pain in belly as after a chill, with slight call to stool. Bellyache as if diarrhoea would come on. After transient cutting in abdomen diarrhoea with copious evacuations of faeces in a very copious stream. Very painful stitches in r. inguinal region, relieved by pressing hand on it. Pressing sensation from within outwards in region of r. inguinal ring, as if a hernia would burst through. After a slimy diarrhetic stool violent burning in anus, as if salt were sprinkled on a wound. Spasmodic jerking in rectum when sitting. A pressive spasmodic pain on r. side of rectum one inch off, as if an angular body were present in. Thin but dilatory stool. Hard stool and not every d. Must go to stool 3 or 4 times before she can evacuate anything. The stool looks like dogs' dirt; it comes away in small broken pieces, with much shooting pain in rectum, making her feel like to scream, itching in anus. After a hard stool, bleeding from anus.

c. Burning pain in sphincter muscles of bladder. Cannot sleep at n. on account of vesical spasms. He has urging to make water for hours at a time, with violent burning, stinging pains in bladder and urethra. Urine very scanty and quite brown. She must force much to pass urine. The urine comes like a thread with urging to stool. Smearing and hot urine. Bright, clear, wine-coloured urine, which deposits a white and sometimes a sky-blue sediment. The urine comes in a double stream as if the urethra had two orifices. As the urine is ejected there is for the moment con-

siderable alleviation of the pains, but it remains obstructed in the glands, and causes the most frightful spasms in the urethra (*ischuria strabulata*) with urging to stool. Strangury. For $\frac{1}{2}$ h. he has urinary tenesmus every $\frac{1}{2}$ h. When he wants to urinate he gets a great burning pain in urethra, so that he must bend together, and yet no urine is passed. He has hurried urging to urinate; the urine, however, only comes as far as the glands, then seems to go back, and causes the most violent pains in the urethra. She must rise 6 or 7 times to urinate in the n., and each time passes half a pint (after an opposite condition). Urine passes more easily than usual. Burning smarting pain in urethra. He dare not grasp the urethra on account of a sore ulcerative pain. The prepuce is retracted over the glands with diminished size of penis. Pleasant itching on lower side of scrotum, relieved by scratching. Pain as if pinched on l. side of scrotum. A persistent tickling itching in ovarian region, so that she would like to scratch, but scratching does not remove it. Painful throbbing in genitals. For 8 or 10 weeks every d. some blood exudes from the vagina, while the longer it goes on the more watery it becomes. Menstru. very profuse; come every 14 d. with much sacral pain. Thin watery menorrhagia. Persistent leucorrhœa, which makes her weak. Leucorrhœa staining the linen yellow and making her sore.

d. Frequent sneezing. Scraping and rough speech. Scraping in throat as if ex-coarctated, causing short cough. Rough and scraping in larynx, causing cough, r. Cawling in throat causing short cough. During inspiration tickling in trachea causing cough. Cough caused by an irritation as if a feather were moved about in larynx; cough removed by holding in breath. Whistling cough. Heavy and oppressed round the chest. Dyspnoea when walking; the breathing is panting as though he were climbing a high and steep hill. Anxious short breathing. Heavy and anxious sensation in lower parts of chest, making him often breathe deeply. Tight and difficult respiration with periodical anxiety. Chest as if pressed in; on breathing it is very painful internally. Upper part of l. side of chest tight for half a d. Feeling of weight in l. side of chest causes him to breathe deeply frequently. The breath feels always as if stuck in scrubs cordis. In centre of r. side of chest pressure shooting pain, hindering inspiration, frequently going off and returning. A pricking stiff pain in l. side of chest, aggravated during inspiration. Several successive stitches in middle of l. side of chest. On the lower external l. side of chest as if the part were pressed against a sharp corner. The pains under sternum and the oppression of a chest seem connected with the fulness in scrubs cordis and the distension of abdomen. The pectorales majores are painful when grasped, as though he had got a blow there. During deep inspiration a shooting pain in the fleshy parts of the l. mamma, which spreads on all sides and extends over the l. shoulder when walking and sitting. Sacral pains when sitting. Pressure pains in sacrum. Obtuse shooting pain on r. posterior inferior side of rib, when pressed it is painful internally as if festering. In lumbar vertebrae as if festering, very violent when lying, alleviated by gentle movement, but much increased by continued movement; it then extends to hip-joint, and causes a sensation as if the ligaments were too short; he cannot lie on either side on account of the pains in hips. All the parts of back and sacrum are as if stiff, as if they had been injured. On deep inspiration, in, obtuse shooting pain betwixt shoulders, which extends to lumbar vertebrae and takes away the breath. Two inches below l. scapula near spine a pain as if a pin were stuck in when stooping. Pressure pain in nape on stooping, involving all the occiput. Pressure pain on top of r. shoulder, ending in the triceps humeri and preventing him raising arm, lasting $\frac{1}{2}$ h. A burning pain in l. shoulder-joint spreading over chest. Swollen feeling in l. axillary glands. Pressure ulcerative pain in l. axillary glands. Pinching pain in r. elbow-joint, which becomes a pressure pain when moved. Burning pain in l. elbow-joint extending to wrist. Stiff pains in muscles of l. forearm, hindering movement of arm. Pain as if burnt on outer side of r. forearm. Pain as from a blow on l. forearm. Cramp-like pressure on outer side of r. forearm, aggravated when grasped. When writing, a stiff pain in r. forearm so that he can hardly hold the pen. Jerking pain in l. forearm, making him start. Pain in r. wrist as if a ganglion would be formed. Dislocative pain in r. wrist when at rest. Spasmodic contractive pain in r. hand extending to tips of fingers. Pulling pain proceeding from l. fingers and extending through arm to pectoral muscles. A crushing pain in ball of little finger. Contractive pains in r. middle fingers. Painful drawing in r. 4th finger. Pain as if burnt on outer side of r. little finger. Pressure pain betwixt r. thumb and index. Pinching pains

first in l. then in r. thumb, lasting some minutes. Painful squeezing in r. thumb from before backwards. A lam-ing pain in r. thumb. Dislocative pain in r. thumb when writing, so that the pen almost drops. Spasmodic pain in l. thumb. Stiff pain in r. thumb. Pain as if sprained in proximal joint of l. thumb (after 3 h.). Itching in some tips of fingers as if they were frostbitten. Deep internally below crista ili a violent colic shooting taking away his breath, increased by lying back. Tired feeling in hip-joints. The hip pains are worst in the hours before midnight. Pricks as from a hot needle in thighs and nates, so transient that he must scratch now here, now there. On inner side of thighs and on nates prickling itching, which when he leaves off scratching changes into quivering. Violent itching in middle of outer side of thigh; after scratching, pimples appear. Tensive pain on inner side of l. thigh. Pressive pain in middle of r. thigh. Tearing pain in middle of outer side of r. thigh. Pinching pain high up on inner side of r. thigh. Dislocative pain in r. knee when at rest. Sensation of warm steam round about r. knee. Seaking pain in l. knee. Stiff pain when walking on inner side of l. knee. No stability in l. knee, as if it would knuckle under him. Pinching pain in r. thigh. Weariness in knee-joints when standing. Pressive pain in angles of bones of l. knee. When going upwards the skin of calves and thighs feels stretched and as if swollen. Pain as if a sharp peg were thrust into inner side of l. calf. A lam-ing pain going from below upwards in r. leg. Pain as from a blow on middle of l. tibia. Pain in tendo Achillis as if it would be torn away. Sprained pain under l. outer ankle. Dislocative pain in l. ankle-joint. Pressive pain in l. tendo Achillis, which is often pulsating. Pain as if all were festering in whole of r. sole. Stitches as with a bodkin in ball of l. big toe. Stiff pains in l. toes. Pain going from behind forwards in big toe as if the distal phalanx would be pulled out. Burning in legs. Persistent restlessness in legs; he must always move them about. Several successive shocks in different muscular parts.

4. Itching pricks (like flea-bites) at n. in various parts, which wake him up, and he must scratch, which immediately takes them away. Trembling throughout the body. She cannot rest in any place, and therefore runs about with short breath and oppressed chest. He staggers to and fro. Falls asleep when reading after dinner. Little sleep. Restless sleep, wakeful almost all n. Lies awake for some h., and wakes in m. some h. before usual time, but he feels rested. Wakes earlier than usual. On waking after sleeping some h. is as wide awake as though he had slept more than one n. On getting warm in bed, sleeps quietly for some h., but then no more. She is not tired, and yet her eyes close. Is tired in m. as though she had not slept at all, and all her bones are painful; she especially complains of bruised feeling of thighs. Sleep filled with dreams and phantasies. Dreams he has boils on him. Dreams that he is working at a very dirty table, and the paper that was previously clean appears smeared with butter and grease. Chillsiness and inclination to stretch himself. Towards e. feels chilly, so that she must go to bed. Dry heat all over body, produce red and glassy face. Dry burning heat all over body except arms; it is diminished but not quite removed by perspiration; he does not feel the dry heat in bed, it is greatest in the genital organs. In sleep she only perspires in the face. Unhappy, she takes pleasure in nothing. Cross and nervous. Goes to work with pleasure.* (*Archiv*, xiv, 3, 372.)

5. Dr. KRETZSCHMAR took a decoction of a handful of the dried flowers on three successive d. Soon there came nausea which lasted 3 h.; he did not vomit, but could not eat on account of loathing of all food. Later diarrhoea came on. The 1st d. he had 8, the 2nd 16, the 3rd 7 stools, all within a few h. (*A. & Z.*, i, 24.)

* This pathogenesis, like all from Wahle, is of dubious purity, but is inserted *quoniam valeret*, for the sake of the undoubted curative applications which have been made of it.—Ems.

PULSATILLA.

Including *P. pratensis*, Mill. (*nigricans*, L.), meadow anemone, pasque-flower, wind-flower; and the American variety, *P. (Anemone, D.C.) Nuttalliana*.^{*} Nat. Ord., Ranunculaceæ.

I. *Provinga*.—1. HAHNEMANN, *Mat. Med. Pura*, vol. ii of original and of translation. Contains 1253 symptoms, mostly from self, about 100 only from 5 fellow-provers and a few authors.

2. LEMBKE, Nov. 1st, 8 a.m., took 2 dr. tinct. After 1 h. flow of saliva, rumbling in belly, eructation of air. Often during d. nausea with peculiar pain in stomach. Frequent tearing in r. side of head.—5th, 7.30 a.m., 5 dr. A not unpleasant sweetish slimy taste for some time after taking the drops. 8.30 a.m., transient pressure in stomach. 8.45 a.m., severe pressure in r. outer ankle, going and coming, when sitting. 12 noon, whistling in r. ear with dulled hearing, and as if air forced the membrana tympani from within outwards. 12.30 p.m., pressure in l. forearm. 5 p.m., transient violent cutting in stomach. During d. 3 or 4 times a noise like opening of the r. ear.—6th, a.m., drawing in spermatic cords; 2 h. later great cutting deep in abdomen extending into pelvis, with feeling as if bowels were going to move, increased by drawing in abdominal integuments. Strong pulsation externally in l. side of occiput for $\frac{1}{2}$ m.—8th. 10.30 a.m., when walking in open air attack of vertigo as though the body would fall to r. or l.; at same time feeling of stiffness of legs, lasting for about 100 paces. Frequent nausea during d., with good appetite. Frequent closing of r. ear. Painful drawing in spermatic cords, frequent and long continued. Violent shooting in tips of r. toes, e.—9th, 7 a.m., 20 dr. Immediately much scraping deep down in throat and œsophagus, great flow of saliva, lastly heat in stomach for $\frac{1}{2}$ h. 7.45 a.m., shooting in canthi of r. eye. Pressure in l. tibia and r. shoulder-joint. Vertigo while sitting. Much mucus in mouth. Transient shooting in sternum and in l. thoracic wall. 9 a.m., strong pressure in l. temple. Pains in both shoulder-joints, e.—10th, m. and 11 a.m., shooting in tips of r. toes. 9 a.m., pressure in centre of chest. 2 p.m., vertigo when walking over a lofty bridge.—11th. 21 a.m., boring in l. zygoma and r. side of frontal bone. 4 p.m., cutting in tips of r. toes.—12th, 7 a.m., 30 dr. Immediately scraping from tongue to deep down in œsophagus, great flow of saliva, going off after a few minutes. Much heat in sinciput, lasting 2 or 3 m. 8 a.m., severe cutting in toes, dull pain in stomach with full feeling, at same time sliminess in mouth. 8.30 a.m., strong pressure above and on l. clavicle. 9 a.m., tearing on l. parietal bone, great tickling and scraping in larynx, with lachrymation and dry cough. 1 p.m., sudden violent stomachache. 9 p.m., tearing in l. side of parietal bone.—14th, 8 a.m., 40 dr. Symptoms following dose same as on 12th. Pressure on inner side of r. knee. Severe shooting under edge of l. ribs and up into l. thoracic wall. After $\frac{1}{2}$ h. scraping in stomach and up œsophagus like heartburn. Much

* Provinga 1—3 are from the *P. nigricans*, the remainder from *P. Nuttalliana*.

chilliness through back. Drawing in l. calf. Tearing on l. side of occiput. 5 p.m., severe pains in 1st joint of l. index, relieved by moving finger.—19th, 7 a.m., 40 dr. Symptoms same as on 14th soon after taking dose. They come and go with nausea in between. Later, great flow of saliva. 11 a.m., persistent bitterness in mouth. 1 p.m., sudden violent shooting in l. thoracic wall when sitting. 7 p.m., severe shooting in eyelids and canthi.—22nd, 7.30 a.m., 50 dr. Symptoms as above. 9 a.m., shooting in tongue. 2 p.m., much nausea, much shooting in r. ear. When walking shooting and drawing in r. inner ankle all d.—29th, 7 a.m., 50 dr. Symptoms same as on 22nd. 8.15 a.m., much pain in stomach, extending to navel and down into pelvis; it then jumps to beneath l. ribs, drawing in of abdominal integuments increases the pain; these symptoms last till 10.30 a.m., when there is still violent pain under l. ribs. 9.30 a.m., smarting in tip of tongue. 12 noon, pain in l. thoracic wall hindering respiration. 1 p.m., pressure between l. fingers.—Dec. 4th, 6.45 a.m., 60 dr. 7.30 a.m., nausea, much saliva, severe cutting in r. toes. 8.15 a.m., persistent chilliness through whole body, especially in back; cold hands; pressure in various spots of cranial bones, in l. tibia. 8.30 a.m., pressure in r. facial bone. Great hunger at an unusual time. 12 noon, in bones at both sides of nose a pain as if the bones were burst asunder. Great boring above r. inner ankle. Sometimes shooting under ribs l. and r. Stitches deep in l. ear. Some sharp stitches suddenly darting through chest. 5 p.m., great disposition to vertigo. Tearing in front of r. leg. Much dry persistent cough, with scraping and raw feeling in larynx.—5th. Stiffness and pressive pain in nape muscles, l. side. 4 p.m., pressure in bones above r. ear. 5 p.m., severe cutting in r. toes. (*N. Zeitsch. f. hom. M.*, viii, 145.)

3. WENZEL, student, took 10 dr. of tinct. 3 times a d. for several d. From this he notes only a careless ease, such as is often produced by a small dose of haschisch. From increased doses he had frequent and bloody micturition. From 20 dr. thrice daily for a month nothing. From a 40 dr. dose nervous excitement; violent frontal headache; bloody stools. From same, continued for a week, asthenopia and photophobia; tinnitus aurium, as in cinchonism; impairment of motor power; numbness of surface; then general anæsthesia. (*ALLEN'S Encyclopædia*.)

4. a. Dr. BURT, in good health save for weak ankles, proved 4x dil., last two dil. being aqueous (to avoid effects of alcohol). June 20th, 1865, at 7 a.m., took ʒi. 9, for last ½ h. pricking burning sensation in centre of epigastrium, with feeling of distension of abdomen and slight dull frontal headache. 10, burning of lids, with slight headache; distress in whole epigastrium, with severe cutting pains passing through stomach to spine, lasting ½ h.; drawing pains in l. sartorius while walking. 1, sharp pains in stomach every few moments for last 2 h., as if needles were being pressed through; frequent momentary pains in wrists and fingers. 4, several times hard pains in whole upper forehead, passing to back of head like a wave affecting whole brain; sharp neuralgic pains down sciatic, from hip to middle of thigh. 10, frequent eructations of sour air; sad, gloomy state of mind; still epigastric

distress. 21st.—Slept well, and woke feeling well. Repeated dose at 7 a.m. 8, slight frontal headache, with severe sharp cutting pains in epigastrium; hard lumpy stool. 12, a number of times hard pain over l. eye, feeling as if a nail were being pressed into forehead; frequent sharp pains in stomach; distress in umbilicus; smarting of lids. All forenoon hard drawing pains from 1st to 2nd joint of r. middle finger. 9, sad and gloomy. 22nd.—Woke with lids agglutinated; yellowish coating along centre of tongue; flat taste in mouth. Repeated dose at noon. Slight dull frontal headache all d.; smarting of eyes with profuse flow of tears; for 2 h. after taking medicine, constant fluttering noise in r. ear; drawing cutting pains in lower epigastrium all afternoon; dull pains in r. hypochondrium, lasting 10 m. at a time; stiffness of fingers with dull pains in toes; sharp pains in 1st joint of r. forefinger. 23rd.—Restless n., with severe frontal headache, caused by a sour stomach. For 2 h. while in bed severe pain in whole r. knee, of dull aching character; tongue and taste as yesterday; constant dull pains in whole abdomen; hands hot and dry. 11, dull pains in r. temple; constant dull distress in lower epigastrium. Repeated dose. 9, epigastric distress has continued; slight drawing pains by spells in fingers and toes; languor with gloomy state of mind. 24th.—Hard colicky pains after midnight in epigastrium. 6 a.m., mushy stool. 4 p.m., epigastric pains have recurred frequently during d.; smarting of eyes. Repeated dose. 9, dull headache; eyes same; hard drawing pains along r. Eustachian tube for $\frac{1}{2}$ h.; dull distress in lower epigastrium and umbilicus; drawing pains in l. metacarpal bones. 25th.—Profuse mucous secretion from eyes during n.; severe pains in lower epigastrium at 7 a.m., followed by mushy stool. This pain continued all d., with flying pains in head and feet. 26th.—Lids agglutinated; soft stool at 6 a.m.; frequent spells of distress in lower epigastrium. 27th.—6 a.m., severe pain in umbilicus, with desire for stool; dark-coloured stool, covered slightly with mucus, followed by same pains for $\frac{1}{2}$ h.; sharp stabbing pains in pectoralis major for 5 m., followed by burning distress at same points. 11, took \mathfrak{ss} of 2x dil., prepared in water from 1, alcoholic dil. 3, for 1 h. after taking medicine very chilly, with constant inclination to yawn; severe dull frontal headache; smarting of eyes; spells of epigastric distress, with dull pains in r. hypochondrium and lumbar region; is very languid and feverish. 10, slight headache; eyes same; face hot and flushed; all p.m. and e. feeling as if he must go to stool immediately, with constant distress in lower part of epigastrium and umbilicus; now hard, dry, lumpy stool; dull pains in l. hypochondrium; dull distress in testicles, with drawing pains along l. spermatic cord; has had frequent flying pains in hands, feet, and toes; hands hot and dry; sharp drawing pains along outside of l. knee to halfway down leg; very sleepy all afternoon. 28th.—Slept well; smarting of eyes, with deep dull pain in orbits; tongue coated yellow along centre; flat rough taste in mouth; muscles of arms are quite stiff, especially flexors (this passed off in a short time after moving them); hands hot and dry; fingers stiff. 11 a.m., hard stitching pains in l. spermatic cord and testicle. Repeated dose. 5 p.m., dull pain deep in eyes, which still smart; distress in epigastrium;

three times has had hard stitching pains in l. spermatic cord, lasting 5—10 m. each time; a good deal of dull pain in l. hypochondrium. 9, same symptoms as at 5, with dull pains in lumbar region. 29th.—Very languid to-day, with great depression of spirits; wants to sleep all the time; dry lumpy stool at 6 a.m.; slight secretion of mucus in eyes; tongue same. 6, natural stool, 30th.—Slight agglutination of lids in m.; otherwise well, but there is an eruption breaking out on his ankles, which itches severely at n.

4. July 21st.—Eruption on ankles had extended halfway up to knees, and there were several large blotches on his back. Some spots were as large as a three-cent piece, and from that to a fine eruption; colour was dark red; there was more or less itching all the time, but at n. this was almost intolerable. The rash stood out from the skin very prominently, and was exceedingly hard. For the last 2 d. it was commencing to die away. A small plant of *P. Nuttalliana* had been put in 2 oz. of alcohol, and allowed to macerate 16 d. Of this tinct. Dr. B. now took a quarter-ounce at 11 a.m. 12, sharp pains on r. temple, profuse secretion of tears, with dull pains in eyeball extending to malar bone; severe burning in stomach. 5, had dull headache all p.m. in upper forehead, with paralysis of lids—almost impossible to keep eyes open; return of aching and smarting in eyes; feeling in l. ear as if closed; constant distress in epigastrium, with frequent hard drawing pains in l. side, just under stomach; rumbling in bowels; hands hot and dry, with stiffness of fingers. 10, much the same, lower epigastric distress being especially severe; feeling feverish, with great debility. 12th.—Slept soundly, but woke very languid. Profuse secretion of mucus in eyes; neuralgic pains in eyeballs while walking, most in r.; constant epigastric distress. 7, repeated dose. 10, pains in head and eyes as yesterday, with frequent pains in ears, drawing from within outwards, and feeling as if ears were closed; severe cutting pains in lower epigastrium and r. hypochondrium; nausea twice for 2 m.; great debility; hands hot; pulse unaffected. 12, same, with also snapping noises in ears. 8, same symptoms, but not so strongly marked. 13th.—Slept soundly; large secretion of mucus in eyes. 9 p.m., have had through d. frequent drawing pains in ears, epigastrium, and r. hypochondrium, with occasional sharp pains in r. temple and eyes. 10, first stool since beginning fast proving, preceded by sharp cutting pains in umbilicus, m. 14th.—Rough flat taste in mouth; frequent sharp pains in r. ear and temple; dull pains by spells in epigastrium; eruption has now disappeared. Natural stool. 15th.—Feeling well, save that hands were hot and dry all d., and that once there were drawing pains in testicles. (*U.S. Med. and Surg. Journ.*, i, 65.)

5. Miss C., æt. 18, small frame, blonde; menses irregular; not very strong, but quite well at time of proving, save for some flatulent distension of stomach. Sept. 6—11 took repeated doses, increasing from 5 to 20 dr. of tinct. No symptoms till last d., when about 8 p.m. her eyelids began to smart and itch, and on retiring felt very hot. In m. they were slightly sealed by a soft yellowish matter; an h. later she noticed a thick white substance on edge of lower lid. After being out, on entering house dizziness and inclination to nausea; bowels slightly

relaxed. 12th.—Took 3 doses of 20 dr.; passages more frequent and moist. 13th.—Took 3 doses of 30 dr. Nothing noted till e. of 18th, when she felt very chilly, at times shaking as with ague. On 19th took 20 dr. without effect; on 20th 3j, and had very cold feet in e., till she went to bed. 21st.—Took teaspoonful of 2nd dil. 3 times. At 6 p.m. sensation as of plug in lower part of throat, continuing till she retired. 22nd.—Woke without feeling of plug, but it returned later, preceded by raw tickling sensation. Took 4 teaspoonful doses of 2nd dil. to-day, and 5 on 24th, with no further effects. (Bloating feeling had disappeared; but sharp shooting pains through temples, only occasionally felt before, had become very frequent and more severe.) (HALL, *New Remedies*, 2nd ed.)

6. Mrs. W—, æt. 30, in good health, save that menses had delayed 4 d., and she was quite constipated. Took of sol. of 3j of tinct. in half a glassful of water, a spoonful every h. from 10 a.m. to 10 p.m. No symptoms. Next m. began taking it again at 7. 8, stinging darting pains through uterine region from side to side, 10, much chilliness for an h., with loose papaceous stool, accompanied by griping; four similar stools occurred during d. At noon began to feel great weakness in legs, could scarcely stand, and walking became difficult; it was a "trembling weakness," she said, with a sensation of great weariness and heaviness; it continued till she went to bed. P.m., intense nausea was felt for 4 h. after each dose, but she could not vomit. Nearly all d. had frequent inclination to micturate, soon passing off, but recurring speedily; actual micturition, however, was unusually frequent; urine was natural but copious. She felt very irritable, cross, could not bear to be spoken to; noise vexed her; felt inclined to weep at trifling annoyances. She discontinued medicine at 10 that n., and awoke next m. feeling well, save for some weakness. (The menses did not recur till the next period.) (*Ibid.*)

6. a. Dr. T. C. DUNCAN examined his urine several d. up to Nov. 3rd, 1866. It was acid, of strong odour, dark yellow colour; sp. gr. 1018–20 in m., 1026–30 at n.; daily amount 30–36 oz. Analysis showed "uric acid, earthy phosphates, chloride of sodium, &c.;" under microscope were seen "crystals of urea, uric acid, many of the triple phosphates, urate of ammonia," and some squamous epithelium. At 10 p.m. this d. took ʒss of tinct. 4th, 2 a.m., woke with great urging to urine, and voided 10 oz. of very light-coloured urine, sp. gr. 1010; skin was hot and flushed. 8 a.m., passed with great urging 7 oz., darker, sp. gr. 1014. 10 p.m., some pain, or rather uneasiness, in kidneys and bladder; 35 oz. of urine have been voided in last 24 h.; sp. gr. of last 1030. Took ʒij. In about an h. full hot feeling in cerebellum. 5th, 7 a.m., great urging to urinate; passed 7 oz., dark yellow, sp. gr. 1027. During d., with every micturition, some tenesmus and stranguy; uneasiness in kidneys more marked; passed 25 oz.; sp. gr. of last 1031. 6th.—Tenesmus more marked to-day, extending up ureters; uneasiness in kidneys increased. Urine in 24 h. was 23 oz.; sp. gr. in m. 1025, in e. 1030. Bowels constipated; little appetite; all afternoon severe headache. 7th.—Urine to-day copious and light-coloured; sp. gr. in m. 1014; but little tenesmus;

dull heavy feeling in head in m., less p.m. 8th.—Urine as yesterday ; nothing left but a little uneasiness about kidneys.

b. Analysis of light-coloured urine of 4th, 7th, and 8th showed albumen and excess of phosphates, acid reaction but slight ; dark-coloured urine of 5th and 6th was strongly acid, and showed excess of uric acid and of phosphates. Under microscope in former was found much epithelium, with (after standing) abundant phosphates, earthy and triple ; and in that of 7th and 8th there were also tube-casts and mucous corpuscles. In the dark-coloured urine crystals of uric acid and the phosphates were very apparent. (Dr. Duncan says that he took little note of the constitutional symptoms, effect on urine being the main object of his experiment.) (*Ibid.*)

7. a. Dr. C. WESSELHOFF, æt. 32, in perfect health, took Oct. 8th, 1866, at 10 p.m., 1 dr. of 3x dil. After 30 m. painful emptiness and pressure in stomach, then a rising up œsophagus as in heartburn. 9th.—10 a.m., repeated dose. Same feeling as last n., recurring at hourly intervals during d., gradually increasing in severity, amounting to cramp-like sensation running up to fauces from cardiac orifice of stomach. After each meal for about 2 d. pressure, with cramp-like rising, preceded by painful emptiness. 14th.—Took 2 dr. In 5 m. emptiness (painful) came on, increasing in an h. to pressure, with which later coldness was conjoined, both extending to abdomen with sensation as if diarrhoea would set in. After dinner, rumbling of wind in distended abdomen, moving from above downwards. 4.30, took 2 dr. Two h. after eating bread and milk, eructation with taste of food ; increased appetite while eating, and hunger an h. after and all e. 10, repeated dose. Copious discharge of pale yellow urine 3 times in n. Urinated more freely and copiously than usual next d. Same sensation in stomach as on d. before, and for 5 d. subsequently had at times painful pressure there.

b. Oct. 22nd.—At 11 p.m. took 10 dr. of 2x dil. Sleep restless all n., many dreams. 23rd.—Repeated dose m. and e. In ½ h. after former painful pressure in stomach. Eructations of hot tasteless wind several times in forenoon. In 6 h. slight dull headache, lasting ½ h. Very great hunger before usual time, and could hardly eat enough to satisfy appetite. Confused dreams all n.; woke frequently with feeling of general discomfort, like that preceding a fever,—heat, restlessness, anxiety, dull frontal headache, aching of limbs, lameness of back and loins particularly. Had to get up to urinate during n. Dull headache next m., going off with active exercise, but returning at noon. Repeated dose at 10 p.m. Woke frequently during n. with lameness in lumbar region. Some headache in m. No more symptoms. 25th.—10 p.m., 10 dr. of 1, dil. Immediately painful pressure in epigastrium (l.), with frequent eructations, lasting 2 h. Slept well. 26th.—Repeated dose m. and e. No stool till 9 p.m., then hard and scanty. Both doses followed by painful pressure as before ; belching of food and afterwards wind ; p.m., pressure extended all over abdomen. Slept soundly till 1 a.m., when he had to micturate ; after that awoke frequently with aching in loins and hips, causing constant change of position in bed, which seemed too hard. 27th.—10 dr. in m. Slight

gastric pressure several times during d.; in e. great hunger, unappeasable; ate so much bread, butter, and milk that he could not sleep for it, and rose with tongue coated white, and flat pappy taste. There was no appetite for breakfast, which, however, was relished; no thirst. P.m., great depression of spirits. Sleep sound. 29th.—So hungry in middle of d. that he was able to eat two dinners. After a (purposely) light supper of bread and milk, slight heartburn and hot tasteless eructations, followed by fulness in epigastrium and abdomen, relieved by loosening clothes. Still hungry, but also thirsty; drank freely of cold water, which was extremely grateful. Effects of drug lasted till 31st, gradually decreasing.

r. Nov. 24th, took m. and e. 10 dr. of tinct. in water. Only slight weakness and emptiness in stomach at times during d. 26th.—At 7 a.m. took ʒss. In 10 m. uneasiness in stomach; slight nausea with constant twitching of e. eyelids all forenoon, especially while reading, and at intervals all d. 27th.—Repeated dose m. and e. Return of twitching of lids; no stool in m., a hard and scanty one in e.; slight distension of abdomen p.m. 28th.—Offensive breath this m., noticed by self and others; continued all d. 10 a.m., took ʒj. In a few m. heat in stomach, gradually increasing to pain, most severe in one spot under end of sternum. In 2 h. aching at spot in abdomen, increasing by movement, also in l. groin just above crest of l. ilium (quite severe on moving or bending), and in chest (all forenoon). No appetite for dinner; pain in stomach while eating; after eating tongue unusually red and face flushed, with slight headache in l. frontal eminence, and dulness of mind, disinclining him to work. Feeling sleepy, took a nap, which was not refreshing; after it feverish heat of body, pulse 80 (generally 60) for 2 h. Went out walking, legs very heavy, cool blustering wind very refreshing to hot face; slight smarting of edges of lids from it. Unusual thirst for cold water in e. There was no stool this d. 10.15, repeated dose. In 10 m. twitching of l. eyebrow and upper lid, lasting for ½ h. after going to bed, with audible pulsation of heart and painful drawing in l. cheek-bone and jaw. 29th.—On waking, dry pappy taste in mouth; tongue coated with tough slime, red, rather dry, and swollen, showing impressions of teeth on its margin; throat same; pain above ilium as yesterday; no appetite for breakfast, in spite of a walk first. These symptoms lasted for 2 d. only, and he felt nothing more till Dec. 15th, when there was itching on r. side of chest, quite intense at times, with small scattered pimples and red points, whole skin assuming a rose-like redness on slight friction. This lasted for 5 d.

d. Jan. 30th, 4 p.m., took ʒj. In 15 m. pinching in r. curvature of stomach, repeated several times. After a nap, woke with acid taste in mouth and dull pressing pain in stomach; then followed rumbling in abdomen, with colicky pain, frequent discharge of much flatus, and desire to go to stool as if diarrhoea would come on, which, however, did not take place. (*Trans. of Amer. Inst. of Hom.*, 1867.)

B. Mrs. C. W.—æt. 25, general health perfect, took, Oct. 9th, 1866, 1 dr. of ʒx. dil. About 1 h. after, weakness in loins and general feeling as if menses were coming on; they ought not to appear for 5 d.

Soon after taking medicine great desire to eat, though it was directly after breakfast; bad taste in mouth, and p.m. sudden dizziness and fulness in head, lasting only a few m. 10th.—Sensation as of approaching menstruation continues. 11th.—P.m. and at n. frequent desire to urinate, accompanied with nervous sensation in feet—constant irresistible desire to move them; this continued for 2 d. more. On appearance of menses at their due time repeated dose. Discharge, which is always copious, at once became very profuse, amounting to hæmorrhage, and continued with violence for 3 d. Eyes, which are habitually sensitive, became more so, and dryness and irritation prevented their use, especially in e.; edges of lids were red. After 4 weeks, light-red blotches on r. breast, itching severely at n. In 3 d. rash had spread all over chest in little red dots or stipples, lasting 2 week; itching relieved by scratching, worse on being heated. Complexion, at first rough after taking medicine, became very clear after disappearance of rash. Again, 4 weeks later, itching on back and shoulders, followed by stripping and general erythematous redness. She had never had the slightest skin eruption. (*Ibid.*)

9. ALEX. POPE, æt. 19, in perfect health, took, Dec. 19th, 10 dr. of tinct. While riding on horseback immediately after had sudden attack of diarrhœa, obliging him to dismount. P.m. had 2 more dark-coloured, thin, pap-like stools, with urgent desire; also great emptiness of stomach. Next d. (and to some extent for 4 d. more) very frequent urination; in e. itching over body; slight rash on back and shoulders, lasting 2 d. (*Ibid.*)

10. A. W. C. POPE, æt. 20, health good. Took 1 dr. of 3x dil. n. and m., Oct. 14th—17th. Lay awake one n. for several h., restless. Increased appetite; irritability; desire to keep moving about, quick nervous movements.

8. Dec. 9th, took 10 dr. of tinct. at 11 a.m., which operated on bowels in about 15 m., leaving them in a very loose condition, with feeling of emptiness in stomach, which no food could assuage; it continued all p.m., with sense of weakness. No appetite for dinner. Went to bed feeling much exhausted, having had during d. 4 watery discharges of light yellow colour, without pain or wind. For 2 d. more thirst for cold water than usual. Empty feeling continued 3 d., with 4—5 discharges each d., thin and yellow. After 7 d., great itching over all parts of body. Again, after 8 d., more incessant itching, and next d. red rash over whole body, most on chest and abdomen, blotches and in some places points running together and forming them; itching continued with it. After 3 d. eruption was still very severe, gradually becoming urticarioid; nodular, white, hard elevations on red base, of irregular form; it lasted 10 d. Itching (increased on riding in cold air) returned at longer intervals, and lasted in less degree all the winter. (*Ibid.*)

11. A. H. ELLIOT, student, æt. 25, health excellent. Oct. 9th, 10 p.m., took 1 dr. of 1x dil. Slept very well. Small hard stool next m.; dull pain in epigastrium, with dull frontal headache; thick gulping. At n. repeated dose. 11th.—Took same at 8 a.m. Slight heaviness of foot after meals, with sour eructations; aching in both knees, worse in l.;

slight frontal headache. 12th and 13th.—Took 4 dr. each m. and e. Small dry stools each m.; severe pain in l. ankle extending to hip, continuing for some h. On waking in n. of 13th found it impossible to open eyes for nearly 5 m. Same kind of stool, but rather large. Took 1 dr. at n. 15th.—1 dr. in m. An h. after hearty breakfast, renewed appetite, with empty feeling of stomach, lasting till dinner; very hard dry lumpy stool towards e. 16th.—1 dr. in m. Feeling of great emptiness and hunger, with slight frontal headache, all m.

4. Oct. 26th, 10 p.m., took 1 dr. of 2x dil. Sleep somewhat disturbed; had to rise during n. from urgent desire to urinate. 27th.—8 a.m., repeated dose. Copious flow of light-coloured urine; no desire for stool, but had a large evacuation of dry pieces at usual time; gnawing emptiness in stomach. (*Ibid.*)

12. HARRIET C—, æt. 40. Began taking powders, each moistened with 1 dr. of 3x dil., when just recovered from a bad cold, but considering herself very well. After taking two she began coughing a good deal, and continued to do so for 2 or 3 d. When cough was quite gone she began taking same dil. in water. Oct. 31st.—Took dose at 10.30 p.m. Very wakeful for a time (most unusual), with slight headache. Rose next m. with r. head aching, and feeling generally languid and sick. Repeated dose. Dull headache and slight nausea nearly all d., better about noon, but worse again towards n.; indifferent appetite, with feeling as if she was going to have a fever; anxious, miserable feeling. Nov. 2nd.—No medicine; headache and miserable feeling first half of d.; constant inclination to cough, and much actual cough all d. 3rd.—Repeated dose at 10 p.m. After good night's rest, some dulness, little appetite, and stiffness of r. neck in m. 5th.—Repeated dose at 5 a.m. Slight headache r. side, afterwards confused feeling rather than aching. All d. much as before, but symptoms less marked; pain and slight looseness twice in d.; feeling as if diarrhoea were coming on; more miserable at n., felt as if she had taken another cold; some rheumatism in r. knee. Next m. looseness of bowels; rheumatism in r. shoulder; heavy and faint sensation in stomach; mouth and lips dry, with thirst; feeling as if menstruation (which had been irregular of late) was coming on; more miserable towards bedtime. (*Ibid.*)

13. MARTHA C—, æt. 30, healthy. One Thursday took 2 dr. of 3x dil. on retiring at 10 p.m. Very wakeful for 2 h.; chilliness with full and uncomfortable feeling in stomach. Next m. dull headache and nausea till about 11 a.m., and after that faintness at stomach. Uncomfortable sensation at stomach all d., as after taking tartar emetic; fullness also there, like a great weight. On the Saturday n. following took 1 dr. Some wakefulness; weight and pressure in stomach; mouth filling with saliva. In m. same dull headache, with nausea and indisposition to eat at breakfast and at dinner. (*Ibid.*)

14. a. Dr. WALTER WESSELHOEFT, æt. 26, in robust health, Dec. 6th, 1866, took 5 dr. of 3x dil. at 8 a.m. 9.30, husky feeling in throat until noon, and at intervals throughout afternoon. 7th.—Repeated dose. Slight sensation of scratching and huskiness immediately after taking medicine; p.m., frequent desire to micturate, urine clear.

8th.—Took same. After eating slight irritation in throat, with hawking of white tough mucus. Frequent desire to micturate, though no great quantity of urine passed till n., when he passed a large amount, with slight pain at end of urethra; odour had been slightly ammoniacal during d., but was now very strong, like that of the skunk. 9th.—Urine of previous n. had dark sediment, and bottom of vessel was thickly coated with light brown urate of ammonia. On passing water so-day irritation at end of penis; urine clear, with slight ammoniacal smell; frequent inclination to micturate towards and in e. 6 p.m., slight pressing drawing pain in r. side of penis. After retaining urine some time, marked pain on urinating, which continued till he went to sleep. 10th.—Pain in penis on waking, quite severe, increased on passing water, which is without smell or sediment; it continued all d., with frequent desire to micturate. 11th.—No pain on waking; it was felt slightly in passing water till e., when it disappeared. 12th.—Took 5 dr. at 8 a.m. Frequent inclination to clear throat; dulness and heaviness about head; depression of spirits; towards e., slight pressing drawing pain on r. side of penis, with frequent inclination to micturate, urine quite clear. 13th.—Awoke at 4 a.m. with distressing erection, soon subsiding; unusual wakefulness for an h. 8 a.m., medicine as before. Disinclination to move during forenoon, with great fatigue after walking; no urinary trouble till e., when after drinking ale he had great desire to pass water and slight return of pain in penis.

6. Dec. 17th.—11 a.m., 30 dr. of tinct. Slight pain in umbilical region after 10 m.; no further symptoms through d. 18th.—Repeated dose with same lack of effect. 20th.—Took 100 dr. in m. Slight huskiness and dryness of throat, with sense of dryness and heat in nose and eyes, for an h. after; also eructations with taste of medicine. At noon strong desire to urinate. P.m., slight pain over r. eye, better when walking in open air, worse in warm room, with sense of heat and fulness in head, dryness of eyes, and irritation of throat, with slight expectoration. (*Ibid.*)

15. Miss S. WESSLEHOFF, æt. 20, in perfect health, Dec. 8th, took 2 dr. of 3x dil. at 8 a.m. 5 p.m., after a long walk, felt shooting pain across lower part of back for ½ h.; pain then settled in l. side, where it remained during e. Continued to take a dose m. and e. till 12th. 10th.—Pain in bowels after eating at 10 p.m. 11th.—Headache at intervals all d. 12th.—Pain in bowels and diarrhoea. (*Ibid.*)

16. Miss A. G., æt. 18, took 3rd dil. twice without effect. Now took 2 dr. of tinct. at 10 a.m. In 3 h. throbbing pain on top of head, very severe; at 4 p.m. face became red and hot, continuing so till bedtime. Slept well, and had no further symptoms. Three d. later put 3 dr. of tinct. into ʒj of water, and took half at a dose. In 3 h. had same headache as before. At noon took second half. Headache worse; 4 p.m., hot face and very cold feet; during e. pain in l. side, under arm, more towards back, severe; lasting till bedtime. Perfectly well in m. (Next period was a week too soon; but, instead of dark flow with pain as usual, all was natural and painless.) (*Ibid.*)

17. Dr. A. BROWN, æt. 38, took 3rd dil., 3 dr. in ʒ spoonfuls of water, taking one n. and m. After 3rd dose soreness in r. calf;

slight pain while walking, very painful on going downstairs, soreness is like that following cramp in the leg, or a bruised feeling. In 2 d. slight soreness in l. calf and lameness of muscles of r. upper arm. Soreness in r. calf continued about 3 d., and then disappeared with the other symptoms. (*Ibid.*)

18. Mrs. M., æt. 30, mother of 4 children, took 1 dr. of 3rd dil. on going to bed. Woke next m. with dull pain over top of head, which lasted all d. In e. took another dr., and had same pain all following d. On 3rd e. took same dose, with same result; also in e. of 4th d. slight leucorrhœa (unprecedented).* Omitted medicine next 3 e. On 5th d. same headache, less severe; and more leucorrhœa. For next 2 d. no symptoms. Again took medicine for 4 successive e. For 2 d. no symptoms, and she felt uncommonly well. On 3rd d., at 4 p.m., had flow of whites, about a teaspoonful, without pain. On 4th return of pain on vertex, not so severe as before. On 5th felt small sore spot in upper windpipe, continuing all d.; and in e. had nervous pains in legs, especially l., feeling as if she could not sit still. Took no more medicine. Next d. throat same, but it went off the d. following, on which also the vertex pain was felt, with sense as if head was too heavy for neck. (*Ibid.*)

III. *Experiments on animals.*—Anemonine (a crystalline alkaloid contained in root of *P. nigricans* and its allied species) has been shown by J. Clarus and others to possess powerful toxic properties; 4½ gr. affected rabbits, and 9 gr. killed them in 3 or 4 h. The special phenomena were diminution of frequency and strength of heart's pulsations (sometimes preceded by a period of excitement) and slackening of respiration; finally, diarrhœa and stertorous breathing, sinking of temperature, semi-paralysis of hind and then of fore limbs; stupor; mydriasis and immediately before death myosis,—but no convulsions, such as have been seen to be produced by extract of *P.* itself. *P. M.* there was more or less congestion and œdema of lungs, and relaxation of heart walls; heart cavities and great vessels were full of dark clotted blood, while blood everywhere else was fluid; there was also marked hyperæmia of membranes of brain and cord, especially in neighbourhood of medulla oblongata. (PHILLIPS, *op. cit.*)

RANUNCULUS.

Including *R. acris*, *bulbosus*, and *sceleratus*, L. Nat. Ord., *Ranunculaceæ*.

Ranunculus acris, buttercup, upright meadow crowfoot.

I. *Proving*.—1. LEMEXE took, Sept. 6, 9 p.m., 30 dr. *aq. herbe Ran. acris*, and again at 9.30, 30 dr. Persistent scraping taste in throat from each dose. At 10.30 p.m. 1 teaspoonful.—7th. 9 a.m., 1 teaspoonful, and the same at 4 p.m.—8th. 8 a.m., 1 teaspoonful, and the same at 9 a.m. Yesterday and to-day wandering pains in

* "A few doses of and dil. given to my wife, suffering from pleurodynia but otherwise well, produced fluor albus of a mild kind, but so profuse and attended with so great depression and weakness that she refused to take any more" (Dr. Osamu, in *Ibid.*).

limbs, also in joints of hands, knees, feet, and toes, heat in head, tearing in forehead and face, 2 loose stools m. 7 p.m., 9.30 p.m., and 10.30 p.m., 1 teaspoonful. When walking, repeated heaviness and weakness of lower limbs, also on 9th, m., in bed. In n. of 9th Sept. urinated several times.—9th. Repeated tearing in l. ankle-joint when walking and when at rest.—13th, 8 a.m., 1 teaspoonful. Tearing in wrists and ankle-joints, in thumb and forehead. 5 p.m., copious liquid stool without pain, and again at 7 p.m. In e. tearing in r. cheek to temple.—14th, 7 p.m., 1 teaspoonful. 8 p.m., 1 teaspoonful. Tearing in r. pectoral muscles below nipple, increased by inspiration, boring in forehead, drawing in r. tibia and elbow, much eructation of tasteless air, nausea, drawing in ankle-joints, head hot and heavy, forehead moist. 9 p.m., 1 teaspoonful. Nausea and much saliva in mouth. In skin of r. cheek a peculiar sensation as if it were touched here and there by a cold thin body, lasting some time, and then a similar sensation in l. cheek. Pressure in elbows, ankles, and knees when sitting, relieved by moving. Urinated 3 times at n.—15th. 8 a.m., skin moist, tearing in tibiae and temples. Pain in r. side of chest as yesterday.—16th. Tearing in hip, shoulder, and ankle-joints. 7 and 8 p.m., 1 teaspoonful. Severe nausea. In lumbar muscles when bending body and turning, pain several times, also in joints named.—17th., m., same pains several times during d. when sitting and when moving.—18th, 9 a.m., 2 teaspoonfuls. Tearing in wrists, ankles, and shoulders, in forehead and in r. pectoral muscles. (*N. Zeitsch. f. hom. Kl.*, xii, 26.)

II. *Poisonings*.—1. Applied to the temple, it has caused headache, intolerable heat, and fainting. Applied to the joints, soreness and obstinate ulcers. (*Archiv.*, vii, 3, 218.)

2. A robust woman, æt. 70, who suffered from pains in limbs, boiled a few handfuls of *R. a.*, washed her legs with the decoction, and applied the boiled plant as a cataplasm, e. At n. woke up with violent pains, removed the poultice, and washed herself with water. Next m. the doctor found her with violent erythric fever, intolerable pains in legs and feet, which appeared as if burnt up to knees. Skin hot, red, very painful, and in parts raised up in blisters. On 3rd d. mortification had set in in several parts, she trembled, fainted on rising up; anxiety, restlessness, with small rapid pulse and red face. On the 11th d. there was fever and sweat, with critical urine, and the sores improved. (*KREBS, Med. Annalen, Heidelberg*, i, pt. 3, p. 440, in *Frank's Mag.*, iii, 312.)

Ranunculus bulbosus, bulbous crowfoot.

I. *Proving*s.—1. FRANZ, in perfect health save for slight disposition to hæmorrhoids, took, Nov. 26th, 1827, before breakfast, 8 dr. of tinct. in 1 lb. of water. In ½ h. pressure in eyeballs, transitory pressure in chest. In 1 h. sore pain in eyes, burning at pit of stomach, pressure in region of liver. In 2 h. stitches in ears; tingling and stitches in hairy scalp, with dulling of senses; slight shocks in occiput. In 3 h. pressure transversely across chest and pit of stomach; stiffness in ankle; vertigo; ill-humour. In 4 h. tearing in temples, itching of hand. In 6 h. stitches in l. chest and spleen; pressure at root of

nose; chilliness after dinner. In 7 h. pinching and painfulness to touch of abdominal walls, with febrile chilliness. In 8 h. pains in occiput, pressure in eyes and forehead from without inward, slight giddiness, constant colic during digestion, and feeling as if he would fall over or faint. At n. fell asleep late, and woke frequently. 27th.—Took 12 dr. in same quantity of water. After 1 h., on rising, pain in l. chest; weakness and sense as if he would fall; tearing in vertex. After 2 h. dulness of head; ill-humour, with same pain as before across chest and epigastrium. In 5 h. pain in toes; absence of mind, during which he talks to himself. In 6 to 10 h. pain along posterior surface of thigh, in wrist and thumbs, and in scapulæ; bruised pain in hypochondria; "rheumatic pains." Pain in l. chest, and pinching and tenderness of abdomen, as yesterday, recurred periodically throughout this d. in alternate attacks, also chilliness during digestion. 28th.—Repeated dose. Early in m. pain in l. chest; sore pain in eyes; pungent taste in mouth; cracking of knees; eructations; burning and scraping in fauces; pain in hypochondria, pit of stomach, and sternum; mucus about fauces. In forenoon pain in nail of index and in tendo Achillis; a sort of ischias; continued pain in l. chest and soreness in eyes. In afternoon febrile symptoms, heat in face with icy cold hands and quick pulse; pinching in abdomen; eructations; still l. chest pain; pain over r. eye; pressure in r. scapula; oppression of, and determination of blood to head. Drowsiness in e. and sleeplessness at n. 29th.—No medicine. On waking, pain in l. chest, which continued all d.; ill-humour, anger; debility and trembling; fever after dinner and in e., sleeplessness at n. 30th.—Took another 12 dr. On waking, usual pain in chest, and in 1 h. after dose tearing in temples, stitches in ear, pyralism. After 2 h. pain in occiput. After 4 h. constant pain during motion and from contact in l. chest, hypochondria, and back; altered taste; ill-humour. P.m., pain in abdomen with chest troubles. In e. febrile chilliness for 2 h., with pain in occiput, heels, and toes, and oppression of chest. Dec. 1st.—Much nausea, pain in abdomen with fever after dinner; less chest pain; sleepless n. 2nd.—Headache in m.; during d. alternation of pain in chest and inward colic; in e. pro-supalgia and pain in ankles. 3rd.—In forenoon pain in dorsa of feet; oppression and pain in chest; pain in temples, r. malar bone, and eyeballs. In e., febrile movement; painfulness of hypochondria. 4th.—Nearly constant chest pain in e., with cough and eructation. On following days up to 15th, after restless sleepless nights, early in m. great painfulness, externally and internally, of specially l. chest and whole side, and of hypochondria; lassitude and laziness; frequent chilliness after eating (with gradual disappearance of former abdominal symptoms), together with some evening cough and fever, continuous, with periodical pain in eyes, and temporal and frontal headache. On the 14th d. there was actual inflammation of eyes, and therewith pain in dorsa of feet and along posterior surface of thighs from above downwards. (*Archiv*, vii, 3.—The pain in the chest is so distinctive and constant a feature of the action of *R. bulbosus*, that we give here, in addition to the above, some of the detailed symptoms of the schema relating to it:—After 4 h., when stooping, felt pressure on lower sternum; on

rising, beating was felt there, soon going off, but leaving place tender to touch; pressure spread towards r. chest and pit of stomach, latter (as well as sternum) being tender to touch and on stooping; whole of outer chest became so sensitive that even buttoning of coat gave him pain; this lasted 3 h. 1st d.—Single stitches in r. chest; violent aching in mid-chest, c., while writing. 2nd d.—On rising, pain in whole chest, as from rheumatism and subcutaneous ulceration, felt on least movement of trunk; on walking, early, shooting in region of 5th and 6th l. ribs, with great tenderness of spot, and debility; in forenoon pressing and pushing in lower part of r. chest towards liver; during whole d. violent stitches in r., and less frequently in l. chest, with pressure on mid-sternum and painful inspiration; while walking in open air, stitches interiorly in l. chest, near nipple, going off as he continued to walk, whereupon suddenly came a pain from r. abdomen to below last true rib on l. side. 3rd d.—In forenoon, when walking or standing, pain under last true ribs of l. side, as if bruised or from subcutaneous ulceration, with slight stitches; this pain continues all p.m. and e., with scarcely an interval, increased by motion and by turning trunk; in e., pressive pain in r. scapula; while walking after sitting violent shooting in r. chest in region of 5th to 7th rib, arresting breathing, with stitches and pressure at top of shoulder; at n. in bed pain of whole chest, especially l.; was unable to lie on either side on account of pain of outer chest; therewith anxiety, tightness of breathing, accelerated pulse. 4th d.—Violent pains in chest all a.m.; constant pain there all p.m., mostly in l. side, and as if externally in pectoralis major, later receding to behind sternum and pit of stomach, thence frequently shifting to r. of umbilicus; shooting in side of sternum, with sensation as if bruised, in going uphill. 5th d.—Oppressive sensation in chest, as after great vexation; he had to take deep breath frequently the whole e.; therewith also nausea.)

2. A married woman, æt. 29, with slight disposition to congestions of blood and hæmorrhoids, took about $\frac{3j}{\text{ss}}$ of the 8 dr. to 1 lb. solution. After 2 h. pressure in eyes, weight of and determination of blood to head, some colic with pain in back. After 3 to 5 h. sensitiveness of teeth, itching on upper arms, creeping on fingers, headache over r. eye, nausea and drowsiness. After 7 to 9 h. colic; chilliness, with cold hands and hot face during digestion. After 8 h. stiffness of ankles; vertigo; stitches in r. side of chest* and bowels; migraine of r. side. After 12 h. jactitation of muscles. During whole d. obstruction of, and creeping on nose. Sleeplessness at n. On 2nd d. migraine-like headache, continual creeping on nose; stitches in chest. On 3rd d. heaviness of head and pressure on nape for first 5 h., then pain in chest; in e. feverish inclination to be startled, with fearfulness. (*Ibid.*)

3. S. D.—, a young army surgeon, robust, of blooming health and irritable disposition, took, Dec. 20th, 5 dr. of tinct.; a fortnight after 15 dr.; 9 d. later 20 dr.; and lastly 60 dr. within 12 h. He experienced immediate pressure in eyes, and, after 1 h., oppression of chest, feeling of distension of head, dizziness, and slight nausea. After 2—4 h.

* Chest pains, especially of l. side, were slighter in her because she habitually had such pains, and the drug affected her as sine curatively, without aggravation.

creeping on hands and face; pains in chest. After 6 h. easy evacuation, with borborygmus. After dinner, fever and chilliness. In afternoon pain in nape, frequent chest-pains, thirst. E., cutting in abdomen. N. sleepless. On 2nd d. woke with pain in chest and spoiled taste; and had debility and rheumatic pains in nape and arms, muscular twitchings, throbbing in chest after a meal, with movements in intestines during digestion; sleeplessness at n. And so always after each repetition and increase of dose,—in the first hours rush of blood to head and gloominess, headache, pain in eyes, once spasm in œsophagus, transient oppression and pain in chest, bodily restlessness or slight nausea; in e. mucus in throat, rheumatic pains here and there, pains in ears, writhing, rumbling and movement in intestinal canal; on the following days pains in ears and eyes, muscular twitchings, rheumatic and bruised pains of hypochondria or in back, accumulation of mucus in throat. Constant pains in chest, especially in m., and restless nights, were standing symptoms for a long time. (*Ibid.*)

4. The following symptoms were observed by Stapf in a blooming robust woman of 24 (dosage not stated):—Flow of white saliva, with coppery taste (2nd d.); an existing leucorrhœa increased, and from bland become acrid and corrosive (2nd d.); she felt chilly all over, her teeth chattered, and she shook therewith; great dry heat in face and bright redness of cheeks, though feet were icy cold; mouth was dry and viscid, so that she could not speak, 8 p.m. (9 h.). (*Ibid.*)

5. The root, the stalk, the leaves and the flowers when chewed cause a burning pain in tongue, also pain in teeth and gums. If the leaves or shoots are contused and applied to the lateral part of each finger they soon cause itching and blisters, which end in obstinate ulcers. Slices of the root applied to the internal aspect of each finger cause after 2 m. burning; if they are kept on longer the burning increases; if they are removed as soon as itching commences the skin appears slightly reddened and the itching ceases; after 2 h. the redness increases and it itches; within 10 h. there appears a blister, full of water, in size proportional to the space on which the plant was applied; on opening the blister a quantity of thin yellowish viscid serum escapes, and the place heals slowly; the resulting ulcer is painful, and its discharge becomes puriform. The nodules of the bulb if bruised and applied to the interstices of the fingers for 4 h. cause little itching; if the plant is then removed the skin is not found to be altered, but after 20 h. a blister appears, full of water. This only occurs if the nodules are taken before the time of flowering; after that they may be left on the skin for a whole day without producing any effect. If the bulbs are boiled, the vapour of the water is acrid and irritates the eyes. A decoction of the shoots when swallowed causes twitching of lips with roughness, and after 4 h. a similar twitching in stomach. The expressed juice causes after 2 m. violent smarting of the tongue, sneezing, excoriation of nostrils; $\frac{1}{4}$ drm. of the juice mixed with $\frac{3}{4}$ ssij water causes after 4 h. slight sinking in stomach, thereafter tightness and rigidity are felt in all the muscles; the urine is greatly increased. (KRAPP, *Expér. de natul. Ranuncul. ven. quot.*, 1766, p. 68.)

Ranunculus sceleratus, marsh crowfoot, celery-leaved buttercup.

1. Proving.—*I. do.* Dr. Y— took, Oct. 16th and 17th, 2 dr. of tinct., fasting; on 20th, 3 dr.; on 25th and on Nov. 5th, 4; on 30th, 6; on December 19th, 12; and on Jan. 4th, 15 dr. (The greatest number of symptoms and the most disagreeable occurred from the small doses, the larger affecting him but little.) The following symptoms were observed:—Vertigo while sitting; vanishing of thought, giddiness (3 h.); heaviness and sense of fulness in whole head; head feels distended from within and enlarged; contraction in scalp; head feels as if in a vice; dull pain in occiput, whole head feeling painful externally (4th d.); drawing-clawing pressure over vertex; drawing stitching on skin of vertex; painful pressure as from a blunt instrument on vertex (5th d.); burning pain on vertex for a few m.; long-continuing, dull, pressive-gnawing pain on one spot of l. vertex; jerking in vertex region; pain as of a suddenly coming and speedily going gnawing on one spot in vertex; boring pain behind r. ear (5th d.); gnawing, with pressure, in r. temple; stitches in l. temple (10 h.); pressure in temples from within outwards ($\frac{1}{2}$ h.), same from without inwards; itching and biting in scalp. Slight drawing and sense of coldness above r. eyebrow, down cheeks to corner of mouth, for $\frac{1}{2}$ h., e.; feeling of coldness in face; sensation as if face were covered with cobweb (2nd d., e.); slight pressure in eyeballs and smarting in canthi, immediately, recurring periodically for several d.; burning of margins of lids (10 h.); stinging smarting of r. canthus ($\frac{1}{2}$ h.); pain of eyeballs when moving them quickly; hard blotch beneath r. eyebrow, which does not suppurate; long stitches and continued drawing and pressure in r. meatus and stitches in front of r. ear (2nd d., e.); oralgia of r. ear, with headache and drawing in all teeth; pricking externally at tip of nose. Drawing and tearing pain in molar teeth; stinging gnawing in incisors (2nd d., e.); transient jerking in same; stinging-drawing and drawing-jerking in all teeth; teeth are sensitive all 2nd d.; flying stitches in tip of tongue (3rd d.); smarting there (10 h.); flow of saliva ($\frac{1}{2}$ h.); white-coated tongue and sweetish taste in mouth, early, on several d.; uncommon dryness of mouth at n.; want of appetite in e.; little appetite at dinner, followed by a turn of nausea; frequent empty eructations immediately after taking drug, recurring for many d. in m. fasting; after eating, frequent eructations tasting of ingesta; rancid sour eructations, e.; hiccup ($\frac{1}{2}$ h.); stinging pains in soft palate; smarting-drawing pain in palate (3rd d.); burning in pharynx; nausea, especially after midnight; desire to vomit, recurring periodically in early m.; stitches in tonsils; swelling of tonsils, with flying stitches in same (e. of 2nd d.); heartburn; contractive feeling in throat, frequent in m. fasting, increased while eating bread; scraping in throat immediately; choking sensation in throat at n.; pressure and sense of fulness in pit of stomach, increased by external pressure, worst in m.; sensitive stitches in pit of stomach, or in skin over it; burning soreness behind aliphoid cartilage; troublesome sensation of fulness in stomach; constriction of stomach; rumbling and pinching in abdomen (immediately); cutting in intestines (2nd d., at n.); screwing pressure

behind umbilicus ar n.; sensation as if a plug were lodged behind umbilicus for several d., especially in m.; abdominal walls are painful; stitches in hepatic region; under r. false ribs continued pressure as of a dull instrument, increased by deep inspiration; sensitive stitches in region of gall-bladder; while walking in open air sudden violent jerks in lumbar region, arresting breathing; long stitches in splenic region, worse on deep inspiration; continual pressure in r. lumbar region; aching in groins; titillating burning in region of anus; delaying stool (after 2 dr.); three watery evacuations in rapid succession (5 h. after 4 dr.); frequent loose stools on one d.; nearly liquid and very foetid stools for 3—4 d.; frequent urging and loose stools for several d.; frequent sensation as if diarrhoea would set in, while only a natural evacuation comes. Sudden stitches in forepart of glans; drawing pains in penis; smarting about scrotum. Dry and hacking cough, rarely and without straining; tight and deep breathing (7 h.); sense of great weakness in chest for several d.; chest feels bruised in c.; oppression of chest immediately, continuing whole d.; whole chest feels weak and bruised (several e.); frequent involuntary sighing; frequent but slight stitches in r. chest (2 h.); painful shooting there, not increased by inspiration; continued dull shooting in l. chest below false ribs; stitches in region of heart; violent contractive pinching pain in chest behind r. nipple (several e. in succession); shooting-clawing in region of heart, making breath tight, n.; violent continued gnawing behind lower sternum, arresting breathing (3rd d., e.); long frequent stitches behind xiphoid cartilage, in space size of palm (1st d., m.); continued shooting in skin over throat-pit; great sensitiveness of integuments of chest; painful drawing and frequent stitches in pectoral muscles; itching stinging below r. nipple; very painful pinching together around l. nipple; external painfulness of sternum, pressure upon it causes painful stitches through chest; prickling and formication on chest and back; bruised pain in sacrum, paralytic pains there (6 h.). Itching betwixt scapulae; drawing in r. and stitches in l. shoulder; compressive drawing on scapulae; stinging itching in some parts of upper arm; paralytic drawing in forearm (immediately); stitches in forearm; long-lasting boring stitching all along l. forearm to tip of index, where it is most violent; stinging burning in one spot of forearm; gnawing in r. elbow, long stitch there; frequent stitches in dorsa of hands; continued gnawing in l. palm, e. (4th and 6th d.); transient drawing shooting in ball of r. hand; drawing with pressure in metacarpal bones of r. hand, boring in those of thumbs; swelling of fingers (2nd d.); titillating sensation in skin between fingers (immediately, and at 7 p.m.); aching in middle of l. middle finger; violent long stitch between l. middle and index fingers (5th d.); gnawing and boring in phalanges of r. fingers (7 h.); darting in l. index; gnawing and stitching-boring in last phalanges, with also flying stitches. Drawing-gnawing pressure in r. lower extremity; itching of legs, not relieved by scratching, e.; biting in ham; gnawing and boring pains in l. knee; painful drawing with pressure along leg; stinging burning in a small spot on calf; twitching of muscles of r. calf; gnawing on r. outer malleolus; prickling and furious smarting of soles, and of dorsum of r. foot, itching-stinging of

l. ; stinging boring in ball of r. foot ; gnawing on balls and (5th d.) in l. heel ; itching-prickling in r. heel ; stitching-boring pains along r. sole ; sudden stitches in forepart of r. big toe, as if a needle were thrust in deep, recurring at short intervals (1 h.) ; same after 10 h., passing into a burning ; boring and gnawing in r. big toe, tingling and jerking in l. (7 h.) ; itching stitches in l. toes ; intolerable itching and prickling in feet. Sleeplessness from 3 a.m. the first nights, with anxiety, uncommon debility, gloominess, brooding reverie of mind, limbs feeling bruised, in m. mind feels worn out, and he is not able to fix his thoughts upon one subject ; half-slumber after midnight, frightful anxious dreams about corpses, battles, serpents, &c., constant tossing about in bed,—this many n. in succession, head confused in m. Heat in head and face, c., when entering room on coming out of open air ; he wakes after midnight many n. in succession with heat over whole body and violent thirst, pulse full, soft, 80, afterwards sweat over whole body, especially forehead ; dry skin and mouth without thirst at n. (16 h.) ; chilliness while eating. Laziness, want of disposition to perform any mental labour, m. ; sad mood, grief, c.* (*Archiv*, vii, 3.)

2. Dr. SCHRETER took, May 8th, 2 p.m., a dose (amount not stated). After $\frac{1}{2}$ h. scrappy-scratchy feeling in throat ; frequent urging to urinate about every $\frac{1}{2}$ h. 5 successive times, only a small quantity of light yellow urine passed. After 2 h. the scratchy feeling becomes rather boring. After 3 h. drowsiness, eyelids inclined to close, it requires an effort to keep them open. After $3\frac{1}{2}$ h. urging to stool at an unusual time, but as he was prevented going, some flatus was discharged. After 4 h., on going to stool, to which he has an urgent call, only a little wind is passed ; occasional flying heat of face. After 6 h. tightness of chest, he must sometimes breathe deeply ; it is as if something lay on sternum ; heart's beats quickened, sometimes more, sometimes less ; eructation after taking bread and butter. After $6\frac{1}{2}$ h. confusion of head and slight pressure on both temples towards one another. Under r. shoulder downwards, sensation as if muscles were fatigued from prolonged upright sitting. Occasional shivering and thirst, and pressive pain from without inwards in forehead. Sleepy, discouraged, disinclined for work. After 7 h. weary in feet as after a long walk. After $7\frac{1}{2}$ h. tickling crawling sensation at orifice of urethra. Thick mucus in throat, difficult to hawk up. Pressing pain in both inferior tuberosities of occipital bone, going off when pressed, but returning. $\frac{1}{2}$ h. after falling asleep woke suddenly without cause, then fell asleep and slept soundly all n. After 15 h. on rising very cold feeling, especially from nape down back. Scraping in throat as if raw, with dry but rare cough which increases the sore pain ; he has to swallow repeatedly. Tongue furred white.—9th, 5.30 a.m., 10 dr. After $\frac{1}{2}$ h. pressure as from a blunt piece of wood on region of heart. After $\frac{3}{4}$ h. earache, transient nausea. In addition to usual stool, two others in a short time, softer than usual ; with the last some forcing in rectum. After 3 h., soon after urinating, burning pains in forepart of urethra. After 8 h. toothache,

* There are also several symptoms observed while expressing the juice, but as these simply denote local irritation we have omitted them.—Eos.

digging under some roots of lower molars as though they would be pushed out from below. Repeated yawning, discharge of flatus after a moderate meal. Pricking from r. temple to r. upper orbital border.—10th, 7.30 a.m., 10 dr. After $\frac{1}{2}$ h. urging to stool without result; scraping in throat as if sore. After $\frac{1}{2}$ h. pinching in belly, especially about navel, as from a chill. After 1 h. itching at anus and forcing out at it like piles, worse when walking. After 2 h. frequent micturition of scanty, light-coloured urine. After $3\frac{1}{2}$ h. hunger without appetite. After 5 h., after eating urgent call to stool, but only a little wind and some soft faeces passed after great straining. After 6 h. flying heat in face. After 11 h. feeling of hunger, with eructations, after eating. Itching and forcing in rectum for some h., &c. Itching under r. lower eyelid, relieved by cold. Near r. ala nasi a red spot the size of sixpence; it became white when pressed, which causes some pain. Some pricks into anus. After urinating some drops come out later and wet the shirt. Soreness in r. axilla. Moisture at anus. After 13 h. heat, particularly of face, with thirst, &c.; $\frac{1}{2}$ h. afterwards sweat with prostration. Disinclination for work, cross. Great distraction, destroys papers without knowing it, fidgets with fingers, forgetful. After 21 h. dryness in throat, m. Eyelids stick together, the white has a yellowish tinge and fine vessels visible.—11th. On the red spot on r. ala nasi a vesicle with some pain.—12th. Hemorrhoidal symptoms, especially itching in anus. (*Archiv*, iii, 3, 183.)

3. *a.* The leaves when chewed cause burning of tongue, lasting a long time, much saliva; if the chewing is persevered with, or repeated several times in d., the tongue becomes inflamed, excoriated, the papillæ red and elevated, very painful, fissures appear on tip of tongue, taste is lost, the whole anterior part of tongue feels rough, as if from an astringent; these symptoms are aggravated by all food. Teeth painful and on edge, gums red, painful, bleed easily when touched. These symptoms last 8 to 10 d., especially the loss of taste and astringent feeling on tongue.

b. If the whole flower is chewed the burning pain of tongue lasts longer.

c. If the leaves are crushed and applied to the sides of the fingers, after $\frac{1}{2}$ h. itching commences which increases gradually, the skin becomes red; after 12 h. blisters appear where the redness had been. The crushed flowers produce the same effect, only quicker. The blister, when opened, gives exit to a yellowish acrid serum. Beneath the blisters is a superficial but obstinate ulceration, which does not heal under 3 or 4 weeks.

d. The green plant, if pounded in a mortar in a confined space, irritates nose and eyes, causes sneezing and lachrymation.

e. The bruised leaves swallowed after dinner caused severe pains in various parts of abdomen, with faintness; the internal parts of the abdomen were affected with spasmodic agitations long continued, coming on about 4 h. after the drug was swallowed.

f. On taking 2 dr. of the juice after dinner there was burning all through œsophagus, and the spasmodic pain, even worse. The pain in œsophagus lasted 6 d., and was aggravated by salt food, wine, vinegar

or sugar in tea or coffee. (*KRAFF, Experim. de nonnullarum Ranunculorum venenata qualitate*, 1766, 14.)

II. *Proivings*.—1. SCHARF relates that two Italians, who had eaten the plant as salad, had pains in stomach, anxiety, inactivity of intestinal canal, distortion of eyes, twitchings in face and limbs, risus sardonius, cold sweat, and death. (*Ephem. nat. cur.*, dec. 3, ann. 2, obs. 87, p. 106, in *Wibmer, l. c.*)

2. TISSOT relates that a carrier applied the plant externally, and after a few h. large blisters rose, involving the whole arm, with fever, talking nonsense, cerebral inflammation, a kind of canine rabies; and at last mortification of the arm ensued. (*Épist. med.*, 317, in *Wibmer, l. c.*)

RHEUM.

Rheum palmatum, L. Rhubarb. Nat. Ord., *Polygonacea*.

I. *Proivings*.—1. HAHNEMANN, *Mat. Med. Pura*, vol. ii of original and of translation. Contains 194 symptoms from self and 5 others, and 14 from authors.

2. SCHNELLER began with 2 gr. of an aqueous extract, increasing dose daily by 2 gr., until at last he took 38 gr. at once. Total amount taken was 380 gr. After first doses he experienced chiefly frequent empty eructation (soon), and (subsequently) rumbling and twisting of bowels, tension and pain in r. umbilical region, with discharge of foetid flatus giving relief. Under the larger doses eructation and production of gas were somewhat less; on the other hand, tension in abdomen increased, and gripings set in after 5-6 h., sometimes relieved by pappy stools, sometimes going off gradually of themselves. On some d. 2 stools occurred, while on others, even when drug was taken, there was no evacuation, or at most a scanty hard one. When dose amounted to 6 gr. urine became scantier and darker coloured, its temperature increased, and smell was not disagreeably aromatic (not at all like that of rhubarb). Along with this was pricking and slight shooting in urethra. The dose of 26 gr. produced, besides increase of the above phenomena, feeling of indisposition. Soon after taking the subsequent doses there occurred disgust and nausea, oppression of stomach, rumbling in bowels, disagreeable pasty taste, frequent spitting of fine frothy white fluid, with diminished appetite; urine scanty, reddish brown, cloudy, and horter; stools rather increased, always pappy, never serous, with some tenesmus. At other times there was observed frequent palpitation and oppression of chest; pulse fuller and quicker, especially towards n.; irritable disposition. The last two doses of 36 and 38 gr. increased first-mentioned symptoms to a great degree. Actual vomiting would have occurred, had he not repressed it by a great effort; the distended abdomen was painful to touch; there occurred shooting pains in r. hypochondrium, termina in umbilical region; emission of flatus with relief; increased evacuations; dark urine. Besides these, general feeling of indisposition; shuddering; fatigue of limbs; tension in back; anorexia; confusion of head; excitement in vascular system; irritability of temper. These symptoms gradually disappeared; motions

became hard and unfrequent; urine remained for 2 d. of darker colour. In 3 d. all was normal. (*Wiener Zeitschr. d. k. k. Gesell.*, 1846, p. 400.)

3. In doses of 20—60 gr. Rh. operates, slowly and mildly, as a purgative, sometimes causing slight griping. It never inflames the mucous membrane of the alimentary canal. Constipation follows its cathartic effect. (*PARREIRA, op. cit.*)

4. The operation commences in 4—8 h. after medicine has been taken. The stools are loose, but not of watery consistence. (*PHILLIPS, op. cit.*)

III. *Experiments on animals.*—1. RÖHRIG finds that Rh., given to fasting dogs, greatly increases all the constituents of the bile, though it either fails to purge or purge very slightly; and Rutherford verifies this observation. (*RINGER, op. cit.*)

Acidum Chrysophanicum.—An organic acid derived from Rheum and some lichens, $C_{12}H_{10}O_6$.

1. *Proving.*—1. SCHROFF administered Chr. acid (obtained from the lichen called *Parmelia parvina*) in a dose of 8 gr.; this was followed by eructation of wind and repeated semi-liquid stools, which commenced 24 h. after the dose was swallowed, and continued to recur for 3 d., during which period there were also observed loss of appetite, fulness of head, giddiness, and dull depression. (Other observers have had negative results from such doses as regards intestinal tract.) (*PHILLIPS, op. cit.*)

2. Mr. ASHBURTON THOMPSON experimented with "Chrysarabin," by which name he designates the "Goa powder,"—"a substance found deposited in the wood of the trunk of *Andira oraroba*" (Brunton); and which (he states) contains 80—84 per cent. of Chrysophanic acid.

a. On reaching a dose of 6 gr. he experienced, after 4 h., nausea, accompanied and followed by sensations of disturbance in bowels, and even an abortive attempt at vomiting; then relief from all the symptoms. After 20 h. a loose stool followed.

b. His brother, having dined at 7, at 8.30 took 8 gr. in pill. Vomiting occurred after 2 h., and recurred after 3½ h., waking him from sleep.

c. He now gave it to 30 children and 60 adults, and found that in doses of 6 or more gr. for the former, of 25 gr. for the latter, it is an emetic purge, neither the vomiting being accompanied with depression nor the purging with griping.

d. He next experimented with Chrysophanic acid itself on 116 persons of all ages and both sexes, and found its action similar to that of Chrysarabin, save that if the dose be small Chrysarabin is most likely to purge alone, while the acid is most likely to cause vomiting only. It (the acid) is very uncertain in its action on children of less than 4 or 5. Whatever the condition of the patient, it causes the evacuation, one way or the other, of large quantities of bile.

e. The resin of Chrysarabin was then tested, and found to act similarly, but much more powerfully, so that 2 or 3 gr. are a full dose. (*Brit. Med. Journ.*, 1877, i, 507.)

RHODODENDRON.

Rhododendron chrysanthum, Pallas, Siberian rose. Nat. Ord., Ericaceæ.

1. *Proovings*.—1. WAHLB proved cinet. in doses of 5—30 dr. Reeling sensation in head, brain feels as if enveloped in fog; while talking he easily forgets his subject, and can only recall it by an effort; dull in head and inattentive; head feels confused, as if he had been up all n. revelling (24 h.); head feels wild and confused ($\frac{1}{2}$ h.); weight and oppression in head; whole brain is painful, as if pressed too hard against skull; incense pain pressing from within outwards in r. frontal bone; pressive beating in forehead, as if all would come out there, going off during rest (12 h.); pressive pain in l. temple; pressive drawing pain under l. temporal bone, outward pressing under r.; pressive sore pain in r. half of whole brain while sitting; shattering sensation in head while walking, as if brain were shaken from all sides, especially from above. Itching, pinching sensations about r. eyebrow; pressive pain in r. internal canthus, as from a grain of sand; shooting pain in r. eyeball, as from a red-hot needle going in and out; dilated or contracted pupils; buzzing in l. ear whole forenoon, loudest while whistling; pain in r. ear as if pressed aunder; a powerful stitch from within outwards in r. ear; pinching in skin of dorsum of nose. Dull shooting pain in hollow tooth; greenish coated tongue with bitter taste, putrid bitter taste, taste as of straw, sourish, or simply bad; risings of oppressive wind after dinner, causing burning through whole chest and back to dorsal vertebræ; nausea, as from an emetic, with inclination for stool; violent splenic stitches, arresting breathing, in r. at rest; constant borborygmus; rumbling in abdomen after eating and drinking, followed by painless diarrhœa; pinching colic followed by a thin evacuation; abdominal integuments are painful, as if he had received repeated blows on them; intermitten stitches over l. crista ilii, from without inwards; so soon as he gets out of bed in m. diarrhœa comes on; stools always look fermented; diarrhœa which does not weaken; a sort of hientery; brown pappy stool; stool leaving corrosive sensation in rectum; pappy stool, 20 h. after usual time; crampy pain in rectum, as from incarcerated flatus (10 h.); shooting pain in rectum, extending to just below ribs (10 h.); crawling in anus, as from acarides; pinching jerking in glans during rest and movement; itching crawling under prepuce; urine clear, with greenish tinge; hot urine; urine cloudy after a while; diminished secretion of urine. Scraping in throat, with sensation as if tenacious mucus were hanging in the trachea which he could not get up; tickling in throat exciting cough; dry cough early in m.; he hawks up a quantity of white tenacious mucus; painful shooting on l. side under ribs, extending to dorsal vertebræ (at rest); shooting pain in middle of l. breast, felt as far as under l. scapula, and increased by motion and by turning to r.; anguishing pressive burning pain in chest, under ribs, not impeding breathing (44 h.); beat of heart stronger and more perceptible; oppression of chest. Beating pain along and beneath l. clavicle; m. in bed paralytic rheumatic pain

in r. shoulder, on which he lies, sometimes extending below elbow, going off on turning to other side (19 h.); at similar time, on turning, pain as from sprain or chill in l. scapula; when bending to r. and backwards, he felt as if a knife had been plunged through l. chest to back; violent pressive drawing pain about r. scapula, waking him from morning sleep, and going off gradually on turning to opposite side (36 h.); pressive pain to l. of lumbar vertebræ while at rest; shuddering sensation in lumbar vertebræ while sitting; pressive sacral and dorsal pains; anguishing sacral pains while sitting, going off on movement; sacrum painful while sitting, as if from too long stooping or lying on back. Pain as from strain in r. hip-joint while walking; some painful stitches on l. thigh, both in movement and at rest; knees threaten to break on going downstairs; on rising in m. legs (especially l.) do not feel rested, it is as if he had taken a long walk the previous d.; tearing stitches on outer side of l. thigh while at rest; pain in r. knee, as if part were sore internally, or as if he had received a blow on its inner surface; knees threaten to break, after the siesta, at same time he is indifferent and low-spirited; weariness and uneasiness in legs, as if he had over-walked himself; in r. sole a small painful spot, as if a corn were there; drawing pain all along r. upper arm; violent pressive pain, as if in periosteum, on inner side of l. upper arm; pinching pain at promontory of elbow; clawing sprain-pain in wrists; painful weariness in l. wrist, felt only at rest; on small spot of metacarpal bones painful sensation as if an exostosis would form; convulsive pains in l. phalangeal bones; paralytic pain in l. thumb; sprain-pain in r. thumb for several d.; drawing, paralytic pain, now in one, now in another finger, now in metacarpal bones, now in forearm. Tottering gait, as if he had been long ill (4 h.); sensation over whole body, as if he had strained himself. He wakes early at the same time for several m. in succession, and cannot sleep again, his limbs feeling so strangely that he must stretch and toss about; sleep not good, he must toss about all n. from uneasiness in legs; trembling of arms and legs at n.; dreams about fire, he remaining indifferent. Chilliness over whole body, especially m. in bed; feels chilly all d., least breath of air makes him shiver; as soon as he enters room from open air he experiences a feeling of warmth and anxiety in upper part of body. (STAPP'S *Beitrag*.)

2. *σ.* HENKE took tinct., 5 doses, of 6, 12, 12, 24, and 12 dr. respectively. Vertex pains on touching as if ulcerated; oppression of head, especially in frontal region, with pressive pains in l. temporal region, both relieved for a time by laying head on table, and disappearing on moving about in open air; tearing boring pain in l. temporal region; some short violent stitches in same (10 m.); scalp is painful to touch. Pimples on l. side over outer part of eyebrow and under r. corner of mouth, painful when touched; pressive shooting pain around l. orbit, with spasmodic closure of lids of l. eye; dampness of eyes and agglutination of lids; burning in eyes when looking at sunlight before getting up in m., also when looking intently at an object; r. eye has burning pain and its sight seems dim, e. while reading. L. nostril obstructed near root, with sore pain in r., and sense of accumulation of mucus in open air. Dry and burning lips; frequently recurring grumbling and

tearing in anterior molars, now upper, now lower, now r., now l.; contractive sensation along l. splanchnic duct (2nd d.); burning on tongue during inspiration; scraping and scratching in throat, it feels as though lined with mucus; empty eructations; gulping up of small quantity of bitter tasting fluid; pressive pain in stomach on stooping, and on pressing hand into part; pinching in epigastrium; pain in hypochondria as from incarcerated flatus; borborygmi; painful distension of abdomen; some penetrating stitches in abdomen; soft stools, but sluggish, only passed with effort; retention of stool. Violent shooting in r. testicle, as if it had been sorely bruised—in e. while sitting, going off on movement, but returning when sitting down again; burning before and during micturition. Oppression and constriction of chest, with pain on bending body. Pain in sacrum, becoming intolerable on stooping. Weariness of muscles of r. thigh while walking; fine tearing deep in knee, as if in bones, at rest and when flexing joint; outer border of r. great toe excessively painful, at rest; in l. arm feeling of weight and lassitude, as after excessive effort, going off on moving it; fine tearing as if in periosteum of r. arm and elbow, only when at rest; itching, which compels scratching, on e. middle and ring fingers, with erysipelatous redness (7th d. and later); coldness of 3 middle fingers, r.; violent pain in middle joint of l. little finger, impeding its movement. A short walk fatigues him much, and makes all limbs feel as if bruised; frequent yawning without weariness. At 6 p.m. great heat of head with cold feet (no thirst), intolerable outward-pressing headache, burning in eyes, dryness in nose and burning heat there on inspiration, lassitude and bruised feeling in limbs with depression of mind,—n. was restless, almost sleepless, from vivid dreams and dry heat of body, towards m. he slumbered a little, and then a slight general sweat broke out, which alleviated his troubles (this fever returned for the two following e., but in lesser degree). Gloomy mood, indifference to everything.

d. Same took, first 10, then 20 dr. of 6th dil. Continued fine drawing-tearing close to os frontis, feeling like forcing and pressure, increased by wine ($\frac{1}{2}$ h.); continued pressive pain on l. forehead, spreading to temple, similarly aggravated ($\frac{1}{2}$ h.); itching of scalp, as from vermin, for several e. Burning and dry feeling in eyes, especially in e. (5th d.). Tickling in l. meatus aud., which boring with finger changes to pain, for an h. Soon after taking drug, obstruction of l. nostril high up, alternating during d. with similar feeling in e., lessened in outer air. Same toothache as before; burning at back of mouth as if catarrh would set in (30 h.); empty eructations; gulping up of rancid fluid, irritating throat; appetite very good, but soon satisfied (2nd—4th d.); contractive pressure in scrob. cordis with dyspnoea, on several e. while walking; feeling of fullness, weight, and distension in abdomen, especially m. in bed and e., with borborygmi, and much empty eructation and emission of flatus (10 m.); occasional feeling of qualmsiness, as if diarrhoea would set in (10 m.); stools as before. In r. testicle and spermatic cord drawing-stitching pain, going off on movement,—pain was sometimes like a needle-thrust, and spread in zigzags to perinæum and anus, lasting some seconds, and arresting breathing

(6th d.) ; a few drops come out still after urinating, causing burning in urethra and shuddering through whole body (2nd d.) ; want of usual m. erections for several d. Fine tearing pain at lower end of sternum ; pain in nape, as if tetanised ; sacral pain, with fine drawing tearing, as on bone (20 m.). Fine tearing on r. knee, diminishing on movement (4th d., on 5th spreading to shin-bone) ; pains in feet as from old chilblains ; pain in muscles of upper arm, as after excessive exertion (1st d.) ; fine tearing deep in bones, from r. elbow upwards and downwards along back of arm. Itching and gnawing at different spots on body, several e. on going to sleep. Ice-cold feet in a warm room, especially in e., they cannot be got warm in bed, and frequently disturb sleep (3rd—6th d.). Peevishness without apparent cause. (*Ibid.*)

3. *a.* HAZZOG took 5 doses of tinct., 10, 15, 20, 30, and 50 dr. respectively. Dizzy feeling while writing, going off in open air (2nd d.) ; oppression of head immediately on getting up (2nd d.) ; head feels oppressed and dreary as after a debauch (1st d.) ; on waking, head oppressed, with obstructed nose and roaring in ears (6th d.) ; beating headache (2nd d.) ; dull headache (11 h.) ; flying stitches in l. head (3rd d.) ; tearing pain in r. head (5th d.) ; throbbing pain in r. head (8th d.) ; pressive headache in vertex (10th d.) ; dizziness and oppression in forehead ; pressive pain in forehead (8th d.) ; pressive pain in l. forehead (1 h.) ; throbbing feeling in l. frontal region (2nd d.) ; several painful pustules on forehead. Twitching of r. upper eyelid (9 h.) ; sensation as of gauze before eyes (2nd d.). Feeling in l. ear as if a worm were creeping in it (2nd d.) ; twitching pain in l. ear and temple (7th d.) ; throbbing feeling in l. ear (13th d.) ; tearing sensation in r. ear and its neighbourhood (2 h.). Nose stopped (l. nostril) several m. in succession. Altered smell and taste, all things seeming the same ; painless eruption at l. corner of mouth (8th d.) ; accumulation of saliva in mouth, with nausea ; pressure in stomach after drinking cold water (8th d.) ; unpleasant creeping sensation in region of stomach ; pressive pain in scrob. cordis, n. in bed (1st d.) ; continual pressive feeling in scrob. cordis, before, during, and after food (1 h.) ; shooting pain in r. hypochondrium, e. (12 h.) ; grumbling in stomach (soon) ; several pappy evacuations in d., prover being generally costive (4th d.). Some flying stitches in urethra after micturition (1st d.) ; swollen testicles, hitherto painless, enlarged to size of a hen's egg (especially l.), with stitching and tearing pains in both, brief but acute (2nd d.) ; after this the swelling, which had lasted for years, subsided* ; brownish-red urine, with offensive smell (2nd and 3rd d.) ; continual violent sneezing with heat of face on rising in m. (9th and 10th d.) ; dry coryza, with frequent sneezing (8th d.) ; fluent coryza, with diminution of smell and taste, lasting 14 d. ; fatiguing dry cough, m. and n. (12th d.) ; scraping dry cough (12 h.) ; scraping cough with mucous expectoration, hindering sleep—several d. in succession. Violent tearing in r. shoulder for several e. while in bed, disturbing night's rest ; drawing, then tearing pains in r. knee, lasting several h., n. in bed (1st d.) ; twitching feeling in r. knee (3rd d.) ; tearing pains in r. tibia (8th d.) ;

* This was after the 50 dr. dose.

tearing in r. foot, especially in outer malleolus (6th d.); fine drawing and starting in r. arm and l. hand (4 h.); shooting pain in r. arm (2nd d.); pain as if r. arm were dislocated, so that only with difficulty could he hold anything in that hand, lasting all (5th) d.; several painless pustules on r. forearm (8th d.); tearing in forearm (2nd and 4th d.); twitching pain in l. forearm (6th d.); weak and paralytic feeling in same (2nd d.); flying stitches in r. wrist (2nd d., e.); while walking in open air violent tearing pain in l. wrist (5th d.); drawing pain in l. wrist and r. leg (8 h.); paroxysmal tearing in r. hand (11th d., e.); paroxysmal starting and tearing on outer side of r. hand towards l. finger (2nd d., e.); violent tearing pain in r. hand, especially in thumb and index (8th d., e.); itching feeling in l. fingers, compelling scratching, whereupon follows burning, which soon goes off after washing with cold water (7th d.); continued jerking pain in l. fingers, especially little one (5th d.); fine sharp stitches in l. index, e. in bed (4th d.); twitching in l. index (2nd d., e.). Erratic tearing pains in limbs (7th d.); slight drawing and jerking sensation in whole body, now here, now there, but especially in joints, returning at indefinite periods and continuing for upwards of a fortnight. Drowsiness in afternoon, which he is scarcely able to resist; very sleepy all d. (1st d.); restless sleep, disturbed by unimportant dreams (1st n.); anxious dreams, as of fire (12th n.); increased warmth in hands, ordinarily cold (3 h.); sweat on lower extremities in bed (towards m. of 2nd d.).

8. Same took 1 dr. of 3rd dil. Oppression and weight of forehead immediately on getting up (5th d.); continual buzzing in ears, and feeling as if water were rushing into them,—loud sounds re-echoing for a long time afterwards (4th and 6th d.); nausea with pressure in region of stomach (24 h.); brownish-red urine with offensive smell (2nd and 3rd d.); tearing drawing in r. leg (11th d.); sleep full of dreams, more weary on rising than when lying down (3rd d.) (*Ibid.*)

4. HELBIG proved doses of 20—60 dr. Paroxysms of vertigo (2nd d.); reeling sensation in head, as if intoxicated (immediately); burning stitch through head (1st d.); oppression in forehead, on movement pain there; pustules on forehead; hard-pressing pain in l. temporal region, as if in bone; transient biting here and there on scalp (2nd and 3rd d.). Burning and pricking in cheek under r. eye (1st d. and at times long after); l. upper lid twitches frequently for some time. Bright red spot on nose, sensitive to touch, and lasting several d.; pricking biting in cheek during several d., coming suddenly and soon passing off; drawing stitches from l. submaxillary gland to cheek (3rd d.). Drawing and shooting pain in 2 l. back teeth, which will not bear touching; a tearing sharp-aching pain in upper back teeth, increased by warm food and by staying in a warm room (e. of 1st d.); pricking and biting in front teeth; the approach of a thunderstorm or of cloudy windy weather is always preceded (by 1—2 h. or several h. respectively) by pain between drawing, pressure, and cutting in teeth and ear; for whole n. pain in l. lower jaw and teeth, and in l. ear, also (but less severely) on r. side, now relieved, now increased by pressure; pain as if swollen and sore between r. gums and cheek (2nd d.); at side of root of tongue a painful, somewhat swollen spot in mouth; nausea, accumu-

lation of water in mouth, and inclination to vomit; quickly passing dull pain from chest to l. hypochondrium, like "stitches in the side" (1st d.); warm undulations in region about heart; fruit diet causes diarrhoea and weak feeling in bowels; in walking he feels qualmish, and has to keep seated; disposition to diarrhoea returns in damp weather (3rd d.); faeces hard, and requiring strong pressure for expulsion. Rather dry cough, from hoarseness, early in m.; contractive pain in chest; oppression of chest during sleep, a sort of nightmare; pain in pectoral muscles, increased by touching (1st d.); pain in cervical muscles (1st d.); pain in sacrum, as if bruised, increased at rest, especially violent in rainy weather (1st d.); transient pains in legs (also fingers), rather dull, a hard downward pressure (1st and 2nd d.); lower limbs fail him, he feels he must sit down (1st d.); pain in tendo Achillis when putting feet to ground; sharp clawing pains in ankles; pains in limbs, especially in forearms and legs to fingers and toes, going off quickly and like a crampy drawing. Pricking here and there in skin; drawing as if in marrow, increasing in bad weather; painful sensitiveness in windy cold weather (several d.). Aversion to all, but especially serious occupations. (*Ibid.*)

5. SINDER took 3 doses, of 10, 20, and 20 dr. respectively. Whole head feels dreary, with pressure in forehead ($1\frac{1}{2}$ h.); violent drawing-tearing pain in forehead extending to temples and eyes, especially when moving about room (1st d.); deep in r. occiput a pressive pain with paroxysmal drawing upwards (1st—3rd d.); violent pain in same as if a foreign body had been forced into it (10th d.); itching on scalp, compelling scratching, on which it becomes burning (several e., diminishing). Drawing from l. half of face into eye, leaving pressure therein ($\frac{1}{2}$ h.); swollen, slightly reddened lids (1st d.); feasting lids for first nights; early in m. burning and pressure in inner corners of eyes, with increased secretion of gum there (2nd d.); slight burning and pressure in eyes; burning pain in eyes, heat and redness there while reading or writing; periodical biting pain in r. eye; r. pupil very dilated, l. contracted, with pressure in l. ball (1st d.); periodical boring or drawing pain in and about ears (1st days); troublesome dryness in nose (8 h.); obstructed nose in m. (1st days); unwonted nasal secretion in open air (1st days). Drawing in l. back teeth (1st d., and frequently recurring later); quickly passing pain in single teeth, returning especially in damp weather or before a thunderstorm; sourish-tasting and somewhat augmented saliva (early on 1st days); while swallowing food pain at back of throat (e. of 1st d.); after eating bread burning in throat and yawning (1st and 3rd d.); somewhat increased thirst; nausea during stooping, diminished by eructation (soon); sharp pressure in scrob. cordis, 1 h. after dinner (1st and 2nd d.); pressive clawing pain in scrob. cordis, sometimes spreading into both hypochondria and impeding respiration (2nd d.); deep in scrob. cordis a continued pressive pain with alternate drawing and dull stitches along edge of short ribs, frequently increasing to oppression of breathing, anguish, and heat in face, especially p.m. while standing (3rd—5th d.); sometimes fine, sometimes dull stitching superficial pain, with pressure here and there in scrob. cordis and short ribs, especially on l. side (3rd and 4th d.);

periodical clawing pain under short ribs; early in m. urging and clawing pain under short ribs, with full feeling in scrob. cordis and oppression of breathing (1st d.); in l. hypochondrium a fast-seated pain, with tension on stooping (1st and 2nd d.); after supper, pinching pain across epigastrium (6th d.); after eating, first a cutting, then a pressive pain in upper abdomen (2 h.); the usual breakfast causes disagreeable feeling of repletion in abdomen, relieved by eructation ($\frac{1}{2}$ h.); slight digging sensation in abdomen, with fulness of same (soon); flatulent griping at various spots in abdomen (1st days); incarceration of flatus in m., fasting; drawing from l. groin into l. thigh (1st and 2nd d.); drawing pain in r. and (slighter) in l. inguinal ring while sitting, on walking a tension there (5th d.); frequent ineffectual urging to stool, succeeded by a paupy evacuation (1st and 2nd d.); urging to stool, as if diarrhœa would follow, then comes only a normal evacuation, but requiring much expulsive action (1st, 2nd, and 3rd d.; on latter days power of sphincter felt lessened); after stool first empty feeling, then pinching in abdomen (2nd d.); throbbing pain in anus (1st and 5th d.); biting pain in anus, with flow of a little humour (4th d.). Burning sore pain between scrotum and thighs, especially while walking (1st days); throbbing pain in glans penis; occasional twitching at urethral orifice between acts of micturition; itching and increased sweat on scrotum (1st—3rd d.); scrotum readily shrinks up, especially while walking and standing, or from cold, testes somewhat drawn up, swollen, and painful as if bruised, alternating with drawing there, very tender (as also epididymis) to touch,—pain extends into abdomen and thighs, especially on r. side (for several d.); urging to urinate, with drawing in vesical region and groins (2nd d.); the somewhat profuse pale urine has an offensive acrid odour (2nd and 3rd d.); sexual desire and power at first diminished, later increased. Several sneezings with nasal flux (1st d.); great dryness in trachea (m. of 2nd d.); several attacks of dry cough, excited by tickling in trachea (1st d.); scraping rough feeling in throat, with sense of weight, which obliges him to hack frequently (1st d.); pressive pain in chest with dyspnoea (3rd d.); squeezing pain through chest transversely (5th and 6th d.); anxious bubbling sensation from abdomen, impeding respiration; tense feeling in pectoral muscles with same result; whole thorax feeling strained and bruised (1st days); periodical pinching pain in chest externally, especially when moving about indoors (1st d.). Painful feeling as if neck was swollen (6 h.); tense rheumatic pain in c. neck externally, with drawing to behind ear (4th d.); stiffness of nape and tearing in shoulder, m. in bed (3rd and 4th d.); in r. shoulder-joint violent throbbing drawing pain (5th d.); in l. shoulder-blade rheumatic drawing pain (2nd d.); rheumatic pain between scapulae, hindering movement (8 h.); m. in bed digging, drawing pain in back, shoulders, and arms, hindering sleep, with bruised pain of whole body (2nd—4th d.); several large pustules on back and shoulders (2ch d.); sacral pain while sitting; dislocation pain in sacrum. While lying on r. hip digging pain in same (2nd d., e.); contusive pains occasionally in some of the muscles of the lower extremities while sitting (3rd d.); weakness and heaviness in whole r. lower limb (4th d.); pain as if sprained in r. hip-joint while walking

(4th d.); painful drawing in r. thigh (5 h.); cold feeling with goose-skin on several spots in lower limbs; while rising from sitting posture feeling of coldness and rigidity in thighs (1st d., e.); weight in thighs when commencing to walk, diminishing as he goes on (1st d.); itching on inner surface of thighs and small red blotches; tensive pain on inner surface of r. thigh (1st d.); on same several dark red blotches, occasioning a sore pain when walking (4th and 5th d.); tensive sprained pain in r. knee on bending it (16th and 18th d., in rough weather); drawing in r. knee while at rest, in hollow of same while walking (1st d.); drawing along front surface of leg (5th d.); feeling of rigidity in l. leg, with slight creeping therein (2 h.), formication alone there after 3 h., and 10 h., in l. foot after 1 h.; shooting creeping (as from "going to sleep") in r. foot and hand (2½ h.); unpleasant tingling in feet, especially balls and heels (2nd d.); sudden stitch darts through l. heel (2½ h.); dull pain in r. heel (4th d.); drawing digging pain in joints of upper extremities, especially l., at rest (1st and 2nd d.); weight and tremulous, paralytic weakness in r. arm, at rest, lessened on movement (4th d.); crampy contractive pain in l. arm, with paralytic feeling, so that only with difficulty can it be raised (3 h.); drawing in upper arm (1st d.), pulsation there (6th d.); drawing in muscles of l. upper arm, with weakness of whole arm (2nd d.); drawing pain all down l. upper arm (1½ h.); sharp stitches from deep in l. upper arm (5th d.); drawing in r. elbow (1st d.); feeling in forearms as if blood therein stagnated, with weakness and heaviness of limb, especially at rest,—therewith veins of hands very prominent, a pleasant warmth spreading through hands and pricking sensation felt in single fingers, as if "gone to sleep" (several times); pain as if strained in wrists, with increased warmth; digging drawing in wrists, very painful, and increased warmth in hands; considerable digging up and drawing in wrists, especially at rest (several times during rough weather); during and after movement of wrists strained pain in them; continued pain in l. wrist drawing towards hand, with impeded movement (10th d.); puffiness of hands (2 h.); feeling of heaviness and debility in hands, with frequent drawing on single small spots in bones (1st d.); sudden formication in single fingers or other places in hands and feet, continuous in r. thumb; roused from sleep at n., by continued painful itching between index and middle finger of l. hand (17th d., rough weather); first numbness, then formication, in r. little finger (7th d.). Creeping sensation in limbs (especially arms), making them restless, while quiet, obliging him to move them (several times, especially in rough weather). Great weariness and bruised feeling of whole body (1st d.). Great drowsiness with burning of eyes, p.m. (1st and 2nd d.); speedy, deep, calm sleep at first, but towards m. frequent waking and tossing about (2nd and 3rd d.); contrary to his habit, he lies in bed on his back, with legs crossed. Cold feet (1st d.); cold feeling along thigh from l. knee (2nd d.); paroxysmal burning heat in face (e. of 1st d.); hands, especially tips of fingers, feel hot, with visible sweat (½ h.); slight dampness of lower extremities, m. in bed (1st days); increased and foetid sweat in axilla (1st hours); when walking in open air he sweats very readily and feels tired. Forgetfulness and sudden vanishing of thoughts, he omits words in

writing; indifferent, phlegmatic mood, neither pleasant nor unpleasant impressions affect him.

b. The following symptoms also appeared, but after a glass of wine had been taken on the previous d., they being bracketed accordingly: M. in bed, pressive headache, so severe as almost to deprive him of his senses, with feeling as if whole brain were full of lead, relieved on getting up; therewith dull drawing pain over l. eye. (*Ibid.*)

6. a. O—* took, under Seidel's observation, 10 dr. of tinct. early in m. In $\frac{1}{2}$ h. considerable dryness of lips and whole mouth, and prickling sensation on tongue; in 1 h., flat, bitter taste, general warm feeling, and slight sweat over body; for some d. pappy stools with tenesmus, and urging to urinate.

b. Took 20 dr. at similar time. In $\frac{1}{2}$ h. again dry lips and mouth, and horborygmus; in 1 h. the warmth and sweat, stitches in uvula; in 3 h. violent congestion to chest, returning for 2 d. in greater or less degree; in 8 h. considerable feeling of weakness in r. arm, with prickling in tips of fingers; in 17 h. violent boring tearing pain in l. shoulder-joint, with "going to sleep" of arm, and prickling in fingertips,—it recurred for several d., as did pappy stools with tenesmus. On 7th d. boring throbbing pain in r. shoulder-joint, and in cavity of r. tibia. There was same frequent desire to urinate. (*Ibid.*)

7. A— took 10 dr. in e. under same. Shortly after, much and continuous nausea, with inclination to vomit; and, while lying in bed, vertigo, as if head would sink back deeper and deeper into pillow, with anxiety,—this recurred more slightly the 2nd e. Next m., periodical burning in eyes, which, however, are not inflamed; sourish, saltish taste in mouth; she feels nausea on swallowing saliva; during d., oppression of head, with drawing in eyes, increased in open air; increased nasal flux; the menses, which had ceased 2 d. ago, reappear. 2nd d., same taste, &c., in m.; diarrhetic evacuations; violent drawing from rectum to pudenda; in e., humming and ringing before ears (felt also soon after taking medicine). 3rd d., some increase of nasal mucus with obstructed nostrils (also on 4th d.); small vesicles on inner surface of lower lip and below tongue, occasioning biting pain while eating; paroxysmal drawing pressing pain in upper abdomen, with nausea; loose stool with much pressing. 4th d., violent drawing pain in r. lower teeth, going off after eating; very costive. In rough weather, 17—18 d. later, she had acute drawing in ankle and leg, and also along r. arm. (*Ibid.*)

8. SCH— took 24 dr. in e. under same. In a few m. a pleasant warmth spread all over body. In $\frac{1}{2}$ h., moderate epistaxis from l. nostril; painful pressive feeling in metacarpal bone of l. index finger. In 5 h., flying dull stitches in l. side of head and whole l. arm. Profuse sweat that n. 2nd d., e., sudden painful shooting at urethral orifice. 5th and 6th d., headache as when coryza is impending, and shooting there, especially in forehead. In rough weather, strain pain in r. wrist, worse at rest, but hindering movement. (*Ibid.*)

9. [The following symptoms are simply referred to the source mentioned, which is inaccessible, without explanation as to how they were obtained.] Vertigo, as if

* No description given of this or two following proven.

one would fall hither and thither, as from strong tobacco; violent drawing in l. or fronts, followed immediately by a cold shudder across face, pressive pain in same, as if with the thumb, tension in same; slight cold creeping in upper half of temporal region; pressure in temporal boxes. Much saliva in mouth; tasteless eructations; pinching in umbilical region after eating; weight and sluggishness in abdomen, nor as if from food there; pressive pain in l. lumbar region. At urethral orifice a brief but acute pain, independent of micturition. Tensive pain in muscles of l. neck, even during rest; shocks across lower part of spinal column, or rather single continuous pressure as from a blunt point. Cold bubbling sensation in knees; trembling of hands during motion and rest. Warmth in face and over body even to thighs; slow pulse. (*Prakt. Mittheilungen*, March, 1817; from Allen.)

10. LEMBEKE took, March 23rd, 7 a.m., 10 dr. tinct. No symptoms.—30th, 9 a.m., 30 dr. No symptoms.—April 14th, 7 a.m., 50 dr. Noon, much normal urine passed. 7 p.m., pressive pain in l. thumb-joint, worse when moved, lasts several h., until e., and all next d. 5 p.m., pressure in l. big-toe joint repeatedly. (*N. Zeitsch. f. hom. K.*, iv, 197.)

11. The following symptoms have been recorded by various writers as results observed from overdosing with Rh., chiefly in arthritic subjects:—Vertigo; same with sopor; stupefaction; dulling of senses; a sort of intoxication; dreary sensation in head; headache; lachrymation; itching in eyes; itching and creeping in nose; dryness of mouth; burning and constriction in fauces; thirst; nausea; vomiting; pain in stomach; diarrhœa; diuresis; oppressed breathing and suffocative sensation; formication and disagreeable sensations in gouty limbs; insensibility and paralysis of limbs; itching and pains of all sorts; eruptions; convulsions; drowsiness; restless sleep; sweat of aromatic or offensive odour, with itching and formication; slackened and weakened pulse; frightful visions; attacks of anxietas; mental derangement, a sort of delirium. (STAFF, *op. cit.*)

RHUS.

Including *R. glabra*, *R. radicans*, *R. toxicaria*, L.; and *R. venusta*, D.C.
Nat. Ord., *Anacardiaceæ*.

Rhus glabra, smooth sumach.

I. *Proving*.—1. Dr. A. V. MARSHALL proved a tinct. of the bark—1 lb. to Oj. July 14th, 1865, took 30 dr. at 6 a.m., and 60 dr. at 9 and 12. Dull aching in forehead and vertex was felt shortly after each dose, and after last two pain about navel; p.m., diarrhœa, increasing in frequency and severity towards e., when there was also great fatigue of lower limbs, which was painful on lying down. He slept well, and woke refreshed, with dull, heavy headache, dispelled by exercise. 15th.—6 a.m., 90 dr. Cutting pain in umbilical region for a few m., also fulness and pain at top of head. 9, 120 dr. Pain in head and bowels constant. 2 p.m., 120 dr. Pressing pain in head continues; sensation of great fatigue p.m., increasing in e. No stool to-day. Sleep at n. disturbed by annoying dreams. 16th.—Woke with severe headache and great fatigue. Stool, first part hard and dry, latter soft and moist; pain in bowels; no appetite. At 6 a.m. and at noon 120

dr. Symptoms continued unabated during d. N. disturbed by distress at stomach; dreams of flying through air; profuse sweating. 17th.—Took no more medicine on account of exhaustion, fatigue and pain experienced. Stool as yesterday. During this d. headache and pain in stomach continued, latter aggravated by either food or drink. There was also sense of hunger; tenderness on pressure at umbilical region; scanty, high-coloured urine; pulse 88, skin hot and dry, thirst; tongue white-furred; stupidity, weakness of memory, indifference; pain in small of back; profuse sweats at n. He had lost 2 lbs. in last 3 d. 18th.—Symptoms continued; back still more painful. Flat, alkaline taste in mouth; hæmorrhage from l. nostril and from mouth; sense of coldness, while skin feels hot; aching of lower limbs. 19th.—Expelled two clots of blood from throat soon after waking; bloody scabs in l. nostril. Headache till breakfast, and a little p.m. Hungry at breakfast, but could eat little; tongue same; pulse 86; urine less deep; stool in m. as before, another—hard and dry—in e. Pain in back and legs continued. Distaste to society; no desire to speak or be spoken to. 20th.—Stool nearly normal, and all symptoms ameliorated, save that l. nostril was hot and dry, and bled freely three times. Also several small ulcers in mouth opposite bicuspid. 21st.—Very profuse sweat last n.; buccal ulcers very sensitive; general debility, pressure in vertex, and cutting abdominal pains continue. Symptoms now subsided; but ulcers in mouth continued for several d., and the largest of them had to be touched with chloride of zinc before it would heal. (HALL, *New Remedies*, 2nd ed.)*

Rhus radicans, poison-ivy or -vine.

Rhus toxicodendron, poison-oak.

[There seems no real distinction between these two, and most of the observations of Rhus poisoning belong to the *radicans* variety.]

1. *Provingr.*—I. HAHNEMANN, *Mat. Med. Pura*, vol. ii of original and translation. Contains 976 symptoms, from self, 9 fellow-provers, and 16 authors. [It is here described as "R. radicans or toxicodendron."]

2. 2. Dr. JOSLIN, March 9th, 1846, took 3 glob. of 3rd pot. of Rh. radicans. 3 m., burning in throat; 6 m., burning and smarting of tongue, with (7 m.) flow of saliva; 8 m., mucus in throat and posterior nares; 15 m., pressive pain in r. chest, and in l. lumbar region, with nausea; 17 m., pain at middle of l. radius (recurring at 28 and 35 m.); 18 m., pain under r. scapula (recurring at 21-2 m.); 24 m., rheumatic pain in l. shoulder and deltoid; 25 m., pain in l. thigh; 30 and 35 m., pain in r. wrist; 35 m., pain in ascending colon; 38 m., pain in middle joint of l. index; 40 m., pain in metacarpal joint of l. index and in middle of r. upper arm; 41 m., pain in l. forehead; 43 m., pain in middle joint of r. ring finger; 45 m., pain in l. chest. On same d., having dissolved 7 pellets of same in as many teaspoonfuls of water, he took a teaspoonful every m. from 12.42 p.m. In 3 m. after commencing it, nausea and great disgust; 12.56, pressive pain in l. occiput and pain in l. chest (latter also 4 and 7 m. later); 1.5, pain in middle of l. ulna; 1.30, pressive pain 2 in. to r. of mid-sternum;

* The smooth sumach does not cause poisoning by contact or emasa.iods.

2.15, pain above l. tendo Achillis when walking upstairs; 3.8, pain in rectum when urinating; 4, itching in l. calf while walking. 10th.—Transient pain in rectum. [After this practical absence of symptoms on and d., a number are reported as occurring during the next 9 d.; but as they begin with a bad nightmare on 4th, they are more likely to be of idiopathic than of medicinal origin, and are omitted here.—Eps.]

b. Dr. J.—collected, June 17th and 18th, 1846, some leaves when vine was in flower, and made a tinct. from them. After handling plant and inhaling its effluvia, he had—in 18th and 19th—pain at outer edge of l. patella on going upstairs after sitting for some time; and pimples, large, deep-seated, and somewhat irritable to touch, on fold of nates.

c. June 23rd, at 9 p.m., took 3 pellets saturated with 3rd dil. 30 m., transient pain in r. shoulder. 40 m., pressure near middle of sternum, l. side. 24th.—Slight cutting in urethra when urinating, at 5 p.m. 25th.—Dull pain in forehead, temples, and occiput, 6.30—7 a.m. 9.30, pressive pain in l. inner canthus and neighbouring root of nose. 26th.—Woke at 5.30 a.m. with remittent burning pain through middle phalanx of r. little finger, with pain in r. temple. During forenoon (as also on previous d.) burning in oesophagus. A pimple (like those before described) came this d. on upper lip. On July 1st repeated dose at 6 a.m., 12.20 and 11 p.m. After 8 m. tingling pain almost simultaneously in rectum and l. hip when lying on l. side,—tingling was as if in rapid vibrations. After 15 m., pain in ulnar edge of r. hand. 11 a.m., sleepiness, yawning, and indisposition to mental or bodily labour. 2nd.—Woke at 3 a.m. with (transient) burning acmilateral pain just above zygoma and in occiput on same side. At 1 p.m. erysipelatous appearance of face below l. eye, which returned for 4 d. after, without repetition of medicine. 11 p.m., burning and pressive pain, with sense of excoriation, behind upper sternum, and tickling there causing cough. 3rd.—Stinging below r. nipple, with itching there and in various parts of body, m. in bed. 4th.—Pain in r. lumbar region on rising from recumbent position, and in l. calf at each step (weather cold and wet); transient burning and pressive pain in l. neck and stomach on swallowing moderately cold water (also some d. before). 5th.—Tough unsuppurating pimple 1 in. above l. nipple; burning pain in l. shoulder when walking. (*Amer. Hom. Review*, 1, 553; 3, 325.)

3. Three persons, indicated by the abbreviations "Milin," "Gk.," and "Nk.," but no information respecting whom or their mode of testing the medicine is given, are credited with the following symptoms (from Rh. tox.):

a. MUSEN. After awaking, m., and again falling asleep, it seemed to her that her head hung out of the bed, and the blood straggled into it like water from a pipe, so that she imagined she heard it; at the same time a hibernian figure appeared to her, with whom she must go. Shouting in occiput when stooping. Her thinking power sometimes leaves her, and she turns giddy. Pain in head as though it would burst, worse when moving, she must remain quite quiet. At first bloody taste in both nose and mouth; later, bitter bilious taste. Heat in head down to neck. Great thirst. Pain in abdomen as if diarrhoea were imminent. She passes much urine. The flesh of the limbs pains as if beaten, aggravated by movement. Great weariness, especially when walking in open air. Sensation as if drenched in cold water. Pain, especially in acrib. cordis, renewed by coming from cold air into warm room. Lachrymosc.

b. Gr. Drawing and paralyzed feeling in l. arm, n.

c. Nk. Shooting and drawing in l. arm from upper part to finger-tips. (HELBIG, *Heraklides*, i, 51.)

4. SCHREIER. [The following symptoms are stated to have been observed by him; manner unknown.] Periodical cutting in eyes, with heaviness of lids, making it difficult to open them; a sudden drawing pain in ears, as if a thread were drawn through them; a watery blister on glans penis; itching on head; crampy drawing together of toes. (HARTL, u. TRIMM, *Archiv.*, iii, 360.)

II. *Poisoning*.—1. Two children, æt. 6 and 8 respectively, ate about a pint of the fruit of *Rh. tox.* In a few h. they became drowsy and stupid, and in a short time vomiting commenced, first of the partially digested fruit, afterwards of a thick tenacious fluid of a wine colour. Then followed convulsions of different parts of the body, accompanied by slight delirium. Respiration was hurried; pulse at first full and strong, but slow, afterwards small, frequent, and compressible; pupils dilated. Emesis was promoted, and carbonate of soda in solution freely administered. Both recovered, though younger convalesced very slowly. (*Am. Journ. of Med. Sci.*, N. S., li, 560.)

2. Mr. WILKES, a medical student, took a gill of a strong decoction of the leaves and vine after supper. Next m. his face was much swollen, becoming increasingly so till his eyes were completely closed. He used liq. hydrarg. bichl. as a wash, and in 36 h. swelling had disappeared. He slept nearly the whole time his eyes were closed. (*Trans. of Am. Med. Ass.*, v, 755.)

3. A boy drank a tea made from the root, and had delirium; suffused and watery eyes; soreness of throat, with intense burning extending to stomach; nervous twitchings; he was covered with a rash like measles, face, neck, and throat being swollen; intolerable itching of skin; high fever. (*Med. and Surg. Reporter*, 1867; from Allen.)

4. a. The effects produced by *Rh.* when absorbed by the skin, either from exhalations from the plant or otherwise, are redness and swelling of the affected parts, and, if referable to exhalations, more particularly in the face and eyes, in which last there is burning, with inflammation of the lids, and agglutination of them in the m. Subsequently there is swelling, with pain, and often a considerable increase of temperature, and the inflamed surface is generally studded with vesicles. Combined with these symptoms there is an almost unbearable amount of itching, which is not confined to the patches of inflammation, but diffuses itself more or less over the entire surface of the body, the hairy portions appearing to be very specially affected. The condition induced thus appears to be of an erythematous or erysipelatous type. It is superficial, but spreads rapidly over the surface, and speedily involves large areas of the body, eventually extending to the mucous membranes, as indicated by redness and swelling of the throat and mouth, with, ordinarily, great thirst, irritable cough, nausea, vomiting, vertigo, dulness and stupefaction of head, and colicky pains throughout the abdomen. These last are chiefly experienced during the n., and are aggravated by eating and drinking. Diarrhoea frequently ensues, accompanied by tenesmus, and the stools are often bloody. There is often retention of urine, or else diuresis, and the water is frequently accompanied by blood.

b. Rh. also induces pains, apparently of a rheumatic kind, which are felt not only in the limbs but in the body, though most especially about the joints. Pain and stiffness in the lumbar region are often induced, and to these affections is often added a sense of numbness in the lower extremities. The structures most powerfully affected seem to be the fibrous ones. The pains in question are accompanied by a very slight amount of swelling; and, singular to say, they become intensified by rest and warmth. Sleep is greatly disturbed, the patient becoming restless, constantly turning about, and often suffering from great nervous depression.

c. The fever which sometimes accompanies the effects of Rh., though by no means a universal symptom, usually occurs, when present, in the later stages, and generally partakes of a typhoid character. It is often attended by delirium, the lips are apt to become dry and parched, and to be covered with a brownish crust. Sometimes it assumes an intermitent character, and is then usually marked by profuse perspiration.

d. The above-described effects of Rh., though so distressing to whomsoever may have to endure them, appear, however, to be very seldom fatal; and it is remarkable that a certain constitutional predisposition appears requisite to their occurrence, so that it is only individuals who are in danger. I have myself witnessed several instances of its poisonous influence, and can personally vouch for the manifestation of nearly all the phenomena that have been indicated. (PERRILLIS, *op. cit.*)

5. a. In June, 1871, Mrs. V. suffered very severely from a burning and itching eruption covering entire face and neck, both mammae, external genitals and neighbouring parts of thighs and abdomen, also both hands and wrists. Her husband at the same time suffered from a similar eruption, though not so severe, on both hands; and an infant had it very slightly about mouth and chin. A week previous to the appearance of the eruption husband and wife had been to a picnic, and he had fastened his horses to a bush covered with a vine, the character of which he had not observed. The wife did not approach the plant, and the child had been left at home. The disease ran its course, terminating in desquamation, without any benefit from treatment. Her suffering was so intense for several d. that I was compelled to keep her under the influence of morphia.

b. On May 6th, 1872, the eruption again broke out, appearing simultaneously in all the localities attacked the previous year. It began with swelling, redness, intense burning and itching. During the next 24 h. the inflamed surfaces became densely covered with very minute vesicles, which soon ruptured and poured out very copiously a yellowish serous fluid, which collecting in the most dependent parts desiccated into amber-coloured semi-translucent incrustations. Nothing relieved till carbolic acid with glycerine was applied. No trace of disease finally remained to mark its localities.

c. May 31st, 1873, eruption appeared for third time. It began with burning and itching on r. temple, slight redness, but no swelling. Next d. r. eye was entirely closed, and its swelling extended over adjoining parts of face; it was red, firm and inelastic, no pitting. Part

first attacked was covered with minute vesicles; exudation very copious and seems to irritate inflamed face; burning and itching intense; no fever. Swelling (without redness) extended still further, and vesiculation occurred in parts about eye. Improvement set in after bathing surface with solution of carbonate of soda. (BUSBY, *Am. Journ. of Med. Sci.*, N. S., lxxvi, 436.)

6. In the spring of 1865 I attended a lady who, a few d. after exposure to the poison, suffered from swelling and inflammation of her r. cheek, attended with intense burning and itching. The inflamed surface was covered with large blisters, containing a yellowish serous fluid. In the succeeding spring she was seized with a precisely similar attack, without being able to trace it to any renewed exposure to the poisonous plant. (*Ibid.*)

7. The perfect insusceptibility of some individuals and peculiar susceptibility of others is very remarkable. One may require the direct application of the expressed juice or of the distillate to produce its local effects. Another will resist the toxic action however applied. A third will suffer to an intense degree from simply going into the vicinity of the growing plant; and, occasionally, persons are so easily affected that the smoke of the burning plant will poison them. . . . Another of its peculiarities is the readiness with which the eruption can be conveyed to other parts of the body by contact of the part which may have received the poison from the plant, and from one individual to another, even though the first may not, or very slightly, suffer from its poisonous action (H, 5). . . . Sometimes I have thought the disease was extended by permitting the exudation to flow upon healthy parts, but more careful observation has satisfied me of the innocuousness of the latter, at least when applied to a healthy skin. . . . I am convinced that in many cases a week will pass before the appearance of the local symptoms, and the cases are very rare where any morbid condition is apparent within 48 h. . . . I have witnessed no sequelæ other than the annual recurrence of the characteristic eruption. (*Ibid.*)

B. I had under my care a child who was poisoned, after bathing on a hot July day, with Rh. rad. The symptoms were all those belonging to septicæmia; suppuration had taken place in the ankle, which was affected with severe synovitis. Besides this the patient had vesicles in mouth and throat; constant picking at scrotum and penis; large and purple bullæ over the leg, which was immensely tumefied and red; together with a toxæmic appearance, which was remarkable in every respect. (HELMUTH, *System of Surgery*, 4th ed., p. 67.)

III. *Experiments on animals.*—1. CLARUS made physiological trials of Rh. on 2 men and 10 rabbits. A small quantity of the freshly bruised leaves was tied on to the arm, but after 1 h. no effect was observed. ℞j of the extract was swallowed by a man, but caused no effect. The rabbits were treated by injection of ℞j of the juice, of ℞ij of the distilled product of the resinous matter which remained after evaporation of the alcoholic solution rubbed up with sugar and then mixed with water, of ℞ss of the official extract. No effects were observed. (*Wochenbl. d. Zeitsch. d. k. k. Ges. d. Aerzte in Wien*, 1862, No. 18.)

Rhus venenata, poison sumach, dogwood.

1. *Proving*.—*r.* Dr. BURT, beginning with 50 dr. of 3rd dil., increased dose till ℥ss was taken at once. He then took tinct., at first 10 dr. several times a d., then more and more till he reached 150 dr. Altogether ℥j of tinct. was consumed in the proving. Its day-books have been lost, but the following symptoms were observed:—Skin hot and dry at n., with great restlessness; palms of hands dry and hot; cracks at end of fingers, bleeding readily; fine vesicular eruption on forearm, wrist, back of hands, and fingers, also on scrotum and ankles, seated on inflamed base, and itching intolerably, especially in e. in a warm room, and in bed, worse after scratching, which nevertheless is irresistible, and which causes much serous exudation; constant itching of under lip for several d., with bright red appearance, also great burning and itching of arms; cellular tissue round eyes much swollen; a number of boils on forehead, neck and arms (after the proving). Wrists, ankles and feet ached so severely at n. that he could not sleep; great restlessness after midnight. Very weak and languid. Great sadness, no desire to live, everything seems gloomy; absence of mind, cannot concentrate it on particular subjects. Fullness of head; dull heavy frontal headache, aggravated by walking and stooping. Constant lachrymation and dull aching in eyeballs. Great dryness of nostrils on two several occasions, each time lasting about an h. Slimy, salty-slimy, or flat rough taste in mouth; tongue white-coated; scalded feeling on tongue; dryness and constant irritation of fauces; distress at root of tongue and fauces; tonsils very red and congested, with dull aching distress in them, and frequent inclination to swallow, which aggravates this; wants to drink much. Dull aching distress in stomach and whole abdomen, with occasional sharp cutting pains about umbilicus,—these especially before a stool, which relieves but does not remove them; later, severe cutting pains in umbilical and hypogastric regions for 6 d., with 3—4 very soft, loose, blackish stools daily,—pains worse before stools; intolerable itching and burning at anus, and neuralgic pains there. Scrotum much swollen, of deep red colour, and covered with vesicles; severe itching and burning on it. Constant dull pains whole length of spine; back very stiff; severe pain in l. elbow for $\frac{1}{2}$ h., forbidding movement of limb; drawing pains in forearms; dull pains in wrists and fingers, which are very stiff, with occasional drawing; constant aching distress in hands, which are hard, rough, and tender; hands greatly swollen, of deep red colour, and covered with watery vesicles that itch intolerably; knees and ankles ached constantly; severe cramp in calf at n., followed by soreness there next d.; dull drawing pains and distress in knees, ankles, feet and toes; great weakness of knees and ankles; ankles and feet ached so severely for 8 weeks after proving, that it was very painful to stand or walk, especially p.m., when he had to lie down daily; ankles very red and swollen, with watery vesicles and blisters all over these and the feet, itching intolerably, and exuding copious serum; trembling of all limbs, with twitching of muscles. (*N. Am. Journ. of Hom.*, xii, 411.)

2. Dr. BUTMAN made, in spring, 1865, a tinct. from the blossoms and adjoining leaves. While collecting these he had dull frontal head-

ache, nausea, lassitude and diuresis. From Oct. 19th to 24th he took tinct. in increasing doses, till he was taking 180 dr. at a time. It developed the following symptoms:—Skin hot and dry; itching on various parts of body; eruption on face, head and chest resembling that of enteric fever, disappearing on pressure. Great restlessness at n.; sleep disturbed by dreams. Inability at times to connect ideas; forgetfulness; dull and stupid feeling. Sensation as if brain were pressing up against skull; dull headache, with sharp darting pains in parietal bones; sensation as if head were bound. Feeling as if eyes were being pressed out of head; sharp pain in r. eye, extending to supra-orbital region. Dryness of nose, which later is filled with tenacious mucus. Face flushed, feeling as if burnt. Tongue coated white; slight accumulation of viscid mucus in mouth; dryness with burning in throat; sensation as if tongue were being pulled out by roots. Loss of appetite; continual nausea; borborygmus, with pain from lumbar region to umbilicus; pain in l. abdomen; fæces dark, hard, and scanty; blood from rectum after stool. Desire to micturate frequently, but small quantities only passed; burning in urethra. Pain in back; sharp pain under l. scapula, going through to ribs. Sharp darting pain in both arms, from elbow to index fingers and thumbs; aching pains throughout proving from hips to knees, worst at knees, and on l. side. Continual shivering down back; general feeling of lassitude. All symptoms increased on a damp d. A subsequent proving with dilutions produced no new symptoms. (*N. Engl. Med. Gaz.*, iv, 200.)

3. Dr. WALLACE McGEORGE proved a tinct. made by macerating leaves. Of sanguine temp., 28 years old, in good health, except for some catarrh in head and slight indigestion.

d. Aug. 10th, 1869, at 11.45 a.m., took 2 or 3 dr. in water. 11th.—Good spirits; quite cheerful all d. 12th.—On rising, mouth and lips dry; lips sore and swollen, blistered and cracked; it is impossible to keep mouth moist; this got easier 1 h. afterward, but came on again, and lasted all d. 10 a.m., took another dose. Headache of stupefying nature. 4 p.m., itching of upper lip and chin; tongue and mouth feel as if burnt with acid. 6, lips and mouth become more feverish, and, 8, breath feels like steam, it is so hot; lips painfully hot and dry, cannot get them cool, they burn constantly; headache all d., and yet does not feel in low spirits. 13th.—6.30 a.m. On waking, uncomfortable feeling in mouth and lips; cannot speak distinctly; palate fallen, and feeling as if there was something in mouth impeding speech, unchanged by hawking or clearing throat; lips painful, dry, and swollen to double their natural size; white vesicle on lower lip; tongue red on tip; mouth moist; gums swollen; on drinking anything warm, slight irritation of inner side of lips, gums, and tip of tongue; eyes dull; dull headache; feels rather languid; pulse 72, rather weak; no pain anywhere in body. 8 p.m., itching of tongue and roof of mouth; lips and tongue feel as if cracked; lips swollen, upper one the worst; itching in corner of mouth. 14th.—Upper more swollen than lower lip; lips and tongue feel as if cracked; lips peel off somewhat, they burn and itch considerably when washing; tongue feels as if scalded, and itches awfully, he has to scratch it and rub it with handker-

chief; nose itches at n.; face swollen; slight headache; dull-looking appearance of eyes; breath hot and feverish by spells, it smelt as if stomach was disordered; feels tired and weary; low-spirited. 15th.—Lips worse than ever, upper one most affected, black on edges, yellow vesicles on inner side, which break, discharging a thin sticky fluid, agglutinating them together (12 m.); lips hot and dry, and burning, aggravated by washing in cold water, or touching them with tongue, or when eating anything sour; tongue red, and cracked in middle; face swollen; eyes dull and heavy; languid feeling; itching of hands (fingers and palms) after washing; itching of anus; appetite and excretions normal; pulse 82; when sitting, at 3 p.m., it was normal, 68 to 70; feels worse when the weather is very hot; cream applied to lips relieves the burning sensation, but hot applications ameliorate more than all; anus itches terribly towards n. 16th.—On rising, face swollen; lips swollen and covered with a thick skin or crust that in breaking emits an offensive discharge, resembling that from a sore, thin and sticky, warm water makes them feel comfortable and pleasant; feels low-spirited, and disinclined to employ his time in any manner; stools dark, and partly undigested; itching at anus; itching in palm of l. hand, and appearance of vesicles on fingers, itching terribly, aggravated by cold water; insupportable feeling at anus; nose feels sore, as if it was going to peel off; acid food hurts his lips; poor appetite in m. P.m., itching in anus, which becomes exceedingly annoying, relieved temporarily by scratching; lips are getting better, and do not smart so much; warm water relieves them still. E., itching of hands continues; vesicles appear on fingers of both hands; shivering for 10 m. when undressing, accompanied with chattering of teeth, followed by heat and perspiration, with drowsiness, but itching at anus becomes so unbearable that he cannot sleep; pinching and pressing affords no relief; brandy applied on a compress affords relief and abates pain in 2 to 3 m., but when first applied creates such a terrible burning that he cannot lie still, and almost goes into spasms; restless sleep afterward. 17th.—3 a.m., wakes up with the itching at anus, which yields to application of brandy as before; as soon as he feels comfortable, and when falling asleep, the hands begin to itch and prevent his sleeping for an h.; afterwards sound sleep; no dreams at any time through n.; lips are better, but still smart a good deal when touching acids, relieved by hot water; tongue cracked in centre, and covered with little white vesicles; inside of lips filled with similar vesicles; appetite good; stools lighter in colour, and partly undigested; urine normal; itching of genitals, especially prepuce; increase of saliva; face less swollen; itching at anus less troublesome. 18th.—Very little itching at anus; troublesome itching and burning of hands and fingers; lips and tongue improving; face looks better, swelling almost gone; slight itching of genitals. 19th.—Intense itching of hands upon awaking and immersing them in water, showing, after rubbing, little raised streaks of a yellowish colour. (These are composed of patches of little yellowish vesicles, worst between the fingers and in the cracks or lines in the palms of the hands.) Itching worst in m.; itching on scrotum and prepuce worse; lips, tongue, and anus are more comfortable; pimples

on forehead. 20th.—Troublesome itching of scrotum, penis, and especially of prepuce—worse on becoming warm (weather exceedingly hot); no trouble with anus, lips, or mouth; hands smart and burn considerably after scratching and rubbing them; pimples on forehead. 21st.—Itching of hands and fingers same as yesterday, showing same yellow patches previously described; the fingers are much swollen, also palms; herpetic eruption on forehead, resembling herpes phlyctenoides; itching of scrotum, penis, and prepuce through d., unchanged by scratching. 22nd.—Wakes up during n. with itching of hands, rubs and scratches them until sore; violent burning and smarting, preventing him from sleeping a long time; lips, tongue, and mouth seem all right; no itching at anus; very slight itching on genitals. Hands itch violently through d., relieved by putting them in very hot water, as hot as can be borne without scalding; this seems to make the pain felt in the very bones, but relieves for some h. after a thorough soaking; hands and fingers swollen—cannot wear his ring, which generally is too large for him; skin appears raised in ridges of a yellow colour, puffy to the touch, the other skin on hands appearing red; hands become sore from severe rubbing, and vesicles appear between fingers. 23rd.—Itching on rising, same as for 3 or 4 d.; cold water allays a little for the time being, but the itching and stinging can be felt very distinctly; yellow, puffy ridges on palms of hands; skin on forehead appears rough; profuse secretion from r. nostril of a thin ichorous fluid. 24th.—Wakes up at 4 a.m., and has to rise and wash hands in order to allay the itching, rubbing only making it worse; itching of hands during d.; skin on forehead not so red or so rough; secretion from r. nostril slightly excoxiating; no discharge from l. nostril, which is stopped up. Sept. 1st.—Gradual abatement since the 25th ult., skin peeling off fingers and palms. 5th.—Skin still peeling off hands. 10th.—Skin peels off most, and began to peel, where the vesicles were on fingers and palms; stools black as pitch, and hard, no unusual smell. 12th.—Skin peeling off slowly; stools black as before, soft, and rather putrid; bowels move twice. 16th to 24th.—Skin still peeling off; nothing else unusual observed.

4. Oct. 12th, 1869.—Passed a swamp wherein *Rh. v.* grows, the sun shining quite warmly at the time; had frequently passed the same swamp before taking the drug without observing any effects; this c. had considerable itching of penis and scrotum. 13th.—Passed restless n., lying awake to scratch; lips feel uncomfortable; in m. lips are much swollen; breath is hot and feverish, almost like steam, and tongue covered with little vesicles on tip; intense itching of genital organs. 12 m., itching continues unaltered; warm water ameliorates; fine eruption around neck of penis; intolerable burning and itching of whole genital organs; intense heat of penis, especially on glans; lips swollen; breath hot. 7 p.m., itching on genitals becomes unbearable, relieved by warm water cloths applied to parts, after an hour's constant application the itching almost entirely disappears, the water has to be changed frequently and can be borne up to boiling heat; prepuce considerably swollen; back becomes covered with blanches; itching is excited or brought on by exposure to cold

air; gentle scratching relieves the burning and itching on back; later the blotches disappear, back becomes covered with ridges, and a fine, pale-red rash appears. 14th.—Itching occasionally on penis and scrotum through n.; itching on back is brought on in a moment by cold air blowing on it; prepuce very much swollen, as also glans penis; desire for an embrace, but the itching and burning is so severe that he cannot complete the act; his wife complains of a terrible prickling and burning in vagina after coition, lasting several m.; face much swollen, shining glistening appearance; lips peeling off; nose itches severely; vesicles on lips and face emitting an odour similar to a sore (same as on Aug. 16th); desire to rub face continually; hot water relieves, and causes peeling of the skin; general health good; appetite fair; stools and urine normal; pulse 78, and regular; tongue redder than usual; breath hot, but not unpleasant or offensive. 15th.—Abatement of all the symptoms. 16th—25th.—Symptoms become lighter and pass entirely away.

c. Next summer, in passing a swamp where some *Rh. v.* grew, became again poisoned; symptoms were similar to those in 3d, but not quite as violent. In June, 1871, in preparing some of the tinct. touched his finger accidentally to the cork of the vial. Next d. was completely poisoned, and the symptoms ran a course similar to that of the first proving, the itching being worse on the hands, genitals, anus, lips, mouth, and nose; hot water afforded great relief, and *Clematis erecta* cut the disease short, but did not prevent the skin peeling off the hands. In preparing some of this medicine for some provers, in 2nd and 3rd attenuation, became again affected in a manner like that described before.

In all the provings the itching was worst on the cuticle and mucous membrane; hot water always relieved the itching; appetite good, more so than usual; dyspeptic troubles, or belchings after meals, very much better; the catarrhal trouble was less also. *Pulsatilla*, *Croton tiglium*, *Rhus toxicodendron* and *Clematis erecta* were taken as antidotes during the later provings, but the last-named seemed to exert the most beneficial effect. Previous to proving or taking this remedy, was never subject to *Rhus* poisoning; could pull up the *Rhus radicans* and other poisonous vines without observing any effect, but now is very susceptible to their influence, and poisons very readily. (*Hahn. Monthly*, vii, 315.)

4. Aug. 12th, 1869, Miss F—, æt. 22, took 2 dr. of tinct.; next d. slight itching of hands and lips; 2nd d., itching of hands and body as well as face; face swollen; eruption on corner of mouth; became alarmed, and took no more of the medicine, and did not record any other symptoms. (*Ibid.*)

5. Miss L. H. G—, æt. 18, sanguine temperament, took 3 dr. of 1st dil., Oct. 26th, 1871. 27th.—Pain at umbilicus, with diarrhoea; creeping sensation on face and arm; itching of face in e., particularly lips. 28th.—Pain in bowels, with diarrhoea; itching of upper lip; stretching and tired feeling; blue finger-nails; skin feels cold, similar to the way some persons describe their feelings when they have a chill, lasting one h.; has not had a chill. 29th.—Low spirits; itching of face

and lips, and somewhat of fingers and lower limbs; chilly, creeping sensation over scalp. 30th.—Drawing pain in lower part of l. side; considerable headache; itching of face, particularly nose, and some on lower limbs; a little pain in sacrum. 31st.—Symptoms slight; some itching of lips and lower limbs, with slight frontal headache. Nov. 1st.—Slight lancinating pain in sternum and r. leg; fever-sore on mouth. (*Ibid.*)

6. *o.* KUSZAR, Dec. 1st, 9 p.m., took 20 dr. 5x dil. Next m. drawing pressive pains in r. knee-joint, radiating downwards, then in r. wrist, extending through bones of forearm to elbow; the same pains in l. elbow, l. ankle, and pes anserinus.—and, 7 a.m., 30 dr. Drawing in l. knee and r. upper row of teeth; paralytic and bruised pain in thighs; peculiar feeling of tension, with noise like creaking, under r. ankle; frequent ringing in r. ear; drawing pain towards l. temple; whirling vertigo; stitches in heart.—3rd, 5 p.m., 40 dr. Drawing-squeezing pain in l. thigh, dorsum of r. foot, r. upper and lower maxilla, drawing in l. temple. The pains come and go quickly, wander to and fro; eructation.—4th, 7 a.m., 10 dr. 4x dil. After $\frac{1}{2}$ h. frequent eructation, with pains in belly and rumbling; prickling and smarting in eyes as though they would water and inflame; jerking tearing in bone behind r. ear; paralytic drawing and bone pains in l. leg.—5th, 8 p.m., 15 dr. Jerking drawing in r. foot from ankle-joint to heel, and shooting upwards with bone pains; jerking pain in occiput, drawing in l. leg.—6th. No med.; pains slighter, increased during rest, wandering to and fro, radiating from a point through periosteum downwards and upwards.—7th, m., 20 dr. Jerking drawing in legs, in r. ankle-joint, thence downwards to heel-bone, a peculiar feeling of horripilation as though the foot were going to sleep; when it is more considerable it is a creaking feeling. This sensation is persistent with only short intervals. Boring in r. upper maxilla, drawing in r. wrist and l. leg, shooting from ankle-joint through long bones into knee-joint. 8 p.m., 25 dr. The horripilation continues, and affects the l. arm also, especially when it is lying down, at same time drawing in upper and fore-arm and the three last fingers of l. hand; the arm is as if paralysed. Palpitation and stitches in heart; heaviness of head and vertigo.—8th, 7 a.m., 30 dr. The horripilation and creaking continue; pressive drawing in r., then in l. ankle-joint, in r. wrist-joint; pressive drawing in r. upper maxilla; shooting in r. lower maxilla; tearing in r. temple, shooting into l. half of head upwards along forehead in bone, thence to l. side of occiput and nape. Drawing in l. leg; cramp-like tension in r. calf. Shooting deep in r. eye, then smarting in eyes as though they would inflame and water. Bruised feeling in body, especially lower extremities, as after great exertion; pale face and weariness, prostration, drawing in r. little finger and thumb.—9th, 7 a.m., 70 dr. Drawing in r. ankle-joint, in l. knee-joint, through lumbar muscles to hip, also in muscles of calf; tearing in l. arm radiating from elbow upwards, feeling as if bones would break. Drawing in r. wrist-joint, stitches in r. upper maxilla, sacrum feels bruised. 10th, 7 a.m., 20 dr. 3rd dil. Drawing in l. calf, in l. loin, shooting tearing in r. upper maxilla, drawing in l. temple and in occiput; cramp in dorsum of foot. Pains always worst when at

rest, many dreams.—11th, 7 a.m., 30 dr. Pressive drawing in r. ankle-joint and r. wrist-joint. Drawing in r. calf, with lame pain in hough as after exertion; jerking drawing in nerves of head here and there. Throbbing in veins of both feet as from congestion of blood. 8 p.m., 40 dr. Dreams with vivid visions, pressive drawing in both legs as if bruised, then a persistent pressive cutting pain in ankle- and knee-joints, radiating through the tendons of dorsum of foot to toes, also from wrist to tips of fingers, especially l. index; jerking cutting shooting in ear; ringing and rattling in r. ear; great itching behind and within r. ear; jerking drawing in r. upper maxilla; creeping and creaking in r. foot. Pressure in head, and heaviness as if too full of blood; jerking drawing in upper part of l. side of head; stitches in apices of both lungs.—12th, 8 p.m., 20 dr. 2x dil. Drawing in r. ankle- and wrist-joints up to knee or elbow; sinusitis in r. ear; transient stitches in r. concha; tension like ulcerative pain on l. ankle, as if gathering, when treading; jerking pain in muscles of both arms; cramp pain in calves and furmication as if gone to sleep. Drawing in fingers of r. hand; bruised pain, especially in legs; transient tearing in r. upper and lower maxilla. Violent anxiety-causing stitches in l. lung, especially on breathing.—13th. No med. The above pains, but in slighter degree.—14th, 7 a.m., 30 dr. Stich under l. sole; wandering drawing pains in thighs and legs and l. arm. Palpitation of heart, heaviness of head; pulsation in veins of r. foot.—15th, 7 a.m., 10 dr. 1, dil. Paralytic drawing in r. arm, especially wrist to fingertips; drawing in both feet; shooting under r. sole; drawing in r. upper maxilla; constant tinnitus in r. ear; drawing in nerves of head; stitches in apices of both lungs; itching behind r. ear.—16th, 7 a.m., 20 dr. Same drawing pains, stitches in lungs, palpitation and stitches in heart; itching all over body.—17th, 25 dr. Same symptoms but more severe; on scratching the itching places red spots come out on arms and hands; pimples like commencing boils on scapulae and neck; slight moisture behind r. ear.—18th, 7 a.m., 3 dr. tinct. Same symptoms; furuncles were developed, moist place behind ear.—19th, 4 dr.; 20th, 5 dr.; 21st, 6 dr. Same symptoms; violent drawing pains in arms, legs, and head; violent stitches in lungs, congestion of blood to chest, with anxiety; pulsation of vessels of head and feet; palpitation and stitches in heart; itching of skin with red spots, furuncles and moisture behind r. ear; bleeding hemorrhoids, which had never had before. The stitches in lungs went off after 2 d., and the symptoms of venosity soon afterwards disappeared. But the rheumatic pains continued with greater or less severity till middle of February, though he had never before suffered from rheumatism. After a chill they became very violent, and were removed by ran. bulb. 2 in 3 d.

6. External application of tinct. caused small itching vesicles, which burst and ended in desquamation with moderate redness. When the tinct. was rubbed on the desquamated spots they became very red, and larger vesicles filled with lymph were developed, which turned to pus and ended with formation of scabs, lasting altogether 3 weeks. (*N. Zeitsch. f. Hom. Kl.*, xii, 155.)

7. Dr. Butz and his wife report following symptoms from handling

plant :—Sudden violent stitches through lungs, 10 m. after breathing in vapour. Blackness before eyes when he looks at anything. Swelling of face with red eyes. Red spots on face, not removed by pressing on them. Feeling of rawness and burnt sensation on lips. Groups of vesicles come out on fingers and other parts of body; at first they itch, and then burn and feel sore. On swallowing sore pain down l. side of throat. A group of vesicles behind l. ear. The itching begins suddenly, sometimes in one place, sometimes in another, and then becomes permanent. Cramp in dorsum of foot. Sudden violent cramp in r. ankle, as if it were squeezed. Swelling mostly on l. side of face. Dislocation pain in r. hip. Hard elevated pimples on hands, on which are vesicles, itching much. Violent itching on various parts of body like gnat-bites, eroding. The itching is worse after midnight and m. Violent itching in palms. Itching wheals deep under skin in palms. Rheumatic pains in l. elbow- and shoulder-joints, worse on moving. Sudden sharp, startling stitches through lungs, waking him out of sleep. Dreams of murder and misfortunes, 1st n. Swelling in face, with red spots and wheals, always itching and burning after being rubbed. Red elevated wheals on various parts of body, especially face, neck and chest. The menses, which were nearly due, came immediately, discharge very clotted, like lumps of flesh. Rigor up back, without coldness. Goose-skin. Intolerable weight of head. Red eyes. Heaviness in the swollen face. On waking, m., the light is painful to eyes. Dimness of eyes when reading. Forehead is so greatly swollen that it quite hangs over and feels heavy when going upstairs. (Burr, *Archive*, xv, 1, 179.)

8. Dr. CLARY, Nov. 22nd, 1863, held a stick of *Rh. v.* in his hand for $\frac{1}{4}$ m., and, a small piece of its cuticle being shaved off, touched with his tongue the minute drop of juice which exuded. On the 30th (nothing having been felt before) while at dinner tongue felt as if scalded, and p.m. this feeling extended over entire mouth and fauces, producing great dryness and stinging pain, which increased rapidly till he retired at n. At 2 a.m. severe griping came on; but being somnolent he remained in bed 2 h. longer, when he was suddenly forced from it and a large watery stool shot out, with severe colicky pain. This was repeated 3 times during next 4 h., after which all ceased. On rising, felt weak; no appetite; chills over whole body. During d. (Dec. 1st), frequent stinging and itching about neck, chest and back. On m. of 2nd, found forehead swollen and red; during d. this extended to whole head and face; upper lip terribly swelled; itching greatly increased, especially in septum narium; burning pains and swelling in eyes. Four hæmorrhoids (he had had nothing of the kind for 2 years) protruded, with extreme itching and burning. No evacuation this d. Towards e. itching extended over whole body (though no eruption appeared), and at n. was so great that he could hardly endure it. After a sleepless n., in m. he found the vesicular eruption of *Rhus* on the forehead (then for first time recognising the cause of his troubles); and during this and following d. it spread over trunk and extremities, especially bad on sexual organs; there were also transient shooting pains in sternum and chest; lameness and soreness

of muscles, so that he could hardly walk; nausea and loathing of food; entire loss of taste and smell; pharynx and œsophagus became so irritable that it was painful and difficult to swallow; food caused pain in passing and seemed to stop midway, and cold water (thirst was urgent) produced same sensation in going down as very hot tea would, and same aching afterwards as sometimes follows the taking of ice-cold drinks. Hæmorrhoids continued. On 5th dryness and pain came in larynx, with hoarseness, harsh dry cough, and constriction in chest. For more than 2 weeks there was pain over sternum; and itching, cough, hæmorrhoids and lameness all continued for same time. (*Amer. Hom. Review*, v, 23.)

9. Dr. WHITE, besides gathering leaves, &c., of Rh. ven., rubbed juice upon his hands in several places, and allowed it to dry there. This was on Oct. 10th. On 12th a single vesicle appeared on back of finger, with thick cover and dark look. On 13th another, and on 14th three more, appeared on wrist. No fresh ones appeared till 19th, when a very large one came on thumb, and from 21st to November 3rd a number of fresh ones appeared, all itching and burning extremely. (Dr. White maintains that the Rhus eruption is essentially an eczema, not an erysipelas; differing from the idiopathic disease in that the vesicles are born such, instead of passing through an intermediate papular stage of development.) (*New York Journ. of Med.*, xvii, 225.)

10. a. Dr. OEHME, robust, but with a very sensitive skin, made his first experiments with Rh. v. in 1858. On Sept. 15th he applied juice exuding from between bark and wood to an oval place on back of l. forearm $1\frac{1}{2}$ in. long, 1 in. wide. This he repeated several times on that day and the next. From the 17th to the 29th he applied a tinct. he had now made to same spot 3 or 4 times daily, taking as often internally 4 dr. of the 1, dil. In 24 h. after first application of juice, there was slight inflammation and swelling at spot, with some soreness on pressure. These symptoms increased steadily but slowly during next 11 d., with occasional itching and burning. On 28th, epidermis could easily be removed with the nail, and then scabs would soon form; whole place red and much swollen—inflammation extending beyond limits of application. A fold of skin so affected was at least six times as thick as one on corresponding part of other arm, and l. arm at this point measured an inch more than r. The redness was not circumscribed, but passed over into an eruption like measles. Itching and burning were felt mainly when arm was covered, and more on surrounding surface than in inflamed spot. By 30th swelling measured $5\frac{1}{2}$ in. in length. He took this d. his last doses (3) internally, and ceased to make the local application. This d. and the next he was awakened early in m. by the violent itching and burning. Inflammation was now (Oct. 1st) livid and phlegmonous, $6\frac{1}{2}$ in. long and 6 in. wide. Part felt very hot, and a thermometer applied to it found it 84° warmer than corresponding spot on other arm. It was hard, like board; but not painful, save for occasional drawing sensation, extending into hand, and feeling of tightness. Nerves in l. axilla feel sore and are tender. Late in e., irregular red spots appeared on l. cheek. 2nd. —Swelling extends this m. from elbow to hand; spots on face larger

and redder, somewhat elevated, and slightly burning; some swelling above l. eye; two red spots and a blotch under r. corner of mouth; measles-like eruption over 3rd—5th metacarpal bones, and vesicles on fingers of l. hand, appearing and disappearing very quickly, with most violent itching; transient itching at various places on body in m., and, p.m., vesicles there; frequent brief sensation of coldness creeping over back (this also on subsequent days); at noon, drawing pain in large nerves of arm, from axilla downwards. 3rd.—Symptoms as before; whole forearm seat of phlegmonous inflammation—9° hotter than the other; appetite and general health unaffected. 4th.—Skin now peeling off inflamed part, some pustules on new skin; œdema of back of hand. 5th.—Arm now of normal temp., and swelling subsiding. 6th.—This m. another eruption of small pustules on same place, but a little larger than yesterday; area peeling again, and still somewhat swollen, more than the thickness of a fold of skin would account for, so that deeper parts also must have been affected. From this time skin of arm gradually returned to its natural condition, but remained very irritable, slightest rubbing causing profuse eruption of blotches, vesicles and small pimples. From 3rd violent itching several n. in succession, especially on back, but in daytime on face, neck and hands, followed soon by eruption as above. From this time up to March, nearly every n., especially at midnight, he had severe itching, particularly on back; scratching aggravated it greatly, rubbing with a soft brush gave relief, but it was entirely subdued by washing with cold water or snow. During the attacks, back was burning hot, and covered with blotches and pimples.

b. O— again exposed himself, Aug. 8th, 1859, to influence of *Rh. v.* He peeled off bark and cut it up into very fine pieces. Being out of doors, mosquitoes troubled him during work; and he was frequently compelled to put hands to face in order to drive them off. He also chewed for some time a piece of bark, and passed water before washing his hands. 10th.—On rising, œdema under r. eye; difficulty in looking down, with disagreeable sensation; red spots on face, especially l., and on upper chest; itching. During d. face swelled. 11th.—A round group of hydra vesicles, filled with yellowish serum, between nose and l. corner of mouth, and another group under latter; l. face somewhat swollen, and covered with red spots; l. ear thick and red, posterior surface of it rough, some itching on lower part; nose and r. face considerably swollen, especially close under eye, which is considerably irritated; rays of sun cause burning in face. Much itching of sexual organs, especially scrotum and prepuce; hydra vesicles on back of some fingers of either hand. P.m., small yellowish vesicles on different parts of face; r. nose and cheek much swollen, r. nostril obstructed; œdema of face worse than yesterday, skin rough (not chapped) and uneven; on back of l. hand and on fingers some efflorescence, which looks strikingly like itch; slight dull feeling in head. At 3 p.m. eruption like measles with unevenness of skin on back of l. arm close above wrist, soon followed by blotches with violent itching and burning; discharge of a little water from l. nostril, with sensation in nose as of a commencing cold; face hot; arms fall easily asleep.

In e. much itching and burning on different places in face; feeling of dulness in head worse; burning in eyes and slight lachrymation. (HALE, *New Remedies*, 2nd ed.)

11. *Poisonings*.—1. a. Dr. FLOTT, March 18th, 1857, wishing to prepare a tinct., went into a swamp and procured some sprouts of *Rh. v.* He had buckskin gloves on, and kept to windward; but in 1½ h. began to feel most intense burning and itching in scrotum and penis—glands being very painful. 19th.—Symptoms continued in same severity. At 11 a.m. he cautiously scraped off the bark. At 3 p.m. itching and burning commenced on r. hand (between fingers on dorsal aspect). 20th.—Very restless all n. Woke with itching and burning in various parts of body; hands considerably swollen; face red but not shining. As d. advanced itching and burning went on, always relieved by exercise and worse at rest; hands and face covered with little vesicles, exuding clear serum; r. eyelid swollen and stiff. Had two stools, loose, first preceded by griping; abdomen tender to touch and pressure. 21st.—Symptoms all increased; face much swollen, and swelling of hands extending halfway to elbow; pain excessive. Dizzy sensation at times, much worse in e. 22nd.—Loose stools at 3, 6, and 9 a.m., sudden, pain in hypogastrium preceding them. Hands and face still worse; mouth feels rough, and mucous membrane is abnormally red; incrustations appeared on inside of thighs; slight dimness of sight, lachrymation, and livid circle round eyes; considerable deafness; chills ran up back, even when warm and in warmth. Towards e. mouth got worse, and fauces took on same condition, causing dysphagia; eyes smarted and burned, with profuse lachrymation; quite severe colic about umbilicus; very restless all n. 23rd.—Dull feeling in head and considerable frontal headache (relieved by belladonna). Severity of other symptoms somewhat abated, save diarrhoea, which is more severe; stools dark brown. General malaise. On affected parts soreness and peeling are replacing previous symptoms; exudation now slightly yellow. Several vesicles under tongue, which is white coated, with red edges. Little appetite; some nausea. 24th.—Desquamation now went on freely, cuticle being renewed 4 times; new skin at first red and shining, afterwards rough, hard, dry, and very tender. Dulness, heaviness, and aching in head continued, also deafness; he had trembling of limbs and twitching of muscles; no disposition to move about or study; was apprehensive, restless, and of fitful humour.

b. Symptoms gradually subsided till April 5th, when by accident bottle of tinct. was broken, and he received full force of effluvium. Face, especially upper lip, was much swollen and exceedingly painful; back of ears also swollen, and here and on lips vesicles were abundant. Every d. from 2 to 5 a.m. diarrhoea began, and continued till noon; abdomen much bloated and painful on least pressure; continual rumbling and griping pains, always worse just before stool; colour of stools uniformly light. (This continued for 3 weeks, yielding to no remedy, till it was stopped—then and in subsequent recurrences—by *juniperus virginiana* L.) All muscles stiff, especially those of back of r. leg (this also lasted some time). As desquamation ceased, boils—3 large, 10 smaller—appeared on face and extremities, and ran usual course.

Uniformly, throughout the whole experience, the symptoms were aggravated by rest, and relieved by moderate exercise in open air. (*Ibid.*)

2. In 1814, Dr. PIERSON accompanied me (BIGZLOW) to collect the juice of the *Rhus vernix*. He had always supposed himself exempt from liability to the poison. The day was warm; the effluvia from the incisions we made in the trees was very powerful; we were exposed an h., he less than myself. His own account of the symptoms is as follows: "I felt no unpleasant effects for 6 or 7 h., when I perceived the backs of my hands were swollen and puffy without pain or itching; my forehead and upper lip were soon in the same state. The following m. the tumefaction had increased, and other parts were infected; the backs of my hands and wrists began to show small watery vesicles. No applications were made until about noon; I then applied cloths dipped in lead water to one hand and wrist, and a spirituous solution of corrosive muriate of mercury to the other. The parts began to itch; the tumefaction increased; vesication began to take place on the swollen surface; small pustules formed and ran into each other, and at last some were as large as nutmegs. Next d. my eyes were nearly closed, from the swelling of my forehead, eyebrows, and cheeks. The contents of the vesicles were perfectly limpid; inoculation from them to the other parts had no effect, nor at any other stage. The next e. the inflammation was at its height; the burning and itching intolerable. The following d. the pustules began to appear a little milky, and by night the inflammation was evidently on the decline. This day I applied stramonium ointment. In a fortnight I was able to leave my chamber, and had a new cuticle from the roots of my hair on the forehead to my breast, and on the arms and inside the thighs. During the first 5 d. the pulse was increased 10—20 strokes." (*Ibid.*)

3. O. L.—, æt. 16, a short stout lad, p.m. on Nov. 21st, 1843, while ploughing in a field came to some shrubs in the way of the plough. These he removed with his hands, on which there were previously some abrasions. In about an h. afterwards his hands, arms, face and legs began to swell; this was accompanied by slight redness of skin and by thirst; no nausea or headache. On the 22nd I found great swelling of face, arms and legs; some slight redness and swelling over chest, but trunk little affected. (The shrub was found to be *Rh. v.*) The swelling continued to increase till the e., taking about 28 h. to reach its height. On the 24th it began to lessen, and by the 26th it had disappeared. Appetite remained good throughout. (*STAZZON, Ed. Med. and Surg. Journ., lxxiii, 327.*)

4. A gentleman, æt. 30, hearing that *Rh. v.* was successful in the destruction of corns, applied tinct. to one on l. foot 4 times, using fingers to rub it in. (He considers that by pulling sock on diffusion over foot occurred, and by possible change of socks other foot became influenced.) There came on intolerable itching and burning in l. foot; vesicles formed there, and skin became congested, thick and stiff. Rubbing and striking part increased itching, as also did exercise. Similar itching and burning was now experienced in scrotum, forehead, eyelids, front of neck, and r. foot, attended with slightly puffed appear-

ance of all these parts. On 4th d. vesicles came out on r. foot, also in bend of l. elbow; occasional formication was felt in affected parts. On m. of 5th d. vesicles began to break, scabs following; legs were œdematous, pitting on pressure. On 6th d., vesicles on fingers and back of r. hand. As the vesicles broke, and desquamation commenced, acute inflammation of surface (feet, hands, &c.), of dark red colour, supervened, with intense prickling heat, as though a hot iron plate was held in close proximity to the swollen parts; flashes of heat, as though a stream of hot air was passing over body, with throbbing and tearing pains extending from each temple back to occiput and down neck to each shoulder. There was suppuration of whole dorsum of l. foot, and occasional patches of it of size of a half-dime to a dime halfway up to knee, also on r. foot and fingers; these went on to deep, corroding, phagedænic ulcers, burning, prickling, and discharging thin, straw-coloured, acrid, and very fetid pus. By this time he was somewhat emaciated, and peevish and fretful to an extreme. The intensity of the symptoms continued about 3 weeks, but it was 3 mos. before he was entirely free from them. (THOMAS, *Brit. Journ. of Hom.*, xiv, 346.)

5. A little girl of 4 had been languid for 2 weeks, with no special symptoms, when one d. nose swelled up and became red, with slight fever. Dr. BURT put 6 dr. of ʒ. dil. into ʒ of a tumbler of water, and ordered a tea-spoonful every 2 h. Next d. patient was much better, and he ordered drug to be continued. On following d., however, though nose was well, eyes were swollen and half closed, and she was very feverish. He gave camphur as antiseptic, but next d. she was very much worse, very hot, pulse 130, soft and weak, face swollen enormously, eyes completely closed, tongue white coated, with watery vesicles on its sides and on fauces, which (with nostrils) were much inflamed, urine very high coloured. She complained bitterly of soreness of throat, and said her limbs were so stiff that she could not walk. About 4 p.m. croupy symptoms came on, and continued to increase till midnight; head was thrown back, face almost black, cough very dry and of deep, bellow, crowing character; resp. almost imperceptible; pulse 140, soft and weak. Arsenic was given, and next d. spungia. At n. the "croup" came on again, but less violently. The croupy cough now left her, but she had a hard dry cough for 2 weeks, with much rattling of mucus in chest; eyes remained closed for some time, and face very much swollen, but its colour was natural; she could not open her mouth to eat for 2 weeks; tongue was coated thickly, of dark grey colour, with very red tip; pulse remained at 130, soft and feeble, but first week, in second came down to its natural standard; abdomen and lower limbs became enormously swollen, and it was 3 weeks before the œdema disappeared; bowels constive and very tympanitic; legs could not be moved without making her cry, but if not touched she was perfectly easy. It was ten weeks before she became quite well. [Dr. Burt ascribes this illness to over-dosing with the Rh. v.] (*Med. Journ.*, March, 1865.)

RUMEX.

Rumex crispus, L. Curled dock, yellow dock. Nat. Ord., *Polygonacea*.

1. *Proving*.—*t. a.* Dr. H. A. HOUGHTON, *æt.* 24, in perfect health, save for some aene on back, proved a tinct. made from root and leaves. Nov. 11th, 1851, took 6 dr. of 1st dil. in e. 12th.—Dull heavy headache from 10 a.m. till n., less severe after 2 p.m. 13th.—Slight headache during d. 14th and 15th.—No symptoms. 16th.—Repeated dose in e. Very restless during n.; decamed of seeing friends. Heat and other symptoms of fever towards m., followed by sharp pain in abdomen increased by deep inspiration, which entirely subsided on rising. 17th.—Dull heavy headache during d., less severe p.m.; legs feel very weak when going up and down stairs in e. 18th.—Sharp cutting pain in l. breast came on at noon, and lasted an h.; dull heavy headache during d. 19th.—Slight headache. 20th—25th.—No symptoms. On latter d. took 10 dr. of same in e. 26th—29th.—No symptoms. Repeated dose on latter in e. 30th.—Great coldness of lower extremities during forenoon. Repeated dose on going to bed. Again restlessness and dreams of friends. Dec. 1st.—Great coldness of legs as before; in e. cutting pain in abdomen, followed by diarrhœic stool; legs weak again on stairs. 2nd.—Scraping in throat, with slight catarrhal symptoms, in e. N. as that of 30th—1st; cold clammy sweat on legs during greater part of it, followed by symptoms of a severe cold with cough, which lasted during 3rd. 4th and 5th.—No symptoms. Repeated dose on latter e. without effect save restlessness on following n. 7th.—Repeated dose in e. Cold legs a.m. as before, also weakness in them; dull heavy headache with deep-seated soreness of eyes during d., worse a.m. 9th.—N. as before; headache as yesterday and weakness of legs. 10th.—Profuse perspiration on legs during latter part of n. 11th.—Aching pain in anterior part of lungs, coming and going several times in afternoon. Throughout proving bowels more or less constipated.

6. Dec. 27th.—Took 15 dr. of tinct. in e. Sleep, head and legs affected next d. as before, 3 n. following being very restless. 29th.—Dull pain in abdomen before rising, continuing a short time thereafter, and followed by a diarrhœic stool; slight headache during d. 30th.—Sticking pain in l. thoracic region in m. before rising, followed by dull pain in lungs; slight itching of legs in e. Jan. 1st.—After being costive for 3 d., this m. before rising sharp pain in lower abdomen, followed by two diarrhœic stools, after which dull pain in abdomen lasting 2 or 3 h. Felt weak this d. and next, on which latter he had dull headache during forenoon. Again constipation for 3 d., followed by natural stool on 4th. On 5th had a good deal of dull heavy headache, and epistaxis occurred on slightest picking of nose. On 7th, in e., repeated dose. Headache and constipation during next 3—4 d. were the only appreciable effect. On 16th, bowels having been regular for 3 d., took 20 dr. in e. Headache, weakness in legs, and some borborygmus and colic, with constipation, followed as before; and on 30th he notes that the pain in anterior chest has harassed him again, d.

and n., for 5 d. past. It was accompanied by some headache and pain in stomach, also with belching of wind.

Four d. after taking 1st dose of tinct. (Dec. 31st) he notes that back and shoulders are densely covered with small red pimples. This eruption continued till 5th, when it is said to be gradually disappearing. Itching was slight, and mainly felt on exposing back to air, as in undressing for the n. After 2nd dose eruption came again, with a few pimples on chest and, later, on limbs. The same thing followed 3rd dose, but thighs were this time thickly covered. (*Phil. Journ. of Hom.*, ii, 70b.)

2. a. Dr. E. M. KELLOGG, æt. 26, proved a tinct. made with equal parts of expressed juice of root and alcohol.* He was in perfect health and with no tendency to symptoms observed. March 30th, 1852, put 1 dr. into half a tumblerful of water, and took a tablespoonful on retiring, repeating dose each m. and e. till whole solution had been consumed. 31st.—Two h. after breakfast felt as if food had not digested. Unusually irritable temper. April 1st.—Like feelings after breakfast; in e. great lassitude and uneasiness, with stagnation of ideas and indifference to surrounding persons and things. 2nd.—10 a.m., slight dull frontal pain, with indisposition to thought. 12 m., great irritability of temper; muscular pain in thighs and legs, slightly increased on pressure. At 2 p.m. on this d. and last voice suddenly rose several notes in pitch, and so continued for about $\frac{1}{2}$ h.; to-day at 4 p.m. it sounded as if he had a cold in head. 7.30 p.m., very thirsty (unusual); great lassitude and weariness, with somnolency; shifts position constantly; legs feel tired, though he has done but little walking to-day; feet tender, with extreme sensitiveness of and shooting pain in corns; dull transient pain in teeth. 3rd.—Some coryza and obstruction of voice; dull aching pains in legs all d. 4th.—Slight coryza and pain, p.m., especially in r. leg. 5th.—Dull heavy feeling in head during e.; less appetite than usual. After retiring, late, lancinating pains in lower jaw at root of l. canine tooth, and slight headache. 6th.—P.m., urine less copious than usual, red and turbid, with flocculent deposit and oily surface; thirst during e. 7th.—Brick-dust sediment in urine, very marked and heavy. 8th.—Slept very uneasily; many kinds of dreams, magnifying trifles, disturbed him. Woke feverish, having frontal headache, dull and constant; heat of skin; full and frequent pulse; this was followed by sensation of cold, yet not a regular chill. Tongue coated white; slight nausea while dressing, and vertigo compelling him to lie down again; throat sore, with feeling as of lumps there when swallowing; thick yellow secretion from posterior nares; great pallor of face while standing. Fasted all d. till e., feeling empty and sunken, but without appetite; considerable pain in back p.m. and e.; "rheumatic" pains in front of both tibiae in e. 9th.—Slept well; woke in perspiration, free from pain save in r. shoulder, and here it passed off in 2 h. There now came on a hæmorrhoidal attack, with much itching of anus, and also of prepuce, which lasted after piles had receded. Appetite returned from 9th, and became even exaggerated.

b. Same, June 1st, put 1 dr. of 3rd dil. in half a glassful of water,

* With such a tincture all the subsequent provings were made.

and took a teaspoonful m. and e., repeating it twice or three times daily up to 6th. On 1st no symptoms, save heavy feeling in head during e. 2nd.—Woke with bitter taste in mouth. At 11 a.m. voice assumed nasal tone for a short time. On 3rd felt languid and weary (a very warm d.). On 5th, rheumatic pains in shins. On 7th, dull pains in stomach; coryza with yellow expectoration from posterior nares. On 8th took 6 pellets of 6th dil. at midnight, repeating dose next m. at 9. Irritable temper; during e. feeling of soreness and excoriation, with redness, at end of prepuce. 10th.—All m. feeling of rawness in upper throat, with secretion of phlegm. Repeated dose at 1 p.m. Increased redness, with itching, on prepuce. At 7.30 p.m. slight frontal headache, with shooting pains. 11th.—Took dose at 11 a.m. Preputial troubles and slight frontal headache continued this d. and next. On 13th took another dose, and had epistaxis, tenderness of feet, and scanty stool. On Sept. 20th resumed use of 6th dil., taking 6 globules that m. and next m. and e. 21st.—P.m., weariness; aching in bones of legs. 22nd.—Rose in m. with bad taste in mouth and slight feeling of oppression in head. Took dose that e., and repeated it daily till 27th without further effect; save that for several n. afterwards eyes felt as if lids were inflamed and dry (no visible signs of inflammation), and that on Oct. 4th he had a slight liquid motion at 4 a.m., desire for which was very urgent and woke him from sleep. (*Ibid.*, p. 711.)

3. a. Dr. JOSLIN, June 12th, 1845, took 6 glob. of 12th dil. at 10.15 a.m. In 10 m., pain at lower border of l. axilla; empty eructations after dinner, with pain in r. hypochondrium; pressive pain in one ear while walking. 13th.—Repeated dose at 8.45 a.m. At 11.10, shootings in l. chest, just below middle, at angle of a rib. 14th.—Took 6 glob. of 6th dil. m. and e., without effect. 15th.—Repeated dose at 8.5 a.m. 4.30 p.m., pain in ascending colon while walking. 7 and 10, pressive pain in dorsal spine. 10.20, pressure in r. occiput and temple. 11.15, pressive pain near inferior angle of r. scapula. 16th.—Repeated dose at 10.20 p.m. Next m., just after rising, pressive pain in r. ear. 10.45, remittent pain near insertion of r. deltoid. 10.50, pain at inner side of arm. 11, great propensity to sleep.

6. Sept. 23rd, 1850, took 4 glob. of 12th at 10 a.m. Soon burning smarting in upper larynx and in fauces, much mucus secreted there; irritation and expectoration also referred to some of the l. bronchial tubes. Feeling in larynx continued for 2 h. considerable, and could be reproduced the whole d. afterwards by impulse of expired air on part. 10.47, occasional pain in forehead and r. temple. 11.10, cough excited by tickling in l. chest. Late in e., rheumatic pain just above wrist (dorsal aspect). 11 p.m., hoarseness. 24th.—12.20 p.m., cough excited by tickling behind sternum. Repeated dose at 10.15 p.m. 10.38, severe transient sub-burning pain at l. superciliary ridge, and, 1 m. later, at r. 11.5, umbilical pain, with nausea, eructations, and shooting over l. eyebrow. 11.25, hoarseness, commencing suddenly. 11.30, pain at small spot in umbilical region, first felt on yawning, and for some time after reproducible by deep inspiration. 25th.—2.40 p.m., while lying (on r. side) after dinner, severe but transient shooting in l. chest; 8.30, hoarseness commenced again. 26th.—

Repeated dose at 9, and (no symptoms having occurred) 9.30 p.m. 9.43, on beginning to walk (in room) fine shootings in back, midway between dorsal spine and l. side, then in spot in l. lumbar region. 10.23, fine shooting in r. eyeball. 27th.—Hoarseness again in e. l. cough on lying down in bed. 28th.—Aching, burning, sticking pain immediately below middle of l. clavicle, felt only when riding in open air, a.m.; cough on lying down after dinner, and again at n. on turning from back to l. side. 30th.—Cough when riding in open air, excited by tickling behind mid-sternum, and followed by easy expectoration, a.m.

c. Nov. 22th.—Took 6 glob. of 12th at 9.20 p.m. 10.35, slight dull pain at and near umbilicus, with slight nausea. 11—11.30, pressure as if from end of finger between clavicle and axilla, alternately on r. and l. side of chest, several times; followed by dull aching under middle of l. clavicle. Next d. a fluent coryza set in, with—later—cough and hoarseness. These were still present when, on the 19th, he repeated dose; but as nothing is noted after the 23rd, he was presumably free when, on the 26th, he took 8 glob. more at 9.6 p.m. 9.16, increased flow of saliva. 9.26, zincy taste on tongue and hard palate. 9.30, pain in stomach and abdomen, with slight nausea. 9.37, pain in r. temporal region. 9.40, sudden and severe itching of upper lip, near l. side of nose. 27th.—Slight sense of fulness in head, with lack of cheerfulness, but without much real depression; cough from tickling in chest, m. before breakfast; very sudden and urgent desire to urinate, urine extremely pale, e. 28th.—In n., discharge of mucus from posterior nares and aching in l. instep. 29th.—Recurrence of itching of upper lip. Dec. 2nd.—In n. cough from tickling behind upper half of sternum. Vivid dreams this n. and the following. Several d. about this time had vesicles on upper antero-lateral aspect of neck, near jaw; also flatulence.

d. Dec. 24th, at 8.40 p.m., took dose of 30th. 8.50, pain over l. eyebrow. 8.53, sensation of heat in cheek. 9.10, same on back and face, oppressive in former, smarting in latter. 9.20, rather chilly, especially in back; and 3 m. after chilliness had commenced some pain in abdomen, with slight nausea, and shooting near middle of anterior part of chest. Slight pains and itchings here and there followed. Next m. on waking there was dull aching in forehead, reddish-brown dry coating on tongue, and bitterish taste in mouth. About noon, cough and piercing in l. lung on breathing cold air. Nothing further of note occurred. May 25th, 1852, he again took 30th, repeating it 8 times at $\frac{1}{2}$ h. intervals from 7.15 p.m. Nothing followed but the slight aching and itchings here and there, with tickling at throat-pit and behind sternum. On 26th took same, with still less result.

e. May 27th, took 6 glob. of 3rd dil. at 8.30 p.m. 8.38, shooting, like a slight electric shock, from rectum to l. groin. 8.45, itching deep in meatus of l. ear. 8.53, severe and continued itching on back between scapulae. 9.27, dull pain at inner side of l. leg at each step in walking, soon followed by sharp pain at inner side of r. knee. 10, chilliness. 28th.—Woke in n. with pain in cardiac region of chest,

17.8 a.m., stich-like pain at inner part of r. knee, on stepping. During d. depressed and indisposed to exertion; burning pain in region of heart at times, which in e. and early n. became continuous and strong, with frequent and severe, but transient, exacerbations. (*Ibid.*, 3, 294.)

4. Dr. B. F. JOSLIN took, June 12th, 1845, 6 glob. of 12th dil. at 1.45 p.m. After about 2 m., sharp pain in upper r. chest, near axilla. On 13th took same dose without effect. On 14th took 6th dil. m. and e., and repeated it at 8.5 a.m. on 15th. 8.50, colic near umbilicus. 9, pain in sternal region. (*Ibid.*, 304.)

5. Mrs. P—, æt. 43, Sept. 24th, 1850, took 3 glob. of 12th at 10.25 p.m. 10.29, pain in l. shoulder, and from it along upper arm to elbow, with sense as if arm had been strained. On 26th, at 9 p.m., repeated dose. In 4 m., aching at l. of dorsal spine extending halfway to side, lasting 4 m.; about same time hacking cough from irritation behind sternum, which about 3 m. from its commencement became very frequent. In 22 m. sharp momentary shooting at seat of aching. 9.48, numbness of r. hand. 10.2, cramp-like pain at l. nape. (*Ibid.*)

6. a. Dr. M. J. RHEES, æt. 34, strong and well, took, Oct. 1st, 1858, at 11 p.m., 1 dr. of tinct. in ʒj of water.* Sensation across forehead as if brain were loose when moving head, and as if it were bruised, commenced 2 m. after dose and lasted till after breakfast next m. After 2 h., slight numbness and crawling sensation in l. arm (in bed). 2nd.—8.30 a.m., repeated dose. After 3 h., grumbling-stinging tooth-ache in r. upper molars, while riding in cold wind, with dull aching in forehead; sharp piercing pain in l. head for short time. 3½ h., dull pain and sense of fulness in l. iliac region while riding, lasting 2 h. 4 h., rending in front of both ankles running along instep, alternated several times with gnawing pain in internal condyle of l. humerus; after which, aching and heaviness with crawling sensation all through lower extremities—while riding. 6 h., burning tingling pain below and to l. of r. nipple. 8 h., copious discharge of colourless urine. 7.30 p.m., repeated dose. 15 m., sense of epigastric distension, with much tasteless eructation; heaviness in l. calf, as if flesh would fall from bones; dull aching in both elbows. 30 m., languor and general heaviness, with fulness of head and chest; crawling tingling in lower limbs. 1 h., dull aching low in occiput and in r. temple; aching and pressure at vertex. 2 h., boring pain behind l. ear. 3 h., fulness and aching through sinciput and temples. 3rd.—9 a.m., repeated dose. 10 p.m., aching in r. hip-joint while walking, producing slight lameness, followed by burning pain on small spot near top of r. sacro-iliac symphysis. It, in act of lying down, sudden burning-stinging pain in whole l. chest when inspiring. Next m., rending aching pain in bend of l. knee while standing. 4th.—At 10 p.m. took 10 dr. in ʒj of water. 1 h., stinging burning just below inferior angle of l. scapula, followed and accompanied by stinging, almost itching, pain in l. chest, just below nipple, with heavy throbbing in ears synchronous with pulsations of heart. Dryness of mouth and tongue at n. 5th.—8 p.m., sensation in bowels and rectum as if diarrhoea would ensue, for 2—3 h. 11, repeated dose. 30 m., sensation as of lump or ball in throat, not

* In all these doses 100 succussions were given to the solution.

relieved by hawking or swallowing. Restlessness and discomfort in bed at n., position must be frequently changed; burning pain in l. chest, just below nipple, worse when inspiring deeply. 6th.—2 p.m., throbbing through whole body; all d. sense of great dryness in nose, front and back. 7 p.m., itching in bends of elbows and at same time over heart, with aching under and below apex of l. scapula. 10, repeated dose. 10.10, drawing pain, almost a cramp, in r. calf, continuing $\frac{1}{2}$ h. Sensation in l. chest as if heart suddenly ceased beating, followed by heavy throbbing through chest (this has been felt several times since beginning of proving); aching between scapulae while standing, also stinging burning there, attended by constant desire to inspire deeply, with sense of dry heat in middle of chest,—the inspirations are attended by dull heavy pain in region of heart; stinging pain on inner side of r. upper arm; sensation as if ears were obstructed, especially l.,—prover's own voice, as well as that of others, sounding strange to him, producing a kind of titillation in ear and having a peculiar ringing confusing sound, while yet sense of hearing is as acute as ever (this began 6 h. after last dose, and continued 18 h.). Complete loss of sexual desire for several d. At 10 p.m. on 7th took 20 dr. Symptoms of ears and voice still continued, though in less degree, into following d., attended by slight ringing in ears, which on 9th became constant roaring as from a shell, with feeling as if a fine thread were tied tightly round neck just below ears. All this continued for a week, and then gradually died away. Roaring was not relieved by pressing finger into ear.

8. Nov. 22nd, took 5 dr. of 6th dil., prepared as before, at 10 p.m. After a few m., dull bruised feeling in forehead, most severe on r. side, worse on movement, when it feels as if brain were loose. This continued till next m., when it was even more marked. P.m. on 23rd, for 2—3 h., severe stinging pain in region of heart, extending through chest to point of l. scapula, with frequent desire for deep inspiration, which yet increases pain. At 10.30 p.m. took 10 dr. In 1 h. sensation in bowels as if diarrhoea would come on, with aching in rectum. 24th.—Dull aching in r. molars, upper and lower, relieved by dinner, violent irritation to cough while eating, observed at each meal; at 4.30 p.m. pungent drawing pain in l. occiput, with similar pain in l. nostril and feeling as if coryza would ensue. Much tough mucus in larynx, with constant desire to hawk and raise it, but without relief, worse at n., but troublesome all d. At 11 p.m. took 15 dr. 25th.—Dull headache and slight bruised feeling in forehead nearly all d.; again sensation in bowels as if diarrhoea would come on, with the aching in rectum. At 11 p.m. took 20 dr. Frontal aching increased soon after, with pungent tingling sensation in occiput. After $\frac{1}{2}$ h. tingling crawling sensation in lower extremities. 26th.—After breakfast, griping below umbilicus, relieved by emission of very offensive flatus; dull pain in region of heart, with same and also weight in l. upper arm, especially elbow. In e., aching in throat, as if lump were sticking in gullet; feeling as if thread were tied tightly round neck just below ears, with slight roaring in these; frequent forcible eructation of tasteless flatus; aching in pharynx and collection of tough mucus in fauces,

with slight irritation to cough. At 11 p.m. again took 20 dr. 27th.—During stool prickling itching on buttocks (also on following d.); after singing in e. dull frontal ache with heat and redness of face, which went off on repeating dose at 10 p.m. 28th.—Much tough mucus in fauces, which is very difficult to eject, raw pain while doing so under each clavicle; at n. raw stinging at mid-sternum, a little to l.; after lying down in bed dull pain in l. side near back, just above last true rib; this happened again on following n., which was very restless and dreamful, as were all up to that of Dec. 6th. On that of 1st burning stinging pain near heart returned, it gradually moved to 2 in. above and to l. of nipple, and continued some time, increased on deep breathing and by lying on back or r. side, relieved by lying on l. side. During this d. severe aching in r. molars, relieved by rinsing mouth with cold water; itching on buttocks and calves. Sexual desire again diminished during this proving. (*Amer. Hom. Rev.*, ii, 69.)

7. a. Dr. H. M. PAINE, æt. 28, took 10 dr. of tinct., and after $\frac{1}{2}$ h. had cutting pain at pit of stomach for 5 m. while riding in open air. No other effect followed this dose, or one of 6 dr. taken 2 d. later. Twelve d. later took 10 dr. again, and 15 dr. next d. On 1st d. felt unusually sensitive to cold; on 3rd d., at 11 a.m. and 8 p.m., darting pain in l. head for $\frac{1}{2}$ h.; during 4th d. burning pain in stomach and abdomen, and at 11 a.m. dull aching through forepart of head; also acute momentary pain at pit of stomach. Seven d. after he took doses of 10, 15, and 20 dr. during 8 d. with no result save a burning pain at pit for a short time after the first. He now, 2 mo. later, took repeated doses of 10 and 15 dr. for 34 d. On 2nd d. he woke about 2 a.m., had soreness for few m. in whole l. chest after turning to that side, and slight pain in head before breakfast. On 3rd d., at 7 a.m., deep inspiration caused stitches round waist, and at one time p.m., while riding, a very acute stitch along l. margin of sternum. On 6th d. acute lancinating pain a little to l. of sternum and under l. breast, and at 3 p.m., while writing, fine stitches for a while in substance of l. lung. On 7th d., while at dinner, momentary slight stitch at lower edge of l. ribs; frequent small passages of foetid flatus at n. On 27th and 35th d. momentary shooting pains in various parts of chest during e. On 7th d. frequent desire to urinate; on 8th desire less frequent but more urgent; and same urgency recurred on 19th, 20th, 27th and 28th d. On 2nd n. unpleasant dream of murders; several such, of accidents, losses, &c., during 6th n., and again on several other n. up to the 29th. On e. of 18th d. his attention was called to an eruption then getting troublesome, though he remembered it had been present most of the time, composed of very abundant minute red pimples situated on lower extremities—especially on posterior surface and inner side of knees; it caused from this time violent itching on undressing at n.; by 24th d. scratching had developed many little pustules, most numerous about knees, at which point eruption lasted longest; itching was felt occasionally at other times, and once on arms also; scratching relieved it much, though causing some burning.

8. Two years later, Dr. P.— recommenced proving, taking 10 dr. of tinct. at 1 p.m. on Feb. 7th without effect. 9th.—Repeated dose

at 10 a.m. and 9 p.m. For 2 h. after former sensation as of hard substance in pit of stomach. 10th.—At 10 a.m. took 10 dr. During d. frequent inclination to urinate, with feeling as if urine could not long be retained. While undressing at n., and for some time after, considerable itching on lower extremities; this recurred following e. 16th.—At 9.30 p.m. 10 dr. 17th.—After 4 a.m. very unpleasant dream of burglars. Repeated dose at 7.30 a.m. and 9 p.m. Itching of legs again felt in e. as before. Sleep disturbed; wakeful and restless; short naps, and unpleasant fancies even in waking intervals. Took another dose at 9 p.m. 19th.—Itching of extremities began about $\frac{1}{2}$ h. before retiring last n., and again on waking this m. Nothing is visible till after scratching, when a temporary diffused redness appears. For several d. unusual sensation of heaviness in epigastrium, occurring immediately after eating and lasting $\frac{1}{2}$ h. (*Trans. of Amer. Inst. of Hom. for 1858*; and *Amer. Hom. Rev.*, ii, 33.)

8. a. Dr. W. E. PAYNE took 15 dr. of tinct. one e. After 10 m., weight in stomach, as from undigested food, pressing upwards as far as throat-pit,—this sensation continued (for an h.) till he fell asleep. In m. on waking felt nauseated, with movement in intestines as from a cathartic. Took 5 dr., whereupon weight at epigastrium recurred, but it was not so great,—rather a sensation as of a hard body there; it was somewhat increased by food, and continued for 4 h. Three d. later he took 6 dr., when same sensations came on; feeling at throat-pit descended towards stomach at every empty swallowing, but immediately returned; after lasting 2 h. this condition gradually abated, but returned after dinner and continued 2 h. or more.

b. Dr. P—now took repeated doses of 10 dr. of 1st dil. during 6 d. (none on 4th d.). On 2nd d. recurrence of sensation at epigastrium &c., 15 m. after taking drug. On 3rd d. aching and sense of great fatigue in loins, also of lassitude in lower limbs and aching in calves, as after long walking or standing, worse when moving, relieved by lying down. On 4th d., m., sore pain at l. sacro-iliac juncture, increased by stooping and rising; in a few h. pain became general over loins, and felt like that resulting from a strain,—it was increased by any sudden movement; p.m. it somewhat abated, and was succeeded by pulsative sensation in muscles of nates. On 7th d. awoke with bruised sensation in brain, increased by moving or stooping; it continued until noon, and suddenly disappeared after dinner.

c. He last took 3rd dil., repeating it 2 d. later. Previous sensation of undigested food recurred 3 h. after 1st dose, continued (after a 2nd dose) through afternoon, but went off in n. On 3rd d., after $\frac{1}{2}$ h. sudden and prolonged sneezing. On 4th m., after stool, which was diarrhoeic, relaxed sensation with rumbling continued for some h., as if another evacuation would follow. Nothing occurred, however, till 5th d., during which he had 5 copious liquid stools, with colic pains just above hypogastrium, disagreeable rumbling in bowels, nausea and loss of appetite; motion would pour away in full stream, as if a large quantity were coming, then be suddenly arrested, and inclination go off, but on rising the urgency came on again, and on returning to cabinet a fresh stream poured forth. Besides the actual evacuations, there were frequent

urgings during d., which, however, could be restrained. (He had awaked this m. with acid stomach and eructations of sour flatus.) On 6th d. there was still nausea and want of appetite. (*Trans. of Amer. Inst. for 1858.*)

9. Dr. CLARK WRIGHT took two doses of 6th dil. In 3 d. he was attacked (with-out cause) with a severe cough, such as he had never before experienced, dry and spasmodic at first, coming on in paroxysms preceded by tickling in throat-pit and attended with determination of blood to and slight pain in head and wrenching pain in r. chest; the most violent paroxysms occurred a few m. after lying down at n., and lasted 10—15 m. This state continued about a week, when expectoration of adhesive mucus, in small quantities, set in, and lasted a fortnight more. Some medicines were taken in latter stages of cough, without obvious results. (*Ibid.*, 1860.)

10. Dr. B. F. BOWERS, Nov. 26th, 1860, took a few pellets of 12th dil. at 10 p.m. Woke next m. with pain in bowels, relieved by emission of flatus; pain also below and anterior to nipple, mostly r., and in larynx, mostly l. There was during d. borborismus and eructation; itching in anus; headache with coryza and hawking of mucus from larynx; in e., burning of palms. Dec. 3rd.—Repeated dose at 9 p.m. In 3 m. itching at various spots; 7 m., eructation; 12 m., hacking cough; also burning of palms again, and ringing in ears. Troubled dreams at n. On waking in m. flatulency, with sensation in tongue and mouth as if burnt. 14th.—At 8.40 p.m. took 30th. During next h. experienced a few of foregoing symptoms, especially flatulence and itching; also acute of breathlessness. On another d. took 12th dil. at 9.20 p.m. In first ½ h. felt restlessness, pain above umbilicus, borborismus, eructation, yawning, flow of saliva, hawking of mucus. At 10.20 pain over r. eyebrow; at 10.31 hicough, pain in l. temple, itching in l. side of face; at 10.35 (pain in eyebrow continuing) sensation of stoppage in l. ear and return of burning in palms. (*Amer. Hom. Rev.*, 5, 31.)

11. a. W. KELLY, æt. 18, sound and vigorous, proved under direction of Dr. H. C. Preston. He took daily doses of tinct. (4 p.m.), 5 dr. on 1st d., 10 dr. on 2nd, 3rd, and 4th, 5 dr. on 5th, 1 dr. on 6th and 7th d. After the 7th d. his distress augmented so much that he was unwilling to continue the proving; and the evolution of symptoms went on for 15 d. more. The action of the drug was chiefly characterised by pains, numerous, varied, and of frequent recurrence, from which hardly any part escaped. They were all transient, intervals occurring of 10 m.—1 h. Some were so severe that prover asked for an antidote; and they mostly prevented study, though not active occupation. They ceased about 11 a.m., and recommenced a few h. or less after 4 p.m. dose.

b. From 1st to 9th d. his nights were very restless, sleep broken and unrefreshing, or disturbed with vivid dreams; he jumped and tumbled in bed, walked about room, and talked in sleep. Dreams were extraordinary and terrific. On 9th d. they were pleasant, and on 10th he slept well. Several times during 1st d. there was dizziness. Three h. after taking 1st dose head began to ache, and ached severely till he went to sleep, towards midnight; it returned on waking, and continued till noon next d. Headache was dull on 3rd d., very severe 5th—9th d.; it most frequently affected the temples, but was twice felt in occiput, twice over r. eye, and on 12th d. in forehead.

c. On 2nd d. there was nasty taste in mouth, and tongue was heavily coated. On 3rd d. pains were severe in gastric region; on 4th dull and heavy, towards cardiac orifice; on 5th severe on waking in m., and frequent, tongue again heavily coated. There was tickling in throat soon after taking drug, and throat then became a little sore.

On 6th d. pyrosis after dinner; constant inclination to urinate. On 8th d. pains severe in stomach; throat dry, and deglutition difficult; anorexia, constipation. On 9th d. same dryness of throat; on 10th hoarseness; on 11th pain in stomach on waking (3rd d. of constipation); on 12th anorexia.

All the other symptoms belong to the pains described above. (*United States Journ. of Hom.*, i, app., 27.)

RUTA.

Ruta graveolens, L. Rue. Nat. Ord., Rutaceæ.

1. *Proving*.—T. HAHNEMANN, *Mat. Med. Pura*, vol. iv of original, vol. ii of translation. Contains 26 symptoms from self, 259 from 8 associates, and 3 from authors.

1. [No information as to dose or prover.] Burning in abdomen. Pressure in abdomen, then great emptiness. Frequent rumbling in belly. Great drowsiness after a meal. Drowsy, a.m. Weight in belly. Little appetite, dislike to meat and vegetables. Starting in midday sleep and jerking of foot. Formication on thighs so that he must scratch, on the side on which he is not lying. (*Herman, Archiv*, xv, 2, 187.)

3. [As No. 1.] Pressive shooting pain over whole forehead, especially while coughing (1 h.); a thick red stripe, like a long swelling, extending from root of nose and inner margin of eyebrows up to each frontal eminence, not tender; mucus in both canthi, m., constantly reproduced on wiping it away; he sees distant objects more clearly than usual (prover was myopic); after meal of bread and butter pinching at r. side of stomach region, soon going off again; soft stool; he passes water frequently and copiously, without painful feeling; in e, after lying down explosive cough, with much expectoration of tenacious stringy mucus,—it returned several times in less strength during n, and when worst threatened to end in vomiting; he was awakened about midnight by a choking cough, with scraping at upper chest, without pain and with little and infrequent expectoration; dyspnoea and shortness of breath; cramp-like throbbing pain in middle of r. thigh, afterwards in both at once,—after this had gone off similar pain on outer side of l. leg below knee, that soon went away in turn; at n. pain in both thighs, as though violently grasped and squeezed in hands; he woke at 4 a.m. with dull tearing pain in sacrum, that only went off about 9 a.m.; great lassitude in legs, walking very difficult from sense of heaviness in them; sleepless, restless m., he must lie now here, now there, without heat of body, or cough, or thoughts that hinder sleep; was obliged to rise 3 times in n. to micturate, and passed an unusually large amount of urine; coldness creeps over him, especially up back. (*HARTLAUB u. THIRKS, Ann.*, i, 319.)

4. a. May 28th, 1856, e., and 29th, m., took 1 dr. 7th dil. of leaves of R. Sleep full of remembered dreams. Burning shooting in chest, especially under sternum, like pain of ulceration, m. Sore pain on l. ring-finger. Shooting above r. knee as if ulcerated when standing and walking. Drowsy, head heavy, confused. For 2 successive m. very weak sight, as if eyes were too distended. Shooting pressure deep in orbit. Tired pain in eyes when reading.—June 1st. Dislocative pain in r. shoulder, stiffness of neck, m. Itching at corner of mouth. Perspiration when walking in open air, p.m. Distension of abdomen, e.

b. March 4th, 1857, took 2 dr., 4th dil., 5 times in the d. Frequent chills and shivering all d. Much yawning, especially noon, also after eating. Pain in back and sacrum, especially tearing, squeezing,

shooting. Cramp in l. sole, e. Vivid remembered dreams, n.—5th. Exhaustion, weight in head and limbs, m. Loss of appetite for breakfast. Nape and shoulders painful as if stiff, aching. Tensive pain in brain, shooting in l. frontal protuberance. Frequent eructation, inodorous flatus. Pressure on r. scapula with shivering. Shooting and pressure from apex of scapula into back. Shooting in l. orbital bone when reading. Shooting and pressure above l. eyebrow. Drowsy, p.m., uncommonly exhausted, relieved by walking. After taking walk, e., cheerful but very fatigued and inclined to lie down. Backache and heaviness of limbs, which went off when working; urine dark yellow.—6th. After 8 a.m., when reading, headache, pressure in occiput, frequent sneezing and yawning with chilliness. Lies long awake, n.; head affected internally, not painful, cannot sleep on account of it. Itching and tearing in thighs and back, n. Tiresome, persistent, vivid dreams.—8th. On rising, m., pinching in abdomen, eructation. Empty feeling, creeping in stomach, no appetite. Pressure, tension, weight in occiput. Dazed feeling; confusion in head; difficulty of thinking from calculating and writing for a few m. Heaviness in forehead and pressive pain in occiput, stiff neck. Burning and soreness in outer canthi. Pressure between scapulæ, p.m. Shooting in shoulders. Hands and soles cold. Dull persistent shoot in forehead after slight work and straining eyes. Itching and smarting in eyelids, e. Persistent, tiresome dreams, n.—9th. Confused heavy head, with tension in forehead, shooting and smarting in canthi as from dust, m. Boring in throat at 10 a.m. After dinner very exhausted, drowsy, head heavy. After sleeping for $\frac{1}{2}$ h. frequent yawning, lachrymation of eyes, heaviness of head after reading for a short time, flatulence. No sleep till 1 a.m., thoughts seem to hover in the distance, rapid succession of thoughts disturb sleep. Sleeps from 3 to 4 a.m. without being refreshed, awake from 5 a.m., and cannot get to sleep again, heavy head. (SCHRELLING, *A. h. Z.*, lxxxiv, 44.)

5. Dr. VAN DE WARKER took 10 min. doses of the oil at 9.5, 9.30, and 9.55 p.m. After first dose there was warmth in stomach and sense of uneasiness in head. After second, uneasiness in stomach, pain in back, oppressive feeling in head, slight confusion of ideas, and occasional feeling of faintness. The third dose intensified the above symptoms, pain over kidneys was more marked, with urgent desire to urinate. Flashes of heat passed over body, and there was an indescribable sense of nervousness, which created a fear that an overdose had been taken. The confusion of mind was controllable by an effort of will, as also was the general feeling of nervousness. Pulse was increased in frequency. Gait was unsteady. Pain at stomach was in great measure appeased by drinking milk. For several h. after the desire to micturate was constantly present. During n. the effect of the rue was that of any narcotic drug upon him—but little sleep and great restlessness. (Sphygmographic tracings of pulse showed its energy diminished.) (*Criminal Abortion*, Boston, 1872, p. 80.)

II. *Poisonings*.—1. a. M. PUEL, a pharmacist, in August plucked a number of specimens of R. in fruit. Next n. had violent itching on upper surface of hands, which were studded over with red spots. Next

m. in place of these red spots there were vesicles filled with transparent fluid, very red at their base; there were more of these vesicles between the fingers than on the rest of hand; they were in groups, some of which seemed connected with others by a red track of peculiar appearance, something like the tracks made by the *Acarus scabiei*. The itching continued to increase, and on the 2nd d. the vesicles had developed and covered both hands almost completely, especially the r., which had been most engaged in plucking and manipulating the plant; the general appearance was very much that of a sarcoptic eruption. At the end of 2 d., during which the itching continued, especially at n., when it became intolerable, the groups of vesicles were sufficiently close to effect a junction with one another, and the appearance at the points of junction was as though the hands had been imperfectly blistered with cantharides. This condition continued for 10 to 12 d., after which the inflammation diminished and the epidermis exfoliated. But 2 or 3 weeks after the apparent cure, there appeared small vesicles on several parts of hands, filled with the same sort of liquid and arranged in groups, just as though they had been caused by some animalcule. When the hands were nearly healed, the toes of both feet became the seat of some itching, and there appeared on those parts groups of vesicles precisely similar to those on the hands.

4. Next year, in June, M. Puel gathered some specimens of R. in flower. Though he took the greatest precaution to touch the plant as little as possible, he was even much more severely affected than in the previous year. He was ill for 3 weeks, and his hands presented a lamentable appearance, just as though they had been scalded with boiling water, so excoriated were they. The r. hand especially, which had touched the plant with the ends of the forefinger and thumb, was literally one big wound from the wrist to the tips of the fingers. An intense pain which attended the eruption compelled him to keep his bed for 5 or 6 d. (*Souvenir, Gaz. Hebdom., viii, 720.*)

2. PLINY says that a gardener who was working among R. got erysipelas of hands and forehead. (*Hist. Nat., i, 20, c. xiii. In Wibmer.*)

3. BULLIARD says a large dose causes restlessness, fever with yawning, dryness of mouth, and pains in throat. By handling it for a considerable time it inflames the skin, and the hands swell. (*Plant. vva. de la France. In Wibmer.*)

4. After cutting a quantity of the herb in June, and stripping the leaves from the stalks, he observed next m. great redness and heat of both hands. The 3rd d. the redness and pain had increased so much that the hands looked as if they had been exposed to hot steam. They were smeared with oil; by e. they were covered with vesicles, especially the tips of fingers. The 4th d. the hands were still much swollen, and between the vesicles the skin was bluish-red. The 5th and 6th d. the swelling had spread over back of arm up to elbow. The vesicles were opened and covered with a compress of chamomile and elder flowers. In 4 weeks the whole skin of the hands desquamated, even on the parts where there had been no vesicles. (*ROTH, Buchner's Toxicol., 265. In Wibmer.*)

5. A girl who had already had a child when only 16, some years afterwards got pregnant and consulted a woman, by whose advice she made a decoction with three fresh roots of *R.*, which she drank, and soon afterwards she had horrible pains in stomach, and felt so ill that she thought she must die. Objects appeared to her enveloped in a fog, her gait was unsteady, the knees gave way, she felt stupefied as if intoxicated. Then she vomited violently; what came up was streaked with blood. After this had lasted all n. she felt better m., but she had later at first slight, then severe attacks of colic, such as precede parturition. Next d. towards e. the pains became more and more violent, then blood was discharged in small quantity, then in large clots, and in a few m. she aborted of a 3—4 months' fetus, 48 h. after taking the drug. (HÄRLIE, *Annal. d'Hygiène pub.*, xx, 189.)

6. A girl, æt. 25, between 6 and 7 months pregnant, took for several d. an unknown quantity of decoction of *R.* leaves. She became affected with persistent violent vomiting, with great pain, fever and intense thirst. She drank a quantity of cider and wine and water, which she immediately vomited. This state had lasted 2 d. when the doctor saw her. In addition to the vomiting there was great weakness, spasmodic movements of the trunk and extremities, wheel-like movement of the head, incoherent talk, sleep disturbed by all sorts of confused dreams. She lay in a somnolent state, but could be easily roused; she gave rational answers, but seemed to do so with difficulty. Eyes sunk, face red but expressionless, she looked intoxicated. Objects appeared to her in a fog, pupils contracted, moderate fever with slow weak pulse, heat; since the commencement of the vomiting she had passed no stool or urine, tongue red at edges, slight pains in epigastrium. Having ascertained that she was pregnant—though she strenuously denied it—the doctor ordered barley water and low diet. The vomiting ceased, but the other symptoms continued. Next m. the sufferings were increased, she complained much and screamed occasionally. When seen at 11 a.m. the general state was unaltered, but she seemed much relieved, and the vomiting had not recurred. On turning back the bedclothes it was found that she had been delivered of twins (which were dead), and the placenta had also come away. There was a great deal of blood and water in the bed. The womb was very much contracted. It was ascertained that the delivery had taken place at 1 a.m. The symptoms continued much the same during this and the following d. She remained in a somnolent and stupefied state, answered questions with difficulty and often not at all, groaned much, she passed stool and urine, and there was a bloody discharge. Next d. the breasts were much swollen by the influx of milk. She was feverish, spoke incoherently, had frequent violent convulsive movements of the limbs. She was extremely prostrated, the vomiting returned, she threw up green bile and all the food that was given her. Next d. the symptoms were the same, and in the e. the secretion of milk had stopped. Next d. she still lay in state of prostration, somnolence, and stupefaction, she could hardly be roused to speak, her mind was confused, and she was semi-delirious. The tongue was thickly furred, red, covered with yellow slime, very swollen, and there was great flow of saliva. Pupils

still contracted, eyes sunk, objects only dimly perceived, pulse weak, slow but regular, 50; skin cooler than normal; head tossed from one side to the other, violent rotatory motion of arms; pressive pain in epigastrium; the womb had got to its natural size, but the bilious vomiting continued; the lochia had ceased. The next 2 d. there was little change, except that the vomiting was less. Pulse 50, skin warmer, but the tumefaction of the skin soon fell, the pulse became very weak, and sank to 30 or 40. Less salivation. The urine was passed involuntarily, the bowels ceased to act, and the body exhaled a mouse odour. The features became more distorted, eyes sunken, weakness and emaciation increased. On the 13th d. a remarkable change ensued, the symptoms of poisoning disappeared, and she fell into a state resembling typhoid fever. The soporous state went off, but the prostration increased, the spasmodic movements of body and head ceased, but those of the arms continued; she became more observant. Her complexion, which was normally very fair, had a yellowish-brown hue; she did not dream so much; the pulse was still weak and slow, 45; the heat of the body was under the normal. In the e. she had a slight attack of fever; the tongue, which was now of normal size, was soft and moist, thirst considerable, less bilious vomiting; bladder distended with urine, 2 to 3 pints were drawn off by the catheter with great relief. During the following days improvement made rapid progress, and she made a good recovery. (*Ibid.*)

7. A girl between 4 and 5 months pregnant took for several d. large doses of the juice expressed from the leaves. She had drowsiness, prostration, extraordinary debility, weak, slow pulse, coldness of skin, and constant but not convulsive movements of limbs, especially arms; great swelling and inflammation of tongue, with profuse salivation. The 6th d. after the commencement of the symptoms of poisoning the fetus came away, and the intensity of the symptoms declined. The symptoms of poisoning lasted in all 12 d., after which they gradually went off and the girl recovered. (*Ibid.*)

SABADILLA.

Anagrus sibiricus, L. *Cevadilla*. Nat. Ord., *Melanthaceae*.

1. *Proovings*.—1. HAHNEMANN.*—Painful pressure at r. temple from within outwards (10 h.); burning itching within lobules of ears, without external redness or heat; burning in stomach; bruised pain in anterior muscles of thighs while walking, worse when touching parts; creeping sensation in limbs. (*Strapp's Beiträge*.)

2. GROSS.—Painful pressure, with dizziness, in sinciput and temples, with occasional painful stitches, followed by drawing sensation, in back; painful beating in l. temple; pain in l. occiput, as if a sore place were strongly pressed; flying heat with redness of face; painful

* Of this and the following provings we are simply told that the symptoms "were obtained upon perfectly healthy persons by means of a tincture prepared from a part of the powdered seeds and 20 parts of alcohol." It would seem that single doses of a few drops each were taken.—EDS.

drawing from below upwards in r. eye and temple to vertex; pressure on eyeballs, worse on looking up; copious epistaxis, twice (quite unusual). Rawness and scraping in throat, he must hawk continually ($\frac{1}{4}$ h.); feeling like heartburn (10 m.); nausea, relieved by somewhat bitter eructations; feeling of nausea and distress with languor, she feels as though sinking and must sit down; pain below scrob. cordis on pressure and especially during inspiration, as if a sore place were pressed upon; internal slightly digging pain above scrob. cordis to l., for several d. the spot resents frequent handling; great burning in stomach and up chest as high as throat-pit; sudden constriction of breathing at scrob. cordis, with anxietas; painful boring in hypogastrium, especially at a spot on r. hip; digging up in r. lobe of liver, extending to l., and therewith paroxysmally a painful transverse drawing, also similar digging in forehead, pressure relieves latter, but liver feels sore under it. Towards e. she has constant urging to micturate, only a few drops coming, after which urging becomes more violent, therewith drawing and burning in urethra (relieved by pulsatilla). Tosses r. arm upwards with sudden and painful jerk; tearing at r. side of knee at each step; her knees feel weary, as if they would give way; painful drawing in all limbs, heaviness in legs, so that walking becomes troublesome to her. Suddenly great lassitude, so that her eyes irresistibly close; lassitude in all limbs, he sweats on making any exertion, also at n. in bed, which is quite unusual. Very restless sleep, tossing about in bed and much dreaming. Vexation at every trifle. (*Ibid.*)

3. HARTLAUB.—Pressive tensive pain in forehead ($\frac{1}{4}$ h.); corrosive burning at spot on vertex; burning creeping over eyebrows; redness of face, which is hot without feeling so; painful boring behind l. ear, in parotid glands, lower jaw and submaxillary glands (3 h.); burning-creeping shooting sensation behind ear; itching-creeping on nose. Burning-crawling shooting sensation in palate; feeling of constriction deep in throat, as after an astringent drink; repulsive burning-sweetish taste in mouth, aggravated during his accustomed smoke, but going off while eating (3 h.); corrosive burning stomach-ache (3 and 7 h.); in gastric and hepatic regions internal painless warmth; feeling as if hepatic region were scraped with back of knife, crampy drawing together of abdominal muscles, l. side, with burning pain, he bent double towards l. with it; abdomen, hands, and chest covered with red pin's-head spots, redder in open air, not raised. Burning in urethra, independently of micturition, but with urging to micturate. Burning pain in l. chest ($5\frac{1}{4}$ h.); burning-creeping shooting sensation between scapulae; red patches on l. arm, occasionally also red points, not raised, causing no itching but only a hot sensation, and remaining even when exposed to air (2 h.); red elevated streak transversely across l. forearm; redness of one hand and red spots upon it; both hands are dotted with red spots, especially l.; fine burning stitch in tips of l. fingers, followed by glowing heat there, while rest of hand was very cold (8 h.); shooting sensation in both thighs at same time; in front of l. knee a white blister with red border and burning pain; tremulous sensation and actual trembling in all limbs (1—2 h.). Yawning and stretching; burning-creeping sensation here and there. Drowsiness,

which weighed down his eyes (5 h.). The spots and streaks mentioned became redder in the cold. [*Ibid.*]

4. HERING.—Head is oppressed and heavy, as if he must hold it constantly,—for some d.; thinking is difficult and gives her a headache,—save for this she has a strong inclination to laugh at everything, but afterwards feels indifferens, almost apathetic; intellect seems greatly stimulated, even strained, but emotions are dull and cold,—after a few d. opposite condition supervenes; continued attention causes headache; throbbing headache in r. forehead, afterwards higher up (1 h.),—it lasted 2 h., then decreasing gradually, but head remained painful all d.; slight pressive pain in forehead over l. eye, then also in temple (10 h.); slight headache in l. vertex (2 h.); painful heaviness, first only in r. forehead, then extending to l., and finally affecting whole head continuously, it increases during movement and then becomes vertiginous (1st d.); constant headache, like a weight, 1st d. only in forehead, following d. in whole head, less violent when staring or reflecting; dull feeling in forehead (not exactly a pain), as if she had received a blow, therewith heaviness of limbs (2 h.); slight jerking frontal headache, first r., then l.; fine slight pricking stiches in skin of forehead when becoming warm and going upstairs quickly (2nd d.); heat in face after warm drink (1st d.); heat and pricking itching here and there on face (11 h., e.); redness of face and hands; reddened edges of lids, and feeling in eyes as if inflammation would set in: burning feeling in l. eye, as if something corrosive had got into it, going off and recurring (1 h.); lachrymation for several d. when going into open air, looking at bright light, coughing, or yawning, also at least pain elsewhere; aching pressing otalgia (internal); crackling in ear, and humming on pressing air into it; violent itching on l. cheek, with spots on face like herpes, not disappearing till after some d. (1st and 2nd d.); contractive biting sensation in nose, as from mustard. Lower jaws, when touched, are painful like swollen glands (for several d.); cracking in both maxillary articulations (especially r.) on opening mouth in m., as if they were quite loose,—not painful or disagreeable (2nd d.); slight beating and drawing in teeth, not continuous, generally during a walk; small stiches from above downwards in r. upper teeth; intermittent pressive pain inside l. cheek where teeth meet, not affected by contact (10 h.); pinching dull stiches on tip of tongue, mostly to r., coming and going (6 h.); tongue thickly coated, mostly whitish-yellow, especially in middle and behind (several d.); tongue white-coated, but tip (as also gums) bluish (2nd d.); throat feels inwardly swollen (8 h.); he is constantly obliged to swallow, in doing so has pain behind larynx as if something was lodged there,—also scratching and roughness, so that he is continually hawking (3rd d., worst in m., but lasting all d., especially after eating); much mucus in throat first thing in m.; thirst for cold water, especially e. (1st d.); increased thirst, he has, contrary to custom, to drink even early in m.; no appetite for dinner, but in e. canine hunger (1st d.); he eats breakfast with avidity for several d.; frequent painful eructations, which frequently reach only to middle of chest, as if impeded (several d.); sour eructations, rare, but lasting some d.; great aversion to all food,

and yet hunger (1st d.); nausea before dinner, ceasing after it; some nausea, inclination to vomit, and anxious feeling, immediately after a meal; burning in stomach and along whole gullet (immediately, lasting 10 m., and then gradually subsiding); intermitting pinching pressure deep in epigastrium (5 m.); pinching stitch behind heart, worse on inspiration (6 h.); while sitting, p.m., he is suddenly seized with violent stitch-like pain in r. side below last rib, bringing tears to his eyes, on twisting himself for relief pain suddenly attacks l. side, and then the two pains seem to meet in mid-abdomen,—they lasted altogether 20 m. (1st d.); paroxysmal borborygmus; intermittent, slow, blunt stitches, as from a blow, in l. lumbar region (1st d., e.). Violent urging to stool, with little result, therewith increased headache (5—7 h. after a strong dose); during moderate urging to stool flying jerking drawing in genital region, as if in spermatic cords (3rd d.); after a large dose several stools in a d., then after several small ones no stool for 4 d.; transient pinching-tearing in rectum (immediately). Little urine, although he drinks more than usual; scalding in urethra during micturition; dragging sensation along urethra to outlet while micturating (10 h.); drawing, pulsative-shooting, intermitting pain in penis down to tip (6 h.); slow undulating motion in testes all d., at times fine tingling extends from thighs to testes, after which undulation becomes more active; intermitting bruised pain in l. testicle (10 h.); no sexual desire for 5 d., then much with little power (5th—7th d.); some painfully tensive erections in m., without desire. Violent sneezing from time to time, concussing abdomen, followed by lachrymation (3 h.); occasional sneezing, with shooting-contractive headache over eyes and red edges of lids, as if catarrh would set in, which, however, it does not; dryness and sensitiveness high up in nose; obstruction of one or other nostril for several d.; copious nasal mucus, at first thin, whitish, and transparent, then viscid and yellowish-grey; short breath for whole d. (1st d.); some short cough, with lachrymation. After walking sweat on chest and in axilla, violent itching on nipple; pain in neck on moving it (12 h.); pain from r. shoulder into chest, as if circulation was arrested by a tight bandage, not relieved by loosening clothes, lasts nearly all d., increased by cold and in open air, sometimes it is felt in l. shoulder (3 h.); simple pain, as of weariness, but more intense, in whole back, going and coming at short intervals for most of d., coming on while walking, not relieved by twisting body, but yielding when sitting with back supported (1st d.); intermittent pinching in flesh of r. upper arm, inner side (1 h.); jerking pain on inner side of forearm, more towards hand; r. wrist is almost painfully affected, and constantly, but worse during movement (4th d.); beating tearing within l. metacarpus on inner side; beating pain in r. middle finger as if in bones (2 h.); fugitive itching tearing in l. ring-finger (1 h.); hangnails form; skin of hands dry and rough a.m., smooth again p.m.; paroxysmal stitch-pain on inner r. thigh near genitals; knees are so weak that she is unable to stand long; sweat on soles; feet somewhat swollen and very painful in walking, she would like to walk on soft ground only, feels every little stone and cannot get along (1st days). Intense pain in all bones, especially in joints, as if their

interior were scraped and cut with a sharp knife (*r.* arm was specially affected),—it continued uninterruptedly all *d.*, now worse, now better, was increased by cold, relieved for a short time by moving arm very fast, but for longer time by warmth and in *n.*; a sort of slight jerking, once only, in upper lip, then in hands, fingers, or thighs, especially of *l.* side, and always from *r.* to *l.*; kind of hot feeling and slight painfulness at spots in skin, especially of face, more obvious when stooping,—washing with cold water relieves it, and afterwards a slight tension replaces it, especially on *l.* face (2 *h.*); heaviness with lassitude of whole body, recumbent rest is very welcome (for 3 *d.*); he feels so weak that he comes near to falling all the time; paralytic weariness in all limbs, late 1st *e.*, on waking in *m.* feels more weary than before, all body aching as if it had lain on blocks of wood; after a short walk he is suddenly attacked in the street with unaccustomed weariness and oppression of head, almost as if he had taken spirits, his eyes half close, and he is almost unable to get upstairs (1 *h.*); legs feel as if bruised, especially about knees; she feels so bruised she would like constantly to lie down, walking and standing become extremely irksome, weariness and heaviness in all limbs, feet especially heavy, arms hang down strengthless (2 *h.*, lasting some time); continuous heaviness in all limbs, compelling lying down, especially towards noon and *e.* (for 5 *d.*); staggering gait (1st *d.*); frequent weary yawning, with lachrymation (1 *h.*); she is constantly obliged to yawn and stretch, which causes cracking in shoulders and back. During first days he feels general discomfort towards *e.*, he gets half-sleep only with sensible straining of mind on all kinds of thoughts, but feeling is dull, and there is no vividness in his dreams; ideas crowding upon his mind prevent his falling asleep for several *n.*; pulsation all over before falling asleep at *n.*; very heavy dreamless sleep; while sitting, *a. m.*, ever-increasing lassitude till he falls asleep, disturbed after $\frac{3}{4}$ *h.*, he starts up as if in affright, then head is heavy (3rd *d.* after a large dose); he is waked after midnight by itching in skin; a very vivid dream of aiding people and gladdening them. Sensitiveness to cold (1st *d.*); cold increases his malaise and pains; chilliness all *d.*; general chilliness, followed by a kind of warmth and as if tingling would set in, especially in thighs (1 *h.*); he is shaken and waked up from sleep about 1 *p. m.* by a momentary chill,—he then becomes warm without sweat, and has fine prickling on forehead (2nd *d.*); chilliness at 9 30 *p. m.* so that he went to bed, then shaking chill, so that his usual covering did not suffice, after $\frac{1}{2}$ *h.* alternately hot and cold for 30 *m.*, then he became oppressed, and sweated so profusely that he had to change his shirt,—with the sweat continued chilliness (1st *d.*). He imagines all sorts of strange things about his own body,—knowing that it is all fancy, yet seeming to perceive it actually. (*Ibid.*)

5. *a.* HROMADA.—Immediate effects of drug were local,—burning in tongue, throat and gullet, salivation, nausea, retching, borborygmus; flatulent emission, urging to stool, then some diarrhoea; with this there was vertigo, and weight and pressure in head. After 3 *h.* head was as after being fuddled, without vertigo or pain, but he felt cheerful; *n.* was very restless, with pressive pain in *r.* thigh and *r.* upper arm (same

continued for 5 following n.). On 2nd d., and lasting 6 d., burning in anus before stool, as if a fiery coal were there; urine somewhat copious, and slightly tinged with blood; itching as from lice on vertex, obliging him to scratch incessantly (lasting 2 d.). On 3rd d. vertigo while getting into bed, so that he had to support himself; at n. excessive itching all over body, compelling scratching, which causes a burning (for 1 h.). On 5th d. furious itching in fingers and toes, waking him from sleep and obliging him to scratch, which causes burning (for 1 h.); violent pains in both thighs, as if compressed, abating somewhat while legs are stretched, increasing at first but diminished afterwards by movement (lasting 4 d.). Without note of time,—dulness of head without vertigo or real aching; after-taste of ingesta; burning in abdomen and rectum for an h. after every stool; itching of anus, with violent burning after scratching, for 5 d.; great oppression of chest, making him feel as if he would collapse, with great anguish at heart (for $\frac{1}{2}$ h.); a sort of scabies between r. fingers, itching much, but only at n. in bed, nothing visible by d.; much drawing pain in whole r. lower extremity (lasting 8 d.).

6. The following symptoms, accredited to Hromada, belong to a female prover, who also may have supplied some of the above:—violent itching of scalp, followed by burning, compelling scratching till blood came (in 5 h., lasting 5 d.); frightful burning in stomach immediately on waking, mounting up to throat, making her feel as if suffocating; for 3 n. in succession furious itching on hands and feet, as if she had scabies (from 2nd n.); for 5 h. on 3rd d. very lively mood, which was not natural to her. (*Ibid.*)

6. LANGHAMMER.—[Dose seems to have been taken early in d.] In $\frac{1}{2}$ h., burning itching creeping and prickling on upper and under lips, as if parts were burnt, obliging him to scratch; febrile shudder through whole body. In $\frac{3}{4}$ h., trembling of r. hand while writing, as from weakness; some borborygmus. In 1 h. hiccup, several times; some stitches in muscles of l. forearm from within outward, going off on least movement. In 2 h. same in upper arm, with sense of pressure near wrist, and much trembling of hand when holding or lifting anything. In 2 $\frac{1}{2}$ h. some external stitches in l. knee, while sitting. In 3—4 h. same on l. temple; beating and twitching in muscles of l. upper jaw; during inspiration stitches externally on l. chest, and same on r. back in rapid succession; painful pressure in l. sole while standing. In 5 h., feeling of burning heat, heat and redness of face and heat only in forehead, without thirst. In 6—7 h., tearing stitches externally on l. forehead; prickling boring pain within outwards in r. chest during expiration, while sitting, which soon goes off on slight movement. In 9—10 h. painful pressure from above downwards on l. temple near ear; again stitches in l. forearm. In 10—12 h. stupefying oppressive sensation in forehead, causing sense of reeling which makes him stagger from side to side as if drunk; painful pressure on l. temple; while writing, creeping pricks from r. thumb to index finger; pressive pain on l. index, going off on movement; intermitting stitches in muscles of r. thigh, while sitting. In 13—15 h. some stitches in l. abdomen, while sitting; pressive pain under elbows when

bending arms; when moving arm pressive pain in upper muscles; crampy, painless drawing together of l. little and ring fingers, while at rest; pressive pain in l. hip, while sitting; sudden burning heat of cheeks, with coldness of forehead, without thirst. The whole d. he was absorbed in reverie; n. was disturbed with complicated but unremembered dreams; in m. he woke suddenly as from fright. (*Ibid.*)

7. RÜCKERT.—Vertigo as if everything were turning, especially on rising after being seated (1 h.); vertigo as if he would faint, with obscuration of vision (3rd d.); pressive headache on vertex, rising up from skin of forehead, where a sort of whirling movement is experienced (2nd d.); headache, especially after every walk; on entering room she is attacked with a turning screwing pain, commencing in r. head, affecting both temples very acutely, and extending over whole head after going to bed (recurring every d.); tension of scalp, especially during fever; shootings in temple and scalp (and d.); blue rings round eyes for several d.; otalgia with crackling before ears; humming and buzzing in ears, and sometimes sound as if something heavy had fallen on the floor and burst, after which the ears ring for a long time; dulness of hearing, feeling as if something were in ears. Drawing in jaws and cheeks; frequent painful jerkings in gums, recurring daily; swelling of uvula; burning and aching in throat, between as well as during deglutition; throat feels internally swollen; throat feels as if tied round with a string (3rd and 4th d.); nausea while eating, several times. Hoarseness; short difficult breathing, especially p.m.; wheezing in larynx on inspiration if she lies down; oppression of chest while sitting and lying, as if a large heavy stone lay on it; palpitation, and therewith sense of throbbing in all vessels of body. Pain in spine as if bruised, while sitting; cramp-like jerking in elbows; yellow spots on fingers; during whole action of drug great dryness of hands; trembling of arms and hands; burning of knees; prickling in toes, as if "gone to sleep;" cold feet; pain in limbs, especially lower, a peculiarly painful drawing in middle of bones, compelling their stretching out, better at rest, each movement evoking feeling of weight and stiffness; in movement and walking his joints crack; bruised pain at various spots, now here, now there, acutely felt but transient. Considerable prickling under skin all over, lasting some d., especially in toes; great weariness and heaviness in all limbs, especially legs; relaxation of whole body; violent tremor of body, especially 3rd d. Constant desire to sleep, even in daytime. Chill with goose skin and moderate thirst; flying heat all d., most a.m., alternated with chilliness; febrile condition, he feels ill, anxious, restless, starts readily, breath short and hot, tremor, strong ebullition of blood, eyes languid and unsteady; it is as if everything—even the air—quivered before her, there is irresistible desire for sleep, with yawning, icy-cold shudders without shaking, constant nausea; heat only at n. and on rising in m., mostly inward—hands, forehead, lips and cheeks only being hot to touch, hands always dry and rough, mouth in m. very dry and sticky, thirst moderate but appetite for savoury food, no sweat (this for two weeks, daily the same). Fearfulness, starting at least noise. (*Ibid.*)

8. SCHÜNKE.—Flush of heat over face, cheeks are red and burn;

shooting in r. auricle (2 h.). Shooting pain in an anterior l. lower molar, extending towards ear, lasting some m. (4 h.); scraping in throat with confluence of saliva (later, sweetish) in mouth (immediately); he feels as if a soft body had stuck in his throat, felt most on swallowing; scraping in throat, when swallowing he feels as if uvula were resting on tongue, and this troublesome feeling causes him to hawk, which brings up a sweet flat-tasting mucus; burning and pressure in throat which feels during empty deglutition as if a plug were fixed there (20 h.); dryness and roughness in throat on swallowing (2 h.); tensive clawing sensation in parotid, with increased flow of saliva on that side (1 h.); sweetish taste in mouth, as if he had chewed liquorice (1 h.); empty tasteless eructations with shuddering feeling over body, after which a preceding qualmsiness goes off; nausea and inclination to vomit, he spits up insipid water all the time (1 h.); feeling of warmth in r. hypochondrium (soon) and (1 h.) in præcordia; dull shooting pain to l. of scrob. cordis; shooting in r. side, especially in hepatic region (6th d.). Oppression on chest (7 h.); violent cough (immediately); nightly dry cough, which allows him no rest,—he is hot with it and sweats; short dry cough, brought on by scraping sensation in throat; shooting in mid-chest, r., in front, during inspiration and coughing, it wakes him several times in n., he cannot lie on that side,—there-with cough with expectoration, frequently recurring during n.; shooting in l. side, at first more in upper than in lower part, worse when coughing and inspiring deeply. Violent pain about sacro-iliac symphysis while bending; pain in sacrum, with shivering; pain near ant. sup. spinous process of ilium, relieved by walking about and pressing upon it, worse when sitting (1 h.). Sudden cramp in r. hand, he is unable to grasp anything with it (2 h.). Shuddering runs over back, he feels chilly through whole body (3 h.); frequently recurring shuddering and shaking, soon passing off, without immediately following heat and without thirst, he then feels hot all of a sudden, especially in face—as if hot breath were coming out of mouth and nose and warming all the neighbouring parts, no thirst, body generally feeling comfortable and head bright (the shudderings recurred 8—10 times within a short space, the attacks of heat came seldomer, but lasted longer); during burning heat in face a chill runs over whole body, especially extremities (2 h.); violent chill at 5 p.m., coldness runs through back as if cold water had been poured there, and teeth chatter with the internal chilliness,—the stove brings some relief, and after 2 h. the chill goes gradually off, and body becomes warm with some sweat on forehead (during following n. shooting in chest with cough). (*Ibid.*)

9. SCHULZ.—1st d., violent shooting in l. ear. 2nd d., vertigo, as if he would fall. 3rd d., stitches in r. hand; drawing through all limbs, and feeling as if paralysed. 4th d., shooting in r. chest, between 3rd and 4th ribs (recurring 6th and 7th d.); erysipelatoid inflammation over r. tibia, with violent burning pain; flying stitches in whole body, now here, now there. 5th d., weariness in legs. 6th d., vertigo, everything goes round; shooting in r. knee. 7th d., vertigo, more while sitting than while standing; shooting pain in head, especially in forehead. Without note of time,—cramp in r. hand, especially in

fingers, and so violent that hand is quite stiff and fingers crooked; shooting in r. index. (*Ibid.*)

10. STAFF.—On rising in m. vertigo, worse in sitting than in moving, he feels stupid in head; he had to rest head upon table whole forenoon till after dinner to keep off the vertigo and constant nausea (and d.); gloomy in head. Painful scratching sensation in throat; thirst, which can only be quenched for a short time; aversion to all food and to coffee; he eats, but without appetite; continual desire to vomit; internal shudder through abdomen; violent creeping in rectum, as from thread-worms. Tension on chest about epigastrium, especially in breathing. From noon after midnight, very violent tearing-tensive pain in calves, going off almost entirely on rising (§ d. in succession). Lassitude for several d. Restless, unrefreshing sleep. Complicated dreams. Chilliness without thirst or subsequent heat, but itself followed by thirst; profuse sweat after midnight. Dislike to work; vexed, inclined to be vehement, out of humour. (*Ibid.*)

11. W. [described as "a young physician"].—Painful pressure in r. hemisphere of brain, extending as far as l. lower molars; pressive pain about r. temporal bone; itching (*sic*) pressive headache, most violent in forehead; e. while reading, pains in head, as if single parts of brain were pressed against sharp corners; burning of lips as if they had been scalded. Shooting pain in a r. lower molar, extending into submaxillary gland ($\frac{1}{2}$ h.); tongue smarts as if sore and full of vesicles; tip of tongue and buccal cavity felt sore and scalded; disgust for meat; slight indications of heartburn; dull shooting pressure in l. abdomen, as if it were somewhat sore; diarrhoea, stool looking fermented and brown. Urine becomes thick and turbid, like loam-water (5 h.). Strong, painful oppression on middle of chest; burning in r. chest as if he had swallowed hot water. Painful drawing in r. elbow-joint; on both forearms small burning-itching pimples; paralytic drawing painful rigidity in l. thumb and index; very painful jerking in r. thumb, relieved by grasping it; pressive drawing on outer side of l. knee (5 m.); pressive pinching as along marrow of r. tibia, while walking; tension at r. calf, in walking. Weak all over, as before a severe illness. Sleepy all d., eyes constantly closing, as if he had not slept on previous n. (*Ibid.*)*

11. *Pairings*.—1. Rosalie K.—æt. 20, cook, took on the morning of April 18th, 1842, for headache and pain in stomach, which she thought was caused by worms, a quantity of powdered sabadilla seeds. Seen at noon, she was suffering from great præcordial anxiety, was tossing about in bed, and groaning and eructating. She did not answer when spoken to, lay speechless and unconscious, or jumped up to run about the room, plucking at her dress over the region of the scrob. cordis. Her face was haggard and deathly pale, her features distorted with an expression of extreme anxiety; she appeared drowsy,

* There are also symptoms in this pathogenesis referred to "S. G." and "No.," and some quite anonymous; but as no mention is made of these sources in the preface, we have thought it better to omit the symptoms belonging to them, lest they should prove as worthless as those cited from Hartlaub and Trinks, which were observed in a boy suffering from tape-worm before he took Sabadilla 30, and which (naturally) disappeared after 48 pills of the worm had been passed.—Eps.

her eyelids were firmly closed, livid rings around the eyes, forehead covered with cold sweat, breathing free and quick, pulse irregular and quick, heart's beats strong, gastric region sensitive to touch and feeling as if a heavy stone lay there. For more than 1 h. nausea, flow of saliva, and vomiting of a clear, slimy fluid. Everything that was given her, such as camomile tea, Tokay wine, eau de Cologne, was immediately vomited. The extremities were cold; she had drawing and shooting pains in both thighs and great dryness of hands. On giving her a few spoonfuls of clear soup, it was immediately ejected from the stomach. Some almond milk was then given, which was retained, and she gradually recovered. The great thirst persisted for a few hours, but she felt very exhausted and prostrated. When seen again in the e. she was enjoying refreshing sleep, had taken a little beef-tea without sickness, and had passed a hard stool. She passed a quiet n., and next m. was able to return to her ordinary duties. (*WEITENWEBER, Prager Monatschrift, i, 33.*)

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