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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. II.
Cantharis—Iodum.

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.

1888.

PRINTED BY ADLER AND SON, BARNACULUM CLERK.

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PREFACE.

WE are glad now to be able to lay before our colleagues the second volume of the work with which they have charged us. The progress made enables us to promise its completion in four volumes in all, and we hope to have the last ready in time for the International Homœopathic Convention of 1891.

We continue to receive ready assistance wherever we ask for it. Dr. Dudgeon, as before, has done most of our German translating, though for Jörg's provings we are still indebted to Dr. Galley Blackley, and the Austrian re-proving of Kali bichromicum is due to Drs. Pullar and Renner. The pathogenesis of Cocaine (the first that has appeared in our literature) was supplied to us by the Hughes Medical Club of Massachusetts; and that of *Crotalus* is, of course, mainly taken from Dr. Hayward's exhaustive monograph in vol. i of the *Materia Medica, Physiological and Applied*.

For this and for all other help we hereby offer our warm acknowledgments.

THE EDITORS.

MAY, 1888.

A

CYCLOPÆDIA

OF

DRUG PATHOGENESY.

VOL. II.

CANTHARIS.

Cantharis vesicatoria, Geoffr. Spanish Fly. Nat. Ord., Coleoptera.

I. *Proving*.—1. a. HAHNEMANN proved tinct. of powdered flies, subjects and manner unknown. Results reported are—frequent micturition; urine distilling *gustatim*; pressive darting pain in neck of bladder; formication and pruritus in urethra after micturition; stinging pain there between acts of micturition; constrictive pain in limbs, almost paralytic; tearing pain in back; sense of stinging in eyes, as if salt had been put in; want of appetite; debility; prostration of strength; moroseness; colic; diarrhœa without colic; incarceration of flatus in hypochondria; sleeplessness; itching in skin; slight night sweat. [*Fragmenta de Viribus*, 1805.]

b. In first hours, feeling of weakness in genitals. After some h., at n. heat of whole body, especially anus and genitals. After 2 h., incarceration of flatus under short ribs, very fetid flatus. After 3 h., drawing pain in spermatic cord when urinating. After 4 h., at n. painless itching, at one time in head, at another in foot. After 6 h., smarting pain in palate, especially after eating; drawing pain in spermatic cord when urinating. After 10 h., large stitches from orifice of urethra to anus, e. and n. After 12 h., urethra painfully sensitive. After 18 h., drawing pain in bones of hand and forearm. After 20 h., anxiety in m., as if expecting something important. After 24 h., urethra intensely irritated and contracted, hence the urine flows in a thin stream; burning at the orifices of the seminal vesicles in urethra during and after coitus. After 72 h., drawing pain in penis, in back, and in thighs, relieved by discharge of wind upwards or downwards. First days, across sacrum, on moving, pain as if from an injury. After

3 d., on going uphill he loses his breath, ebullition in chest, he becomes sick. Much perspiration when walking. After 4 d., bloody blenorrhœa. After 9 d., slimy and bloody stool.

Without nose of time,—Some h. after rising, m., very exhausted in mind, many thoughts come into his head, which he cannot get rid of; n., confusion of head, with pulsation in forehead for many h. Giddy and weak in head. On stooping immediately very red in face, the blood shoots forcibly into head; face hot when seated, not when walking. Headache, squeezing and tearing, only when moving; when stooping and turning head feeling as if something came up nape and pressed head forwards, when everything seems to come out at forehead. Cutting-shooting in head that wakes him up. He wakes at n. with headache; an out-pressure in forehead, relieved by sitting up in bed. Itching on forehead. A pimple on cheek near corner of mouth, with tensile pain when not touched, burning pain when touched. Smarting in eyes as from salt in them. Water runs out of his eyes in open air, must close them; on opening them the edges of the lids feel sore, as if raw. Dimness of vision, must strain eyes much in order to see well for near or distant objects. A pimple deeply seated in cheek, itching when touched. Pustules on chin, burning when touched. A pimple on side of neck, with burning pain. Constrictive sensation in larynx. Dislike to tobacco. Bad taste in m. Nausea and loathing of food. Anorexia. No appetite e. and m., nothing is relished. Colic, single rapid pinches in right side of abdomen, more externally, when standing. Diarrhœa, without griping. Burning and twisting in abdomen, until he has been twice to stool, m. Burning pain above navel when coughing, sneezing and blowing nose, with great heat in abdomen; corresponding to this pain are some yellow spots externally, which, touched, prick rather than burn. Frequent call to stool, with scanty evacuation of fœces. Four ordinary stools during d. Two liquid yellow stools during d., and cutting in abdomen after each stool, smarting pain in anus without tenesmus. Frequent call to stool. Thin stool with much irritation in rectum. In an h. seven stools of white thick mucus, like scrapings from the bowel, with streaks of blood. Itching above anus in coccyx. Frequent call to urinate. Much irritation to urinate. The urine passed by drops. Must rise twice at n. to urinate. At n. a strong erection, during which there is contractive and sore pain throughout urethra. Orifice of urethra inflamed. Urethra swollen internally. Penis swollen. Swelling of frœnum preputii. The urine flows in a smaller and a divided stream and with difficulty, especially at 9 a.m. Every time he passes water he has a sensation in glans part of urethra as if the urine stuck there and could not come out, and pressive pain at that part, and yet the urine flows unhindered. After the urine has been passed some drops of watery blood follow. Sometimes shooting in urethra and burning in it when urinating. When he has a call to urinate it is preceded by a pressive shooting pain in neck of bladder, and only a few drops are passed during constant urging. The urine seems to him to be acid. Fornication and itching in urethra after urinating. Smarting pain in urethra whilst urinating. Cutting pain from back and abdomen through urethra.

Yellow gonorrhœa, which stains the linen yellow. When the gonorrhœa discharges there is each time pressure in urethra. Nocturnal emission. Stiff erection of penis, n. Sweat of genitals. When he passes water he is obliged at same time to go to stool, and yet nothing passes, but this urging to stool ceases when the urine is evacuated. Before the menses burning when urinating, and white sediment in urine. After menses for three d. bloody mucus is passed from vagina. Hoarseness on chest. Sensation of dryness in throat for several d. A pimple on sternum that pains like a sore when touched. Cough m. on rising, with difficult expectoration. Cough with pain in abdomen. Betwixt shoulders downwards, on every movement, a rather persistent stitch, as if something had been dislocated. Tearing pain in back, especially m. Pricking tickle in axilla. In bend of both elbows formicating itching. On natis large pimple, with burning pain when touched. In proximal phalanx of finger an itching swelling. Drawing pain in houghs. Shaking of knees when coming downstairs. Just above ankle-joint on tibia, as if flesh and skin were detached from bone, not observed on touching, for 14 d. Drawing, almost paralytic, pain in limbs. Feeling of dryness in joints of arms and legs, for 12 d. Itching in skin. A burning and kind of itching tearing here and there in skin. In m. very sleepy and faint. Slight night sweat. Heat, with thirst and general redness. When lying, sitting, and walking he chattered much unconnected stuff about his business and about people long dead. Weakness and sinking of powers. Sleeplessness. Peevish humour. Easily excited by insults. Cross only in m. on rising. Internal anxiety, loss of self-confidence, like hypochondriasis, afternoon. Has no rest, always seeks another place, at same time internal heat of head. Obstinate and contrary humour, afternoon. (*Archiv*, xiii, 1, 157.)

2. BAUDIS.*—Restlessness; excited mood; vertigin; pains in head; burning of eyes; heat in face; pains in gums; tonsils somewhat inflamed; burning in throat while swallowing; much secretion of saliva; burning at orifice of stomach and in stomach itself; pains in intestines; hard stool, with protrusion of rectum; urging to stool; emission of white urine; great burning during micturition, and along urethra afterwards; urethral orifice is as if inflamed; continued priapism with somewhat painful feeling (for 3 h.); immediately after taking, short paroxysms of dry cough, excited by tickling in larynx, with quickened breathing and a sort of constriction of chest, also of trachea; burning in chest; little sleep; voluptuous dreams; heat in whole body; dryness of skin; weaker pulse. (*HARTLAUB u. TRINKS, Arzneimittellehre*, i.)

3. BETHMANN.—Everything affects him more deeply than usual, so that he is unable to resist much whining (2nd d.); when wishing to reflect on anything his thoughts at once leave him; he gazes fixedly and in silence at some object (which, however, he scarcely notices) and has trouble in bringing himself to utter a few coherent words (2nd d.); in m. great relaxation of mental power (2nd d.); while walking in

* To all these pathogeneses of C. contained in Hartlaub and Trinks' work the same description applies; they are stated to have been observed on healthy persons, and that is all we know about them.—Eps.

open air vertigo, with transient attacks of unconsciousness, recurring several times in $\frac{1}{2}$ h., and accompanied with sensation as of mist before eyes (1st d.); confusion in forehead, as well as slight pressing and drawing there (2 h.); drawing pain in l. side of head and in forehead; tearing in fore part of head, and (2nd d.) in both temples; pressure in eyes; tearing in and behind r. eye (1 h.); sickly appearance, sunken pale face; without feeling hungry wishes to eat now this, now that (1st d.); increased thirst (6 h.); nausea (2nd d.); dull pressure in stomach, felt most when it is empty (2nd d.); cutting pain in stomach ($\frac{1}{2}$ h.); drawing pain; weak feeling (2nd d.); costiveness, he must press much more than usual to obtain evacuation, and then it is insufficient (3rd d.); watery diarrhœa; drawing and tearing in pubic region; in m. less urine than usual (2nd d.); he cannot for whole d. retain more than a spoonful of urine in bladder without urging to urinate; when urinating in m. had tensive feeling along urethra, as if urine were checked in its course (2nd d.); tearing in thorax, especially in cardiac region ($\frac{1}{2}$ h.); stitches in r. side of thorax; pressive pain in both sides, under ribs (2 h.); drawing pain in cardiac region; pressive pain in sacrum, for 2 d.; tearing in scapula (1 h.) and axilla; drawing pain in l. scapula (2 h.); tearing in l. hand (2 d.), in l. thumb (1 h.); great lassitude, especially in legs, as when low fever is impending; he remains in bed longer than usual in m. (2nd d.); in m. profuse sweat on lower part of body. (*Ibid.*)

4. HARTLAUB.—*a.* Confusion of head, and especially a sort of weight on vertex ($\frac{1}{2}$ h.); remarkable dryness in mouth and nose, also dryness of pharynx, with occasional stitching there (1st h.); eructations ($\frac{1}{2}$ h.); strong but not painful burning in stomach, with vinous taste in mouth (whole forenoon of first d.); stool scanty, somewhat hard and difficult, with cutting pain in rectum (1st d.); painless fœcal diarrhœa several times in d.; a sort of paralysis of neck of bladder, urine passes without slightest expulsive force, lasting some time, and so increasing that urine could scarcely be retained without effort (1st d.); reddish urine; in m. in bed, while lying awake, discharge from relaxed penis, almost without sensation, of considerable quantity of normal semen, same thing recurring 24 h. afterwards (in a vigorous young man); a violent catarrh came on (2nd d.) characterised by formation of much tenacious mucus in nose, without sneezing, hoarseness and painful detachment of same from chest, and (which he never has with a cold) nocturnal dry cutting stitches along trachea; tickling causing cough; soon after taking dose much tenacious phlegm from larynx and posterior nares, and therewith difficult and oppressed breathing, partly—as it seemed—from contraction of larynx and trachea, partly from dryness of nose; also violent palpitation for several m.; fine but sharp drawing pain down a narrow line deep in r. cervical muscles (2 h.), and fine stitches in skin of throat. (*Ibid.*)

b. In $\frac{1}{2}$ h. causeless anguish of mind, increasing by $\frac{1}{4}$ h. to such a pitch that he feels as if he had committed a murder, it seems to come from stomach; in 2 h. it is associated with tremor of whole body, continuing while walking in open air; head heavy and confused; headache from forehead to temples; pressive headache over nose; dilated pupils,

with dim sight ; ringing and humming in both ears ; pain in l. eyebrow as if pressed there by a blunt substance ; flying, stitch-like pain over root of nose ; quivering in gum of l. upper eye-tooth ; burning on tongue and palate, long lasting ($\frac{1}{2}$ h.) ; burning, scratching feeling in pharynx and sweetish disgusting taste on tongue and in whole buccal cavity ; saliva of same taste fills mouth, and must be expelled, for $\frac{1}{2}$ h. ($\frac{1}{2}$ h.) ; wishes to eructate, but cannot ; increased thirst with much drinking, urine not increased in proportion, and slower than usual in following ingestion of fluids ; nausea as though he would vomit ; in region of stomach an indescribable sensation, she feels hungry without being really so ; sense of fulness with pressure in stomach, feels as if eructation would relieve, but cannot accomplish it ($\frac{1}{2}$ h.) ; uncommon fulness in gastric region with anguish and restlessness (t h.) ; cardialgia, lasting a long time ; stitching, cutting pain through back and belly, quickly passing away (9 h.) ; belly much distended, and movement about as of flatus therein ; renal region is affected with a continued dull sense of pain, late in e. ; borborismus ($1\frac{1}{2}$ h.) ; much flatus emitted ; itching feeling in distal end of urethra, which at times is almost a cutting, without any voluptuous sensation ; violent stitch-like pain in l. chest, in cardiac region or heart itself (5 h.) ; much lassitude, as after strong bodily exertion ; very anxious dreams whole n. through ; heated whole afternoon, as after walking fast on hot d., face therewith red and cutaneous exhalation increased. (*Ibid.*, ii, 219.)

5. HERING.—From emanations,—lachrymation and tension in upper lids ; immediate urging to micturate ; if any urine passes it is in small quantity and at intervals. Inflammation on border of r. ala nasi, especially towards tip, running an irregular course, red and shining, with slight swelling and some pain (after several h., not disappearing till 2nd d.) ; pain at 3 a.m. on upper part of nose, as if it had been pressed upon, then tension and erysipelatous inflammation and swelling from ridge of nose to both cheeks, especially r., colour disappearing under pressure and as quickly returning, cheek is hard to touch,—all this on 3oth d., increasing on 31st, and going off on 32nd with slight desquamation (after several weeks, without notable cause a similar inflammation, especially on r. upper lip, inside and tip of nose) ; after 6 h. small blister on gum, with red points, which after 15 h. disappears, leaving only a red spot, upper lip at same time much swollen but only slightly painful ; on gum above l. upper incisor appears a red, somewhat painful, point, which gradually grows more painful, becoming at length a small round, inflamed, elevated spot, of yellow-reddish aspect, which is sore and painful on pressure,—therewith whole upper lip swollen ; after some weeks a dental fistula, lasting several weeks,—red spot over tooth (now carious) has opened in centre, from which on pressure pus exudes ; during hunger a sort of pain in pharynx (4th d.) ; a sort of incomplete eructation almost like hiccup, which passes from pharynx to stomach (3rd d. before dinner) ; slight pains over symphysis pubis, and downwards along ureters, which constantly become worse (5 h.) ; cutting and contractive pain from ureters down towards penis, sometimes from without inwards, somewhat relieved by pressure on glans ; frequent discharge of scanty watery urine, at first without pain, but towards end with violent cutting,

at the last it passes *guttatim* or in a weak and intermitting stream; when he goes to micturate, he can with great difficulty prevent some from escaping prematurely; urging to micturate far greater when standing, and especially when walking, than when sitting (5 h.); after 24 h. urine is again coloured darker, and pain on micturition is less; in urine passed during first hours, there floated, after standing, some thready mucus; for first time after 4—5 h. there were slight pains on micturition, and increasing urging thereto; pain on micturition is only at end of act, and is less the more urine is passed; slight stiffness in chest not affecting respiration (3 h.); if he bruises himself anywhere, *spat* burns for some time. (*Ibid.*, i.)

6. NERVOUS.—Depression, irritability (especially during pains), restlessness, vertigo; headaches of all kinds and in all parts of the head, among others—painful tearings in vertex, with sensation as if a lock of hair were being drawn upwards; intermittent painful twitching, now in *r.* occiput, now on outer surface of *l.* knee, long-lasting, always alternating, not disappearing on rubbing (2½ h.); rising of heat into head, with perspiring hands which burn (1 h. after dinner); twitching of lids, biting and burning in eyes, yellow vision an h. long; a hot vapour issues frequently from the two ears alternately; frequent painful tearing in *r.* mastoid process below ear, as with a knife, not disappearing on rubbing, with frontal headache as from a weight there (½ h.); tearing about face, and heat in it; yellow tint of face and eyes (10th d.); collapsed, hippocratic countenance; deathly pale face, dryness of lips and throat, with and after pains (2nd d.); a painless gumboil, yielding clotted blood only; slimy mouth, white tongue, blood in mouth; eructations, nausea, and tendency to vomiting; various pains in stomach and abdomen; acute stitch in *r.* side of chest, then tearing between scapulae, then acute stitches in *r.* shoulder, then same in *r.* hypochondrium and scapula, returning to hypochondrium; hard stools, with tenesmus, followed by burning; the usual urinary symptoms, cold hands and feet with the strangury; burning in female pudenda; tension and contraction in front of chest, with dyspnoea and stitches all over chest, 11 a.m.—8 p.m., relieved for time by lying down (stitches about chest frequently mentioned); abundance of pains, of no distinctive character, in back and limbs; in one prover, boring, tearing pains, with stitches, now in both knees, now in *r.* only, extending downward to feet, upwards into hips, first *r.*, then *l.*, unrelieved by camphor, but mitigated by warm, dry applications; whole body feels hot and sore; itching and papular eruptions; much lassitude; sleeplessness or disturbed dreaming; febrile chilliness or heat. (*Ibid.*, i.)

7. ROCKERY.—Spasmodic stitches, drawing downward, from eyebrows to chin, and hot feeling in palate, as if he had eaten something burning (1st d.); stitch on tip of tongue as if it had been bitten (do.); filthy, disgusting taste in mouth, several afternoons in succession; during slight but somewhat sudden turning of body, violent stitch during breathing on *l.* side under arm, extending through whole body, just as if someone suddenly and violently transfixed him with a fine spear, arresting breathing for a moment; it occurred only once on other side, less violent, and not on breathing or motion, but in rest (2nd d.);

almost constant cutting pain in sacrum, especially while sitting (1st d.); stitch in r. shoulder-bones, through and through, pain and tension in little finger, for some d.; pains in knees as if swollen, hindering motion, transient in l., in r. lasting some d.; whole body feels jointless and heavy, going up steps is very troublesome, legs feeling as if filled with lead (for 8 d.); after any active or continued movement whole body is much heated, it also gets hot at other times, especially afternoons; restless beating of pulse in whole body, so that limbs tremble, for some d. (*Ibid.*, i.)

H. SCHRATER. [Symptoms omitted, as of dubious origin, and as the best a mere *replica* of those of Nenning.—Eds.] (*Ibid.*, ii.)

9. a. April 19th, nine young men of different ages, heights, and constitutions, took at 8 a.m. 5 centigr. (1 gr.) of powdered C. mixed with sweet almond powder. After 2 h. the pulse was slower by a few beats. In 5 the urine was increased, one felt some nausea. At 10 a.m. they took another similar dose. At 12, noon, the pulse was slower in some and quickened in others, stationary in most. All had great urging to urinate, smarting, more or less severe, in urethra, with a feeling of constriction about prostate. They took a third similar dose. At 6 p.m. the pulses of all were quicker. The urine was abundant, the smarting in urethra had increased in those who had drunk little. One had slight colic and itching at anus with tenesmus. All complained of general weakness, and they perspired profusely. Next m. they stated that in the n. their pulses were very low and they felt very weak. The smarting in urethra had almost ceased in the e., but one of them had been much teased by it in the n. and some drops of blood issued from his urethra. Another felt extreme prostration and intense cold during n., and could not warm himself by heaping on bed-clothes. They all sweated profusely till next d., when they felt quite well.

b. April 21st, seven young men took $1\frac{1}{2}$ gr. to 2 gr. of powdered C. between 6 and 8 a.m. At 10 a.m., pulse slightly slower, in two it was slightly quicker, but evidently softer than before. Another $1\frac{1}{2}$ gr. was given to each. At noon the pulse was still slower. A third dose of 1 gr. to some, of $1\frac{1}{2}$ to others, so that each had taken 4 gr. At 3 p.m., pulse of all considerably slower, and this lasted till next d. They all drank copiously and thus escaped the distress in the urinary apparatus which they had before experienced from a smaller dose. Two only complained a little. All had copious urination and sweat. In the e. they all complained of extreme debility. This continued during n. Some had increased appetite, others diminished, and some had copious motions of bowels. (Giacomini, *Traité phil. et expér. de Mat. Méd. et de Thérap.*, translated in *Encyclop. des Sc. Méd.*, 2nd div., *Mat. Méd. et Thérap.*, p. 149.)

10. a. Nov. 14th, 2 drachms of 3rd dil. 4 times a day. Loose stool, urine $3\frac{3}{4}$ oz.—15th, 2 drachms of 2nd dil. 4 times in the d. Urine $30\frac{1}{2}$ oz.—16th, 2 drachms of 2nd dil. twice. Emission at n. Next m. very weak, must lie down soon after rising from bed, fell into a restless, unrefreshing half sleep. At n. many vivid confused dreams. Woke with feeling of hunger. Urine $34\frac{1}{2}$ oz.—18th, 25 dr. 1st dil. Urine

35½ oz.—19th, twice 30 dr., once 50 dr., 1st dil. Could not sleep at first on account of excitement, thereafter vivid, confused dreams. Urine 48 oz. At noon, having urinated 1½ h. previously, very urgent call to urinate.—20th, m. and e., 50 dr., 1st dil. At 11 p.m., very painful throbbing pain in r. of spine, where the eleventh and twelfth ribs are attached, disappearing for intervals, but recurring on any movement and aggravated, extending to r. thigh in single jerks. At same time burning anteriorly in urethra as though a drop of urine remained. Urine 39½ oz.—21st, 3 times 50 dr., 1st dil. After the first dose, m., slight nausea with flat taste and dryness of throat. Urine 34½ oz. Next n. very restless, long of falling asleep on account of anxious thoughts. After short sleep very bad nightmare, quite unusual. During the proving of dilutions the sp. gr. of the urine varied from 1025 to 1034. The urine was often when first passed turbid and colourless, often depositing a fine white sediment, and the surface was covered with a fine glistening skin.

b. Nov. 22nd, 9.30 a.m., 6 dr. of tinct. in water. Immediately flat taste like sweet cheese.—23rd. Urine clear at first, soon became turbid. He looked very ill, eyes dull, surrounded with dark rings.—24th, 7, 9, and 11 dr. After last dose, 8 p.m., frightful headache, aggravated at any movement, pressure on r. vertex alternating with painful throbbing. No appetite for supper. Pulse quick and full. Head burning hot. Urine 42 oz. That passed in afternoon and e. clear as water, sp. gr. 1026 to 1023, but the dark m. urine was only 1014 and 1015.—25th, m. 15, e. 20 dr. Urine 33 oz., very colourless but of high sp. gr., froths when passed. In n. many confused dreams. Emission without dream.—26th, m. 18, afternoon 22, e. 25 dr. Urine 43½ oz., passed at only 3 times, clear as water, sp. gr. 1028 and 1020.—27th, m. and e., 30 dr. No stool. Urine 35 oz., somewhat darker than yesterday.—28th, m. 40, afternoon and e. 50 dr. During d. much inodorous flatus. Urine 35 oz., colourless, turbid when passed. Temperature on an average 0.2° lower than normal.

c. Nov. 29th, 4 times 2 gr. of 2nd trit. Unusually much flatus. Urine 59 oz. at 5 times.—30th, 4 times 4 gr. of 2nd trit. Urine 32½ oz.—Dec. 1st, 4 times 10 gr. of 2nd trit. Great weakness in sacrum with a peculiar pressive pain in region of last ribs posteriorly when sitting. Urine 35½ oz.—2nd. No med. Urine 35 oz.—7th, m., 20 gr. of 2nd, e. 5 gr. of 1st trit. Urine 38 oz.—8th, m. and e., 5 gr. 1st trit. Urine 34 oz.—9th, m., 5 gr. 1st trit. Urine 37 oz., sp. gr. varying between 1018 and 1030, average 1025.7, always dark coloured.

d. Dec. 9th, e., 1 gr. of powdered C. rubbed up with milk sugar. After 1 h. peculiar pain when urinating as though it was impossible to pass the urine, with disagreeable pressure in vesical region.—10th, at midnight 1 gr. 3.30 a.m., woke with urging to urinate. A few oz. of urine was passed, after which there remained a very painful burning in urethra, could not remain in bed, was somewhat relieved by sitting. Must urinate every 2 to 4 m., with almost intolerable pains. Much relieved by drinking rapidly 3 glasses of cold water. This caused copious micturition and relief of pain. Slept pretty well, but each time he woke was in profuse sweat. All next d. micturition was painful and

there were violent renal pains. The urine passed at n. contained no albumen, but was full of mucus; the following days the urine contained much mucus. In the n. of the 13th an emission. For 2 d. there exuded from urethra a viscid, colourless fluid—prostatic fluid. Next n. an emission. During this proving, every m. immediately after rising very strong and lasting erections, quite unusual. The smegma preputii, which used to be plentiful, ceased entirely. After the cessation of the proving it returned as before. Since the beginning of Dec. he often felt during d., but especially in e. when sitting, a sensation in l. side of lumbar vertebrae, on a spot the size of a hand, as if he became cold there and got goose-skin, and also there he felt a formication that was very violent and tiresome. This symptom only disappeared towards the end of Dec. (BÄHR, *Z. f. Hom. Kl.*, iv, 121, 133.)

II. *Peisonings*.—1. A man, æt. 21, from his boyhood subject to epilepsy, took overdose of tinct. Immediately burning in lips, tongue, palate, in a few h. the m.m. inflamed and swelled, and salivation ensued. He had occasionally cutting pains in stomach and umbilical region. After 3 d., at 11 p.m., he had violent convulsions and furious delirium. The convulsions sometimes ceased, but not the delirium, the fits of the former often lasted hours, or assumed the forms of opisthotonos, emprosthotonos, and trismus by turns. His expression was full of terror and despair, his hair stood on end, his eyes were staring, sparkling, convulsively distorted, pulse and heart normal; the abdominal muscles became tense at the slightest touch. The convulsions were sometimes general, the head drawn back, they terminated in syncope and stupefaction. There was constriction of the fauces that occurred at the mere sight of water. After 8 h. the attacks were less violent. He now complained of violent pains in palate, which was observed to be inflamed; by-and-by he was able to swallow some oil, later consciousness returned. (GIULIO, *Mém. de l'Acad. de Turin*, 1802; from Wibmer.)

2. A strong girl, æt. 15, swallowed about 8 gr. of C. powder; after some h. she had acute pains in hypogastrium, with burning and itching of genitals and constant urging to urinate, which she could only do with great difficulty and by drops. After some moments she had violent convulsions and distortion of limbs, she screamed and lost consciousness. Next d. complained of pain in urinating and shooting in urethra, urine red and covered with small black skins. (PIQUET DE LA HOUSSETTE, in Orfila, *op. cit.*)

3. A young man swallowed ʒj of powdered flies. He soon felt burning pain in throat and stomach, later in hypogastrium, with great priapism; voice weak, breathing laboured, pulse small, contracted; thirst great, but œsophagus so contracted he could not swallow a drop. Soon he had a horror of liquids, the pain increased, he had tenesmus ut bowels and strangury, but with the exception of a few drops of blood he passed nothing from urethra or rectum. Oily injections and other demulcents were given. Next d. still complained of pain and heat in bowels; had occasional priapism, and difficult micturition. For several months had some difficulty of swallowing and irritation of stomach. BIETT, in *ibid.*)

4. A patient swallowed 1 oz. tinct. After 1½ h. there occurred quickened respiration, red face, red watering eyes, copious salivation, small, very quick pulse, trembling and convulsive twitchings, violent pains in stomach and bladder, on touching these parts convulsions immediately occurred. He got ipec. and venesection to 16 oz. He fainted and vomited copiously. Next d. symptoms allayed, but he could not bear the affected parts to be touched, he passed no urine and had violent priapism. In e. talked nonsense, next d. unconscious, no urine passed yet. After external irritants and clysters he came to himself, passed faeces and urine, but he still had headache and talked nonsense often. After 14 d., there suddenly occurred headache, chilliness, general convulsions, coma. External irritants again relieved him. The next 3 d. he had slight convulsive attacks; on the 4th d. violent convulsions, followed by unconsciousness and death. *P.M.*—The blood-vessels of the brain, especially of the cerebellum, gorged with blood, the latter covered with coagulated lymph. At base of brain 1 oz. serum. In pelvis of kidneys much blood, m.m. of stomach soft and pulsatious. (*LYRS, Amer. Journ. of Med. Sc., 1828; from Wibmer.*)

5. A man, æt. 46, swallowed C. (quantity not stated). Seen 3 h. afterwards he complained of burning in mouth, œsophagus, stomach, pains in kidneys and bladder, urging to urinate; mouth ulcerated, salivation and nausea. He had vomited, bits of the m.m. were found in ejected matter; tongue trembling, pulse small and quick, priapism, convulsive movements. In e. convulsions of all limbs, constant priapism, red bloody urine, subsultus tendinum, small, quick pulse. Next d. urine still bloody, eyes closed, great restlessness, pulse quick, bladder painful. In e. vomited, the whole of the m.m. of the œsophagus came away, with pain and loss of blood, on its outer side capillary vessels were visible, on the inside bits of C. Next d. urine paler, pulse better, pain less, swallowing still difficult, tongue trembling and red, salivation, priapism, urging to urinate still there. On the 12th d. well. (*ROUQUAYROL, Ann. de la Méd. Physiol., 1829; from Wibmer.*)

6. Four men (a 20, b 28, c 30, and d 40 years old) nearly emptied a bottleful of tinct. After ½ h. nausea, vertigo, burning in mouth and throat. After 1 h. all these symptoms increased, and there occurred vomiting and violent pains in abdomen, constant retching and vomiting of blood, burning along œsophagus and intestinal canal, inextinguishable thirst, inability to swallow; with the vomiting there came away large pieces of the lining of the throat and œsophagus. The region of stomach and abdomen was distended and very painful; pulse small, quick; extremities cold; great anxiety. Demulcent drinks and leeches to painful parts of abdomen. N. very restless and full of pain, towards m. some sleep and slight perspiration. 2nd d., considerable febrile symptoms, violent thirst, bitter taste, dysphagia, violent pains in bowels, lips sore, tongue deprived of its skin, *volum palati* dark brown; no urine passed, though there was constant urging to urinate. The symptoms of strangury increased every h. Camphor caused violent symptoms, it was borne better on the 4th d., so that a and c were out of bed on the 8th day, b had the most violent strangury. With the most painful straining some lumps of coagulated blood came out of urethra.

The renal secretion seemed to have quite stopped, the catheter did not bring away a drop of fluid. The evacuation of the coagulated blood seemed to be caused by a labour-like exertion of the bladder. Tepid water frequently injected into bladder, which always returned tinged with blood, relieved the patient; camphor internally with fol. *uva ursi* and frictions over renal region with turpentine. After 24 h., the urinary secretion was restored, bloody urine was discharged, the pains declined daily, and the patient was well in 2 weeks. In *d* the strangury diminished to such an extent that a speedy recovery was expected, but on the 8th m. he had such violent phrenitis that four men could not restrain him. Appropriate treatment relieved him and he recovered in 3 d. (GRAAF, *Hufelod's Jour.*, lii, 2, iii.)

7. A dissipated man, æt. 40, took at 1 a.m., about 8 grs. C. When swallowing it he felt violent burning in mouth, fauces, and œsophagus; at same time anxiety that increased every instant. Next violent retching and vomiting. The acridity of the matter vomited increased the pain in œsophagus and mouth, until copious mucus was ejected. Soon after this the intestinal canal and ura-poietic system were affected. Then occurred violent diarrhœa with intolerable burning in anus that continued. Most tormenting was the irritation of the urinary passages and the suppression of the urine, of which only a few drops were evacuated with the greatest straining. He vomited a thin membrane which was as long as the œsophagus and was probably its lining membrane. Some h. later the face was swollen, the throat also, the eyes protruded, lips, tongue, palate, pharynx full of blisters; abdomen distended, orifice of urethra inflamed, pulse full and hard as in inflammatory fever; tormenting thirst; urine still suppressed, causing indescribable anxiety; flow of saliva as copious as in salivation, he must always lie on his side. The smallest flexible catheter could only penetrate 1 inch into urethra. After 24 h. the fever went off, the urine again flowed and he gradually recovered. (WENDT, *Ibid.*, v, pp. 2, 391.)

8. An infant, 35 weeks old, got an electuary for worms with which was mingled by mistake an uncertain quantity of powdered cantharides. After the first dose on April 28th at 10 a.m. the child was seized with violent retching and vomiting, mucus and blood were ejected by mouth and nose, and the little patient fell asleep exhausted. The same vomiting was repeated at frequent intervals, and a delicate membrane was thrown up, probably a portion of the mucous membrane lining the œsophagus, and there were three slimy loose stools. There was alternately violent screaming with legs drawn up to body and sleep with flow of saliva from mouth. Another dose was given, and the above symptoms were renewed. Seen next day at noon, the patient was very pale and limp, the head fell to one side or other by its own weight, the jaws were in perpetual movement as if chewing, though the mouth was open, mucus flowed constantly from the mouth; the mouth, palate, gums, and tongue were covered with blisters from the size of a pin's head to that of a bean, the m.m. of the nose, as far as could be seen up nostrils, was raw; pulse full, hard, and quick; abdomen distended; the orifice of the urethra was inflamed, passage of urine difficult and rare, urine dark.

There was great thirst, but difficulty of sucking owing to the raw places in the mouth. The remedies used, chiefly oil and camphor, succeeded in relieving the infant somewhat by evening, the blisters in the mouth burst. On the 8th d. she was out of danger and soon recovered. (SCHNEIDER, *Mat. f. d. Staatsarzneiwiss.*, ix, 257.)

9. A man got for quartan ague 2 drachms of C. powder which caused such satyriasis and desire for coitus that he lost all shame. Another man got C. for tertian ague and had violent satyriasis and uncontrollable desire for coitus amounting to mania. The following day he was found dead, with smiling expression and his penis mortified. (DUPREY ROUV, *Diss. sur la Satyriasis*, 1570, in Wibmer.)

10. A man, æt. 50, married, was dissatisfied with his amount of sexual power, and in order to increase it he swallowed 8 C. beetles. He soon felt great thirst, for which he drank beer. After 2 h. nausea and inclination to vomit, call to stool, vomited much astringent fluid and some of the beetles. There ensued weakness of all the body, frequent chills, burning in fauces and buccal cavity with great thirst, restlessness, constant urging to urinate, urine at first copious, then very scanty and passed with horrible pains. N. restless and sleepless. Drank almond milk, which seemed to increase the pains. When seen he had confusion of head with pain in frontal region; livid complexion alternating with transient redness; great swelling of lips, gums, m.m. of cheeks; tongue blue and covered with many blisters containing a gelatinous fluid. Some of these blisters already broken, shreds of dead epithelium are seen. Along the centre of tongue, from the tip to the root, a long, distended blister $\frac{1}{2}$ inch wide. Painful burning of all buccal cavity and fauces, with great swelling of those parts, compelling constant drinking, which did not allay the thirst. Sickly, bitter taste, no appetite; disgust at food, frequent hiccuping eructation. No pain in stomach or bowels, stool normal (he had had diarrhoea for some days before taking the C.). Dull pressive pain in both renal regions, violent burning-cutting pain in neck of bladder to the fossa navicularis of urethra, especially before and after micturition. Constant painful strangury, with emission of drops of reddish urine sometimes mingled with blood, penis lax, not the slightest sexual desire. Temperature of skin somewhat elevated; pulse quick, tense, and full. Sometimes chilliness, sometimes heat alternating irregularly with sweat; great weakness of limbs, anxious unrest, cannot remain in bed; cross humour. Under camphor spirit 1 drop every 2 h. he soon got well. (HUBER, *Zeitsch. d. Ver. d. hsm. Aerzte Oesterreichs*, i, 561.)

11. Seven soldiers drank freely one e. of a mixture of honey, water, and tinct. of C. In $\frac{1}{2}$ —2 h. all began to feel weight, heat, and slight pinching in epigastrium and umbilical regions, followed by sharp colic, nausea, and vomiting. At same time there was sharp burning pain in penis, especially at extremity, with frequent desire to urinate; then followed copious stools. They were given an emetic, and taken to hospital. There M. Tassart found them with pale and sunken face, looking terrified; heat and contraction of throat; excessive pain at epigastrium and umbilicus, worse on pressure; frequent vomitings, urgent thirst, slight pains in hypogastric and lumbar regions; desire to

micturate every 2 or 3 m., with difficult expulsion of a few drops of bloody urine, causing in passing acute pain as if hot iron were passed along urethra, felt most in membranous urethra and at meatus. One only had painful erection (for 5 m.). Pulse frequent, small, feeble; skin moist, slightly cold. No headache, delirium, or convulsions. Demulcents and camphor were administered. Next m. diarrhoea, which was simple, had ceased for 3 h.; tongue red at borders, yellow at centre; throat much reddened, same feelings in it; urinary symptoms same, and urine found to be highly albuminous. Slight headache. Amelioration now set in. Next m. urine less red, still albuminous, and containing some white pellicles. This condition persisted till the morrow, when all other symptoms had disappeared, but by 4th d. was gone. (TARDIEU, *Etude sur l'Empoisonnement*.)

12. Six young men had, during a period of 6 months, unknowingly taken with their food powdered C. by mistake for pepper. The only marked general symptom was great restlessness. There was no affection of the nervous system, nor any disorder of the bowels. The appetite was unaffected. No pain was experienced in renal or lumbar region. About 3 h. after meals, there was slight pruritus of glans, with desire to micturate, and ardor urinæ. Desire for micturition continued 2-4 h., and then gradually ceased, leaving some irritation along urethra. There was neither priapism nor any extraordinary erotic feeling; but one had a copious mucous discharge from urethra. (*Journ. de Chim. Méd.*, 1847, p. 17.)

13. A lunatic, æt. 40, at 7.30 a.m. swallowed by mistake ʒss of C. plaster containing ʒij of powder. An ipecacuanha emetic was immediately given, which caused copious and frequent vomiting. In about 2 h. whole mucous membrane of mouth was bright red, and lips covered with small blisters. After vomiting there was great coldness of surface, and after 5 h. pulse became contracted and sunken. A slight febrile reaction followed, but yielded to progressive sinking. After 10 h. abdomen tympanitic, penis (glans especially) livid, but without erection. Urine passed was mixed with blood. Death took place in 24 h. On inspection, vessels of brain were found gorged with blood, and a quantity of serum was effused in ventricles and between convolutions. Heart and lungs were healthy. Interior of stomach was covered with red spots interspersed with ecchymosis, in centre of which was seen an adhering particle of powder. Intestines healthy, but l. kidney red and gorged with blood, and ureter internally very red; bladder thickened, and its mucous coat injected with blood. (*Ann. de Théor. et de Tox.*, 1844.)

14. a. Some soldiers mixed tinct. with coffee in mistake for brandy. Within 4 h. of taking it they had to be sent to hospital. "I shall never forget," writes Dr. Falle, "the sight that met my eyes as I entered the ward. Scattered about the room, some, squatting, were making painful efforts at micturition and defecation, passing with difficulty bloody urine and red, viscid mucus; others, bent on their beds, were vomiting repeatedly, and a few, pale and collapsed, were suffering intense agony." In general, face was congested, eyes sparkling, pulse frequent, skin covered with sweat; features, distorted on all sides,

showed most intense terror. Penis was swollen and painful, but not rigid; none were affected with amatory desire or priapism; dysuria and vesical and rectal tenesmus were noticed in all. There was also burning and constriction in throat, pain in epigastrium, and vomiting of bile and food; but no convulsions, delirium, or other cerebral disorder.

8. One of the most striking symptoms observed was the weakness of the lower extremities, which occurred in several of the patients. The arms were unaffected.

9. All had albuminuria, but in association with hæmaturia. As the blood left the urine, the albumen also disappeared. (PALLE, *Journ. de Pharm. et Chim.*, Juin, 1871.)

15. a. Martin, one of the soldiers mentioned in No 11, came off less well. On m. of 14th (drink having been taken on 15th), he had—besides symptoms of companions—general prostration of strength, skin cold and covered with sweat, penis flaccid but seat of incessant pain. At 5 p.m. extremities cold, covered with viscid sweat; pulse feeble and compressible, 90; vertigo, headache, pain in knees and calves, continual agitation of lower extremities. No sleep at n.; covered all time with copious cold and viscid sweat; next m. some symptoms less, but belly tense and tender, and colic severe. No urine since 10 p.m., but frequent watery stools, sometimes involuntary, with much blood, tenesmus, and pain at anus. Pulse scarcely perceptible; intelligence intact; knees acutely painful, but without redness or swelling. Towards 10 a.m. he fell into coma and at 10.30 expired.

6. *Post-mortem*.—Much livid ecchymosis at posterior surface of body. Whole digestive canal inflamed, with vesicles in throat, swelling in stomach and intestines, pustulations and ulcerations in colon and rectum. Kidneys hyperæmic; mucous membrane of pelvis and calyces presents deep red points, and that of ureters numerous minute ecchymoses. Bladder contracted, its lining membrane red but not swollen, with a few ecchymoses. Corpora cavernosa of penis, and whole urethral mucous membrane, intensely congested. Lungs and heart contained much dark blood. Knee-joints were without synovial fluid; synovial membrane deeply red and covered with a thin layer of viscous material. (TARDIEU, *op. cit.*)

16. a. A boy, æt. 12, had been ailing for 3 weeks when it was found that schoolmates had given him an apple into which they had inserted a quantity of C. He came to Dr. Dannel, Sept. 26th, 1867, for swelling of prepuce, red, hot, and diaphanous. It was not so large as yesterday; then size of small hen's egg, now of large walnut, and there issues from beneath it a purulent secretion. On 24th commenced great soreness in urinating which is rather worse to-day. He complains also of pain and stiffness of limbs with numbness; is continually tired, and more especially on r. side of body; headache, with dizziness, brain feeling as if stiff; r. half of face quite swollen; letters on paper are green and yellow, and he cannot distinguish an object till he nearly closes lids, and shakes head 2 or 3 times; conjunctiva slightly suffused; has increased drumming in ears. Nose swollen, red and sore inside, several itching burning vesicles upon it; continual stench before nose,

passing down throat, which is inflamed, with burning soreness. Loss of appetite, but no sickness, or tenderness at epigastrium; bowels unaffected; has a yellow spot size of flusin on abdomen near umbilicus, and another on inside of l. thigh. Painful tension along inguinal canals to testicles, and around pelvis. Violent jerking of heart, that runs quite to head. Is constantly cold, cannot sleep after 2 a.m. because of it, although he is very sleepy. Is alarmed and agitated; feels worse in open air; has sour eructations, especially after drinking. 27th.—Has taken camph. ϕ , gr. x every 4 h. Continues much the same, only legs are weaker; pelvic region and testicles much distressed; penis, and especially prepuce, covered with small blisters, as if from an epispastic; less swelling; throat very painful; chilliness continued. 28th.—No relief; whole penis covered with itching blisters, that break and scab, much more numerous than yesterday; not so chilly last n., but could not sleep. 29th.—Slept last n.; legs and r. arm same; sight rather better; itching on penis, and dragging pain in spermatic cord, worse. Is continuing camph. 30th.—Swelling of point of nose increased; and has itching vesicles on shoulders and elbows. Oct. 2nd.—Vesicles on penis have spread over legs, and some have appeared on fingers; their itching is so bad as to prevent sleep; nose very much swollen in m. but less so towards n. 4th.—Very lame, more so than ever; eruption on legs worse. 5th.—Lameness unabated; less itching but more soreness; vesicles have formed scabs, under which exudes purulent matter. Rest broken; is constantly dreaming of quarrels and fights with boys, in which he beats in their heads with his fist, and is covered with blood; talks loudly in sleep. Taste in mouth as of resin or pitch; no appetite, least particle of food satiates him. Is so intensely sore over body that he cannot endure his brother, who sleeps in same bed, to touch him. Fresh vesicles on palms and shoulders, always feels a prickling where they are about to appear. 8th.—Arms, legs, and eyes smart only in d.; scabs falling off; at n. itching continues very severe, coming on like a shot. Numbness of r. hand continues, also yellow spots on abdomen and thighs. Says he is all the time uneasy; must be doing something or other, snaps his fingers or picks them; limbs move about in spite of him. From thence gradual abatement of symptoms, but they did not wholly disappear till 48th d. (*Hom. Examiner*, iii, 145.)

17. a. A boy gave a girl, æt. 13½, a jam tart which contained a Spanish fly. In ¼ h. after eating it she was attacked with giddiness, pain between shoulders, and burning in throat, and finally fainted. Her mother gave her two rhubarb pills, and put her to bed. After restless n. next m. abdomen was found much distended with swelling and irritation of vulva. She complained of bearing-down pains, and suffered much from nausea, which was soon followed by vomiting of Osa of blood. Urine was scanty and high coloured, but strangury was only complained of next m. (July 12th), when it soon became very painful and distressing. At same time she complained of strong and disagreeable odour in nostrils. Nausea and occasional hæmatemesis lasted 3 d., and other symptoms—though less in degree—till 29th, when at 2 p.m. she had a sudden epileptic attack, lasting a long time, and very severe. At 10 p.m. occurred another fit, complicated with

hysterical symptoms, and during following days fits continued to return in quick succession, but subsequently became less frequent. Therewith came ischuria, seeming also for the most part hysterical, but on one occasion urine was suppressed for 4 d. Later she is said to have had "renal congestion." On Oct. 15th her face was very sallow and puffy. She had much increased in height and size during her illness, during which also menstruation had entirely ceased, though it had occurred on three occasions previously. Urine was now normal; but sleep was bad, and she was at all times restless and uncomfortable. On being sent to a convalescent institution, health was restored; but catamenia did not appear till 7 months had elapsed.

There was no previous history of epilepsy in patient or her family, and there was no return of the fits for a twelvemonth later. (*Med. Times and Gaz.*, 1864, ii, 617.)

18. A gentleman, æt. 63, swallowed by mistake a bottle of liniment, of which the tinct. of C. was a principal ingredient. In about $\frac{1}{2}$ h. an emetic was administered; nevertheless, he was immediately afterwards affected with paralysis of the lower extremities, and inability to void his urine. For the first fortnight he was under the necessity of having his urine drawn off at stated intervals. After this he regained the power of making water, but was tormented with an incessant desire to do so. When I was consulted, four years after the commencement of the attack, he was able to walk with the aid of crutches. At times he had a sudden and irresistible impulse to void his urine, and expelled a small quantity by a voluntary effort; but at other times it flowed involuntarily, without his being conscious of what happened, so that his clothes were as wet as possible. (*Brodtz, Works*, ii, 474.)

19. *a.* The topical effects of C. are those of a most powerful acrid. When these insects are applied to the skin, the first effects noticed are, a sensation of heat, accompanied by pain, redness, and slight swelling. These phenomena are soon followed by a serous effusion between the corium and epidermis, by which the latter is raised, forming what is commonly termed a blister, but in the more precise language of the cutaneous pathologist, an ampulla or bulla. The effused liquid has a pale yellow colour, with a very feeble taste and smell. (It is mainly a solution of about 6 per cent. of albumen in water.) If the cuticle be removed, the subjacent corium is seen intensely reddened, and by exposure to the air, oftentimes becomes exceedingly painful. If irritants be applied, a secretion of pus takes place, and sometimes a whitish false membrane is formed. Not unfrequently I have noticed ecchymatous pustules around the blistered surface; and in one remarkable case which fell under my notice, the whole body, but more especially the pectoral region (to which the blisters had been applied), was covered with them. Sometimes the vesicles of eczema occur. Ulceration and gangrene are not uncommon; the latter effect is occasionally observed after exanthematous diseases, especially measles. I have seen death result therefrom in two instances.

b. The constitutional symptoms frequently produced are excitement of the vascular system (as denoted by increased frequency of pulse, heat of skin, and furred tongue) and irritation of the urinary

and genital organs (marked by heat and pain in passing urine, which is usually high coloured), or there may be complete suppression. (PEREIRA, *op. cit.*)

20. *a.* The effects of *C.*, applied in the form of blistering plasters and otherwise, on the urinary organs, have been long observed; but it is only of late that inquiries have been made as to the actual changes induced in kidneys and bladder, giving rise to the symptoms ordinarily known as strangury. It is now ascertained that the application of a blister to the skin, but more especially when the integument has been wounded—by cupping, for instance—induces the presence of albumen in the urine, as in Bright's disease. The French physicians, and especially MM. Morel-Lavallée and Bouillaud, have recently paid particular attention to this form of albuminuria, which they term "cantharidien." There is a considerable diversity in the results obtained by the two observers named. The former describes the albumen as found in three forms, in solution in the urine, as a deposit, and in the character of false membranes formed in the bladder; whereas M. Bouillaud says that the albumen is only found in solution in the urine, and that any mass resembling false membrane which may occasionally be found at the bottom of the vessel, if truly so, must be, as are all other false membranes, essentially composed of fibrin. M. Bouillaud especially insists on the influence of blisters on the secreting surface of the kidneys, as bringing about the effusion of albumen, an influence which M. Lavallée has confined solely to the bladder, in which viscus he supposes the albumen formed.

b. Unless a blister be very small, the escape of albumen with the urine is always met with, at all ages and in all states of system. The duration of the albuminuria is mostly from 1 to 3 d. Three blistered patients, in whom death occurred from the disease under which they laboured, were examined. In one, whose death happened 3 d. after the onset of the albuminuria, the only notable lesion was an injection and redness of the lining membrane of the urinary tubes. In a second, whose death did not happen for a month subsequently, an opaline appearance and a thickening of the membrane were observed. The third case was that of a man who died from fever with pneumonia; albumen appeared in the urine nearly 2 d. before death; kidneys were red and congested externally, redness penetrating into cortical substance, pyramids presented a rosy hue and seemed elongated; lining membrane of calyces and pelvis was injected, and strewed with ecchymotic spots, and also with white salient points, of irregular figure, and consisting of patches of false membrane; and in one of the calyces of each kidney a more continuous and tough piece of false membrane was found, of yellowish colour and in part adherent. Internal surface of ureters was also congested, and false membrane dispersed over it, especially at openings into bladder. Same appearances were shown in base of bladder. (*Lancet*, 1848, i, 402.)

21. A boy *æt.* 4 years had by mistake a Spanish-fly plaster applied to swollen cervical glands, and after 18 h., when he began to be delirious, it was taken off. It had raised large blisters. The following days fever, and with great pain there came away a little black-coloured

urine. The urine then increased to four times the amount of the fluid drunk, with great thirst and voracious hunger, especially for meat. After a few h. the urine lost its black colour. The patient emaciated considerably, but the face and feet became oedematous, and the child could eat animal food only. The urine gradually decreased and in 6 weeks the child was well. The swollen glands disappeared completely. (WEISSER, *Petersburger Vermischte Abhandlungen*, v. 427, from *Frank's Mag.*)

22. A man, æt. 26, had a blister applied to side for pleuritic pain, though he said that 5 years previously he had got a gonorrhœa that lasted 5 weeks after the application of a blister. The pain disappeared. But 4 d. later, on the recurrence of the pain, he put on another blister. This was followed by a deep, profusely suppurating excoriation the size of a sixpence on the corona glandis, not of a syphilitic character. He had had no coitus for three months. Under a saturnine lotion the sore healed in 3 weeks. (HECKER'S *Lit. Annal. d. ges. Heilk.* iv, 4. 399, from *Ibid.*)

23. We learn from experiment* that blisters applied to the thorax of dogs and rabbits will produce redness and absolute inflammation of the pleura and peritoneum in patches distinctly corresponding to the vesicated surface of the skin. My friend Dr. Cameron has seen, after death, vascularity of the pleura in men, corresponding with blisters applied to the side a short time before death. He has met with cases in which a friction-sound has followed their application to the thorax within 24 h. after their use, no such sound having been audible before. Another physician has seen a patch of lung inflamed of the precise dimensions of a blister applied to the side. (ISMAN, *Foundation for a New Theory and Practice of Medicine*, p. 322.)

24. F. T.—, æt. 17, had been all d. engaged in making emplastrum cantharidis, standing over pan in which material was boiling. Towards close of d. he was affected with following symptoms:—Great dimness of sight, smarting and burning in lids and globes; constant lachrymation; eyes turned to nose; twitching of lids; could not close eyes without great pain, chiefly from smarting of lids; there was considerable redness and much appearance of distress. Camphor β was given. Next m. everything appeared to him yellow; nose was also considerably affected, some swelling with redness and heat within as well as without, with appearance of suffering from very severe coryza. On 3rd d., eyes were well, and nose nearly so. (*Brit. Journ. of Hom.*, iv, 91.)

Cantharidin. A crystalline substance contained in cantharis and other blistering beetles ($C_{15}H_{10}O_4$). Probably a solid volatile oil.

1. *Proving*s.—1. æ. May 6th, 7.30 a.m., six young men took $\frac{1}{2}$ gr. at 9 a.m. and 11 a.m. $\frac{1}{2}$ gr. In all the pulse immediately became slower by 4 to 22 beats per m.; the following m. the pulse was still somewhat slower. All complained of great weakness and prostration, vertigo, and trembling of limbs, with weight in muscles of thighs. They

* "Dr. Nottingham, of this town (Liverpool), tells me that he made a series of experiments many years ago which distinctly proved this. He has recently repeated them with like results."

had frequent desire to urinate and some smarting in urethra; all had copious perspiration and loss of appetite. Some had stools, two had none, but ineffectual painful urging and tenesmus. Still some prostration the following d.

♂. One of the provers, B. C.—, æt. 23, medical student, took $\frac{1}{8}$ gr. of C. as above. His pulse immediately fell from 63 to 57. He had much urging to urinate from the first, but after the 2nd dose he had a sharp pain in r. kidney, the urine stopped and he had slight smarting in urethra. He felt very ill, his mind became affected, he had vertigo and staggering. At noon he ate with repugnance. The prostration increased, no urine passed, he felt a dull pain throughout his urinary passages, so that he could point out the exact seat of his kidneys, ureters, and bladder. 1 h. later his prostration was extreme. He was incapable of moving, his complexion had become livid, his eyes lost their brilliancy, all his features were discomposed, his limbs covered with cold sweat, tendency to faint, vomiting of his food. P. 45. Some Malaga wine revived him, but the amelioration was only transient. 1½ h. afterwards the prostration returned with increased intensity, also the paleness, the cold sweat, the pulse was only 30 and intermittent, he vomited the wine he had drunk 2 h. previously. He got about 9 oz. of rum, which revived and improved him much. Although not accustomed to take alcohol this large quantity of rum seemed to have no intoxicating effect. He slept quietly and next m. only complained of numbness of thighs. He did not recover his appetite for a few d. (GIACOMINI, *loc. cit.*)

2. ♂. ROSIQUET thus describes effects of C.:—The $\frac{1}{100}$ th gr., placed on paper and applied to edge of lower lip, caused in about ½ h. small blisters. A little cerate being applied served only to extend action over larger surface, and both lips were in consequence covered with blisters. One of his pupils, who was watching its crystallization, felt acute pain in conjunctiva, followed by inflammation, accompanied with small phlyctenæ, and loss of sight for several d.

♂. From his experiments on animals SCHROFF thought that a centigramme would produce no injurious effect on a human being. The results of this dose, however, were so serious as nearly to prove fatal. It is probable that the action of pure C. is 50 times as powerful as that of cantharis. . . . 10 dr. of a freshly made tinct. of cantharis produced erotic sensations. Nothing of the kind was observed as a result of the action of C. Pain in loins was felt in both cases, but more slowly with C.; and although there was violent inflammation of bladder and ureter, no erotic symptom manifested itself. These results rather lead to the presumption that the aphrodisiac properties of the insects reside in a volatile principle and not in the more fixed C. (FERREIRA, *op. cit.*) [We have been unable to obtain the original of Schruff's experiments here referred to, but hope to do so in time for the appendix to this volume.—E.D.S.]

II. *Experiments on animals.*—1. C. produces both albuminuria and hæmaturia. Shortly after its injection kidney appears congested and swollen, and on microscopic examination it is found that the alterations begin first in the glomeruli and convoluted tubules, and gradually extend to the straight tubules. These changes consist in intense congestion,

especially of the glomeruli, with increased tension of blood in the vessels. Then the liquid constituents of the blood pass through the vascular walls, carrying along with them granules and red and white corpuscles. This exudation then passes from the glomerulus along the whole length of the tubules, the epithelium of which next becomes changed, the cells which line them swelling up, multiplying, and becoming modified in form, migration of leucocytes also occurring. In short, we have the signs of inflammation beginning in the glomeruli and passing along the tubules. . . . The inflammation caused by *C.* begins in the glomeruli and not in the straight tubes, as is often stated. The first thing noticed is extravasation of leucocytes into the glomeruli and an exudation of a fibrinous matrix; next, following in order, we notice (1) the glomeruli and proximate tubules are filled with a granular fluid; (2) the cells of the capsule become swollen; (3) cells of collecting tubes are affected and become swollen; (4) cells of whole urinary tubuli become swollen; (5) in straight collecting tubules cells become multiplied, and are thrown off, so that the lumen becomes full of exuded cells. (BRUNTON, *op. cit.*)

2. Dr. CANTIERI made numerous experiments with tinct. of *C.*, blistering plaster, and cantharidin, on rabbits, dogs, and frogs, drug being introduced in various modes. His conclusions are as follows:

a. *C.*, when introduced into animal organism, produces changes in blood, corrugating and destroying red corpuscles when brought into direct contact with them, corrugating only when reaching them by absorption.

b. It diminishes contractile force of heart and blood-vessels, and thus reduces arterial tension; it increases rapidity of beats of heart and temperature of body, and leads to wasting and general debility—all phenomena indicating existence of a true and special fever.

c. It induces hyperæmia and stasis in various organs, or, if directly applied in substantial dosage, true inflammation. Hyperæmia of cerebrum and cord was found; in former softening was slight, in latter it reached an advanced stage, being greater in dorsal and lumbar enlargements, especially the latter. Hence arose paralysis of posterior limbs, and in frogs loss of reflex activity.

d. There was always pronounced hyperæmia of meninges at base of skull in situation of medulla oblongata, whence probably—in rabbits and dogs—increased frequency of respiration, and great rapidity of circulation with occasional intermittence.

e. *C.* always induces hyperæmia or even true inflammation of the uro-poietic and genital apparatus; giving rise to degenerative or parenchymatous nephritis, sometimes with albuminuria. It stimulates the sexual organs, and may produce abortion.

f. *C.* administered internally produces, besides the morbid conditions already mentioned, a true gastro-enteritis with extreme redness and ulceration of mucous membrane of stomach, and yellow mucous diarrhœic discharges. Occasionally, even when injected into veins, if it do not produce ulceration, it occasions hyperæmia of gastro-intestinal mucous membrane and frequent diarrhœa. (*Land. Med. Record*, 1874, p. 803.)

3. Rabbits were killed by subcutaneous injection of grm. 0.10 of cantharidin, dissolved in acetic ether.

a. One of these, which died in 20 m., had albumen and flakes of fibrin in urine. Epithelial cells and nuclei of inside of capsule were swollen, and some white corpuscles were found between glomeruli and capsule.

b. In those dying 1—4 h. after injection, there was intense congestive distension of vessels, and pyramids were blood-red. In glomeruli vascular branch was separated from capsule by a zone of liquid, more or less thick, containing white corpuscles and yellowish granules. Capsular membrane presented sometimes swollen endothelial cells containing some granules, sometimes only nuclei, as if cell walls had been liquefied and destroyed. Epithelial cells of convoluted tubes were filled with yellow granules and liquid.

c. After 2 h., inflammation of tubuli recti and collecting tubes appears, attended by modification of form of cells and migration of leucocytes.

d. Bladder, after first emission of (considerable quantity of) urine, which happened 15 to 20 m. after poisoning, remained empty. Surface was red; it contained some drops of cloudy urine, within which were minute leucocytes and large spherical, or long and flat, cells. (CORNET, *Comptes rendus*, x., 537.)

4. Small doses of cantharidin were given to a dog every second or third d. for a month. At each dose diarrhoea and vomiting occurred, and urine contained red globules and hyaline casts. Kidneys presented, *post mortem*, all the lesions which are observed in an acute or sub-acute albuminous nephritis in man. (*Journ. de l'Anatomie de Robin*, 1879.)

CAPSICUM.

Capsicum annuum, L. Capsicum, Cayenne pepper. Nat. Ord., Solanaceae.

1. *Provingi.*—1. HARNEMANN, *Med. Med. Pura*, vol. i of original and of translation. Contains 275 symptoms from self, 65 from 4 fellow-observers, and 4 from authors.

2. HARTLAUB and TRINKS.—Two rapid violent stitches from vertex into forehead (1 h.); painful twitching under r. eyelid (½ h.); violent pressive pain at pit of stomach, increased by pressing thereupon (½ h.); stitches in scuticulus cordis on rapid and deep breathing, speaking, and pressure; extreme lassitude in all the limbs, which are as if bruised. (*Arzneimittellehre*, i, 303. Without explanation.)

3. a. Dr. HÜGYES, 5 h. after dinner, took in a capsule 0.1 cc. In about 10 m. eructations, at first tasteless, later tasting of pepper. At same time slight and not disagreeable sense of warmth in stomach, extending through oesophagus to sauces. Later, frequent eructations, sense of warmth amounted to slight heartburn, whereupon eructations also became burning. Later still, rumbling and flatus in bowels. After 1 h. symptoms disappeared. Next m. rather soft stool, which glimmered slightly, followed for a short time by burning at anus.

b. An assistant took 0.2 cc. He experienced same sensation of

warmth at epigastrium, finally becoming violent burning, followed by inclination to vomit, and general sick feeling. After $\frac{1}{2}$ h. violent rumbling in bowels, with inclination to stool, relieved by emission of flatus. (*Arch. f. Exp. Path. u. Pharm.*, ix, 122.)

II. *Poisonings.* 1. [Hempel cites, as from Larrey, the production of atrophy of the testicles from drinking brandy in which C. had been infused. This author, however, mentions the brandy-drinking as only one of several causes; and speaks of it as "an *ex-de-vie* of dates, in which the natives infuse the fruits of several solanums, such as the pseudo-capsicum, the capsicum, &c."—Eds.]

2. Mrs. T—, æt. 74, found on Nov. 14th that she had taken cold, and at n. took teaspoonful of cayenne pepper in solution. Next m. twice repeated dose; last was followed by sickness and diarrhœa, but when these had subsided she took two more. After these there was no vomiting or purging, but she began to pass great quantity of urine. On 16th her skin began to itch and burn, and on 17th from neck to knees was covered with a papular eruption, accompanied by intense itching and burning, worse at n., improving between 5 and 9 a.m., and continuing quieter all d. Pulse 84. Some confusion on first waking from sleep. On 19th papules were found filled in with bright erythematous redness, and in afternoon vesicles commenced forming, most abundant where perspiration would be confined. She had passed but a small quantity of high-coloured urine since yesterday. A chill now came on, lasting 30 to 60 m., during which she lay before fire warmly covered. Those about her found that their hands, after contact with patient's skin, burned and tingled for some time. Eruption spread upwards to scalp and downwards to soles. It was accompanied with much swelling of cheeks, ears, and neck, l. side more affected than r. without anything in position to account for this. She steadily grew worse, in spite of remedies, till 22nd, pulse remaining at full strength, not over 100. On that d. she was drowsy; on 23rd lay comatose all d., and on 24th died. (DAVID HUNT, jun., M.D., *N. Eng. Med. Gaz.*, iv, 43.)

CARBO.

Including *C. animalis* and *vegetabilis*.

Carbo animalis. Animal charcoal, prepared from ox-hide in Hahnemann's provings.

1. *Provings.*—*t.* HAHNEMANN, *Mat. Med. Pura*, vol. vi of original (2nd ed.), vol. i of translation. Contains 188 symptoms from self and one associate, and 3 from an author (see I, 3).

2. *IBID.* *Chronic Diseases*, Part 3 of original, vol. of translation. Contains 728 symptoms, additions being mainly from Wahlé and from an anonymous pathogenesis in vol. iii of Hartlaub and Trinks' *Arzneimittellehre*.

3. WEISS used animal charcoal made from meat. He states that healthy people who took it got painful lumps in breasts, induration and swelling of parotid glands, and coppery eruptions on the face, which

gradually go off when drug is discontinued. Gumpert, of Posen, is cited as having made experiments confirmatory of Weise's observations.* (*Russ's Magazin.*, xxii, 1, 198. 1826.)

4. Some of WILHELM's students took large doses, without other result than the production of softer and more frequent stools. In two of them, however (who had also taken vegetable charcoal and graphites respectively), there supervened, some time after, loss of appetite and other gastric derangements, for which laxatives were required. (*Op. cit.*, sub voce.)

Carbo vegetabilis. Vegetable charcoal made from the wood of the birch, beech, or any other tree.

1. *Proving.*—1. HANNEMANN, *Mat. Med. Pura*, vol. vi of original (2nd ed.), vol. i of translation. Contains 720 symptoms from self and 3 fellow-provers.

2. *Ido.*, *Chronic Diseases*, Part iii of original, vol. of translation. Contains 1189 symptoms, additional ones being from self only.

3. THOS. L. BROWN, æt. 26, health good, stout and florid. From Oct. 24th, 1876, to 26th inclusive, took 2 gr. 3 times daily of 2nd cent. trit. 27th.—Dull, heavy frontal headache, continuing from noon till bedtime; eyes weak, dry, glassy, wanted to keep them shut. 29th.—Another dose at 3 p.m. Nothing further till Nov. 1st, when he experienced the frontal headache again, most severe over r. eye, boring, with slight dizziness; violent exercise caused it to extend into eye and become quite sharp; sense of fulness in brain. Also, sharp pain on outside of hip and thigh, commencing in m. and lasting till e. Pain in hip recurred next d. For some d. r. side of head in front was sensitive to strong movement. (Dr. C. WESSELMOERT's provings, *Trans. of Amer. Inst. of Hom.* for 1877, p. 198.)

4. J. R. HUSS, æt. 23, health good. Took 2 grs. of 3rd trit. 3 times daily Oct. 27th, 29th, and 31st, Nov. 1st and 2nd; twice daily Nov. 3rd; once on 4th and 6th. On 10th, had toothache and gumboil ending in abscess over l. lower wisdom tooth. (*Ibid.*)

5. HENRY HANBY, æt. 30, robust and sanguine. Took 2 gr. of 2nd trit. three times a d. from Oct. 23rd to Nov. 10th inclusive. On 26th, general sense of dulness, with indifference to wishes or presence of those about him, and feeling weak in every way; had not slept well at n., turning and tossing all the time, soreness on lying on one side any length of time, could not find a soft place; woke at 5 a.m. with constricted feeling at sides of trachea, at 6.30 worse, pain on swallowing (mouth tastes as if there were lime in it); got up with pain in back of head, behind ears; at 7 p.m., constriction in throat returned, and seemed to extend to occiput, drawing head backwards. It continued for next three d., involving cricoid cartilage, which was sore to touch, and returned Nov. 1st, with soreness and dryness of throat.

* Dr. Hempel writes:—"From 4 gr. of the drug taken 4 times a d., gradually rising to 24 gr. 4 times a d., Dr. Duplan and others observed a copper-coloured eruption over the whole body, more particularly in the face. Small funicles, of the size of peas, likewise broke out, smelling like burnt meat when discharging; the excrements spread a similar odour." We are unable to trace this observation, for which no reference is given; so it must stand *quantum valet*.—Edb.

Stools had been loose and frequent on 24th, but a hard and dark one came on 25th, as also to-day (very unusual); abdomen was sore and hard, painful when lying on l. side. Similar stool on 3rd, with great straining; head feels full, with soreness of condyles of lower jaw; sharp shooting pain in chest while lying on l. side. On 4th this continued, so that he had to lie all the time on r. side, heart felt pressed down, so that he could hardly feel its action, with faintness and shortness of breath.* On 10th pain in glenoid fossa, with swelling at back of neck, gone by 14th. On 23rd feeling as if a stone were in abdomen below umbilicus, and on 26th soreness from thence through the spine and up to shoulders. Dec. 2nd.—Fullness and pressing down at vertex, sense of distension in parietal regions, pressure over eyes as if head were bound with hand, itching all over scalp. 3rd.—Stitching pains in region of heart. 7th.—Tenderness over apex of heart, worse on coughing, increased on lying down, relieved on rising. 10th.—Return of constriction of throat, with much yellow thick mucus therefrom and from posterior nares; general soreness and tenderness over abdomen, which feels full and hard, though he has had no appetite for several d.; darting pains as if a knife were running through stomach; pain in testicles for several d., also at end of penis, with tearing and stinging; urine of dark colour, scanty, and passed with stinging pain. 13th.—Constriction of throat continues, only worse, with feeling as if tonsils were swelled, difficulty in swallowing, and pain on coughing. 17th.—Fullness in head, with pressure from within outwards, as if it would burst, relieved at 5 p.m. 21st.—Same fullness and bursting feeling about sides of head, pressure on forehead relieved by counter-pressure; hardness of hearing; pain increased in r. (?) side; shortness of breath. (*Ibid.*)

6. D. M. DYSENT, æt. 24, stout and florid, health good. Took two-grain doses of 2nd trit. 3 times daily from Oct. 23rd. to Nov. 10th. Oct. 28th.—Urine dark; severe temporal headache; cold hands and feet at noon. 29th.—Vertigo aggravated by stooping; perspired freely; weakness in lower limbs. 30th.—At 8 a.m. intense headache, sharp pains in temporal regions, nausea, loss of appetite, cold hands and feet. At 2 p.m. felt warm, perspired freely; urine dark and scanty; bowels loose but regular. 31st.—On waking very severe headache; nausea, without vomiting. At 2 p.m. diarrhoea, cold hands and feet, no appetite. Nov. 1st.—Bowels moved in n.; at 2 a.m. some headache through temples. 2nd.—Aching in lower limbs, &c.; dark brown coat on tongue; scalp sore to touch; bowels moved 3 times. 3rd.—Feel better; slept well; urine dark, scanty; bowels moved twice. 4th.—Nothing worthy of notice; bowels not moved. 5th.—Slight headache; bowels moved once; urine dark and scanty. 6th and 7th.—Tongue coated, bitter taste, flatulence. (*Ibid.*)

7. W. E. GILL, æt. 24, fair and slender, health good. Took grain doses of 3rd trit. 3 times daily from Oct. 23rd. to Nov. 15th. Oct. 25th.—Gulping up sour and bitter stuff, belching of bitter fluid 1 h. after eating; mind clear and in rather happy frame. 27th.—Still some gulping; urine free and light coloured, continuing so (no other

* It is noted on 21st that "heart symptoms continue," but nothing is said of them during the interval.—EDS.

symptoms mentioned) till Nov. 13th. 14th.—R. hand inclined to go to sleep. 15th, 9 p.m., twitching of r. thumb; legs and arms inclined to go to sleep, with beating and bubbling sensation in r. deltoid. 16th.—Soreness of small of back coming on gradually, fine darting pains at times; small watery blisters on lips; have not cared to take as much exercise as usual; going to sleep about 5—6 p.m. 17th.—Sleepy feeling in legs and arms; feeling in l. foot when put down as if bones were pressed apart; dull pain at internal condyle of l. femur. 18th.—Woke with stiffness of l. sterno-mastoid, sore to touch; cervical glands enlarged behind l. ear; sensation as if meatus were swollen and sore. 19th.—Same condition, with hands and feet sweaty; sensation as if meatus were closing up; throbbing headache through temples. 22nd.—Glandular swelling begins to go down. 24th.—Chilliness in back; dry cough at 1 p.m. 25th.—Hoarseness this m., lasting all d.; dull pain under upper sternum; dry cough, painful, raising a little tenacious mucus; sensitive to air; urine often light coloured; somewhat constipated for several d. past. 26th.—Coughing on talking; sense of swelling in trachea, with soreness and sickish feeling in upper chest. Dec. 1st.—Discharge from l. ear; coughing still quite frequent; worse in the house. 2nd.—Coughing up saltish phlegm, with gagging; cough increasing during d.; nose stopped up with thick yellow matter; burning of cheeks and anterior nares; headache from 3—5 p.m.; sensitiveness of scalp on small spot of vertex. 3rd.—Felt feverish in m., coughed most of n., at 3.30 had to get up to avoid choking, sputa thick and viscid; headache in temples; weak, cannot walk without getting tired, and trembling of legs; in e. nares dry and hot. 4th.—Tickling in larynx, causing cough; took ipecac. with relief. (*Ibid.*)

8. W. OWANS, jun., æt. 19, good health, stout and florid. Took 2 gr. of (probably) 1st trit. 2 or 3 times daily from Oct. 24th—28th inclusive. 25th.—Headache (at noon) on rising or making any exertion; sleepy 3—4 p.m. 28th.—Dull headache 3—6 p.m. 29th.—Constipation; sensation as if hæmorrhoids would come down, with sharp cutting pains in anus. 31st.—Feeling as if sphincter ani would give way. Nov. 3rd.—At 3 p.m. some headache; eyes felt pressed back in sockets as far as a line drawn from ear to ear, worse l. side; pain increased on rising or starting to move. 4th.—Very restless n.; head aches still, n., the pain in l. side darting and shooting towards parietal bone. 15th.—Still sleepy 3—5 p.m.; legs and arms become numb, as if going to sleep; still constipated; involuntary muscular movements of hands and feet; urine greatly increased, of natural colour. 19th.—Headache better, appetite extraordinarily good. (*Ibid.*)

9. W. H. PAINE, æt. 25. After first dose of 1st trit. in e. slept well, but on waking next m. found heavy white coating on tongue; complete loss of taste; confusion of ideas; frontal headache extending to occiput; nausea, but not great; urine profuse, and often white; feet cold; unsteady gait, especially on going upstairs; some internal heat; slight constipation. The above symptoms lasted a week, save the coated tongue. [Observer does not say if he took any more medicine.—EDS.] (*Ibid.*)

10. E. E. HOLMAN. Took 3 doses of 3rd trit. at 2 h. intervals

from 7 a.m. After dose at 11 slight pain in l. temple; which after next dose increased much and rapidly extended over top and sides of head, continuous, very excruciating in character, but dull. At 2 feeling of "goneness" in stomach, and general lassitude. After dose at 3, with these symptoms hard sensation in stomach, as if something foreign were there, with sour and bitter eructations which relieve it. After dose at 7, symptoms all increased; lungs and throat feel raw, as if scraped; watery discharge from nose. Was kept half awake all n., and in m. felt tired, cross, sleepy, mouth having peculiar feeling as if painted or coated over with something, and tasting as he remembers it doing in measles.

Has tried drug since, with similar results, but no new ones. A room-mate took one dose, which caused a "terrible" headache similar to that described. (*Ibid.*)

11. S. S. ALDRICH, æt. 40, in fair health.

a. Took 2 powders of 1st trit. before dinner (of milk) on Tuesday; felt slight stimulating effect on brain and urinary organs. On Wednesday 3 powders before breakfast; effect as on previous d., a little stronger. On Thursday, 4 powders at same time; general headache, as if in brain, with contraction of genital organs.

b. On another occasion took 5 powders at 1 h. intervals. After 3rd, symptoms of flatulency and slight stimulation in front brain, which after 5th increased to a slight headache. (*Ibid.*)

12. a. Mrs. WHITCOMB, M.D., took 2 gr. of 1st trit. on Nov. 19th 4 times. Between 6 and 7 p.m. had pain in l. side, followed by dull, heavy ache in splenic region. 20th.—Same doses. From 4 to 6 p.m. heavy pain and pressure in l. ovary, also in bladder, with frequent urging to micturition but scanty result; much flatulence; tendency to rush of blood to head; cold feet; dull pain in region of kidneys, extending to scapula. 21st.—Same doses. From 2 to 5 p.m. pain in iliac region and sacrum; pressure in bladder; same desire to urinate d. and n. 22nd.—No medicine, but bladder symptoms continued, with similar pressure in rectum.

b. Dec. 3rd, took 4 gr. before breakfast. At 9 a.m. dull pain in splenic region; in l. lumbar region colicky pain, with a good deal of flatulence. 7th.—In e. 4 gr., repeated on morning of 8th. At noon of latter d., splenic pain again; severe pain in l. side of head, in temple, ear, and down neck, sharp and lancinating; sick feeling in stomach. M. evacuation lumpy with mucus. 9th and 10th.—Icy cold hands; chill if she leaves fire; p.m., painful pressure to urinate.

c. Jan. 16th, took 1 gr. of 2nd trit. at noon; 2 p.m., excitement in system generally; c., unusual chilliness; slight splenic uneasiness. Repeated dose on going to bed and next m. 17th.—At noon, some uneasiness in stomach; at 4 p.m. dull pain in left parietal bone; at 6 heavy, dull pain in stomach; some pain in region of bladder; passes urine more frequently than usual and more of it.

d. April 17th, took at noon 1 gr. 3rd trit. 5 p.m., faint, sinking feeling in stomach; sense of confusion in occiput. At 5.30 2 gr. At 8.30 dull pain, quite severe by spells, in region of spleen and l. ovary; pressure in bladder; desire to urinate, but little is passed; faint feeling

in stomach; general depression; pulse 80, weak. At 9.30 2 gr.; during n. pressure on bladder with scanty result as before; pain in both ovaries; from 5 to 6 a.m. sinking feeling and prostration; eructations. At 7 a.m. 2 gr.; between 11 and 12 dull splenic pain; at 2 p.m. irresistibly sleepy; some pain in r. hypochondrium; several times during d. itching, on arms especially, no rash or redness; sinking feeling by spells during d.; constipation; frequent tasteless eructations and some flatulence. At 5 p.m. 6 gr. In 15 m. dull pain in frontal region; lids so heavy she could hardly open eyes, sight dim, but no pain; same splenic pain, also in small of back and stomach; empty eructations; very depressed. Pains passed off in 1 h., but depression lasted into next d., and for several d. there was thick white mucous sediment in urine, no change in quantity.

r. Dec. 27th, 4 gr. of 1st trit. on retiring, and again on 28th, $\frac{1}{2}$ h. before breakfast. Between 10 and 12 a.m. splenic pain; at 12, transient roaring in l. ear, followed by ringing in r.; very chilly though near fire; very cold feet, hands look purple, shrunken, and cold, very cold feeling in back between shoulders; same bladder symptoms; dull pain in l. iliac region. Took 8 gr. on going to bed; on rising next m. felt nauseated, dull pain in r. hypochondrium. On 29th, 16 gr. No perceptible symptoms that d., but next m. severe constriction of sphincter ani; though stool was small there was sharp pain at first attempt to pass it, and difficult relaxing of muscle. (*Ibid.*)

13. Three persons proved under direction of Dr. Whitcomb.

a. S. M. W.—a young man of 18, took increasing doses of 3rd trit., till by 4th d. he had consumed 47 gr. That d. he had (for first time in life) piles, protruding half an inch, and very sore; they troubled him about 3 d. No other symptom. [It should be mentioned that for 10 d. before proving S. M. W., ordinarily in good health, had felt unusually depressed and weak.—EUS.]

b. W. B. W.—took 1st trit. for 3 d. in Nov., with no symptom save boring pain along urethra. In April took for 4 d. 3rd trit. in large and increasing doses, without any effect. On Dec. 28th took 4 gr. of 1st, m. and noon; very cold feet; in e. unusually depressed. At n. 8 gr. Had to rise to void urine twice (unusual), a quantity passed. On 29th took 8 gr. m. and n., with same result during the n., but no other symptom.

c. T. A. HAMMOND, a young man of 23, of good health, fleshy, eats a good deal of rich food. Took powder of 3rd trit. at 10 p.m. on April 18th. Slept well. 19th.—At 5.50 a.m. another; at 6 weary feeling in small of back. At 7 repeated dose; pain increased, urinates. 8, dull pain in or through temples; also dull darting or running pain in l. side, especially in small of back. 8.40, sneezing, with stringy transparent mucus from nose. 9.15, full or pressing sensation through bowels; extremities cold; pain through temples. 9.40, throat sore on l. side; sharp pain in or through l. temple. 10.30, pain nearly gone from temples, but quite severe in l. cheek; soreness in throat increased. 11.35, face, throat and side all better, but not quite free from pain. At 1 p.m. another powder; same pain in head; throat quite sore. 3, very sore across bowels, especially lower part; frequent sneezing. 4,

pain in bowels subsiding, in both temples quite severe; throat better. 5, throat and bowels well, some pain in l. side. 6, this also gone; occasional pain still in l. temple.

On another occasion took same at 1, 2, 3.10, and 4 p.m. At 2.30 languid feeling; pain through temples, changing in 25 m. to back of head. At 3.40 this pain more severe; sense of weight in stomach; thirst, which water does not appease. 4.10, pain more severe, extending to back of neck, like neuralgia (worse r. side of head and l. of neck). 5, sick all over; pain same, also (slight) in r. arm. 6, same; little appetite; nothing tastes good; pain rather less. 6.30, less sick; appetite returning. 9.20, pain almost gone; feels thirsty and sleepy. (*Ibid.*)*

14. 4. Mrs. FLORA H. STANFORD, married 13 years, two children, health fair. Took blank powders from Oct. 29th to Nov. 26th, a long array of symptoms being recorded. From Nov. 29th to Dec. 4th took gr. doses of 1st trit. 3 times a d. In n. of 30th felt cross all the time, and had slight hacking cough, raising some white mucus; throat slightly sore. That afternoon loose stools with tenesmus; next m. gushing watery evacuations, with same. Dec. 2nd.—Legs tired, especially calves; abdomen bloated all e. 3rd.—Same bloating in e.; can bear no pressure on thyroid gland, which feels tightened. 4th.—Feet cold in warm room at noon; 1.30, burning of fauces, with desire to cough. 8th.—For last few d. continuous tingling in l. Scarpa's triangle, seat of old abscess.

4. From April 2nd—10th took 1—3 doses daily of 2nd trit. On 7th same feeling deep in sciatic notch, while standing and walking, more on r. side than l., extends across sacrum. 8th.—Thirst alternating with slight salivation; frequent desire to micturate after even slight exercise; pressure between scapulæ, this last repeated next d., with soreness in throat and tickling causing cough. In e. so tired in hips and sacrum she had to lie down, which relieved. 10th.—Pressure in sacral region continues, though slight; urine light, nearly colourless, urging to micturate almost constant. 17th.—11.15 a.m., secretion of viscid then watery saliva; 2 p.m., alternate dryness of mouth with salivation; in e. pressive pain in epigastric region. 18th.—Again dryness of mouth, with thirst, alternating with salivation. 20th.—After getting up pressure returned between shoulders. (*Ibid.*)

15. Mr. R. R. TROTTER, æt. 28, health good. Oct. 20th—Nov. 13th took blank powders, with but few symptoms. Nov. 20th—Dec. 1st took 1st trit. of drug in frequent and increasing doses. Only new symptoms were:—On 23rd, slight constipation; on 24th and 25th fluent coryza; on 27th and 28th sleeplessness early in a.; on 29th "canker sore" on inside of lip. Dec. 4th.—Posterior cervical muscles painful to touch, pain along spine.

16. Mrs. J. H. MARSHALL, æt. 37, catarrhal and dyspeptic. Took blank powders for 6 d. from Oct. 30th, and recorded a good many

* The above provings (1—13) were communicated to Dr. Wewelboef by others. In the remainder, made under his own superintendence, the provings first took (unknowingly) blank powders, and noted their symptoms while doing so. Only those appearing for the first time while the drug was being taken will appear here.—Eds.

symptoms. Nov. 11th—24th took occasional 3-gr. doses of 1st trit. Only new symptoms were:—On 12th feeling of tight band round waist, relieved by passing (very offensive) flatus; darting pains in r. great toe. On 15th, urgent desire to urinate, with passage of large quantity of pale urine; on 16th, same, with constipation, at n. palpitation and horrid dreams. On 20th, dry, cracked swollen lips; fissures of tongue, with vesicles around edges that smart as though burned. On 24th, hot, constricted feeling in chest, causing dyspnoea and short dry cough, passing off in about 7 h. Heart's action disturbed all through proving. (*Ibid.*)

17. Miss M. MASON. General health good; seldom has an ache or pain of any description, even at period. Oct. 26th—Nov. 1st took blank powders, and had a variety of morbid sensations. April 23rd.—Feeling well, took 3—5 gr. of 1st trit. daily (often more than once) up to 28th and similar doses of 2nd to May 2nd. On 25th, continuous, rather sharp pain in r. shoulder, worse on motion, later going through to chest. On 28th, creeping pains in knees, and burning heat in l. foot. On 29th, menses appeared, preceded by several quite sharp pains through uterus; through v. wretched nervous feeling, originating in uterine region and culminating in inner thighs. 30th.—Feet feel as though dipped in cold water; doleful feeling; in e. crazy feeling in r. head, and steady pain in r. orbital region, tired-out sensation in front and top of brain; feeling of weight in uterus and r. ovary; nervous fidgety feeling down r. thigh. May 1st.—Heaviness in uterus; feet like ice, and feel damp; in v. stitching pain through r. parietal region. (*Ibid.*)*

CARBONEUM SULPHURATUM.

Bisulphide of carbon, carbonic disulphide, CS_2 . (Formerly known as "alcohol sulphuris" and "liquor Lampadis").

I. Proving.—1. KOCH.—a. ʒ dr. of 7x, April 18th, 1850, at 11 p.m., on sugar. N. rather restless. 19th.—Same dose in m. fasting. Immediately after ingestion compressive feeling in muscles under jaw, particularly alongside larynx. Breakfast caused pressure in stomach, relieved by eructations; tickling in forehead of urethra, and sensation as though something was about to run out of it. Severe pain in r. parietal bone, as though violently pressed on with a hard body. At noon, tongue coated; eyes sunken, with strongly marked grey rings around them; feeling as though heavy weight lay across shoulders and weighed him down, so that head sank forward (while walking). Glass of beer 5—6 p.m. had not its usual taste, and caused pressure at stomach and eructations. At 10 p.m. ʒ dr. Pressure at stomach immediately; tickling at back of throat, causing hard dry cough, soon after lying down in bed. N. good, but woke early, and had many dreams. Next d., a well-developed *scarus gastricus*—headache, discomfort, coated tongue, indisposition to exertion, and general feeling of illness; diarrhetic stool after breakfast; l. vesicle and epididymis somewhat swollen; sore headache in forehead; transitory pressing sticking pains in scrobiculus, setting from a single point towards cardiac region, afterwards frequent noisy eructations with relief (as in *neuralgia esulacea*). From any food or drink, even beer or sugar, pressure in stomach, region of which is painful and tender almost all d. At 10 p.m. ʒ dr. Piercing pains in l.

* It is well to mention that nearly 50 healthy persons, in addition to the above, took part in the re-proving of the drug; but neither from the 1st, 2nd, or 3rd triturations could get any symptoms whatever.—Eos.

metacarpus and tibia when in bed; vesicle more swollen, hard and painful; * n. as last, May 21, 1 h. after breakfast, 10 dr. Well during forenoon; in afternoon very severe pressure at stomach, and portentous eructations, with very fecid flatus. In e. tense frontal headache; feeling in bowels as if about to have diarrhoea; great and painful lassitude in ankles and wales, and.—Pressure and eructations, &c., as before. Red, somewhat raised eruption on both cheeks and across nose from 2 p.m. after shaving till n., with burning of nose and lips; was asked if he had herpes of face. At 7 p.m., chills; at 8, pappy stool, followed by weak and tremulous feeling, headache, and cramp-like sticking in both ears; pulse 80; violent burning and itching in anterior commissure ani, which is sore to touch. Headache increased towards n., and he was once awakened from sleep by violent stitches in l. ear. 17d.—All teeth ached after being washed with cold water this m.; eruption still slightly visible; face bloated; whole head confused and painful till noon, when perspiration from exercise relieved it. 18d.—Violent rheumatic pain in r. arm and shoulder; stitches in l. ear; face scaling where eruption was. 19d.—Itching and stinging of hands, especially between fingers, where he found little vesicles. Wandering rheumatic pains all d. 20d.—Severe pains in joints of foot in m. in bed, walking very troublesome at first, but easier afterwards; muscular pains in thigh and leg all d., hindering movement. 21d.—Nothing now but slight pressure at stomach after dinner.

22d. On 21h, took 3 dr. of and cent. in m. and e. Return of pressure, flatulence, itching in l. ear, and frontal headache, with addition of prickling feeling in various parts of skin and dislocated pain in loins. 23d.—6 dr. m. and e. L. ear still somewhat painful, and as it stopped; violent rheumatic pain in l. upper arm in e.; b. very restless. 24d.—Violent pulsating pains in temple at 6 a.m. on waking, so that he could not lie quiet, continuing till breakfast at 7.30; whole head confused and painful thereafter. At 8 a.m. 6 dr., whereupon temporal pain returned, with pressure in stomach and abdomen, belching of disgusting fluid, and rheumatic pains in all parts of trunk and limbs, lasting all d. Repeated dose at 10 p.m., and at 7 a.m. on 25th. No special symptoms during this 6. save hoarseness; frequent pain in l. metatarsus when walking, as if a false step would cause dislocation; and slight return of eruption. 26d.—Eruption more pronounced, especially after beer at noon; end of nose red, sore and burning. 27d.—Face scaling again. After 3 d. without evacuation, a soft stool after breakfast, with considerable discharge of cherry-red blood. On 28th, painful stiffness in neck, continuing all 29th, when also he had severe pain in l. elbow on movement only. On 28th, nored penis much shrivelled and shrunken, and states that he had had no sexual appetite since proving began.

c. 212.—Took 3 dr. of 20 cent. at 9 a.m. Beyond excessive acid belchings, no symptom during d. 212nd.—Woke tired, and with very bitter taste in mouth, disapp. peating after breakfast. At 10 a.m. repeated dose. Violent sticking constrictive pain in neck near commencement of oesophagus, as if a bone were sticking there, returning several times during d. Severe heartburn, exciting cough. Prickling again felt in fingers and feet. 23rd.—Kept well. At 10 a.m. 6 dr.; heartburn all d.; pains in loins, knee, and sole. Repeated dose on 24th at n. 25th.—Painful weariness and bruised feeling in all parts of body, especially back, loins, and feet. Pain in r. knee as if dislocated, repeated several times. Extraordinary discharge of wind, both upward and downward, when walking. In e. violent sticking pain in stomach through to back, when resting epigastrium on window-sill and taking deep inspiration, repeated each time he breathes deeply. 26th.—Thin pappy stool after breakfast. 27th.—3 dr. at 6.30 a.m., fasting. L. epistylus seems swollen again, though but slightly painful; dislocative pain in r. thigh and l. foot. 28th.—Repeated dose; felt very well, and had no pain in vesicle, though swelling is greater. 29th.—Same dose. Violent cough immediately on lying down in bed at n., caused by continual and very troublesome tickling high up in pharynx, exactly as if snuff had lodged on uvula, cough convulsive and dry, straining chest and making it sore, lasting 1 h. 30th.—10 dr. in m. Similar cough at 10.30 a.m., inclination to cough all d., and some hoarseness at noon, as if from a cold. A pappy stool escaped involuntarily when urinating in afternoon. Stools always pappy and scanty.

* State of vesicle is not noted again for some d., when it is said to be smaller, and not at all troublesome.—Eos.

31st and 1st June, — 10 dr. each m. on bread. More uneasiness in testicle. Violent stitch-like crampy pain in neck of bladder when making water at midnight, extending into urethra, and accompanied by similar pain in anus and rectum, hardly bearable while it continued. Returned next forenoon, but not so violent.

4. 10 dr. of xx were mixed with $\frac{1}{2}$ j of water, and received 100 shakes. From 3rd to 10th took table-spoonful of mixture each m. On 3rd, copious eructations of wind and discharges of flatus; heartburn whole d., especially after smoking; very sleepy after glass of wine in e., but wakeful in bed. 4th.—Table-spoonful at 6.30 a.m., fasting. Mouth bitter on waking; and saltish sourish taste, noticed since commencement of proving, is very pronounced to-day. Pinching in stomach; violent heartburn all d., and sore frontal headache, with burning in eyes; scalp tender on brushing hair. 5th.—No special symptoms. 6th.—Frontal headache all d. 7th.—No symptoms. 8th.—Violent frontal headache all forenoon. Stools still pappy, and to-day considerable discharge of blood. Testicle more troublesome last 2 of 3 d. Took a second dose at n. N. very restless and dreamful. 9th.—Torticollis in r, lower molars; buzzing and ringing in e. ear; face eruveise after shaving. 10th.—Testicle still worse. Medicine omitted; but on 11th violent headache.

1. On 11th, took 5 dr. of a 1 to 5 sol. Pungent, garlicky taste; pressure in stomach and eructations of wind immediately after dose; burning in stomach up through œsophagus in forenoon; much discharge of flatus; fine sticking burning pains in l. spermatic cord, running deep into abdomen, returning e. in bed, n. good. Repeated dose on 4 successive m. 12th.—Immediately on waking at 5.30 a.m. was obliged to go to stool, and had a copious, thin, yellowish evacuation, with subsequent burning at anus. Pains as yesterday in l. spermatic cord. 13th.—Same pains in cord and stitches in l. ear. 16th.—Same. 17th.—Violent stitches under middle of sternum, extending upwards, like lightning, soon after dose. 18th.—“I notice, since I have been taking this drug, an extraordinary fulness and inflation in gastric region.” 19th.—Violent lumbosacral pains on waking in m. Throbbing headache all d., aggravated by moving head. Great painful lassitude and weariness in soles after dinner. Very restless n. Stool with mucus and cherry-red blood. (*N. Am. Journ. of Hom.*, ii, 174.)

2. Dr. Jos. KWAR has a disposition to cerebral congestion, but had no head symptoms while making the proving.—March 10th, 1 dr. on sugar. Immediately on tongue first feeling of coldness, which soon changed to shooting-burning, after which a feeling remains like that after taking an acrid and astringent substance, e.g. pepper. On swallowing the medicine the same feeling in fauces. Soon after swallowing it, eructation of gas, with taste of medicine. At 8 a.m., 2 dr., which caused an agreeable warmth through whole stomach, and increased appetite. At 9 a.m., 2 dr., the peristaltic movements became more lively, rumbling, discharge of flatus, and urging to urinate. At 10 a.m., 2 dr., repetition of the same symptoms, especially the heat in pit of stomach, which spread up through the whole chest, the peristaltic movements and appetite increased, to which was added increased secretion of saliva.—12th, 6 a.m., took 2 dr., which caused the same sensations on tongue and fauces, but more severe; warmth in stomach, eructation smelling of the medicine, rumbling in bowels, and discharge of flatus. 7 a.m., 5 dr., which caused increase of appetite, flow of saliva, increased activity of mental functions, urging to urinate. 8 a.m., 7 dr.; this caused increase of all the symptoms, and in $\frac{1}{2}$ h. heaviness of head.—13th, 5 a.m., 8 dr. caused warmth of stomach, eructation, rumbling in bowels and flatus. 8 a.m., 12 dr.; to the above symptoms were added an intense warmth, rising up through chest to head, and spreading around navel; face, hands, especially palms, became warm, mental activity increased, appetite and saliva also. 7 a.m., 15 dr.; the warmth of stomach increased, and spread to hypogastrium, it was also increased in chest, face, and hands, slight pressure in stomach, slight tearing pain in bowels, and urging to urinate. 2 a.m., 20 dr., increased warmth, diminished appetite, metallic sulphurous taste, flow of saliva, disgusting eructations, frequent slight colicky pains, pressure in stomach, confusion of head, pressure in orbits, pulse quickened; thereafter the symptoms gradually declined, but all d. the head felt confused, and the teeth felt on edge.—April 10th, 6 a.m., 3 dr., and at 10 a.m., 3 dr.; same symptoms.—11th, 7 a.m., 20 dr. caused the same symptoms. 2 a.m., 30 dr.; great increase of the warmth in stomach, which spread up and down, especially to face and palms, salivation, disgusting eructations, tearing in stomach and bowels, urging to urinate.

metallic taste, confusion of head, pressure in sinuiput, orbits, and temples, pulse quickened. During whole proving the secretion of urine was increased. (*Mag. Ztg. für Hom. u. Suppl.* 61.)

3. Dr. J. KUCHNER, æt. 30.—Dec. 20th, 8 a.m., ʒ dr.; immediately picking burning on tongue, irritation in buccal cavity and fauces, with feeling of narrowing of larynx, causing cough and reaching with mucous expectoration, quickened respiration, eructations. After ½ h. coldness of feet and general warmth of upper part of body. 10 a.m., abdomen distended, alicewards vertigo. Appetite and rumbling in bowels, taste impaired.—March 1st, 3 p.m., ʒ dr.; some heat of cheeks for ½ h., confusion of sinuiput with feeling of contraction of hemispheres, fulness of stomach with eructations, gnawing and nausea; later the fulness spread all over epigastrium, vertigo. Sleep after midnight very disturbed, disagreeable dreams.—and, m., ʒ dr. After ½ h. burning in soft palate, confusion of head and vertigo, aggravated by wine.—Aug. 1st, 7 a.m.; ʒ dr., fulness in chest, and dyspnoea proceeding from r. anterior part of diaphragm, nausea, relieved by eructation, confusion of head, vertigo in sinuiput, tendency to fall forwards.—24th. ʒ dr.; soon, burning in mouth, but breath, dyspnoea, with pressure on sternum; upward pressure in temples, afterwards extending to crown. The oppression of chest increased in impure air and in the close room, with anxiety. Chest symptoms increased by going upstairs. Noon, burned call to stool; e., sensitiveness of anterior chest when sneezing.—3rd. ʒ dr.; stickiness of saliva and desire for drink; congested state of lungs in upper lobe.—14th. ʒ dr.; hoarseness of larynx, and especially in its posterior wall, irritation to hawk or cough for 3 h., afterwards irritation to cough at bifurcation of bronchi; eructation, abdomen distended, stool soft. After dinner, jerking-shooting pain along middle of thigh, like neuralgia, for ½ h. Afternoon, same pain between tibia and fibula.—21st. ʒ dr.; no symptoms.—25th. ʒ dr.; heat in larynx, irritation there, increased warmth of expired air, tension in sacrum, especially on going upstairs, with single jerks about hip-joint. During proving, relaxed condition of genitals. (*Ibid.*, 65.)

4. M. H.—, æt. 24.—Nov. 19th. ʒ dr., burning in œsophagus down to stomach, pupils somewhat dilated for a few m.—20th. ʒ dr., burning in œsophagus, pupils somewhat dilated, pulse fine from 76 to 92 for 10 m.—21st. ʒ dr., same symptoms, and frequently recurring slight stitches from r. elbow along extensor to wrist.—22nd. ʒ dr. At 9 a.m., formication from l. elbow to tips of fingers; also throughout 2, soon, as if it went to sleep. From 3 p.m. great drowsiness, and yet long of falling asleep at n.—23rd. No med., only the formication of both forearms, with slight prickings.—24th. ʒ dr., momentary rush of blood, quickened pulse, headache, confused head, thinking difficult. After dinner pain in abdomen. 3 p.m., drowsiness commenced, then discharge of flatus, with itching in rectum; lung of falling asleep at n.—25th. No med., m. slight stitches in arms from shoulder-joint to wrist. Afternoon, great drowsiness.—26th. ʒ dr., soon nausea, pressure, and cold feeling in stomach; diarrhoea commenced in the n. (this she was accustomed to have every four to six weeks, lasting 1 to 2 d.), of yellow, frothy, sour-smelling fluid, with colicky pains, especially about navel, which was retracted, and tenesmus. Afternoon, great drowsiness.—27th. Pain and burning in throat and catarrh.—28th. ʒ dr., transient dilatation of pupils, quick pulse; dull frontal headache with nausea, weight of whole head, also drawing and tearing pains, going from forehead to temples, lasting all d., better in open air, worse in room, and when rearing. Heaviness of eyelids, and dimness of vision. Separation of a hair in fauces; frequent sour eructation. Afternoon, great drowsiness, but long of going to sleep at n., sleep broken, vivid dreams. Disposition depressed and irritable.—29th. No more med., complained of chilliness, weakness, stopped nose, itching in head, dim vision, taste sweetish, putrid with sour eructations, frontal headache. No subsequent recurrence of her habitual periodical diarrhoea. The previously regular menses came five days too soon. (*Ibid.*, 67.)

5. Dr. HUBB, æt. 27, subject to toothache, otherwise well.—Nov. 18th. Took ʒ dr. The taste was disgusting, acrid, and scraping, causing burning in fauces, and along œsophagus; aft. 2 m. excitement of the whole body, which subsided in a few m.—19th. ʒ dr. Immediately vertigo, increased rapidity of pulse; after ½ h. tearing frontal headache, lasting till afternoon, and spreading to temples. E., throbbing pain with burning in base l. scapula, lasting all n.; at n. a transient urging to urinate in fossa navicularis.—20th. ʒ dr. caused a long-continued confusion of head, as from alcoholic drink; pressure at insertion of temporal muscle, drowsiness, increase

of toothache, with swelling around painful tooth, spreading to palate, with tension and itching in it, hindering chewing; frequent attacks of vertigo when sitting.—1st. Swelling of gum abated; taste bitter-sweet.—2nd. Swelling nearly gone.—3rd, 7 a.m., 1 dr. 9 a.m., slight headache, lasting 2 h. Low spirits, capricious. Afternoon, vertigo when sitting. Sleep restless, many dreams.—4th. 1 dr., taste bitter, somewhat sour; appetite increased; thirst great, especially for beer; itching pressure on eyes, and with itching-burning there came on upper eyelid a small pustule, which itched much; much whitish-yellow mucus in eye. The pustule lasted 4 d. Nose stopped up, ringing in ears lasting several d.; lips very dry, toothache returned, and was tearing and drawing, increased towards e., and only went off after midnight. Sleep same late, was restless, and often in n. had slight stitches from inner side of l. knee to big toe.—5th. 1 dr. After $\frac{1}{2}$ h. drawing from l. hip to knee-joint, and feeling in knee as if it was dislocated. Very cross, tendency to furious rage. The toothache was the worst, it lasted all d. and n.—6th. No med., toothache persisted, but in slighter degree, eyelids itched much, also skin of back and both thighs; this lasted 2 d. The toothache lasted till 29th. (*Ibid.*, 69.)

6. Anna G., æt. 28, was treated for sore-throat, toothache, and swollen gums with C. sulph., and in 4 d. had nothing but slight swelling of gum remaining. As she was leaving for the country she thought she could not do better than take a lot of the medicine which had cured her, and she swallowed $\frac{1}{2}$ drachm. After $\frac{1}{4}$ h. the doctor found her weeping and moaning in bed, forehead hot, pupils dilated, face swollen, red, angles of mouth twitching, rumbling in bowels. She complained of confusion of head, vertigo, burning and scraping all down œsophagus, increased secretion of saliva, constant sour eructation, feeling of warmth in chest, burning in scrobiculus cordis and stomach, rumbling and colicky tearing pain in belly. The worst was the horrible burning in œsophagus and stomach; pulse 90 to 95. She was treated with opium and gum emulsion. The vertigo, burning, scraping subsided in 8 h., but she got violent diarrœa of sour-smelling fœces, with severe tenesmus. She got other treatment, and recovered in 3 d. (*Ibid.*, 71.)

7. Dr. KÖNIGSHOFER, æt. 36, in good health.—March 12th, 6 a.m., took 10 dr., and dil. After $\frac{1}{2}$ h. confusion of head, dull pain in forehead and temples, in r. temple a peculiar prœsive pain, with slight nausea, and inclination to vomit, rumbling in bowels for 2 h. During 6, transient stitches in rectum, prœsive pain in gastric region, increased discharge of flatus. E., unusual sleepiness.—13th, 6 a.m., 20 dr., only weariness and slight dyspnœa noticed.—14th, 6 a.m., 30 dr. Soon, transient stitches in stomach; rumbling in bowels, empty eructation, dull shooting pain in hypogastrium when pressed.—15th, 6 a.m., 50 dr. Soon, confusion of head, dull prœsive in forehead and temples, with drowsiness; scraping feeling, with fine pricking in throat; dry cough; dull prœsive pain in r. side of chest; rumbling in bowels, drawing pain in l. temple; almost all d. prœsive frontal pain, with occasional transient tearing pain in temples.—19th, 6 a.m., 10 dr. of 1st dil. During forenoon, drawing pain in r. sterno-clavico-mastoidæus muscle; transient twitching-shooting pains in l. instep and r. wrist; dull prœsive pain in l. heel; scraping feeling in throat, causing cough; nausea; prœsive frontal headache; griping in small intestine, with discharge of flatus.—19th, 6 a.m., 20 dr. Soon inclination to vomit, pressure in stomach for a short while; tearing pains in l. foot, especially tarsal bones; tensile pain in r. thigh when walking and extending leg; pain in abdomen when pressed; griping in bowels, followed and relieved by stool. Afternoon, fluctuating pain in both temples, especially when shaking head, and tearing strongly. All d. flow of sweetish saliva; watering of eyelids.—21st, 6 a.m., 40 dr. Griping pain in umbilical region, with urging to stool, nausea and flow of saliva for 2 h.—26th, 6 a.m., 3 dr., 12 dec. dil. Soon, pepper-like burning on tip of tongue and in œsophagus, empty eructation. All d. dull prœsive frontal headache.—27th, 6 a.m., 10 dr. No more symptoms. (*Ibid.*, 73.)

8. Mrs. KÖNIGSHOFER, æt. 26.—March 12th, 10 a.m., 10 dr., and dil. After $\frac{1}{2}$ h. great confusion of head, tearing in l. temple, occasional dull pressure in forehead down to eyes; drowsiness, with heaviness of upper eyelids, which felt like to close; great nausea and inclination to vomit; eructation of air. After 2 h. vomiting of bitter water. Sleep at n. disturbed by many disagreeable dreams, accompanied by weeping.—13th, 6 a.m., 15 dr. Confusion of head and prœsive pain in sinuiput.—14th, 6 a.m., 25 dr. In forenoon, the prœsive headache, with burning in borders of

eyelids. Two stools in rapid succession.—15th, 35 dr. After breakfast, pain in abdomen, and belching up of breakfast without nausea. During forenoon frequent slight pressure in stomach, burning of borders of eyelids, confusion of head, slight pressive frontal headache, increased by reading and stooping; drawing pain in temples; sleep disturbed by dreams.—16th, 6 a.m., 50 dr. After $\frac{1}{2}$ h. urinating in r. lower eyelid, burning of borders of lids, which are red. After $\frac{1}{2}$ h., pain in belly, discharge of flatus, stool with relief of pain. After 3 h., shooting in l. ear, later, drawing pain in l. thigh when walking. After breakfast, pain in stomach, especially on breathing deep, abdomen painful to pressure, marked feeling of cold and chilliness from within outwardly; cold feet. (These symptoms not unusual.) Afternoon, heat of face, especially cheeks. Alld. constant wiping, rough feeling in throat as if catarrh was coming on.—17th, 6 a.m., 10 dr., 20 dr. Some uncomfortable feeling in stomach. Transient pain in r. temple when stooping; headache when reading. (*Ibid.*, 75.)

9. L. M.—, æt. 60, a strong healthy man—March 19th, 7 a.m., took 10 dr., and dil. No effect.—20th, 10 dr. The following n. tearing pain in r. elbow and l. shoulder (where he had formerly often rheumatic pains).—21st, 30 dr., no effect.—22d, 7 a.m., 40 dr. Pain in abdomen as from a purgative.—23rd, 50 dr., griping and rumbling in bowels as if diarrhoea were coming on.—24th, 1 a.m., 10 dr., 100 dil. No effect from this nor from 10 dr., taken 24 h. later.—25th, 1 a.m., 30 dr. In $\frac{1}{2}$ h. heat all over with slight headache and hard pulse; cramp in calves and toes (accustomed to cramp after fatigue). 5 a.m., the heat went off, and he fell asleep.—26th, 1 a.m., 35 dr. Same sort of attack, but milder; after a good sleep woke quite well. (*Ibid.*, 77.)

10. Dr. PARSONS.—April 7th, m, 3/3 of 4th dil. Fulness in stomach, pressure under sternum, heaviness for 2 h., slight pressive pain in forehead, pressure in r. parietal bone; pressive pain in l. forearm on touching or leaning on it, pain in l. wrist-joint.—9th, m., 3/3 of 1st dil. Slight frontal pain, which soon spread to l. parietal bone, and lasted there 2 h., pressure under sternum and in stomach.—10th, m., on rising, slight pressive headache, soon going off.—11th, 9 a.m., 1 dr. of pure C. sulph. Eructation with taste of medicine; burning pain in gullet; after a few m. slight transient pain in forehead, gradually spreading to l. temple; pressive pain in temples; heat in head and face. After dinner, single stitches in r. ear, recurring at intervals of $\frac{1}{2}$ h., pressive frontal pain with hot feeling for 2 h., lachrymation when reading; towards e., the stitches in r. ear increased and lasted nearly $\frac{1}{2}$ h., eructation.—12th. On waking, slight pain in forehead, soon going off.—13th, 9 a.m., 3 dr. Eructation with nausea, pressive pain in forehead, from frontal protuberance to l. temple, with occasional tearing in that direction; pressure and heat in l. eyeball; burning in gullet and root of tongue; prickling on tip of tongue; increased flow of saliva, burning feeling in stomach increased by pressure, slight colicky pains; going to sleep of l. arm, with pain and weariness in it. After dinner, which was relished, diarrhoea suddenly came on, repeated twice during the afternoon with colicky pain. E., the headache returned; shooting in r. ear; very excited at n., strong erections with burning in urethra.—14th. Slight headache; weariness of whole body, especially of l. arm, going off at noon.—16th, 9 a.m., 3 dr. Violent burning in gullet; nausea, eructations, and inclination to vomit; great increase of saliva and metallic taste, chilly feeling, urging to stool, slight pains in forehead, occasional burning in l. side of chest and under sternum, trembling and shooting in l. forearm, especially on wrist, pressive pain in r. ear repeatedly, as if a blunt instrument were roughly struck against drum-head; twice watery diarrhoea, pain under sternum increased at 11 a.m. Pain in r. ear persistent; burning in stomach and hepatic region increased by pressure; hot feeling in forehead with moderate pressive pain and desire to stroke the forehead with hand; pressure in eyes, shooting in l. temple, extending to occiput; burning and scraping in fauces and oesophagus, shooting in l. wrist; constrictive feeling in stomach, and yet good appetite. Afternoon, tearing pain in r. knee and ankle-joint; pressive pain in l. forearm, increased by pressure, lasting $\frac{1}{2}$ h.; slight pressive pain in forehead; distension of abdomen, with sore feeling; 2 watery stools; drawing pain in l. lower jaw; pressure under sternum; urging to stool; tearing and pressure in sacrum. Excitement at n., erection and emission.—17th. Slight frontal pain, occasional shooting in l. half of thorax, feeling of fulness in stomach, which is sensitive to pressure; sore feeling in wall of abdomen; watery diarrhoea. Afternoon, drawing in sacrum; burning and itching in anus; feeling of fulness; single stitches

in r. ear; mucous diarrhoea, eructions; very restless n., frequent waking, alternating with dreams.—18th. Confusion of head, occasional pressive pain in r. arm; mucous diarrhoea; occasional shooting in r. ear.—19th. All symptoms gone.—20th. 6 dr., immediately eructation, burning on tongue, slight frontal pain. (*Ibid.*, 74.)

11. Dr. PEREAL, xi. 16. Except tendency to chest congestion, well.—March 20th, 7.30 a.m., 1 dr. No effect.—21st, 7 a.m., 5 dr. of solution of 10 parts of C. sulph. in 90 parts alcohol. Peeking in tip of nose, like inclination to sneeze; after $\frac{1}{2}$ h. rumbling in belly like flatulence. After $\frac{1}{2}$ h. single fine tearings from r. side of middle abdomen towards bladder, itching pricking in various parts of skin. After 2 $\frac{1}{2}$ h. 90 small spots on inner side of upper arm and thigh, intermittent dull shooting pain (painful twitching of some muscular fibres). After 3 h. slight attacks of nausea, dull shooting in proximal joint of l. index; after 3 h., tearing in abdomen frequently recurring till dinner-time; dull jerking-shooting in lower r. side of chest. Similar jerking shooting pains occur occasionally in r. thigh, and in hypogastrium towards spermatic cord till dinner-time. After 5 h. a dry stool.—22th, 6.10 a.m., 10 dr. After 2 h. dull jerking-shooting pain in caecum, lasting 1 to 2 m. After 3 h. slight nausea. After 4 h. nausea with flow of saliva. After 5 h. stool.—23th. Hunger, and yet dislike to eat.—24th. 15 dr. of sat dil. Soon, slight attack of jerking pricking pain in a small spot on inner side of r. arm. After coffee, slight shooting in hypogastrium, followed by semifluid broken-up stool; soon afterwards shooting without stool. After 1 h. slight shooting in a carious upper tooth on r. side. After 3 h. similar shooting in a sound lower r. molar. After 3 h. watery stool. After 3 $\frac{1}{2}$ h. nausea with flow of saliva lasting some m., and frequently returning till after dinner. After 4 h. fine itching pricking repeatedly in various parts of skin; jerking-shooting pain in last phalanx of l. 4th finger, frequently recurring during d.; slight cursing in hypogastrium, stooping and laying arm over abdomen are disagreeable, the first causes nausea, the last bellyache; a violently itching wheal (like nettles rash) on back of r. forearm, making him scratch; single pricks in ear. After 5 h. hunger, but dislike for food, which, however, tasted well. After 5 $\frac{1}{2}$ h. jerking-shooting pain in l. testicle for 5 m. After 8 $\frac{1}{2}$ h. boring in r. ear. After 9 to 11 h. pain in the insertion of tendo Achillis to heel when going upstairs. After 12 h. jerking in elbow.—25th. The itching pricking in various parts of skin occasionally. Soon after breakfast soft pappy stool preceded by cutting in belly; the itching-pricking pains in various parts frequently recurring, especially on tuberosity of r. ischium, and the insertion of gracilis and sartorius muscles in thigh.—13th. 20 dr. Several discrete papulae on r. forearm, itching when touched. After 1 h. nausea and uncomfortable rumbling in hypogastrium, great distraction, difficulty of comprehending what he reads; soft mucus hawked up; itching pricks in r. nipple; cutting about navel and slight nausea 3 h. after dinner; dull shooting or itching pains in various parts all d.; little appetite. R., scanty soft stool passed with difficulty.—16th, m., in bed dull stitches in caecal region with discharge of flatus; itching in calves and legs; single stitches in r. eye. After 2 $\frac{1}{2}$ h. at first firm, then liquid stool, with burning in anus; 3 h. later a faeculent stool, followed by burning in anus. When going to bed itching on thighs.—17th, 5 a.m., in bed, the peculiar itching-pricking pain in external tendons of l. thigh lasting a few m. 6 a.m., the former pain in caecum, going off by discharge of flatus. Itching in bend of r. elbow above and below it, and in thigh. All d. single transient stitches on chest and under l. short ribs. 9 a.m., scraping rough pain (as from a foreign body) in l. side of throat extending to l. ear when swallowing, lasting 1 to 2 m. Between 9 and 10 a.m., two stools, the first soft and lumpy, the last liquid. All d. occasional itching and itching-pricking in various parts of body.—23th. Many dreams towards m. On waking itching in both thighs, r. side of back up to renal region, and r. forearm, making him scratch; there came there small colourless papules, which itched more when scratched, became red and formed an itch-like eruption; they bled and burned when scratched. 9 a.m., jerking-shooting pain, first in the r. then in the l. hypocondrium, for a few m., burning acrid sour eructations after dinner. Slight itching-pricking pain on r. side under navel, followed by semifluid stool. Itching-shooting pain in r. sternocleidomastoid muscle. Voice rather hoarse.—29th, m., in bed slight itching in same places. 7.15 a.m., 20 dr., 150 dil. Jerking-shooting pain in r. shoulder-joint. After 1 h. burning sour eructation, pricking in various parts of body. After 3 h. uneasiness in hypogastrium with nausea, increased by stooping and moving. Insuffi-

cient liquid stool after cutting in abdomen. Discretion, cannot take in what he reads; flow of saliva and nausea frequently; diminished appetite; after eating slight cutting in abdomen; jerking-shooting in rectus superior muscle of r. eye. After 5 h. fine jerking stitches in l. ear. All afternoon malaise, nausea with slight cold, disgust at beer.—20th. On waking at 6 a.m., dull drawing-shooting toothache in a cavity upper molar and the corresponding lower molar, till he got up. Pirching in bowels with discharge of flatus. The former pain in hough, not lasting long. After rising and washing itching on belly and r. shoulder; single obtuse stitches in r. eye when reading; none rather stuffy. 9 a.m., jerking-shooting pain in the cavity tooth; discomfort in abdomen and slight nausea, followed by soft feculent stool; discomfort returns after stool. Jerking stitches on various parts of body. Nausea increased by the pressure on abdomen whilst sitting and writing, relieved by open air; disagreeable cold feeling in both cheeks during the abdominal symptoms; disagreeable painful feeling in left lobe of liver in fits, flow of saliva; unsatisfactory belching; hunger, but dislike to food. These symptoms removed in open air and after eating. 5 p.m., pruritic-shooting sensation in last r. rib, about 4 fingers' breadth from scrobiculus.—21st, 4 a.m., after waking cutting pains in abdomen, with rising up, as from displacement of flatulence, increased by inspiration and pressure on shooting pain, and becoming settled in cæcum, lasting 3 h.; turning from one side to the other, and bending body together, increased the pain, or made the former pain return. 6 a.m., cutting pains rising up and recurring in fits near scrobiculus in region of r. false ribs. Itching and pricking in various parts of head all forenoon—22nd, 10 a.m., 2 soft insufficient stool. During d. frequent pinching stitches in r. side of abdomen; jerking stitches in various parts of body, especially muscles of r. eye; some pain in l. orbicularis oculi muscle towards its outer canthus, especially when moving lids.—23rd. Last r. and during n. jerking-shooting pain in tendon of biceps in forearm coming and going in fits; reminiscence of yesterday's symptoms in hypochondria and abdomen, last n. and this m. 8 a.m., slight sour eructation 3 h. after coffee. Jerking shooting in muscles of r. eye in fits and alternately. 12 a.m., two small loose stools, preceded by shooting pain in l. lobe of liver, and followed by shooting pain in cæcum.—24th. On waking, m., some flatulent symptoms; observed some new pimples among hair. Since 12 a.m. after sitting some time recurrence of flatulent symptoms in hypochondria, and occasional jerking-shooting pains in l. deltoid and both houghs at insertion of sartorius and gracilis, also in r. tuberosity of ischium.—26th, 7 a.m., 30 dr. Eructations of air as after eating radishes. Prickly nipping in l. hypogastrium. Cloudy sight. 7.30 a.m., roughness in throat, hoarse voice, stertor, prickly twitching in l. hypochondrium. Jerking stitches at insertion of tendo Achillis in heel; mucus expectorated has a salt taste. 1.30, after coffee discomfort in abdomen, much hawking with inclination to vomit, sneezing and traces of blood in nasal mucus. 2 a.m., racy starchy taste, scraping in throat. Head confined, distraction, violent cramp in r. side, frequent inodorous eructations of air with burning in scrobiculus. Stool at first firm, then loose, followed by feeling as if more were to come. Nausea and flow of saliva; itching pricks in various parts. After supper severe cutting in bowels with hurried call to stool.—27th. Some jerking stitches in ball of r. toe; rough and scrapy in throat, rough hoarse voice; pinching-shooting in cæcum, constipation.—28th—31st. Similar symptoms, but slighter.—April 3rd, 6.30 a.m., 30 dr., 3rd dec. dil. 7 to 8 a.m., scrapy rough feeling in fauces; jerking stitches in various parts of skin, fits of pinching jerking on a small spot to r. of navel in attacks of 4 m. duration; empty eructation, itching on a small spot on r. forearm, where later some papules appeared; when driving pain in tuberosity of r. ischium and along flexor aspect of leg. E. unsatisfactory hard stool with straining.—4th, 3 a.m., the pain in r. hypochondrium returned. 9 a.m., jerking-shooting pain in r. lumbar region for 2 m. 10 a.m., slight cutting in abdomen. Loose stool. 12 a.m., jerking-shooting pain in cæcum.—5th, 7 a.m., 36 dr. Prickling-jerking in various parts of skin, jerking-shooting in middle of r. thigh, in metacarpal joint of index and in ball of r. big toe. 11 a.m., discomfort in epigastrium, with flow of saliva and slight nausea; jerking-shooting in various finger-joints.—6th. After coffee transient stitches at l. of sternum. 7 p.m., jerking stitches in r. lumbar and l. thumb-joint; great itching in l. hip and pelvic region.—7th. Itching in various parts, jerking stitches in upper arm and shoulder-joint. Cross humour. The itching and jerking-shooting pains lasted several days longer. (*Ibid.*, &c.)

12. Dr. Moser, Aug. and, 6 a.m., 30 dr. 1st dil. Disagreeable feeling in stomach with nausea, frequent eructation of air. During d. much flatulence and discharge of flatus.—3rd. 30 dr., same symptoms.—4th. 30 dr., discomf. empty feeling in stomach, eructation of air, inclination to vomit on coming into a room or going thence into open air.—5th. 50 dr., nausea and inclination to vomit, confusion of head, loose stool. All d. pressure on forehead and dull pain there; great pressure on eyes.—6th. 50 dr., inclination to vomit, eructation, pressure on eyes, confused head, weakness and prostration, and in ankles pain as after a long walk.—7th. 50 dr. same symptoms.—8th and 9th, 1 dr. tinct. Same symptoms.—10th, 5 dr., nausea to faintness, inclination to vomit, great drowsiness all d., confusion of head, and slight painful pressure and digging in forehead. E., great drowsiness and dizziness in head, pressure on eyes and want to shut them. Pappy taste, pressure in stomach, stitches in abdomen here and there. All d. sleepy, but restless sleep at n.; head heavy, cannot lie still for long. Transient jerking pain occasionally in ankle-joints. Took no more medicine till 16th, and during that time had hot skin; it burnt in many places as from nettles, dry and hot skin kept him awake at n.—16th and 17th, 1 dr., no new symptoms.—18th. 30 dr., eructation of air, head confused, stitches here and there in forehead and often a transient twitching pain there, pappy taste, anorexia, yawning, legs weary, burning and ringing pain in joints of feet. From 3rd d. had for several weeks jerking pain in wrist-joints which only lasted a few seconds, but recurred frequently during d. For several weeks the jerking pains were felt in the forehead and leg and arm-joints. Head heavy and confused, sleep restless, with constant turning about in bed. Skin dry for weeks, perspiration suppressed, appetite diminished; distension of abdomen after eating; soon satiated; disinclined for all work, drowsiness when waking and pressure on eyes. Weakness and prostration of whole body. (*Ibid.*, 90.)

13. M. QUARLES, medical student, æt. 22, took 1 dr. on sugar. This caused only burning on tongue and pharynx, followed by eructation and flatulence. 3 dr. caused great burning in lips and tongue; eructation; irritation to cough, feeling as if about to vomit and flatulence. 4 dr. caused great burning in lips and tongue with flatulence. 5 dr. of 1st dec. dil. caused weariness of lower extremities, drawing and pain in knee-joint, malodorous flatus. (*Ibid.*, 91.)

14. POWELLING.—1. W. G.—, æt. 33, was admitted at 6 p.m. apparently suffering from narcotic poisoning. (He was subsequently found to have swallowed about ʒij of C. sulph.) He lay with all muscles relaxed; face pale, and covered with clammy sweat; lips blue, and moist with saliva and frothy mucus; eyelids closed; conjunctiva slightly sensitive to touch; pupils dilated and insensible to light. Breathing deep and laborious, almost stertorous; pulse 100, regular, but very weak. Patient had vomited; seemed very sleepy, and could only with difficulty be made to move hands; when pinched inside thigh he did not speak, but when stomach pump was passed down œsophagus he made a noise and struggled. Warm water was injected into stomach but immediately vomited. Bowels were evacuated, motions of light colour and solid consistence. At 7 patient was placed in bed, where he had a shivering fit; feet, arms, and legs felt cold to touch, and face became pake, followed by perspiration and return of colour. This only lasted 3 or 4 m. Hot bottles were applied. After this, on shaking him well, he opened eyes and said that he had taken some stuff to do away with himself, and again lapsed into sleep with heavy breathing. Was given repeated doses of mustard, vomiting always after it; in intervals sleeping as before. At 8 another shivering like last. At 10, after much vomiting, clearer, does not want to sleep, no pain, but some giddiness. Pulse stronger, 100, temp. 101°; resp. 20. During n. complained of burning pain in throat and stomach, and next m. of slight headache, conjunctivæ congested; pupils less dilated; tongue furred white; pulse 100; temp. 99°. Headache and giddiness gradually passed off during next 4 d., and patient left hospital well. (*Med. Times and Gaz.*, 1878, ii, 350.)

2. I have breathed vapour and exhibited it to about 20 other persons, and it is certainly a very rapid and powerful anæsthetic. One or two stated that they found it even more pleasant than chloroform; but in several it produced depressing and disagreeable visions, and was followed for some h. by headache and giddiness even when given only in small doses. When given in our case for removal of tumour of breast, patient was restless during latter part of operation, but felt nothing. Like several others, while under it her eyes remained wide open. After operation she was extremely

sick, with much and long-continued headache, and for 30—60 h, subsequently her pulse was high and rapid, without rigor or other symptoms of fever. It was also given in a case of midwifery at intervals during 7 h. Patient was easily brought under its influence; but it was found impossible to produce by it the continuous sleep attending the use of chloroform. When given as a pain threatened or commenced it immediately affected the power of the uterine contractions so as almost to suspend them; but the state of anesthesia generally passed off in 1 or 2 m. During its use she was occasionally sick and vomited several times. Latterly, her respiration became rapid, and the pulse rose extremely high. (*Sutton, Monthly Journ. of Med. Sc.*, 1848, viii, 340.)

3. T. WILSON, æt. 38, in good health, was exposed on e. of April 16th, 1857, to vapours in small room for ½ h. Next d., in afternoon, pain commenced suddenly in r. lower eyelid as if bruised, soon extending to upper, over lachrymal gland; globe of eye underneath has same sensation; pains all aggravated by movement or pressure; lids feel as if swollen, but are not so; some redness; humming noise in l. ear. These feelings quite strange to him. 16th.—Same portion of lower lid to-day quite inflamed. 17th.—Since yesterday continued humming in l. ear extending to back of head; stye forming on lid. 18th.—Humming as of distant wind; when talking obliged to raise voice because of its loudness; in e. and n. always sense of fulness at back of head, with humming there, all gone in m. Punctured stye; has been drowsy d. and n. since exposure to vapour. Yesterday after dinner, and to-day during dinner, l. ear feels dead as if obstructed by thick substance. 19th.—Noise continues, worse after food; l. ear rather deaf and feels obstructed. Eyelid discharges thick yellow pus. 20th.—Noise not quite so loud; vertigo this m. at back of head; severe cough since yesterday, with soreness of chest, thin m. expectoration of thick mucus. 21st.—Cough continuous, but not so severe; to-day thick coryza, with lachrymation and headache. Noise in ear much less. 22th.—No noise to-day, save a little before rising, and no deafness; still coryza in m. 23th.—Return of noise, like gusts of wind through hollow tube; coryza continues, herpetic eruption on upper lip. Catarrh now gradually declined, but tinnitus continued, varying and intermittent, for months. Annular stye formed on lid May 18th. (*Brit. Journ. of Hom.*, xvii, 274.)

4. a. Victor D.—, æt. 25, in good health, began in 1859 to work at dissolving india-rubber in sulphide of carbon and employing solution for repairs. For 3 mo. he suffered only from violent headache; after that he was seized with general malaise and intense vertigo, so as after a few h. to be obliged to relinquish work. His hearing became affected, and in a week he was so deaf that persons were obliged to shout into his ear to make him hear; this deafness disappeared spontaneously after 2 time. His memory became so weak that he forgot every minute where were the tools he had just used. His temper also became very changeable; sometimes he was excessively lively, and sometimes angered by the most trifling circumstances, so that he would break everything near him. He slept with difficulty, if at all; and often awoke suddenly from frightful dreams with convulsive starts, rigors, heats, and profuse perspirations. Even during d. he was at times icy cold for h., feeling afterwards as if overcast or bruised all over. He had severe fits of colic, frequent indigestion, nausea, vomiting of greenish matters several times in d., and transient fetid diarrhoea alternating with constipation. Appetite was lost, mouth pasty, expectoration frequent. He became so weak he was obliged to sit at his work, to use a stick in walking, and to rest at each step in going upstairs. This debility, which affected both upper and lower limbs, was accompanied by cramps in muscles of hands, depriving him, while they lasted, of the use of his fingers. Sexual appetite and power were completely abolished.

b. His wife, when she had remained for some time with him in his workroom, was seized with headache and muscular debility; she fell into a state analogous to his own, but much less severe. Their young child, after passing 3 d. in the workroom, was seized with a kind of furious delirium, and rushed on his father to bite him.

c. In March, 1858, V. D.— entered the Biotère. He was thin and pale, and his breath smelt strongly of the sulphide. He could walk only with a stick, and had pain in limbs, which were much diminished in size, especially in the muscular parts. He resembled a man under the influence of lead, the hands hanging prone, from weakness of the extensor muscles; the flexors, however, were also weakened. Muscular contraction was feeble and tremulous, and fibrillary quivering was readily induced. Sensibility and electrical contractility were normal; and the intelligence was clear.

There was an intermittent but very distinct *bruit de soufflet* in the cervical vessels, as might have been anticipated from the general weakness and pallor. There was no organic disease in the chest, but he had frequent short cough.

2. Treatment had little effect, but residence in country improved him much, solar light and heat being found specially beneficial for the pains in the limbs. In following January, being much better, he returned to work. Impotence, however, had remained absolute; and anaemia and even thinness persisted. Headaches soon returned, and patient, seized with vertigo, was frequently obliged to leave work abruptly, and wander about, hardly knowing what he did. He was also subject to fits of terror without justifying cause. (DELPECH, *Mém. sur les accidents chez les ouvriers en caoutchouc*, &c., 1836.)

3. The following is a summary of 24 cases observed by Delpech, occurring under similar circumstances: "The workpeople may live for weeks or even months in the poisonous atmosphere before the severe symptoms occur, but, as a rule, they experience some inconvenience the first time they remain long in the bad air. The attacks repeat themselves daily and gradually get worse and worse. The chief thing is an intense oppressive headache, spreading from the root of the nose towards both temples, with a feeling of giddiness and of intoxication, of which the workpeople complain when they go home in the e. In several cases it was noted that a more or less marked excitement now showed itself. These people became remarkably lively, chatty, and excitable, and their sexual passions were greatly excited; sometimes their appetite for food became insatiable. This stage of excitement, however, is not only often absent, but almost always intermingled with many symptoms of depression. All, without exception, complained very quickly of an evident loss of muscular strength. In later stages, many were troubled with remarkable loss of memory. They fell into a deep apathy, could not think, strive in vain for the words they wanted, and spoke with a stammering and almost paralysed tongue. Their mental condition was strikingly obtuse, the energy of the will greatly depressed. With this were associated many anomalous symptoms in the sensory and motor spheres. The faculty of vision declined, beginning with a slight obscuration of the field of sight and going on to complete inability to recognize small objects. Hearing also was greatly impaired, and a great many complained also of a persistent and troublesome ringing in the ears. The loss of muscular power was generally most noticeable in the extremities, and in the severer cases there was a considerable amount of paresis so that the patients could only walk with the help of crutches or sticks. All movement was accompanied with a feeling of fatigue. As regards sensation, there were severe lacerating pains in various groups of muscles, increased by pressure; formication; anesthesia of the soles; and almost constant complaints of a feeling of icy coldness in the whole lower half of the body. Cramps and fibrillary contractions of various muscles and muscular groups were very seldom absent. Severe cramp in the calves commonly harassed the patient during the n.; and several epileptiform convulsions occurred in several cases.

"4. In the domain of what are called the vegetative functions the anomalies are less uniform. Apart from the rarer cases in which the appetite is enormous, digestion is always more or less impaired. A good many suffer from vomitings, others from severe and very frequent attacks of colic. In the early stages of the poisoning, diarrhoea and constipation alternate with each other; in the later stages, the latter predominates, and is generally associated with troublesome flatulence. The urine is generally in normal quantity, and contains neither albumen nor sugar, but is passed with a painful sensation of stinging. The organs of circulation and respiration exhibit no special alteration in their action. The sexual passion, which is increased at first, rapidly declines at a later stage, and finally, there is complete physical and physical impotence, with decrease of the size of the testicles. In women who work long in the india-rubber factories, menstruation always takes place prematurely, and is more profuse than it should be. They never have a child, and their sexual appetite becomes entirely lost. Youths who are exposed during pubescence to the influence of the poisonous gas, never develop properly.

"5. As regards the general condition of those poisoned, it has been noticed that a good many suffer from a lethargic movement at n. Sleep is disturbed with bad dreams, generally associated with nightmare, and sometimes prevented by pains and cramps in the muscles. When the poisoning is protracted, the patients lose a good deal of flesh, but no special atrophy of muscles has been met with.

"2. A fatal termination is rare, but so also is complete restoration to health. The nervous system continues depressed, and in some cases a definite psychosis supervenes." (БОЖИМ, *Zemstva's Cyclopaedia*, xvii.)

6. The following is the Report of Commissioner appointed to investigate the action of the vapours of bisulphide of carbon and chloride of sulphur on sight and health. A mixture of chloride of sulph. and bisulph. of carb. is used in rubber factories and gives off much vapour. The two substances act in the same way; if anything the bisulph. is more powerful. The earliest and most constant symptom is a severe heavy pain in forehead or temples, the head feeling as if compressed in a vice or supporting a heavy weight. The earliest symptoms of the stage of exaltation are loquacity, vertigo, feeling of drunkenness on going from shop to open air. Temper irritable, spirits variable, hilarity alternating with dejection. Appetite enormously increased, often excessive sexual excitement. Objects seem veiled in a mist, this sometimes relieved by taking food. Some who had vertigo complained of constantly seeing an open hole close to them into which they were afraid of falling. Hearing impaired. General hyperæsthesia of integument sometimes. In the stage of depression, appetite fails, insomnia and sleep disturbed by distressing dreams, spirits dejected, indifferent to surrounding circumstances. Memory fails, shown by forgetfulness of words when talking. The hyperæsthesia of skin is replaced by loss of sensation in limbs, often reaching to groin and deltoid—not affecting trunk. Painful cramps, muscular weakness, especially of lower limbs, loss of sexual desire, sometimes complete anæsthesia. Fingers seem stiff, awkward and numb. Appearance of fog before eyes and dimness, most observed in daylight. Pupils dilated but active. In some there is pallor of disc and even loss of definition of margins. These symptoms increase in severity if patients remain at work, the loss of memory becomes absolute, the muscular weakness so great patient cannot stand without support. Improvement commences when patient is removed, but is slow. The most intractable symptoms were the anæsthesia and weakness of lower limbs. (*Trans. of Ophthal. Soc. of U. K.*, v, 157, 1885.)

7. James W. M.—, æt. 20, had worked for 10 months in "casing room" of an india-rubber factory, exposed to vapour from bisul. carb., 32 parts, chloride of sulph., 1 part, for 4 or 5 h. daily. After 3 or 4 months health began to fail, weakness of limbs and noises. Headache as if head opened and shut, once see epistaxis, numb. nose. Three weeks before admission to hospital found when riding on omnibus could not see people on pavement. Next d. could only read with difficulty, since then sight became worse. V. with each eye separately $\frac{7}{8}$, rods 12 J. badly at 6", not improved by glasses, can distinguish blue and yellow but not red and green. No medicine, only constant current employed. After 3 months sight improved and could recognize red and green. Had ill-defined scintoma for red a little to the outer side of centre in each field. (*NETTLESHIP, Ibid.*, v, 149.)

8. Elizabeth M.—, æt. 23, had worked for several years in rubber factory exposed to fumes of bisulph. carb. She grew weak in limbs, especially legs, coldness and numbness. Headache and giddiness and anorexia. Admitted 10th July. For 6 weeks could not read. V. of R. = fingers at 2 in. (about $\frac{1}{2}$) and of L. = fingers at 4 in. (3). Pupils medium size and sluggish. Slight neuritis in each eye. Optic disc pale and hazy, the haze extending a disc's breadth into retina, veins engorged, arteries too small. Central scotoma for red, none for white—besides this she had atrophy of these eminence of thumbs and interossei muscles. (*FUCHS, Ibid.*, 152.)

III. *Experiments on animals.*—1. According to Flemerich's and Hirt's experiments, which we ourselves have lately repeated with similar results, bisulphide of carbon acts upon frogs just like chloroform, ether, and alcohol, by simply paralyzing them. The experiments also of Delpech, Cloes, and Hirt on mammals do not exhibit any remarkable difference between the action of bisulphide of carbon and that of other volatile anæsthetics. (BOJIM, *loc. cit.*)

2. A cat, placed under a bell-jar with some bisulphide, was affected with incomplete paralysis of motion. The paralysis, more marked in the posterior than in the anterior extremities, was preceded by violent convulsive movements. Sensibility was retained. On withdrawal, it had completely regained its health at end of 24 h. Again exposed to vapour, it had some convulsive movements; incomplete paralysis, more marked on r. than on l. side; respiration became very slow, pulse disappeared completely, and the animal died, after screaming out most piercingly. On dissection, brain was found soft; lungs very pale, an ecchymosed spot at l. base; heart, especi-

ally π , gorged with firmly coagulated blood, without fibrinous transformation, but adherent at some points; liver congested; gastric mucous membrane in great *red-tense* presented a great number of ecchymosed spots, having exactly the appearance of purpura.* Urine contained no albumen, but was coloured red-brown by potash and caustic lime. (DELEZEN, *op. cit.*)

3. α . Two young dogs had respectively 35 and 30 min. of the bisulphide given internally. There was no anesthesia, but distressing tenesmus, with considerable prolapsus,—protruding membrane excessively red and covered with mucus.

β . Two young cats had respectively 5 and 10 min. The symptoms were exactly the same as in the dogs, save that in the one which had the larger dose the prolapsus was very considerable, and the tenesmus more excessive. The next m., 16 h. after, at least a in. of entire circle of gut was protruding, as congested as possible, with constant tenesmus and great contraction of abdominal muscles. (NUNNELST, *Trans. of Prov. Med. and Surg. Soc., xvi., 1849.*)

CARDUUS.

Including *C. benedictus* (*Centaurea benedicta*, L.) and *C. Maritimus*, L.
Nat. Ord., *Compositae*.

Carduus benedictus, the blessed thistle.

I. *Proverbs.* α . One man, c , and two women, α and β , took from 20 to 30 dr. of the mother tincture. No further information given.

α . α and d , pressure on forehead, especially when stooping, all d.; eyeballs feel larger; ringing in ears; much mucus in mouth; dyspnoea; hoarseness; pain in trachea as if it were inflamed, the inspired air feels cold; coughs very frequently, its sounds rough, like hissing. 7th d. grey spots pass before eyes; breathes quickly, must draw in air with an effort as the trachea feels closed up, each inspiration is like a low whistle, especially π .—Time not indicated. Headness in head for several d.; pain in occiput; blackness before eyes for a short time; constant overflow of saliva for 6 d.; feeling as if buccal cavity were contracted and narrowed for 2 to 10 d., beginning and declining slowly; sour taste, for 6 d., always getting worse and almost sulphurous, relieved for a while by eating; π , bitter burning as though stomach was very much deranged, dysphagia; pain in trachea as if it were irritated by long coughing; breathes quickly and laboriously; feeling as she were too tightly laced; cough increased till 6th d., when it became slighter, but she could not sing or talk long for several d.; constant yawning and hiccup. (*Prakt. Mittheil.*, 1826, p. 21.)

β . β . 1st d., immediately, trembling in hands; chilliness, flushes of heat in face, after eating, through whole body, without thirst, dimness of sight and pressure on eyes, breath and palms quite hot; sweat in hands, then they get burning hot; flat taste, tongue sensitive as if swollen, much furred; limbs heavy as if paralyzed; tension in tendons; knees feel weak while sitting, give way when walking; cross humors.—and d , sharp pressure in π , temple, then in whole head, with heaviness, from noon till π ; jerking in l. eyelid; in afternoon, pinching in bones of knee, neck, and hands, one after the other, burning and paralyzed feeling, aggravated by pressure.—Time not indicated. Vertigo on raising head, worse on stooping, several d. Afternoon, sometimes a cutting pain over eyes; pressure in occiput, from crown; for several d. pressure in eyeball as if it would come out; curious feeling in l. eye as if it would be pressed outwards, rather agreeable; dim and whirling before eyes; feeling as if something were in ears, also as if something burst, like a bladder, and then humming; continued violent grasping and tickling in nose, as though coryza were coming on, several d.; nasty woish taste and little appetite for many d.; after eating eructation; mouth dry m , and π , with thirst; though stomach is full feels empty; drawing, cutting pain in abdomen all the time; larynx not free; constant dry cough; dull shooting in sides over hip, now π , now l., at first only when stooping and moving, but afterwards at all times; when leaning on arms, burning in them, but they are not hot to the feel; when stretching a tension in interior of elbows, especially when they have been long flexed; contraction in elbows

* "Hermann has found that when bisulphide of carbon is mixed with blood, the red corpuscles become dissolved. Our own observation shows the same result, but the nuclei are left undissolved." (BOHM).

and arms; feeling in forearms, as if in the blood-vessel, like a long knife stab with continued burning; feet weak after sitting, soles feel sore when treading; joints moved with difficulty and frequently give way; pain of all the bones, especially when the limbs have been stretched; when pressed they feel bruised (the veins are painful and prominent), the knee is particularly painful (all the 4th d.); small red spots on finger for several successive d., then a yellow spot that lasts longer; burning under skin of face, afterwards in other parts; cold shuddering all over body, followed by urticarious goose-skin, mistle rash, painless, not pointed but hard, lasts several d., goes off slowly; for several d., shuddering chilliness with goose-skin, about noon or e., sometimes m.; breath, lips, hands, and feet hot; trembling all through body; anxiety, starting at every sound, fear, so that cold sweat breaks out. (Ibid.)

3. r. Soon, quivering movement in l. canthus; tickling in l. eye, very painful, with flow of tears, stitches in inner canthus. After a b. turgus commences to be painful, voice rough.—Time not indicated: Confusion of head, interrupted stitches in temples, four times in succession, more in l. than r.; flickering before l. eye as if small fiery sparks passed in front of it, removed by winking; toothache on r. side, inferiorly, drawing more than shooting; roaring in r. ear, soon going off; tickling on surface of tongue near its root, lasts 3 m., and changes into shoots like electric sparks; appetite bad; nausea; swallowing is uncomfortable; slight pinching in abdomen for 6 m.; throbbing below l. breast, curious sounds on r. side of navel. (Ibid.)

Carduus Marianus, our Lady's thistle.

I. *Proving*.—s. a. R. 181. From 1st to 5th of March, 1851, took 3 dr., from 6th to 14th, 30 dr. of tinct. 4 times daily without sensible effect. On 15th and 16th took 12 dr. in same manner. M. stool on 14th harder than usual. On 15th, 4 doses of 15 dr.; very hard evacuation at 8.45 a.m., another similar one at 6.45 p.m. On 16th, 4 doses of 20 dr. One hard stool at 9 p.m. On 17th, 4 doses of 30 dr. Some nausea after each, ending in sense of inflation of stomach, which was increased by a horseback ride p.m. No stool. On 18th, 4 doses of 40 dr. Last n. restless, with frequent waking; lying on back produced nightmare, which woke him twice. Very hard, unsatisfactory, difficult evacuation of brown knobby feces immediately after dinner, somewhat relieving inflation, which nevertheless obliged him to draw long breaths. Slight dulness of head. On 19th, 4 doses of 50 dr. Very decided nausea after 1st dose, much lessened after others by diluting them more; appetite small; urine cloudy, without sediment, golden-yellow, acid; no stool; increasing epigastric uneasiness.

5. Prepared decoction of $\frac{1}{2}$ of seeds to $\frac{3}{4}$ of water, boiled down to $\frac{3}{8}$. On 20th, took tablespoonful 4 times, with 10 dr. of tinct. in each dose. Nausea after every dose, but somewhat slighter than yesterday; dulness of head all d., with occasional transitory headache in forehead and temples; tongue white in middle, red at tip and edges; empty eructations after food taken without desire; no stool, but inclination for one; urine whey-like, yellowish brown, diminished in quantity, acid. On 21st, same doses with 20 dr. of tinct. in each. Same subjective symptoms; at 10 a.m. hard scanty stool; at 11, copious pappy one, but little coloured by bile, more of a chocolate colour, preceded by violent rumbling and colic. Urine as yesterday; really less; after 6—8 h. depositing sediment consisting chiefly of chloride of sodium and lime. Experiments with solution of sugar and sulphuric acid gave traces of biliary colouring matter. On 22nd, the same. Restless, dreaming n.; increased nausea after doses; loss of appetite; feeling of inflation so strong, especially on r. side, that he expected to discover by percussive great enlargement of liver, but it was not so, though whole region was painful to pressure; frequent urgings to deep breathling, followed by indefinable painful sensations in abdomen; every sudden and strong movement of body painful, both in chest and abdomen; stool at 8 a.m., pappy, loamy, destitute of bilious colouring; urine scanty, brownish, showing presence of biliary colouring matter as before. On 23rd, 3 similar doses with 30 dr. of tinct. in each. After 1st, violent nausea very soon, and, 10 m. later, painful retching and vomiting of acid greenish fluid; pains in stomach for a h. After 2nd dose, great nausea, but no vomiting; painful griping in stomach, and cutting here and there in bowels, with rumbling. After 3rd dose, nausea so bad he was obliged to cease vomiting to relieve it. Great debility all d.; no stool, urine as before. On 24th, one spoonful, followed by such nausea that he concluded system was saturated with

drug, and omitted it. At 6 p.m. unsatisfactory, hard, loamy stool; urine as before. Sense of fullness and tension in epigastrium continued, gradually decreasing, till 11th. From 10th, stools began to be pappy as usual, and somewhat tinted with bile; urine remained cloudy till 12th, but on 13th d. had just all trace of biliary colouring matter. On 14th, quite well. (*Ham. Vierteljahrchr.*, vi, 452.)

1. Dr. BUCHHART, on December 4th, 1877, took from 1.45 to 2.45 p.m. 5 dr. of tinct. every 10 m. Immediately scraping in throat causing cough. After 1 m. shooting pain on a small spot of 6th l. rib in linea axillaris, with continual drawing pain in that line. After 10 m. drawing pain on inside of l. scapula. After 15 m.pressive pain on a spot the size of a shilling on l. side of nape at level of mastoid process; soon afterwards on the corresponding part of r. side. After 20 m. drawing pain through l. pectoralis muscle and l. intercostal muscles below axilla; the shooting pain, which affects breathing, gradually forges forwards. After 25 m. pressure in eyeballs as if pressed into orbits; burning in edges of upper lids. After 30 m. tensive-pressive pain in sagittal suture as if something contracted round skull. After 35 m. transient drawing pain between navel and scrob. cordis in peritoneum from r. to l., followed by burning pain, with hot feeling in a spot the size of a hen's egg midway between navel and l. inguinal region. Great discharge of flatus. After 40 m. burning pain in skin on inner side of lower half of l. forearm, also on outer aspect of l. index. After 45 m. drawing pain in skin on outer side of l. knee, drawing pain through r. pectoralis muscle and on inner border of r. scapula; afterwards, while driving, continued drawing pain in l. side of thorax up to axilla; the shooting pain only felt during expiration and deep inspiration. At 4 p.m. weariness and sleep for 10 m. 7 p.m., after supper, drawing and shooting pain in region of 5th rib during expiration, burning in edges of upper eyelids. 9 p.m., 10 dr. Swoon, scraping in throat causing cough, tickling in mucous membrane of outer orifice of nostrils, great discharge of flatus. 11.30 p.m., waking with chilliness and urging to urinate, about 2 table-spoonfuls of urine passed; stitches after deep inspiration as before; paralytic pain in l. tibia, drawing pain in cutaneous nerves below patella on outer side of leg; tickling in l. nostril; very uncomfortable general feeling, with drawing pain in r. scapula and l. side of chest; crawling sensation as if a body the size of a pea were moving in a narrow channel on posterior side of liver from r. to l. in pit of stomach at the level of the edge of the ribs, 3 times after a minute's pause, each time lasting 3 seconds; feeling of roughness and dryness in palate and fauces causing dry cough, collection of fluid in nasal cavity towards external orifice.—5th, m., on waking, drawing pain in all back, watery discharge from nostrils, cough from irritation in fauces, slight burning in palate. Noon, flat taste of moderately salt soup, good taste of well salted soup, but repugnance to salted meat. 2 p.m., eructation of air with burning feeling in mouth of stomach as from acidity. 10 p.m., drawing pain in l. side of thorax. 2 a.m., wakes with pressure in stomach, burning in eyelids and anus; drawing pain in r. upper arm and cardiac region, after passing urine burning in orifice of urethra; 3 dr., after some moments increased burning in eyelids, several attacks of short dry cough without tickling, rheumatic drawing in 1st joint of l. 4th finger, remission of stomach-ache, pressure in precordium, burning in stomach as from acidity, cough caused by rough feeling in fauces and mesophagus. 2.35 a.m., burning in pharynx, rheumatic drawing in first joint of r. index, burning pain in bowels in hypogastrium; raw feeling in pharynx causing cough. 2.50 a.m., drawing pain with burning in bladder,pressive pain on inner surface of skull at coronal suture, pressure in r. pectoralis muscle; drawing pain through bowels in hypogastrium, rough feeling in larynx causing cough, drawing pain in lumbar muscles, when lying on l. side tension and pressure in liver.—6th, m.,pressive-burning in eyelids with swelling and weight of them chiefly in l. eye, which can only be opened with difficulty, confusion of head with tensive pain in suture of l. parietal bone. 4 p.m., when driving,pressive pain between ribs and hip on r. side of belly lasting $\frac{1}{2}$ h., drawing pain from r. scapula down back, tensive pain in r. hypochondrium. 5 p.m., weariness and sleep for some m. 9 p.m., sudden painful cramp in muscles of r. sole flexing toes, after that has ceased great itching in sole in front of heel; drawing pain on outer side of r. 4th finger.—7th, 5 p.m., drawing pain in back for $\frac{1}{2}$ h., followed by weariness. 10 p.m., 2 dr. After 3 m. drawing pains in r. deltoid and back; burning in eyelids.—8th, 3 a.m., wakes with erection, violent rheumatic pains in r. deltoid and in muscles covering r. radius; drawing pain all over back; great discom-

fort and stomach-ache, pressure in eyelids, especially l., with feeling of its being swollen. 3.15 a.m., drawing pain in muscles covering l. radius; empty feeling in stomach, burning in anus and nostrils; pains in r. upper arm because periodically so violent that he cannot refrain from groaning; on raising r. upper arm pain in shoulder-joint. 10 a.m., for the last b. drawing pains in r. side of back from scapula to lumbar region, changing from one place to another after 2 m., also on outer border of l. scapula and through muscles of r. or l. radius; pain in sole in front of heel increased by moving ankle; painless flatulent distension of ileum; pressure and same feeling in ileum on l. side; pressure in nape and r. temple; pressure in urethral part of glans; drawing pain from l. side of chest to back, then towards l. pectoralis muscle; drawing pain through r. groin. 5 p.m., drawing pains in back. 6 p.m., when walking stiff feeling in knees, at patella and in tendons of thigh, with paralyzed feeling in legs, uncertain, staggering gait.—9th, m., pain in hip-joints spreading through nates, making rising difficult, aggravated by standing; drawing pain through back and from outer side of knee to external ankle; burning in eyelids; bruised pain in nates.—28th, 11.30 a.m., 5 dr., 1st dil. After 3 m. burning in l. nostril; drawing pain in back and inner border of r. scapula; cold feeling in soles; drawing pain on inner side of r. leg to internal ankle; drawing pain in l. side of chest; burning in eyelids; empty feeling in stomach; drawing pain in l. scapula; drawing pain in lambdoidal suture. After 10 m. drawing pain from l. and r. through wrist, cordis and epigastrium; drawing pain through l. pectoralis muscle; hot feeling in face. 11.45 a.m., pressure in forehead and eyeballs; drawing pain from l. knee down leg; pain in r. concha round orifice of ear. 12 noon, cramp-like drawing pain in inner side of r. hand, extending to first two joints of 4th finger; drawing pain through back and hypogastrium; rumbling in ileum. (*ibid.*, A, Z., xxviii, 11.)

3. M^r. BUCHMANN.—Dec. 2th, 10.30 a.m., 5 dr. tinct. After 5 m. astringent metallic taste in palate and fauces; feeling as if m.m. were quite smooth, as if covered with grease; tickling sensation felt in l., then in r. nostril; continual yawning. After 10 m. drawing pain in border of tibia, with stiches when breathing there, mostly when expiring; pressure in forehead above eyes; heaviness in eyelids. After 25 m. call to urinate, burning in urethra and rectum, preventing her sitting; dry feeling in palate and lips gradually going off. 4 p.m., 5 dr. After 10 m. same symptoms in buccal cavity, and also symptoms as above. 6.30 p.m., 15 dr. After 5 m. cramp pain in l. calf till 10 p.m., cramp pain in muscles about radius and in fingers of l. hand for 10 m. After 20 m. violent pain in r. side of abdomen, increased by pressure, lasting till she went to sleep; for hand's breadth round navel in bowels sense as if horse's moved when breathing; weakness and ill-feeling; burning in urethra with swollen feeling there, about; sadness and inclination to weep; short dry cough from irritation in pit of throat; frequent yawning, anorexia.—9th, 3 a.m., waking from pain in r. lumbar region with pain in urethra; feeling of moving of bunch on expiration. 9 a.m., slight pain in r. side of abdomen and burning in urethra. 3.30 p.m., cramp pain in r. calf; violent drawing pain in r. deltoid and muscles of r. radius; cramp pain in 2nd, 3rd, and 4th r. fingers; burning about urethra compelling her to get up from seat; pain in lower part of r. heel, aggravated by treading.—22nd. Until to-day daily periodic cramp-pain in r. calf, on r. sole, and in extensor tendons of 3 middle fingers of r. hand.—28th, 11.15 a.m., 5 dr. 1st dil. After 15 m. burning in r. nostril with watery discharge from it; drawing pain in cardiac region with tightness there on taking a deep breath; contractive feeling above eyebrows; burning in urethra and itching in anus; contractive pain in vagina; heaviness in head; constant flow of water into mouth; rough feeling on tongue; palate feels smooth and greasy; rough feeling in fauces. (*ibid.*, 19.)

4. BUCHMANN'S W^o, pt. 24.—Dec. 13th, 10 a.m., 5 dr. tinct. 2 p.m.,pressive pain in occiput. 3 p.m., the pains have come into sinuities. 4 p.m., pains in sinuities increased; great drowsiness and bruised feeling in arms and legs for 2 h.; tracing in l. scapula and upper arm, tightness in l. side of chest. 4.30 p.m., rigor with quickened pulse, 90. 5 p.m., increased tightness and pain in l. side of chest, especially when expiring deeply. 5.30 p.m., pains in l. parietal bone; cold feeling in soles. 6 p.m., dry feeling in larynx with sensation as though in back of larynx. 6.30 p.m., drawing pain in l. knee-joint with cold feeling in both knees; pain in r. instep; burning in eyeballs; short stiches behind l. short ribs. 8 p.m., cough from irritation in back of

larynx. 9 p.m., presive pain in r. hypochondrium; cold feeling in knees. 12, mid. night, wakes with cough from irritation at back of larynx; rigor. (*Ibid.*, 10.)

5. IVA BUCHMANN, æt. 25.—Dec 7th, e., on going to bed, 20 dr. tinct. Itching on skin after lying down in bed.—8th, 10 a.m., 20 dr. 11 a.m., flow of water into mouth. 3 p.m., loss of appetite, pressure in stomach until she fell asleep.—6th, m., occasional pressure in stomach; anæmia.—19th. Daily attacks of pressure in stomach, appetite diminished till 10-day. (*Ibid.*, 20.)

6. МАЛТИНА БУСМАНН, æt. 19.—Aug. 7th, 5-10 a.m., 3 dr. tinct. After 5 m. flow of saliva into mouth. 6.45 a.m., 20 dr. After 10 m. shooting in lower border of ribs anteriorly at every inspiration; then presive pain in scrob. cordis externally. 7 a.m., weariness and frequent yawning; burning in eyelids; pinching pain in bowels on l. side. 9 a.m., 20 dr. After 5 m. flow of saliva into mouth; when speaking and swallowing presive pain in region of os hyoides on l. side with feeling of swelling there, increased by pressing on it; frequent yawning with weariness. 9.50 a.m., presive pain in forehead and temples; when walking pain in thighs, l. especially. 10.10 a.m., shooting in r. side of chest anteriorly in region of 7th rib when inspiring deeply. 1 p.m., shooting pains in region of 7th rib, r. side, when stooping. 3 p.m., for 1½ h. the pains have spread all over front part of chest, and are so violent as to make movement of arms, walking and stooping almost impossible; frequent eructation of air with burning in œsophagus like heartburn. 10 p.m., 5 dr. No stool to-day.—8th, 7.10 a.m., 15 dr. 8.15 a.m., stitches when inspiring between lines mammaris and axillaris at r. 6th rib. Great weariness.—13th. On Aug. 8th insufficient hard stool, no more stool for 4 d. To-day a hard difficult stool. (*Ibid.*)

7. FR. JUNCKELASIS, surgeon, m. 24.—Aug. 20th, 5.15 p.m., 8 dr. tinct. Immediately great weariness. 5.45 p.m., fine stitches to r. and downwards from l. nipple, lasting some seconds. 6.45 p.m., rigor, with feeling of a pulse in abdomen; presive headache like commencing catarrh. 9 p.m., nausea, with flow of water into mouth; pressure in forehead.—21st, 11 a.m., eructation of air. 3 p.m., great weariness after dinner; pressure in stomach with eructation of air; pain in occiput; pain in r. eye. 3.30 p.m., 15 dr.—22nd. After rising great prostration in arms and legs. 10.10 a.m., pressure in stomach with eructation of air. 11 a.m., pressure in hepatic region with ravenous hunger. 12 noon, when walking feeling as if there was a hard round calf a hand's breadth below knee. 6 p.m., repeated eructation of air; slight headache above eyes and pain in occiput; pulse slower by 20 beats; ineffectual urging to stool with great pressure on bladder causing the urine to dribble away.—23rd. Dinnelation to get up. In forenoon confusion of head with disposition to be angry; occasional pain in liver and sacrum.—24th, m., 12 dr. All d. great confusion of head; shortly before dinner empty feeling of stomach and headache, which goes off after dinner.—25th. Wakes with pain in belly near r. os ilii. 11 a.m., stitches in ileum, relieved by pressure; great forgetfulness.—26th. Recurrence of abdominal pains while walking in open air. After drinking a glass of small beer, urgent call to stool as from diarrhoea, stool of ordinary character.—Sept. 4th, 8.50 a.m., 30 dr. Some presive sensation at room flatulence under l. border of ribs, lasting 20 m., followed by same sensation on r. side, spreading thence to the r. and backwards, when the pressure on the l. side goes backwards; pressure over l. eye. 11 a.m., burning sore pain in l. scapula when inspiring, increased by pressure and leaning. 12 noon, presive pain in hepatic and gastric regions, increased by pressure with hands; on l. side of stomach shooting increased by inspiration. 7 p.m., 30 dr. When sitting drawing pain in bladder and testicles.—5th. At n. frequent shivering. 4.45 p.m., shooting pain in belly a hand's breadth from r. hip; e., stitches in cardiac region.—6th. Forenoon, burning pain in back. 12 noon, stitches in cardiac region. 2.15 p.m., 50 dr. Riter taste, and feeling of scraping in œsophagus for 15 m.; drawing pain in various tooth; presive pain over l. eye; a carious tooth aches when touched by tongue; stool lumpy and hard. 5.30 p.m., pain in occiput. 6 p.m., rheumatic pain in shoulders, spreading from neck; pressure on back below scapula. 6.30 p.m., presive pain in r. side of belly when the body is stretched out, with hot feeling. 7.15 p.m., constant shooting in inner border of l. scapula. 8 p.m., pain above orbits.—7th. Walking in general perspiration, weakness, and erection; copious flow of urine with drawing in both sides of hypogastrium. 8.15 p.m., on bending backwards shooting pain a hand's breadth above r. nipple, also when raising r. arm. 1 p.m., frontal pain before dinner, going off after eating, with pain in eyes and occiput and sweat on forehead

and back; pressure in wrists and shoulders. 1.15 p.m., all pains except those of eye gone. Instead has pressure in temples, nausea with eructation; flow of water into mouth. 1.25 p.m., only pains in r. eye remain. 5.25 p.m., shooting in hepatic region with moist skin. 5.75, when urinating drawing in r. side of belly.—21th, m., no dr. Burning pain in throat lasting 1 h. (*Ibid.*, 26.)

8. LEWIS made decoction of 2 oz. of seeds in 1 lb. of water and drank it, but it caused no symptoms whatever. (*N. Zeitschr. f. Hom. Kl.*, 1.)

CAULOPHYLLUM.

Caulophyllum thalictroides, Mich. Blue cohosh, squaw root. Nat. Ord.,
Berberidaceæ.

I. *Proving*.—1. Dr. BURT. In perfect health, æt. 29, April 22d, 1864, at 4 p.m., took 10 gr. of Caulophyllin. 5, dull frontal headache, with contracted feel of skin of forehead; drawing pains in thighs, knees, legs, and ankles; very sharp pain inside l. knee-joint; elbows and wrists ache. 5.40, very hard pains in forehead, with sensation as of needles being struck there. 6, constant flying pains in arms and legs, first in one part and then in another, remaining only 2 or 3 m. at a time in any place; severe drawing pains inside of l. thigh; head same; distress in fauces that causes constant inclination to swallow; dull ache in lumbar spine; every few m. sharp stinging pains in glans penis. 9, headache severe; sharp colicky pains every few m. in umbilicus; very severe drawing pain in l. sterno-mastoid, pulling head round; same in joints of extremities; ankle and toes of l. foot very painful; dull backache. 29th.—Slept well till 3 a.m. After that restless, skin hot and dry; severe drawing pains in most joints; shutting hands produced severe cutting pains in second joints of all fingers, which were very stiff; frequent colicky pains in umbilicus, relieved by emission of flatus; severe drawing pains over l. eye. Natural stool at 7 a.m. At 10, symptoms same; took 15 gr. 11, distress in stomach and bowels, with drawing pains in r. hypochondrium, also in fingers, legs, and feet,—in last especially severe. 4, dull frontal headache, by spells a very severe pain in temples that produces feeling as if both would be crushed together; frequent slight colicky pain in stomach and umbilicus; slight dull backache; drawing pains at 12 noon. Took 25 gr. 6, Dull headache; profuse flow of tears; drawing pains in nose; good deal of pain and distress in stomach and umbilicus; dull pains in lumbar region; severe pains in ankles and feet (drawing), and in wrists and finger-joints. 9, symptoms same, joint pains quite severe; took 30 gr. 10th.—Had restless n., from pain in finger-joints; they took red, and are very stiff, closing of hand being quite painful, teeth feeling sore and floppated; other pains as before; walking causes suffering in metatarsal bones. Natural but hard stool. At 10 a.m., feeling quite well save weakness of knees when walking; took 50 gr. At noon, empty eructations; slight distress in stomach; drawing pains in knees and toes, very sharp by spells. 5, weak and nervous; dulness of head; stomach and joint pains slight only. Took 75 gr. 10, frequent gulping up of very sour, bitter fluid, frequent spells of vertigo; stomach and joints as before; eyes aching, with feeling as of something under lids, profuse lachrymation. Slept well till 1 a.m., when he awoke with great rumbling in bowels, and still a very urgent desire for stool; stool very watery and copious, streaming from bowels, painless. May 1st, 1 a.m., feeling quite well; tongue coated white; canine hunger; fingers are quite stiff; drawing pains in toes; want to drink a great deal of water. More or less drawing pain in joints through d.; they crack frequently on moving or turning. 2nd.—Restless n., fingers, ankles, feet, toes pained him so much; fingers very stiff. At 7, soft stool, very white. (*New Remedies*, 2nd ed., p. 172.)

CAUSTICUM.

A peculiar preparation of Hahnemann's, probably a solution of caustic potash.

1. *Proving*s.—1. HAHNEMANN, *Fragmenta de Viribus*. (There called "Acri tinctura.") Contains 30 symptoms from self.

2. *IBID.*, *Mat. Med. Pura*, vol. ii of first and second editions. (Not included in translation, because omitted in 3rd edition of vol. ii). Contains (2nd ed.) 106 symptoms from self, and 201 from 7 fellow-observers.

3. *IBID.*, *Chronic Diseases*, Part 3 of original, vol. of English translation. Contains 1505 symptoms, additions being from Hahnemann and Nenning.

CEDRON.

Simaba Cedron, Planchon. Rattlesnake beans. Nat. Ord., *Simarubaceæ*.

1. *Proving*s.—1. CASANOVA. Result of provings on 14 healthy persons of different sex and age, drug being taken (1) in concentrated aqueous solution and 1_x and 3_x dilutions of same, and (2) in substance and 1—3_x trit. of same.

Mind.—Gloomy, depressed spirits; disposition to weep; inquietude and excessive anguish; dulness of senses, torpor of mental faculties; dread of friends, females especially. Greater part of these symptoms were repeated in the m. (*sic*), and aggravated at n.

Head.—Dull and heavy in e.; distensive ache, increased during n.; temporal arteries enlarged; bending head backwards caused pressure in occipital and parietal regions, as if they would burst; forehead cold, and as if empty in m. These symptoms were principally manifested in provers of voluptuous disposition and of excitable nervous temperament; more also in women than in men; they were, more or less, repeated every d. while under influence of drug.

Eyes.—Prominent and red, with pressive pain extending to forehead; pupils fixed and dilated; in female prover, æt. 18, objects appeared red at n. and yellowish during d. for 7 d., until bellad. was taken as antidote; lids injected, bright red, and painful on pressure; swelling of meibomian glands.

Ears.—Buzzing towards noon; hardness of hearing at n.

Face.—Flying heat, alternated with chills, towards e., with bloated appearance; cheeks red and burning at n., pale and cold in m.; pressing or tearing pain in one or both cheeks with occasional shoots under orbits; spasmodic twitchings of upper lids, in a prover for 3 successive n.

Mouth.—Dryness, with viscid saliva, while talking; thirst, with desire for cold water at noon and warm at n. and aversion to cold water

in e.; saliva becomes sour at n.; pricking of tongue early in m., going off after breakfast.

Stomach and Abdomen.—Sense of heat and fulness in gastric region; distension, and disposition to nausea, generally aggravated by rest, but relieved by walking and eating; abdomen hard and distended towards e.; some flatulent colic in m.; stitches in spleen and liver; constipation, with unsuccessful urging; in some provers, after large doses yellowish or whitish loose evacuations.

Urinary organs.—Scanty urine; dark urine, with sediment, in both sexes; frequent but ineffectual urging to micturate.

Genital organs.—Much genital excitement; in a young man discharge like gonorrhœa, lasting 3 d., and only ceasing on medicine being omitted; in a woman leucorrhœa, and swelling of breasts with some pain.

Respiratory organs.—Larynx constricted and tender; dysphagia; difficult respiration, with partial loss of voice, recurring at different intervals.

Circulatory system.—Oppression of chest and throbbing of heart, in almost all provers, especially those in whom febrile paroxysms were developed. Febrile paroxysms every d. in some provers, every other d. in others, towards 8 p.m., preceded by depressed spirits, dulness of senses, and pressive headache (at noon), cramps, then contracting and tearing pains in extremities, with cold sensation in hands and feet; mouth dry, great thirst and desire for cold water; chills and shivering, sometimes very strong shuddering of whole body; palpitation and hurried breathing; pulse weak and oppressed. These symptoms lasted 1—2 h., and varied much in intensity; they were followed by sensation of dry heat, and then by profuse perspiration, full and quick pulse, with animated red face. Coldness and paleness in apyrexia, with thirst and desire for warm drinks.

Extremities.—Pressing pains in elbows and forearms, with cold sensation, extending to hands; lancinating pains in knee-joints; contracting pains in legs, as if produced from contusion, in e. When not precursors of fever, these pains were relieved by friction.

Sleep.—Restless with confused dreams (in some of both sexes), in others very profound; a general feeling of fatigue after awaking if time has exceeded 6 h., and weakness of body and mind. (*Monthly Hom. Review*, v, 251.)

2. M. G. B.—man of 24, blond, delicate, but in good health at time of proving, mixed 10 dr. of 6th dil. in a tumblerful of water, and took tablespoonful every m. for 4 d., and m. and e. on 5th d. On 6th d., Aug. 30th, 1851, at 3 p.m. shuddering all over body, with malaise and desire to lie down; shuddering is renewed on movement; hands, feet, and nose are cold; flying heat in face several times, which towards 6 became constant, face looking animated, with smarting in eyes (especially when closing them), lips dry, with desire to moisten them often, and headache, especially at bottom of orbits, compelling him to close eyes, and extending to occiput. While this congestion of head lasts shuddering continues all the time; hands, feet, and nose remain cold; urine dark red. 31st.—Malaise, with much weakness; loss of appe-

rite; red urine; no stool. Sept. 1st.—As yesterday; in e. copious stool. 2nd.—Weakness; in m. flatulent colic, with discharge of foetid urine; after talking, saliva becomes thick and white, like cream. At 3 p.m. paroxysm of 6th d. recurs, but much feebler. 3rd.—Weakness; appetite returns; transitory lancinating pains in joints, especially r. elbow. 4th.—All symptoms have disappeared. 5th.—Slight shuddering only towards 3 p.m. (TESTE, *Mat. Med.*, sub voce.)

3. Mrs. T—, æt. 27, sanguine temperament, delicate constitution, disposed to cerebral congestions, though head is very small; very sensitive to action of drugs. Of similar solution took tablespoonful m. and e. for 2 d. only. 1st d., 9 a.m., pain at elbow and r. forearm, as from shock or blow, for $\frac{1}{2}$ h.; oppressive pain in chest, extending every now and then to back, with frequent desire to moan and take long breath; pressure at right temple, causing dull pain in whole r. head. These symptoms continue part of m., but disappear towards noon. Towards 6 p.m. (immediately after dinner) cold all over, shuddering in back, icy coldness of feet, hands burning; sensation in eyes as if one had wept a good deal. 2nd d., 9 a.m., pain in arm as yesterday; distended abdomen, with borborygmi on l. side. 6.30 p.m., shuddering in back and legs, unusual pallor of hands, red face, heaviness of head; towards 7 stretching; general coldness all e.; towards 9, in open air, increase of headache, pressive pain over eyes, as from a band. No thirst during shuddering. Dry heat at n. 3rd d., no perceptible symptoms in m. Towards 5 p.m. intolerable pricking-itching of tongue, obliging her to rub it incessantly against palate; at same time taste as of iron in mouth, causing profuse flow of saliva, sour taste; colic at dinner; unsuccessful urging to stool. At 6.30 febrile paroxysm as on d. previous, but more intense, with smarting in eyes, which is only stopped for a moment by rubbing; burning and weary pains in shoulders; profuse emission of watery urine. 4th d., in m. pain at heel as from an abscess, only when walking, for 1 h. Towards 6 p.m. febrile paroxysm, similar to that of previous d., but less marked. 5th d., constipation. 6th d., pains in loins and back on rising in m.; towards 5.30 p.m. pricking at tongue and itching in eyes. On these d., and for three weeks from first, the febrile paroxysm returned, one d. stronger, another weaker. Various unpleasant sensations, such as bruised pain at elbow, or pains as from an abscess in heel, returned during first week every m. about 9. From third d. appetite decreased considerably; alvine evacuations became less frequent, and headache, generally consisting in pressure on vertex, somewhat violent only at moment when shuddering commenced, soon ceased altogether. Face was generally slightly bloated. (*Ibid.*)

4. Miss C—, æt. 17, also very sensitive to action of drugs, took for a nervous affection of heart four globules of 6th dissolved in water. It did heart no good, and towards 6 p.m. (medicine having been taken at 9 a.m.) she had shuddering, soon followed by dull and heavy frontal headache, spreading to both parietal regions, with redness of eyes and itching of inner and outer surfaces of lids; icy coldness of hands and tip of nose, even in midst of febrile reaction (pulse 80), rest of face being red and burning; lastly, dimness of sight, dilatation of pupils;

objects look red; mouth dry, with thick viscid saliva; constriction of throat, which scarcely allows her to swallow saliva; anxiety, restlessness, general malaise. N. restless; no sleep, with flow of confused ideas until 5 in m. (patient till then had slept well). On 2nd d. no other symptoms but those of malady till 5.30 p.m., when paroxysm similar to previous one occurred. She took a dose of lachesis, and had no recurrence. (*Ibid.*)

5. I. DOUGLASS, æt. 29, took, Jan. 7th, 1859, at 7 p.m., 1 dr. of tinct. In 20 m., pulse increased by 15 beats. In 20 m. more, pulsating in temple, and twisting pain behind r. ear, changing to dull pain, and extending to temples, head felt as if swollen; singing in ears as of crickets. Had (unusual) erotic dreams, with priapism in m. Before rising on 8th, rising of bitter wind from stomach, with dull pain in temples. At 7 p.m. took 2 dr. In ½ h. pulse increased by 15 beats, very full; pulsations in temporal arteries; pressure in ears; moon sensation as if whole head was swollen; sharp pain in occiput. At 9.30, head same, burning sensation in upper lids. All n. very restless, frequent waking, fatigued from lying long in one position. On m. of 9th pressure in occiput; slightly yellowish coat far back on tongue, with nasty, sickish, bitter taste in mouth. That n. as on 7th, and gastric symptoms same next m. (10th). At 10.30 a.m. occasional sharp, jerking pains in occiput. At noon sharp pain by turns in cæcum, liver, and spleen, successively in occiput, abdomen, and legs. Pains in head all dull, save those in occiput, which are acute. At 10 p.m. dull pain on vertex, with sharp flying pains in all joints of extremities, worse in feet, especially in great-toe joint. Took 2 dr. and went to bed. In about 20 m., with further increase of pulse, pains over ears. On getting warm in bed, severe sharp flying pains in all parts. Those in limbs seated in joints, especially great-toe joint, and streaking up bones; those in abdomen chiefly in ascending colon, liver and spleen; was kept awake by these most of n., pains of lower extremities being especially severe. 11th.—Awoke late, after sound sleep, with dull pain in vertex; l. eyelid seemed dried to ball; conjunctiva inflamed and dry; tongue coated yellow, even to tip; sickish, slimy taste; pulse 95, full. 11 a.m., considerable fever, pulse 100, pains continue; redness of white of eyes, which were exposed. 12th.—Slept well, awoke with dull pain in whole upper head; mouth as before; copious stool, with excessive tenesmus. 10 a.m., with headache, throbbing in temples; pulse 90.

The flying arthritic pains continued, more or less, for more than four weeks; relieved by motion and cold before soreness of joints set in, then aggravated, worse at n. From first, urine scanty and high coloured. Thirst at n. and during febrile symptoms. (*N. Am. Jour. of Hom.*, viii, 120.)

6. Miss C—, æt. 18, bilious plethoric habit, took, Jan. 8th 3 dr. of tinct. In ½ h., pulse 90; throbbing in temples, increasing to pain; eyes felt swollen; misty vision as from thick smoke; pain from temple to temple over eyes; rolling pain in stomach. 9th.—Awake and restless all n., waking dreams; pain in temples; excessive thirst; feet very cold, went out barefooted in snow and returned to bed, when they

warmed up. Rose early, was dizzy, and could not see to light a candle or when it was lighted. Did not know her friends; was obliged to go to bed, but could not undress herself; fell asleep and dreamed of quarrelling with a dead sister and other dead friends, cried about it, and awoke with a nightmare, with sensation as of stone on stomach. Rose with pain in region of liver. At 11 a.m. slight dizziness. (*Ibid.*)

7. Mr. W—, æt. 19, nervous-bilious, took 1 dr. In $\frac{1}{2}$ h. pulse quickened by 12 beats, firm, full; beating in temples, increasing to pain, and extending over ears. During n. restless sleep; priapism in m. Sharp lame pain in r. ankle; tongue coated yellow; nasty taste in mouth. (*Ibid.*)

8. Mrs. M—, æt. 33, took 1 dr. In $\frac{1}{2}$ h. pulse and head as in No. 7; pain in a decayed tooth for first time; restless sleep. (*Ibid.*)

9. Mrs. B— took 2 dr. 2 c. in succession. Same symptoms of pulse and head; alternate dryness and smarting with moisture of eyes; smart rheumatic pains in joints of all limbs, with swelling of feet; frequent emission of large quantities of pale urine. (*Ibid.*)

CHAMOMILLA.*

Matricaria Chamomilla, L. Wild chamomile, Nat. Ord., *Compositæ*.

1. *Proving*s.—1. HAHNEMANN, *Fragmenta de Viribus*. Contains 272 symptoms from self and 3 from authors.

2. *IBID.*, *Mat. Med. Pura*, vol. iii of original, vol. i of translation. Contains 461 symptoms from self, and 30 from Stapf (See ii, 1).

3. *æ*. Five persons took extract in doses of 2—24 gr. daily. Although but slight effects were produced, the following symptoms were observed during its use, though they did not occur in all: bitter aromatic taste, eructations, oppression of stomach, nausea, disgust, inclination to vomit, pinching in abdomen, diminished appetite and evacuations, flatulence, yawning, hiccup, furred tongue, rapid pulse, palpitation, increased heat, thirst, confusion of and rush of blood to head, headache, weariness, excited irritable temper and restless sleep. (*Zeitsch. d. k. k. Gesell. d. Aerzte zu Wien*, Dec., 1844.)

4. SCHNELLER, one of the above, gives following details. While taking 8—14 gr., besides the disgusting taste, he had—soon after ingestion—slight palpitation; in e. flying stitches in r. chest, near 5th rib, anteriorly, lasting a short time and increased by deep inspiration; besides these on taking 12 gr. he had slight stitches in cardiac region, appetite lessened, head warm and confused. During doses of 16—20 gr. these pains declined, and symptoms of deranged digestion ensued, viz. oppression of stomach, discharge of wind upwards and downwards, yellow furred tongue, diminished appetite, increased rapidity of pulse and temperature of body, and gloomy irritable disposition. After two last doses, of 22 and 24 gr. respectively, stitches in cardiac region again appeared, but were not confined to this part; pain extended—at one time of shooting, at another of drawing character, now r., now l.—down

* See also *Antémis albitis*.

legs to dorsum of foot and ankle, then back to r. shoulder or hip, or l. side of head. Derangement of digestion increased, disgust at food ensued, costiveness, palpitation, quick pulse, and peevish disposition. These symptoms continued for some d. after leaving off medicine. (*Ibid.*, 1846, ii, 404.)

4. Dr. HENCKE took 1st d., 8 a.m., 6 dr. tinct., 2nd d., 12 dr., 3rd d., 18 dr. In forenoon some drawing pains in shoulder-joints and ankles, with uncommon tired and heavy feeling in limbs, but especially painful weak feeling and restlessness in arms, as after over-exertion, e. g. fencing; worse when at rest, going off when moving, walking in open air. Could not sleep before 2 a.m., partly on account of tired feeling in limbs, partly from hot and restless feeling, causing him to toss about in bed; tongue dry, thirst. 4th d., on rising in m. qualmish feeling in epigastrium, causing a kind of anxiety and restlessness, and making him cross and indisposed for mental work. 7th d., 8 a.m., 18 dr. 8th d., 24 dr. Recurrence of the painful heaviness and tired feeling in limbs, lower extremities so tired and heavy he was unwilling to walk. When at rest tearing pain in ankles. Towards dinner-time painful tearing-burning in back of mouth, voice rough and hoarse, must sneeze several times, and had to hawk on account of viscid mucus in fauces. Some heat and restlessness at n. 12th d., 24 dr. 13th d., 30 dr. In forenoon, return of heavy feeling in all limbs, also wandering tearing pains in r. upper arm, l. leg, back, temporal muscles, lastly in l. teeth. E., pain in teeth much increased by taking tea, and it was so persistent as to keep him awake at n.; restlessness, heat in face. Spoke, groaned and tossed about in sleep. 14th d., m. before rising gradually increasing pain in bowels, making him twist about. Lying doubled up relieves for a short time. On rubbing belly flatus discharged with relief. After pains had lasted 2 h. rumbling in bowels, with pains and hurried call to stool, when, along with noisy discharge of flatus, loose faeces came away, but the pain in bowels was so violent that he felt faint and perspired all over, especially in face; the bowel pain gradually subsided. During d. now and again tearing pains, also occasional griping in bowels; tongue covered with a slimy fur. In afternoon a diarrhetic stool, with slight griping and discharge of flatus. E., sudden repeated sneezing, creeping in nose, followed by fluent coryza, watery mucus dropped from nose at short intervals, this went off after three h. On going to bed, 21 p.m., disagreeable cold feeling. Woke at n. from prickling numb feeling in r. arm, which soon went off. 15th and 16th d., constipation, crossness, easily put in a passion. 17th d., well. (HENCKE, *A. h. Z.*, lxxvii, 89.)

5. C. H., student, æt. 23, rather dyspeptic, otherwise healthy.

a.—May 17th. Took C. 12th dec., 1 gr. (probably of the trituration). In 5 m. sudden feeling of exhaustion in limbs, dull pressure on upper part of head, extending to temples and occiput as if head were compressed from all sides, repeated feeling of heat rising up to cheeks, feeling of oppression and slight constriction in larynx. Spirits depressed. The rest of the d. spirits composed and increased secretion of clear, acid urine. Uneasy dreams at n. with anxiety and oppression. When undressing itching in various parts of the body without eruption.—18th.

On waking, weight in head and bruised pains in back; 1 gr. C. 12. Very severe pressure in upper part of brain, spreading as compression all over skull, the exhausted feeling of limbs repeated. These symptoms very transient. Felt better than usual, stool better than ordinary, urine again increased. Afternoon, slight confusion of head with transient painful pressure on eyes; repeated stitches and transient spasmodic feeling in tragus of r. ear, sometimes extending into meatus. Itching when undressing as before.—19th. In m. 1 gr. C. 6. Pulse and breathing at first slightly quickened, but became slower after 15 m. In $\frac{1}{2}$ h. the pressure on top of head, spreading over whole head, especially in r. temple, returned. Towards noon congestion to head with severe pressive pain over r. eye, a feeling of pressure on that eyeball and very severe painful pulsation of temporal arteries with severe compressive pain in r. temple. The frontal pains that came on in m. lasted till e., pressing and rather severe, with pressure on both eyes and obtuse stitches in r. temple. Pulse quicker towards e. Thirst increased. When perspiring severe itching on perspiring spots; many small, red pimples on back. Perspired easily, perspiration sour. Sleep restless, woke frequently.—20th. 1 gr. C. 6. Soon pressive headache, pressure in eyeballs, and feeling of a sharp point pressed in on r. side of head and r. temple. In forenoon, transient dull stitches in r. side of chest, also rheumatic pains in muscles of nape. Pressure and feeling of a weight in alveoli of upper jaw, especially on r. side, the teeth feel filled with lead. Head heavy, spirits low, short attacks of exhaustion in lower extremities. In afternoon the pressure in head returned. These attacks lasted each about an hour; they consisted of a pressure on top of head that extended around, commenced slightly, increased gradually in intensity and declined as gradually, but did not go off entirely but continued more or less severe; the seat of the pressive pains seemed to be chiefly the forehead and r. temple; sometimes both, sometimes only one, were affected, and often there was an accompanying pressure on eyeballs in region of oblique muscle, but this was transient. Slight constriction deep in pharynx, especially m. and noon. In afternoon, oppression and stitches in r. side of chest (a common symptom with the prover), especially on breathing deeply, also pressive pain and blown-out feeling in alveoli of 2nd and 3rd molars in both sides of upper jaw; this sensation extended with remissions to the zygoma, worse on r. side. Pulse slightly irregular, 75. Difficulty of falling asleep owing to numerous disagreeable thoughts. Frequent waking, and every time he was bathed in perspiration.—21st. On waking, weight in limbs and attack of exhaustion; also drawing and pressive pain in stomach and feeling of weight there as if stomach were stretched over a hard body. Mouth coated with rust-coloured mucus, tongue white, urine dark and acid, pulse full, 69. The pressive headache continued all d., also the asunderpressing and aching in alveoli of molars, also the pressure on eyes. Pulse 75 after eating and rather irregular. In afternoon tickling in trachea, frequent irritation to cough and constrictive feeling in pharynx. Frequent pressure in region of cardiac orifice of stomach, sometimes extending up the oesophagus, eructation of burning salt fluid, abdomen distended, sometimes cutting in it extending down to bladder, relieved

by discharge of flatus and friction. Difficulty of going to sleep and profuse sweat during sleep.—22nd. On waking, transient cutting in abdomen deep down into pelvis, pressure and spasmodic contraction in stomach, oppressed feeling in chest, pressure on top of head, pressing in forehead and temples, and feeling of pressure of a broad band on forehead and as if temples were pressed in with fingers, head confused, especially when lying. During forenoon the toothache before described, lasting all d., great ebullition of blood to head and heat of face, oppression of chest and frequent stitches in chest. Pulse after dinner 79. During afternoon pressive and stupefying headache occurring periodically. Above navel a feeling of distension and transient nausea. Spiritus rather low. Profuse sweat during sleep, which ceased when he awoke.—23rd. On awaking, headache, especially in forehead, aggravated by movement and thinking or reading, with inability to fix attention. Buccal mucus bloody, urine dark coloured and acid. Pressure in alveoli of 2nd and 3rd upper molars and continued pressure under and in eyes. All afternoon, headache and toothache as before, tensive feeling in stomach and umbilical region. Pulse at n. 80. Long in going to sleep on account of disagreeable thoughts. Next 2 d. the symptoms gradually subsided.

♂.—26th. Took 1 gr. C. 3. Soon stoppage of nose lasting $\frac{1}{2}$ h. and feeling as if it would bleed. Slight pressive pain on top of head spreading to r. forehead and temple. Then tension in stomach and œsophagus with attacks of great nausea, with greasy taste and inclination to vomit; these symptoms transient. Then attack of feeling of debility all over body, disinclination to mental work, laziness and prostration. All forenoon pressing pains in both temples, with feeling as if pressed by thumbs, toothache as before. These symptoms continued more or less all afternoon.—27th. Repeated the dose of 3rd dil. Soon the pressive headache recurred, also the dry and stopped-up feeling of nose and a slight attack of nausea with tensive pain in stomach and the toothache. Great itching of skin on undressing at night and a slight attack of the spasmodic constriction of œsophagus.—From 28th May to 3rd June, the above symptoms occurred occasionally, but in slighter degree.—3rd June. Took 1 gr. C. 2. The pulse soon rose from 64 to 100, and the respirations from 14 to 17. Immediately the usual headache appeared, combined with heat of face and head. At noon the pulse was down to 84. During afternoon he had confusion of head with aching and pressing, in fits, heat of head, feeling of exhaustion frequently, the toothache as before, stitches from tongue to meatus auditorius, feeling as if the teeth of both jaws were full of lead. After supper increased flow of saliva with peculiar sweetish metallic taste, the saliva somewhat acid, swelling of the gums at 1st and 2nd r. upper molars with pain like needle pricks (rather a common occurrence with him), great dislike to mental work, constant congestive headache on top of head, forehead and temples, increased by any mental operation. Pricking itching of skin on undressing.—4th. Woke from a disturbed dreamful sleep with confused head and the usual headache. Took 1 gr. C. 2. The headache soon increased, and he had severe pressing in orbital region with feeling as if eyeballs were compressed

from all sides with momentary dimness of vision. The swelling on the gums was the seat of tensive, shooting and throbbing pain, and there was painful pressure in the alveoli of all the teeth, especially those of the lower jaw towards the r. angle. Spasmodic tension in stomach and around navel, abdomen somewhat distended. The tension of the stomach extended up the oesophagus into pharynx and was attended with anxiety, nausea, increased secretion of sweetish saliva, warm feeling of head and flushing of face and head, tension in *velum pendulum palati* and spasmodic contraction there. The headache increased much $\frac{1}{4}$ h. after taking the dose and this increase lasted 2 h. When lying feeling of dislocation in both soles and cramp-like contraction in them. This recurred several times during d. Frequent deep stitches above heart, worst in m. Pains in sacrum with bruised feeling and transient stitches after sitting leaning forwards. The headache and salivation much increased e.; a stool, the first for 48 h. Spirits much depressed, feet cold.—5th. After restless, dreamful sleep woke with much the same symptoms. The mouth was coated with bitter slime of feebly acid reaction. Headache, pain in stomach, nausea and flow of metallic, sweetish saliva, drawing and stretching in joints of lower extremities, especially knees, with great feeling of weakness in them, and the previous pain in soles. At 8 a.m. bruised pain in lumbar and dorsal muscles, stretching of whole body, bruised and shooting pain in ulna and tibia. The *parulis* diminished in size. All forenoon yawning and desire to stretch, great prostration, inability to think, just like the commencement of a serious illness. At 11 a.m. severe stitches through r. chest, cold feeling in abdomen, especially renal region, spreading thence over whole back and lasting long between scapulae, along with this severe stitches in r. frontal protuberance, in rapid succession or many all at once, this repeatedly. Frequent shivering all over body and limbs, increased secretion of urine; after $\frac{1}{4}$ h. feeling of warmth all over followed by gentle perspiration. Head and all symptoms relieved by 2 p.m. At 3 p.m. took 1 gr. C. i. In $\frac{1}{4}$ h. the old headache returned with flushes of heat all over head and face, weakness of limbs and joints, dull stitches in occiput with desire to bend head backwards, bruised feeling between scapulae and intercostal muscles, especially when bending forwards, flow of metallic, sweetish saliva, nausea, head confused, pain in l. peroneus muscle as after going up hill, also pain in extensor muscles of l. foot, and thence upwards to middle of thigh, stitches in l. metatarsal bones, foot goes to sleep, sensation of a band tightly constricting leg above ankle, hot feeling in l. foot with outbreak of sweat, crawling in nose and lachrymation.—6th. After rising head free, but later the headache and some of yesterday's symptoms recurred. At 10 a.m. crawling in r. nostril as if about to have coryza, and lachrymation of r. eye. *Parulis* gone. At 2 p.m. took same dose. Similar symptoms appeared and, in addition, stitches in r. maxillary joint, shooting in cartilage of 6th rib, roaring in ears, heat of head and face, weight of head, tension and pressure in pharynx and uvula; cramp-like sensation in flexors of forearm with feeling of gone-to-sleep of it, stitches along metacarpal bone of l. thumb, feeling of prostration, stitches in cartilage of 6th rib, agonish feelings like yesterday, pulse

full and hard, 80, respirations 18, heartburn.—7th to 11th. Some of the same symptoms, but in even slighter degree.

c. 12th. Took on waking 1 dr. C. ϕ . Soon a return of some of the old symptoms and, in addition, dull stitches in different parts of the body, especially deep in joints with lamed feeling of these joints, frequent strong erections followed by general heat, then sweat with relief of all the other symptoms except nausea. 7 a.m., pulse 98, small and soft, stitches above heart, desire to bend head backwards, dull stitches in mastoid process, stupefied sensation and feeling of compression of brain. 9 a.m., swelling and pain in abdomen as if diarrhoea were coming on; relieved by discharge of flatus smelling of sulphuretted hydrogen. 1 p.m., severe stitches in r. temple, return of headache aggravated by sitting and studying, relieved by walking. 3 p.m., stitches in a small place above l. nipple for some m., repetition of the stitches in different parts of the body, those in arms and legs attended by paralytic-like pains, with feeling of having over-exerted them. Coldness in renal region with frequent attacks of rigor, increased urine, drawing pains in fibula, prickling in various parts of body relieved by scratching. Constriction of chest at level of nipples, pressure in r. side of forehead and r. temple, and sometimes some obtuse stitches there extending to occiput. The pains made him very cross; he described them always as unbearable.—13th. Took 2 dr. of ϕ . Similar symptoms occurred, also wandering pains in limbs. As a rule the pains come on when sitting or lying, and are relieved by walking about. At noon a feeling in oesophagus as if a ball filled with air were forced by the contraction of the oesophagus up into pharynx; this was three times repeated.—14th. Took 3 dr. of ϕ . Soon a flush of dry heat over head and trunk, jerking stitches like electric sparks from l. shoulder to nape, the usual pains in joints of elbow, wrist, and knee, and thence through bones, great prostration. Aguish fits, as before, about 8 a.m.—15th. Nothing particular except stitches in knees and ankles, constriction in pharynx, and toothache, slight digging in molars, transient but intolerable.—16th. Took 4 dr. of ϕ . Many of the symptoms of former days occurred.—17th. Nothing particular save feeling as if tonsils were swollen and uvula too long.—18th, 2 p.m., 5 dr. of ϕ . From this time forth during the remainder of the proving, the symptoms previously noticed recurred without much variation. We shall therefore only give the unusual ones that occurred on different days, but it must be remembered that besides these many of the previously-observed symptoms cropped up. The teeth felt heavy as if filled with lead, boring and digging in the roots of some molars relieved momentarily by cold water but instantly recurring, sharp stitches in r. meatus auditorius, feeling of fullness of nose and as if it were stopped up.

d. 19th. At 7 a.m. drawing in joints, springing from one joint to another. Took at 7 p.m. 5 dr. of ϕ . Soon feeling in r. forearm as if it were too short, and on bending back hand pain especially under the styloid process of radius, warmth and full feeling in epigastrium, knees bend readily under him when walking, weight and numb feeling in calf-muscles when sitting, feeling as if legs were tied tightly round with a broad band with great weight in them. After

h. pressure in trachea with irritation to cough.—20th to 22nd. No med.—20th. Constriction in larynx causing cough with mucous expectoration.—21st, at 6 a.m., epistaxis from r. nostril.—22nd. Irritation of larynx and coughing up of a few drops of blood. At 9 a.m. throbbing and hot feeling in alveoli and gums of upper molars, later in lower molars, boring and digging in roots of teeth with momentary relief from cold water.—23rd. Took at 5 p.m. 10 dr. of ϕ . After 15 m. difficulty of swallowing as if tonsils were swollen. After 45 m. heat and burning in stomach, anxiety, restlessness, itching in prepuce and glans. After 50 m. bruised pain in anterior aspect of thighs.—24th. At 8 a.m. feeling of pushing out and weight in roots of upper molars. At 2 p.m. took 20 dr. After 10 m. flush of heat over head and face, dull shooting and drawing along ulna and stitches in scalp, bruised pain in muscles of legs, stitches under head of r. fibula, along metatarsal bones, in muscul. bulbocaverna. and r. inguinal region with feeling as if something were coming out there, feeling in arteries of forearm as if they were too short. After 4 h. feeling of rawness and scraping in larynx.—25th. On waking paralytic stitches from joints along hollow bones, worst when lying, better on rising. At 11 a.m. stitches in meatus auditorius, increased saliva with feeling of pressure in parotids. At 1 p.m. 40 dr. After 20 m. pressure above r. nipple. After 30 m. hot feeling in head and face, burning in face and roaring in ears. At 3 p.m. stitches on inner side of patella, in the knees, and through head, jerking from hard palate perpendicularly through to scalp.—27th. Took at 6 a.m. 60 dr. Soon oppressed feeling in chest, constrictive feeling in pharynx with dull stitches in it to base of skull. At 1 p.m. constant bruised feeling in m. peron. and pain in heel as if after long standing and as if calcaneum would press through skin. After this no more of the drug was taken.—28th, m., feeling of weakness and weariness in legs, bruised pain in bellies of flexor muscles of toes as from excessive walking, dull stitches in ankles, knees, and wrists, spreading to neighbouring long bones.—29th, 6 a.m., tearing in legs and arms, especially in fibula, tibia, metacarpus and metatarsus, and along outside of radius, pains in knee and elbow-joints in their flexor aspect, especially when these joints are stretched. At 4 p.m. stitches in tubera parietalia, pressing, aching and weight in head, especially along coronal suture, and pain in abdomen as if diarrhoea would come on, relieved by discharge of flatus.—July 3rd, 6 a.m., teeth very sensitive to touch. 10 a.m., frequent shudderings over back, head confused with pressure in it.—6th. Recurrence of tearing pain in forearm. Some of the symptoms previously experienced occurred as late as the 15th July. (Prof. HOPPE's provings, *Mon. Vierteljahrst.*, xiii, 7.)

6. REIDHAAR, medical student, rather dyspeptic, tongue always white, subject to headaches and pains in stomach, but is on the whole in good health.—April 22nd. At bedtime C. 6, 1 dr.—23rd. On rising urging to stool, rumbling in bowels, eructation, almost inclination to vomit. At bedtime same dose.—24th, 1 p.m., roaring in ears. At bedtime same dose.—25th. Dry mouth, whitish-yellow tongue. E., C. 3, 1 dr. 26th, 27th, and 28th same dose. No symptoms.—29th. C. ϕ , 1 dr.—30th. The accustomed gastric symptoms m., also some

headache; soon after midday meal painful cutting above navel; afternoon after sitting pain in lumbar region and some transient pain in middle of l. sole, much flatus, burning head and red face; e., headache. 11 p.m., pain in back, pain in soft palate, a kind of burning accompanied by some inclination to cough. At bedtime 1 dr.—May 1st. Nocturnal emission, tongue furred, lips dry, toothache in l. upper maxilla after every meal. 8 a.m., inclination to vomit. 10.30 a.m., some shooting in back. 11.15 a.m., painful pressure under r. clavicle, shooting in sacrum. 1 p.m., a slight transient pain in l. temple followed by heat and pressure in forehead; constant eructation, tired and weak in knees. At n. 1 dr.—2nd. Tongue very furred, constant eructation. 9.30 a.m., trembling of legs and hands, vertigo, discomfort in stomach, transient stitches in outer side of r. thigh close to natis, fatigue, burning in forehead, general headache, vertigo on rising from seat, transient stitches in r. parietal bone, and in back. At n. 1 dr.—3rd. Last n. cough with irritation deep in trachea.—4th. White tongue, much flatus and constant eructation, vertigo, sour eructation and repeated pressure in stomach, burning heat in forehead, trembling of hands, weariness, drowsiness.—5th and 6th. Some of previous symptoms.—7th, 6 a.m., 5 dr. Some transient pain in stomach, eructations, discharge of flatus, and slight pain in abdomen, lastly transient pain above l. ear. Toothache whilst eating breakfast. After breakfast griping in bowels, flatus, and sour eructation. In afternoon some sacral pain, weariness of legs, profuse sweat on feet (to which he is subject), pain under l. clavicle.—8th. 10 dr., eructation and nausea. Afternoon, shooting in back.—9th. 15 dr., similar symptoms.—10th. 20 dr., eructation, shooting in r. scapula, r. side of head, l. temple and abdomen, with urging to stool, discharge of flatus. Afternoon, transient pain in r. shoulder-joint, pain in l. side of fauces when swallowing or pressing under l. angle of jaw, very hot hands, dorsal veins of hand much swollen, sweating on different parts of body.—11th. On bending r. knee shooting in its anterior surface. At noon tickling in soft palate. 1 p.m., pain in r. knee returned, also shooting in volar aspect of second phalanx of r. thumb. E., jerking shooting about r. scapula, shooting in both knees, pain in soft palate and fauces. Very tired.—12th. On rising weary, headachy; shooting in outer side of lower half of r. thigh on bending leg. Noon, transient shooting in anterior and superior half of l. chest. 2 p.m., pricking under ensiform cartilage and transient shooting in r. scapula.—13th. Noon, transient shooting in l. elbow-joint, in both wrists, in r. side of head and in forehead; shooting jerking in first joint of r. thumb, and pricking in r. side of chest near sternum. 6 p.m., burning hot face and ears, pressure with tongue on l. upper and lower canines and first l. molar causes pain.—14th. 20 dr., soon pain in abdomen, and later transient shooting through and across belly; after breakfast some pain in abdomen near both superior spinous processes of ilium, also some of previous symptoms.—15th. Nocturnal emission; m., shooting in outer side of r. knee, vertigo after stooping and cough. Afternoon, shooting in first joint of r. thumb, in l. thigh, in back, jerking shooting in l. occiput, shooting in l. ankle-joint and r. knee, much flatus, gripes, and toothache.—16th. 30 dr., shooting in r.

knee, in lower half of r. thigh, in r. side of belly, pain in hips, and toothache while eating.—17th. Besides some of above symptoms tensive pain in r. thigh as after exertion.—18th. 40 dr.; in addition to old symptoms, after dinner pain above pubes.—19th. 20 dr. (the last dose). No new symptoms, except that the feet became sore from walking.—20th. Shooting near scrob. cordis l. side, pain in l. temple, shooting in ball of l. hand and through middle of dorsal aspect of r. forearm.—21st. Twitching in l. pectoralis major, shooting at r. nipple, under r. axilla, in l. temple, in first joint of r. thumb, near r. side of sternum, and all through l. leg; pain on r. of scrob. cordis.—22nd. Pain in stomach. Noon, pain in r. side of top of head. Afternoon, repeated shooting on outer side of l. elbow between l. index and thumb on the dorsal aspect, headache and vertigo after sitting long at mental work. Gripping and shooting in belly all d. E., violent headache, pains in stomach, and general illness.—23rd. The symptoms from this time were trivial, mostly repetitions of previous symptoms, and undefined or shooting pains in different parts, as neck, nates, chest, back, arms, wrists, elbows, fingers, thighs, legs, feet, knees, ankles, such pains, in fact, as he was more or less subject to before proving the medicine. (*Ibid.*, 388.)

7. I have proved the 1st dil. sufficiently to learn its action on the liver. On a healthy person its effect is to produce motions like those of a healthy baby; it increases the secretion of healthy bile. (SHARP, *Monthly Mem. Rev.*, xx, 746.)

B. a. A man in good health took (April 28th) 5 dr. of tinct. at n. In $\frac{1}{4}$ h. rumbling in stomach. Next m. less free evacuation than usual; and this continued the same for 4 d. Afterwards, the colour darker than usual.

b. Same, May 14th, took 10 dr. at n. In $\frac{1}{4}$ h. rumbling at stomach. On 15th, m., stool as usual in quantity but rather darker. On 16th, no evacuation. On 17th, evacuation very small in quantity; slight indigestion during d. 18th.—Everything as usual. (*Ibid.*)

II. *Poisonings*.—1. A girl, æt. 19, drank some cupsful of strong chamomile tea. At n. terrible feeling of heat, with burning unquenchable thirst, dry tongue, stupefaction; in m. in bed eyes half open, downward directed, pupils somewhat dilated; drowsy and stupid, speaks unwillingly and curtly, in disjointed phrases; on the (lightly) covered parts burning heat, while those uncovered are almost cold; continual alternations of heat and cold in upper extremities, forehead cold while cheeks are hot; profuse sweat on covered parts; glittering before eyes, did not see where she was; blackness before eyes; giddiness when sitting upright, not when lying; weight and stupid feeling in head; short, noisy breathing; going to sleep of l. arm without having lain on it; when sitting up or turning in bed, tearing pains in forehead, with sensation as if a lump fell forwards; tension in knee, and up calves; immediately on throwing off bedclothes violent shuddering; general heat from 9—12 a.m., then profuse sweat. After 24 h., she sits stiffly on a chair like a statue, and seems to take no notice of anything about her; cannot be got to speak. In n. violent heat with sleeplessness from bruised feeling in limbs, of which she complains with

much ill-humour; face hot and cheeks red; draws short deep breath with great elevation of chest; must draw up legs on account of pain in calves and knees, when outstretched they go to sleep; red tongue; she sways her head forwards and backwards and contracts her brows. (STAFF, in Hahnemann's *Reine Arzneimittellehre*, 1st ed., vol. iii.)

2. A healthy, sensitive woman, of firm fibre, and half way through her pregnancy, took 5 dr. of volatile oil of C. for cramp in calf. The dose was much too strong for her. First there was loss of consciousness, the cramp increased, then occurred transient convulsions in limbs, eyelids, &c. A kind of hysterical movement about navel, not unlike after-pains, but more annoying, lasted for several d. (HAHNEMANN, *Lesser Writings*, p. 314.)

3. A female infant who from the birth had been dosed with chamomile tea. Great swelling and bluish redness of eyelids, first of l. then of r. eye, cannot open eyes. Conjunctiva of lids swollen and dark red. Inner surface of lids and eyeball covered with much yellow mucopus and bloody fluid. Pressing on eyelids causes blood and pus to exude between them. Discharge of pure blood several times during d. on crying or coughing. Dried matter in canthi and edges of lids. Conjunctiva scleroticæ inflamed. Discharge of dark blood from genitals for 8 d. (KNORKE, *A. h. Z.*, vi, 34.)

4. Two children plucked chamomile flowers and had vomiting of bile. (*Ibid.*, 35.)

5. In substance or strong infusion C. produces sense of warmth in the stomach, and, it is said, some acceleration of the pulse. In large doses it occasions nausea, vomiting, looseness of bowels, pain with fullness of head; and it is even said (by Giacomini) in certain idiosyncrasies to produce a sort of somnolent intoxication with general depression and exhaustion. (STILLÉ.)

III. *Experiments on animals*.—1. By far the most important physiological effect of C. oil is its power to lessen the reflex excitability. Bina first drew attention to this property of C. among several other essential oils, and Grisar has since worked out the research with special care and very important results. His experiments were conducted on the principle introduced into practical physiology by Terrik. This consists in suspending frogs with one limb immersed in dilute acid; the time which suffices so to irritate the limb as to cause it to be spasmodically withdrawn from the fluid is carefully marked by a metronome, and forms the rest of the degree of reflex excitability. The element of variation is got rid of by the preliminary adaptation of Galer's process—the division of the calvarial hemisphere by a knife passed through the skull from one posterior orbital sinus to the other. This reduces the frog to the condition of a perfect machine for testing reflex excitability. Frogs so prepared are exposed to the acid, their degree of reflex excitability is tested by metronome beats, and the C. or other ethereal oil is injected beneath the skin, after which successive observations are taken as the system becomes more and more impregnated with the drug. The result of experiments made in this way, and also with desiccated frogs, leaves no doubt that C. oil, even in doses that are not far from poisonous, reduces the reflex excitability of frogs in a very marked degree. But the most important fact evolved by the researches of Grisar was that reflex excitability which has been artificially excited by strychnia or hemia can be calmed again by C. oil; or rather, that an animal tormented with a dose of C. oil is not capable of being retained by a dose of strychnia which throws an unprotected frog of similar size into characteristic spasms. (PUGHANS, *op. cit.*)

CHELIDONIUM.

Chelidonium majus, Mill. Common Celandine. Nat. Ord., *Papaveraceæ*.

1. *Provingr.*—1. HAHNEMANN, *Mat. Med. Pura*, vol. iv of original, vol. i of translation. Contains 28 symptoms from self, 122 from 8 fellow-observers, and 6 from authors.

2. a. Twelve persons took extract, in doses of 2 gr.—*ʒiv* in d., and following phenomena were observed :

In digestive apparatus, sourish or saltish bitter taste; similar or purely bitter eructations; increased mucous and salivary secretion in mouth and fauces, amounting in one prover to actual pyalism; scratching and burning in mouth, gullet, and stomach; pressure on stomach; disgust, nausea, vomiting; furred tongue, pasty taste; generally increase, in one case only loss, of appetite; emission of flatus; increased (in one case only diminished) action of bowels. In vascular system—no symptoms. In nervous system—confusion of head; frontal headache; dimness and weakness of sight; desire for sleep; illusions of smell. Urine at one time increased, at another diminished; darker coloured; in two cases of resinous odour.

b. The tinct. was taken by 11 persons in 5—200 drop doses. The phenomena observed were:—spirituous bitter taste, increased secretion of mucus and saliva, warmth and burning from mouth to stomach; rare eructations; slight disgust; retarded evacuations; confusion and pain in head; slight vertigo; restless sleep and lively dreams; cloudiness and illusions of sight; ringing in ears; weariness and disinclination for exertion; urine generally darker, in two cases of resinous smell. In one person eruption of pimples broke out on face. (*Zeitsch. d. k. k. Gesell. d. Aerzte zu Wien*, Dec., 1844.)

3. SCHNELLER, one of the above, gives following details:—

a. Of extr. he began with 10 gr., increased daily by 10 gr., so that last dose was 100 gr. Took altogether 550 gr. Up to 60 gr. gastric symptoms predominated, viz.: disgust, eructations, rumbling in belly, oppression of stomach, white tongue, discharge of flatus from bowels, flying stitches in r. leg, and 3 h. after taking medicine a peculiar burning, with increased redness, of face. Whilst taking 70—100 gr., pimples and pustules appeared on face, especially in frontal and temporal regions; on cheek, ala nasi, and upper lip of l. side especially they came in groups of 3 or 4. 16 were present at same time; besides these there appeared a small boil about middle of r. under-jaw. As pustules on face dried up fresh ones appeared, which after leaving off medicine disappeared in a few d. Urine was increased and stools darker coloured; there was also slight confusion of head.

b. Of tinct. (prepared according to Hahnemann's formula) he commenced with 5 dr., increasing, for first 6 d., by 5 dr. daily, afterwards by 10, 20, and 30 dr., so that he took 140 dr. the last d., altogether 625 dr. While taking first 3 doses he noticed feeling of burning in gullet, empty eructations, some increase of mucus in fauces, increased heat of face, urine and faeces somewhat increased, sleep restless. During doses of 20—50 dr., burning and eructations increased, taste was insipid,

tongue furred white, secretion of mucus in hot mouth increased; in mucous membrane of lower lip a vesicle, filled with limpid serum, appeared, which, after bursting, grew flat and vanished; there was besides pressive frontal and occipital headache. Under the last doses of 70—140 dr. appeared drawing pains in muscles of chest and back, as also in teeth; also papular exanthema with red base on upper lip and r. cheek; disgust, eructation, fulness in abdomen; burning in urethra, frequent call to micturate, with increased secretion of pale clear urine; sleep restless. (*Ibid.*, 1846, ii, 405.)

4. Dr. TESTE proved 6th dil. on 4 persons, a globule being taken in m. for 2 or 3 d., afterwards more or less frequently.

a. Mr. A.—, æt. 37, nervous and irritable, subject to muscular pains, intestinal irritations, and leucophlegmasia; generally very sensitive to medicinal action. In 10 m. after 1st dose profuse emission of yellow and foaming urine, like beer. In $\frac{1}{2}$ h. dull, deep-seated pain in renal region. In 1 h. pain at r. shoulder, and sore-throat as from a cold; pressure on rectum and urging to stool (unusual at this time), with active appetite. In 3 h. itching of eyes, lachrymation in open air, and oppression of chest when walking. In 4 h. another emission of foaming urine; neuralgic pain at l. eyebrow; trembling of head and hands; tension in both iliac fossæ; itching at hips when walking, as if sweat would break out, though temperature is pretty cool. In 5 h. burning pain at tip of l. elbow; numbness of both hands. In 6 h. (2 p.m.) sort of general numbness, with somnolence, unconquerable aversion to movement, and confusion of ideas as if one were half asleep, without shuddering or increase of temperature of surface. These symptoms disappeared gradually about 3, nothing remaining but dull pain in lumbar region (which continues until n.), lachrymation as before, and (now and then) itching and slight smarting at uifice of urethra. In e. in bed, before falling asleep beating in both temples, sense as of strong determination of blood to throat and upper chest; a few dull beatings in these parts, followed by cutting pains in lower abdomen. and d., urine natural; several small thin stools, preceded by a few slight cutting pains; slight irritation of throat (not felt while swallowing), causing occasional small paroxysms of cough, with spasm of glottis during expiration; burning continuous pain at spot size of dollar to l. of sternum, two inches below clavicle. At 2 p.m. similar paroxysm to yesterday's, but not so long and intense as on 3rd d. In m. on waking, eyes swollen and agglutinated; slight rheumatic or contusive pain here and there in upper part of body, with a few red indolent pimples; towards midday, at seat of burning pain (which continues) a red spot appears; later, similar sensation at points of shoulders, trunk, and arms (very unpleasant, and continuing till end of proving); same drowsiness about 2 p.m.; two light-coloured stools; irritation and cough as yesterday; in e. in bed pressive stitch in r. temple, ceasing when lying on affected side, but immediately recurring on turning round, for $\frac{1}{2}$ h. 4th d., throat sore in m., velum feels elongated; cough as before; skin on chest and neck feels dry and as if bruised. About 1.30 p.m. dull and heavy deep-seated pain in whole r. chest and shoulder, without cough, but with embarrassed respiration; this pain, which is at times

accompanied with dull beatings in chest, does not allow him to draw a long breath, but is not perceptibly aggravated by motion of arm; it is particularly felt in axilla and under shoulder-blade; there is a sort of numbness of the muscles in r. hypochondrium and whole r. side of face, neck, and head; he apprehends pneumonia imminent, has great anxiety and constant restlessness. This painful state lasts 2 h., and decreases gradually, returning about 6.30, after a good dinner, which he relished, and commencing with vertigo. 6th d., slight paroxysm of dyspnoea about 2 p.m.; red rounded spots on palmar side of forearm, of size of half a franc, accompanied with burning pain; no stool; lachrymation in open air. 7th d., irritation of throat on waking; hollow and unfrequent cough; prostration; no appetite. Intolerable pain in heels as if these parts had been wounded by too narrow and too short shoes (this symptom had existed slightly for 3 or 4 d. previous); red indolent pimples, here and there, on thighs and buttocks; other cutaneous symptoms become more and more intolerable. At 1 p.m. chest again affected; deep-seated pain in r. side as from an abscess; pulsation under upper sternum, synchronous with pulse; respiration embarrassed as if the air passages were filled with a foreign substance; dry skin without any increase of heat; pulse 86; no cough; has less anxiety than d. before, but more prostration. Region of liver slightly painful to pressure. Painful numbness at r. hip and knee.

From this period experiment was carried on at intervals only, with very vague results, previous symptoms disappearing almost immediately.

b. Mrs. A— (No. 3 of Cedron, g. v.). 1st d., at 8 a.m., $\frac{1}{2}$ h. after 1st dose, vague pressive pain in r. shoulder; extremely profuse emission of whitish foaming urine. 8.30, dull, sometimes throbbing pain in loins; painful pressure, just below r. ankle, and same kind of pain in r. heel, rendering walking painful (it feels as if part had been bruised by tight and hard shoes, but no relief is given by taking off shoes). 11, sore-throat, as from taking cold; another emission of foaming urine. 2 p.m., for $\frac{1}{2}$ h., drowsiness so marked, even in open air, that she is near falling asleep while walking. 4.30, weight in forehead. 5, at dinner, unusual and marked aversion to cold things; she does not drink on this account. After dinner luxation pain in l. hip, which scarcely allows her to walk; pain in ankle becomes as from a sprain. About 8, while walking, pain in hip extends to knee, which is so painfully affected by it that whole joint feels as if dislocated. In e. in bed, slight oppression of chest; still some irritation, with occasional spasmodic feelings, in throat before falling asleep. 2nd d., sore-throat on waking; lassitude in extremities; white-coated tongue, not much appetite; slight drowsiness about 2 p.m.; a little oppression and loose cough about 6 p.m.; luxation pain in knee and foot continues; is peevish. 3rd d., sore-throat worse, with a little cough now and then; coated tongue, not much appetite; benumbing pain in whole r. side of chest; a red, flat, not very apparent spot between breasts, with burning itching. Some dyspnoea from r.30 to 2 p.m.; apathy the rest of d.; at dinner everything she eats seems to taste badly; n. less quiet; a little dry heat on skin. 4th d., sight of r. eye misty on waking; acute neuralgic pain

at r. temple (before dose). An unforeseen journey interrupted experiment.

c. Miss R—, æt. 10, blonde, sensitive to drugs when sick, after taking first doses perceived pungent heat on skin, pulse feverish, tongue coated white, vertigo on sitting up; rush of blood to head, throat, and upper chest; violent and slightly spasmodic cough; dull pulsations at base of r. lung and liver; pulse up to 90 in e.; sweat at n. Mother of child became frightened, and proving was discontinued.

d. Mrs. X—, æt. 32, blonde, not very sensitive to drugs. Experienced only following symptoms:—excessive and continued apathy, a sort of aversion to exercise, spirits remaining unaltered; neuralgic pain about r. eye, especially while reading by candle-light, also a sort of fluttering before this eye, scarcely permitting her to read; embarrassed breathing, especially while reading, without coughing; pulse more frequent than commonly; cool and dry skin. (TESTE, *Mat. Med.*, sub voce.)

5. NENNING.—“From the root” [no further information]. Vertigo, and immediately thereafter shuddering all over body, he loses consciousness for a moment, and feels as if he had been turning round and round ($1\frac{1}{2}$ h.); much itching about head and face; no distinctive or noteworthy symptoms elsewhere. (HARTLAUB and TRINKS, *Arznei-mittellehr.*, i and iii.)

6. Dr. LIENBECK took a teaspoonful of the pure juice. He only felt a little excited by it.—2 d. later he took another teaspoonful. This caused painful accumulation of flatulence about umbilical region, followed by slimy diarrhoea for 3 d. Thereafter was well, but for some weeks was so much affected by smoking tobacco, that he had to give it up. Although in the habit of smoking a couple of cigars or pipes per diem, it now brought on violent cardialgia at n., with burning pain and acidity from cardia up into throat. He had formerly suffered from similar cardialgia when he used to chew tobacco. He believed this sensitiveness to the action of tobacco after the C. was due to the irritated state of the m.m. of stomach and bowels caused by the diarrhoea. He afterwards made a proving of C.—May 19th, 7 a.m., 5 dr. einet. 10 a.m., pressure in stomach aggravated by external pressure for several h. 11 a.m. great quivering of r. upper eyelid.—21st, 7 a.m., 10 dr. 9 a.m., pressure of stomach commenced. 11 a.m., nausea and flow of saliva, severe stitches in pit of stomach. 1 p.m., a prick in l. nipple.—24th, 6 a.m., 20 dr. 7 a.m., contractive spasm in gullet, followed by nausea and salivation. 7.45 a.m., pressure in stomach as from a blunt instrument, increased by external pressure, at same time an obtuse pain like urging deep in bladder; urging to urinate constant, and cutting in urethra for 2 or 3 h., even after urinating. 8 a.m., drawing in cervical muscles and in dorsum of l. foot; the stomach-ache lasted several h.—28th, 7.30 a.m., 30 dr. Soon, nausea. 8 a.m., urging to urinate, lasting 2 h.; pressive pain in l. knee, l. leg and forehead; shooting in orifice of urethra. 8.30 a.m., much tumbling in abdomen; wandering pains in joints of lower extremities, especially the l., almost only when at rest, also in upper extremities, forehead, sides of nose and bones of superior maxilla.—June 3rd, 7.45 a.m., 50 d. No symptoms.—4th, 6 a.m., on rising violent cutting in stomach and umbilical region,

increased by pressure, for 2 h., nausea.—6th, 7 a.m., 100 dr. 9 a.m., pressure in sinciput and occiput. 9.30 a.m., great coldness in back for 5 m., also cold hands for 1 h. 10 a.m., soft stool. 3.30 p.m., stool after dinner, soft and bright coloured, with straining, followed by cutting in anus; severe shooting in larynx with constrictive sensation, flow of saliva and tears; dry cough. 11 p.m., soft stool.—7th, 6 a.m., on rising copious liquid, bright yellow stool with much mucus, no pain. 10 a.m., stool; pressive drawing in r. knee, especially when bending it, and in bones of l. side of face.—In the e. of 6th, when he stooped low, there was a compressive pain deep in chest towards vertebræ, very violent. The same pain occurred on 7th, when walking quickly, blowing nose, sneezing or stooping, but was more external along the spinous processes of thoracic vertebræ.—8th, 10 a.m., soft stool, later normal stool.—12th, 7 a.m., 150 dr. Nausea, much saliva; pressure in stomach, increasing later. 9 a.m., pressure and heaviness in forehead, also later occasionally. 9.15 a.m., obtuse pain on l. side under ribs, later on r. side, and more severe there, it comes and goes. 9.30 a.m., shooting in r. side of chest, about nipple, when sitting, not affected by breathing, without cough. 10 a.m., same pain on l. side; bruised pain in r. shoulder; stool normal, pain in forehead like what occurs from a very costive stool. 10.30 a.m., pain in r. shoulder very severe, worse when arm is at rest, lasted $\frac{1}{2}$ h. 11 a.m., shooting in orifice of urethra. 3 p.m., after dinner, soft greenish stool; cutting pain in rectum and higher. 4 p.m., pressure in r. ankle. Woke at n. from severe pressure in bone of r. upper maxilla.—17th, 7.30 a.m., 200 dr. 8.30 a.m., boring in bones of r. leg; heaviness in forehead; severe pressure on sternum, afterwards in l. index. Soft stool at 10 a.m. and 5 p.m. (*Allg. hom. Zeit.*, xlv, 26.)

7. Dr. BUCHMANN, æt. 43; sanguineo-nervous; very fair; powerful muscular system, with tendency to corpulence; appetite good. Fruit in every form causes slight acidity of stomach, especially after meals; so does light wine, as Rhenish and Moselle. Coffee only agrees well with plenty of cream and sugar; after acid food it causes flatulency. Anamnesis: catarrh and toothache after catching cold; excepting the eyes, all senses very acute; tendency to soft stools; spirituous drinks cause slight headache, weariness, ebullition of blood, yet are a necessity after bodily and mental exertion; no particular predisposition to any disease; approach of change of weather produces languor, indisposition to work, and low spirits.

e. 1861, Oct. 27th, 9 a.m., took 10 dr. of tinct. In 10 m. pain in l. meatus auditorius externus; ears as if stopped; drawing pain in upper and under l. molars; burning in mucous membrane of nose towards tip, as in coryza; drawing pain in l. leg from hip to foot; sensitive pain from upper part of l. pectoralis up to neck; stitch through l. upper jaw; pressive pain on l. side in ribs, and in nape muscles of l. side; then between ribs and hip-bone on l. When pain commences in a new place it ceases in the previous place. Itching of anus; sensation of heat in l. half of head, beginning from l. ear; drawing pain from l. shoulder down to 4th finger. In $\frac{1}{2}$ h. pain in ribs, r. and l., on bending thorax to that side; paralytic sensation in l. leg;

pricking pain in l. hip-joint; tearing pain over l. eye; burning in intestines on l., close to navel, and also in l. hypochondrium; lachrymation, repeated quivering and blinking of eyelids; pressure in hind part of r. temporal bone; drawing pain in l. shoulder-blade, and from thence to l. side of chest; feeling of cold in abdomen; burning and itching on a part of skin of hand that had been pierced by a thorn; tension in front of chest; pain between 6th and 7th ribs on r. side on moving chest towards opposite side; sudden strong inclination to urinate; burning pain in skin over l. corner of mouth. After dinner sufferings ceased. 3 p.m., pain again in l. side of chest; sensation of paralysis and cold in legs till e.—28th. After rising pain on outside of l. arm above elbow. 9.15 a.m., took 30 dr. In 5 m. drawing pain through teeth of upper jaw; pain above and behind r. ear; pressure on l. side of chest. 9.30, burning in eyelids; quivering and blinking of eyelids, with tears; pain on outer edge of l. shoulder-blade; tearing pain over l. eye. 10, sensation of stopping in ears; dull stitch through l. hypochondrium; frequent eructation of wind. 10.15, pain over l. ear; drawing through upper molars of that side; pain as if bruised in l. side of chest and l. hypochondrium, aggravated by movement; pain over l. eye. The pains are not violent, last only a short time, change their place, and return to the former places, till midday.

b. Nov. 5th, 9.30 a.m., took 90 dr. In 2 m. drawing pain through all teeth; intoxication, with vertigo; drawing in muscles of nape; pain in nasal cartilages; stiffness in neck; heaviness in head; rumbling in bowels; confusion in head, as if after spirituous liquor; constriction in throat; pressure on chest; inclination to cough, repeatedly; pain through both hypochondria, and in r. shoulder-blade. 9.45, burning pain about navel, in intestines, soon passing off; hands swollen through prominence of superficial veins; drawing pain through r. shin-bone to instep; blinking of eyelids; stitch through inner side of l. forearm; continued drawing through upper jaw and teeth; shivering; sleepiness. In writing, the letters run into each other and are more legible when further from eyes. 10.30, nausea; sudden call to urinate; burning in urethra, near glans; pain in temporal bone behind ear; pressive pain close under l. shoulder-blade, and in ribs of l. side, on moving. 11, the back, on moving, as if bruised; feet cold; undulating pain in l. side of chest; pricking pain through abdomen; paralytic feeling and heaviness of arms, as if weights were hung on them; pains in knees as if after a long walk; pricking and drawing pains in l. forefinger, and on under side of l. great toe, and lower extremity of l. ulna—the skin, on these parts, smarts as if burnt; uncomfortable feel all over; stiffness in neck; drawing pain through vertebral column forwards to chest and from thence to abdominal integuments as far as navel; cold shivering all over, frequently repeated, upon which confusion of head ceases, though pains in chest and spine continue; pain close over l. elbow; itching in terminal phalanx of r. middle finger at bend of joint; pain in r. knee-pan; helplessness of hand in writing; unusual hunger before meals; in walking, powerlessness of lower extremities, especially below knee; no suffering for a whole h. after dinner. 2 p.m., drawing pain in spermatic cords; pain at every

step under l. heel and under r. inner malleolus; pains in chest, nape, and spine, return as in forenoon, and last till e. 6, pressive pain in occiput, extending round to forehead; paralytic drawing in knees and legs; tensive and pressive pain in whole of back, aggravated by stooping, and extending round towards chest. 8.30, pricking pain in r. meatus externus; pressive pain on l. instep.—6th. Unusual awaking at 4 a.m. with slight twitching of muscles here and there; third and fourth fingers on each hand "asleep;" pressure in stomach with accumulation of wind; pain in back, as if after excessive muscular exertion, on turning in bed; pressure in upper eyelids; soon fell asleep, but in a short time awoke again, in a gentle perspiration all over; felt friction of upper eyelid on eyeball on moving both; itching of anus; chilliness; pressure on front of chest with difficulty of breathing. 8 a.m., great weariness and sleepiness on awaking; hands and feet cold; drawing pain through muscles of chest, quite to umbilical region, varying in intensity; pain close over l. elbow, then in r. shoulder, in l. side, and in r. forearm, drawing from one part to the other; feeling in muscles of neck as if neckcloth were tightly tied. On going into another room to fetch a book had to spend some m. in thinking what he had come for. No symptoms all d.; but 2 h. after supper pain in fore part of parietal bones. In thorax and extremities wandering pains as before. About 11 p.m., on going home, whilst making water, a sudden fit of asthma; can only breathe quickly and with exertion, as if he must choke with anguish; thereupon, nausea, alleviated by eructation. Difficulty of breathing continues still after going to bed.—7th. Immediately after midnight awoke with oppression of chest and short breathing; itching on l. instep; violent pain for $\frac{1}{2}$ m. in l. arm, extending down from shoulder to outside of it. In $\frac{1}{4}$ h. sound asleep till 4.45 a.m. Awoke with gentle perspiration all over; violent itching over scrotum; pain in head, as in c. before; drawing pain through upper teeth on l., in l. shoulder-blade, and through l. arm; chilliness; paralytic pain in thighs, close above knees; drawing pain through whole back. 8 a.m., four lax stools in quick succession, of ordinary colour; moist coryza for 2 h. with hawking of mucus; quite well all rest of d. Great inclination for wine; drinking it brings on neither determination of blood to the head nor headache, both which, at other times, followed from taking the same quantity.—8th. On waking in m., heaviness in head; dull headache in forehead all d.; stiffness in neck. 4 p.m., drawing pain in back, and tensive pain in sides of chest; drawing pain over navel; pain in r. shoulder; anguish and oppression of chest; difficulty of breathing; longing for fresh air, in order to breathe more easily; increased feel of heat over whole body. Pulse 90 (usually 60—65). Serious indisposition; heat in head; hand trembles in writing; feeling all over as in influenza (having once had it formerly). Towards evening gradual disappearance of symptoms, all except confusion of head.—9th, 4 a.m., on waking, gentle perspiration all over, with normal pulse; slight, merely tearing pain in head over l. eye, and in it; lids of each eye agglutinated with dry mucus, and can only be opened by a strong effort; pain like a wound in last lumbar vertebra, as if dislocated or broken; stomach-ache for 20 h., with

eructation of air, relieved by lying on l. side with legs drawn up (this symptom has shown itself before, after eating shortly before bedtime); tonic cramp in flexors of fingers, the closed hand can only be opened with difficulty, whereupon no more cramp occurs; immediately on awaking, frequent stretching and yawning, with pain in fauces, as in catarrh; frequent dry cough. Sound sleep from 5.30 to 8. At breakfast a remarkably yellow tinge of face was observed, especially on forehead, nose, and cheeks. Looked in face like a jaundiced person, white of eye being dingy yellow; red of the cheeks has dark tinge from mixture of yellow; stool thin, pappy, bright yellow, as in infants. Quite well all d. except some pain in r. testicle.—10th. At 4.30 a.m., on awaking, gentle perspiration all over; pains in the lowest lumbar vertebra; pressive stomach-ache, relieved by eructation, for 1 h.; then yawning and stretchings, with cessation of pain after discharge of flatus. Slept till about 8. Yellow colour of face is only slightly perceptible. 6 p.m., pressive headache all over; drawing pain in occiput, through r. upper molars, and through two middle incisors of lower jaw, over l. eye, and in r. fourth finger; stitches in l. side towards shoulder-blade; tensive pain in whole thorax; pain in r. hip on rising from seat; the toothache extends high up into r. temple; drawing pain in l. middle finger, and in front of chest towards abdomen down to navel; all d. long itching in inner canthus of l. eye. Stool pappy, bright yellow.—11th. Awoke as usual about 7. Skin less moist; shivering; drawing pain in testicles and spermatic cords; pressure in abdomen close over pubes; tension and pressure in perinæum; pressure in eyeballs, and burning in lids; drawing pain on inside of r. tendo Achillis. After rising, drawing pain through abdomen and l. forearm; pressure in nape. In writing, the letters run into each other. Pain on outer side of l. wrist. No more suffering after 9 a.m. Colour of face normal; stool bright yellow, pappy.—12th. On rising, about 4.30 a.m., skin somewhat moist; drawing, pressive, tensive pain in testicles and cords, with pressive pain in occiput for $\frac{1}{2}$ h.; then, drawing pain in under part of rectus femoris, and from there to knee, especially in knee-pan, upon which it gradually ceases; eyelids heavy, perceptible friction of the lids with the eyeballs on opening them. At 8 a.m. pappy dark-brown stool.—13th—17th. No symptoms.

All this time, inclination for wine and dislike to cheese. During the proving he was obliged to make a heartier breakfast, to avoid the sensation of exhaustion and craving hunger, which otherwise came on. Spirits from 13th to 17th lively.

c. Change of weather on 17th brought back some of the symptoms, but by 20th they had again disappeared. Dec. 3rd, 10 p.m., took 2 dr. of tinct. in water. In 5 m. burning in l. nostril; drawing pain in l. upper incisors, and from thence to l. upper and lower molars; drawing pain in r. lower extremity, through l. leg, on the inner side of r. thigh, and in whole of back; scitch in tip of tongue on l.; sensation as if skin of the forehead was contracted over l. eye; burning on that part; on rubbing it, sensation as if one were pressing a spot which had been violently bruised the d. before; sensation in throat as if it were compressed; short fit of coughing; swollen feel of l. hand, sen-

sation of heat on its back, veins of both hands prominent; l. hand feels heavier on lifting it; drawing through l. side of occiput. In bed, drawing pain behind and above r. ear.—4th. Slept well. Much flatus at usual stool in m.; stool of brighter colour than usual; tormenting pricking itching of small spot of skin on outside of l. arm, close over wrist. 10 a.m., took two spoonfuls of a solution of 10 dr. of tinct. in a glass of water. Drawing pain on outer edge of l. shoulder-blade; frequent yawning. Spirits lively. More exact observations were interrupted by journey into country. One h. after dinner, great sleepiness. Pressure on under side of glans and orifice of urethra. On awaking from a *siesta* of 2 h. (at other times only $\frac{1}{2}$ h.), dryness of throat, remarked on accidental empty swallowing, which disappeared after one deglutition; drawing in lower extremities; pressure on occiput. In e., drawing in back, and in front in lower half of thorax, with difficulty of breathing, and pressure in throat as if it were compressed; pain in patellæ on walking. About 12, just before bedtime, 3 dr. of tinct. Weariness disappears again, so that he spent $\frac{1}{2}$ h. longer reading in bed without being tired, although what he reads does not much interest him. In $\frac{1}{2}$ h. after dose, painful and tormenting sensation in glans, similar to what he had felt after strong erections; burning in orifice of urethra for $\frac{1}{2}$ h., followed by discharge of a drop of fluid. In m., pain in deltoid and biceps of l. arm on moving it, so that he cannot put coat on without help; distraction of thoughts, so that he forgets to pull on drawers, and in shaving rises from chair before lips and chin are shaven. Pain in arm all d.—5th. At 8 p.m. took 5 dr. in water. In 10 m. confusion of head; piercing pain over l. eye, in l. molars; burning in intestines around navel; (laziness, indisposition to labour); burning in l. upper eyelid. In writing, letters seem less distinct, as if lamp did not burn bright enough; (inclination to lie down). (The bracketed symptoms occur also when the weather is about to change.) The same sensitiveness in glans and urethra as the d. before, but not so much. At n. frequent sudden starting out of sleep, with violent pains in l. upper molars; teeth seem too long, the pain is aggravated by chewing; nostrils surprisingly dry, as if stopped up; eyelids can only be opened with difficulty, as if they were swollen, and smart when this is attempted, as if sand were in them; burning in l. upper lid; nausea; cutting in intestines. On again waking, pressure on chest and constriction, he cannot draw in enough of breath at each inspiration, and therefore soon expels the air to inspire more; a few very deep inspirations relieve this distress. Towards m. gentle perspiration all over; pains in l. side, drawing from thence to back, aggravated by movement.—6th. Pain in last two upper l. molars which prevents chewing all d. (the anterior tooth being sound); drawing pains here and there in l. side and back. The pains in l. arm gone.—7th. Toothache in same molars all d., also at n., waking him out of sleep. Does not know whether pain is in upper or lower jaw; only the two upper teeth painful to touch.—8th. Just as 7th.—9th. The two teeth are only sensitive when touched. 10th.—At 12 p.m., 5 dr., shortly before bedtime. Before going to sleep, sensation of warmth all over body, with oppression; drawing through upper

incisors. Restless sleep, frequently awaking, when he had dreams of various symptoms, of which he had no recollection in m.—11th. On awaking, burning itching in eyelids; gentle perspiration all over; stoppage of l. nostril; drawing in back; weariness.—12th. At 10 a.m. 10 dr. In $1\frac{1}{2}$ h. drawing pain in teeth; burning in nostrils; drawing pain through hypogastrium; cutting pain through epigastrium; nausea, diminished by eructation; pinching in intestines as sometimes before stool; spirits lively; increased briskness; pressure on eyelids on awaking in n.; paralytic symptoms in limbs, especially in legs; drawing pain in l. forearm and on back of hand; pressure and tension in perinæum.—13th. Drawing in back, and on outer edge of l. shoulder-blade; tension and pressure in perinæum; drawing in nape; coldness in legs.

d. March 13th, 1862, 10 a.m., chewed small leaf of vernal shoot and swallowed juice. It coloured saliva sulphur-yellow; taste disagreeable, rather sweetish bitter, much more acrid than leaves of plant when flowering, with slightly acid after-taste; burning in whole cavity of mouth, as if after Cayenne pepper; burning of lips, most of all on tip of tongue, with feeling of heat in mouth; burning down œsophagus quite into stomach. In 20 m. sensation of swelling in larynx, with pressure on it and trachea; nausea; sense of fulness in abdomen; grumbling in intestines; vertigo and reeling. In $\frac{1}{2}$ h. unusual urging to urinate; clonic spasms in eyelids; on trying to keep them open they are forcibly closed; loss of power in walking; pressive pain in middle of r. rectus femoris; hot feel in teeth; oppressed respiration; after dinner weariness, and sound sleep $\frac{1}{2}$ h. In afternoon till 4, great weariness and indisposition to exertion; about 5 a very hot cup of coffee was taken eagerly, when the high temperature of the beverage was beneficial; pressive pain over l. eye; burning in l. eyelids till bedtime; pressive, drawing pains in l. side of occiput, and also over mastoid process of same side; periodic pricking pain in l. parietal bone; paralytic pain in l. shoulder and whole of arm; stiffness in back and between shoulders; drawing pain in l. forefinger; frequent fits of coughing; sense of stoppage in ears, with singing in them; burning pain on cheeks near ears; cutting in intestines close over navel; frequent yawning. Just before bedtime itching burning close under pit of throat. In n. awakened by his wife, who was disturbed by his loud-toned, rapid, whistling respiration; had just dreamt that he had escaped in a deathhouse from a naked corpse, who sprang from the bench and seized him with his hands by the neck to throttle him; though he was not wont to dream at other times, nor had anything happened which could excite such a dream. Besides, he could not remember that in the dream he had suffered any anguish. After awaking, sensation as if trachea and larynx were narrowed by swelling, with tickling in larynx and short, dry cough; difficulty of breathing, with great calmness of mind; slight shivering; sourish taste in gullet, as if after chewing liquorice or dulcamara; perspiration, especially in palms of hands; frequent discharge of flatus; sensation as if eyelids were swollen, with sand in them. In m. itching on small spot in middle of forehead; red, inflamed, elevated spot there, with central

tubercle, as when a small boil is forming; in a few h. it disappeared.

r. 14th, 10 a.m., chewed a bit of peeled root, having just previously chewed a little leaf. The root, of the colour of carrot, had also at first a carrot taste; soon after very bitter, much bitterer than the plant; and afterwards, like the plant, acid. Symptoms of mouth were the same as the d. before, to which was added painful drawing in teeth. In $\frac{1}{2}$ h., on fetching a deep breath, painful tension all around on inner side of thorax at its base. Some m. after, stitches, first in l., then in r. of thorax; eructation; fit of coughing. 2 p.m., drawing pressure in back spreading to sides of chest, in l. molars, l. temporal and l. parietal bone; sensation of heat in l. side of head, l. cheek, and r. meatus auditorius.

f. 24th.—Took 5 dr. of fresh tinct. at 10 a.m. It burns more on tongue than that prepared in flowering time; directly after, nausea, and sense of emptiness in stomach, as in bulimia; obliged to eat white bread to remove nausea; anguish and oppression; sense of heat all over; griping in intestines above navel; drawing in teeth; stitch in l. parietal bone; feeling of determination of blood towards chest; giddiness in head. In $\frac{1}{2}$ h. cold feel on inside of r. calf in skin, extending to hough, as if these parts were stripped of clothing; cold feel in toes; sensation of heat and swelling in hands; prominence of superficial veins of hands; feeling of stiffness in nape. Burning on tongue has ceased, and instead of it sensation is as if one had tasted vinegar some time before. In $\frac{1}{2}$ h. burning in l. cheek with sensation of heat there; drawing in back and sensation of heat in intestines below navel; feeling of heat in l. eye, and pricking in inner canthus; cold feeling in knees; nausea rising up from stomach commenced again; pricking on l. cheek; itching in anus; burning itching on r. cheek, near ear; sensation of heat in stomach; coldness of legs; sense of stiffness in l. knee with burning in joint; severe fit of coughing without expectoration; collection of water in the mouth; pricking in l. side of lower lip repeatedly; pricking in orifice of urethra; pressure in occiput; hollow feel in stomach; burning of skin in temple towards l. eye; pressure in root of nose; itching on scrotum, and then in concha of r. ear.

g. April 6th.—In order to ascertain the effects of the plant when further developed, I chewed bits of leaves from plants in different habitats. The stem was beginning to grow. In regard to the taste, the following facts were established: 1. The young leaves taste more acid than the older. 2. The plants in moist hedges have hardly any acidity, even when exposed to the sun. 3. The plants on the sunny side of a high wall immediately after chewing (at 10 a.m.) cause burning in the tongue, nausea, and a scraping sensation in the throat; upon occurrence of which I spat out chewed leaf. In 5 m. determination of blood to head; sense of empty hollowness in stomach, like that in bulimia, with exhaustion of strength in walking; oppression of chest and difficult respiration; stitch in l. kidney on taking deep breath; pain in l. shoulder-blade on lower angle, and in l. shoulder; stitch in l. hypochondrium; collection of water in mouth; sensitive pain in scrobiculus cordis on deep inspiration. In $\frac{1}{2}$ h. tearing in forehead over r.

eye; fit of coughing without expectoration and without any provocation; sense of heat in bronchial tubes; eructation; burning in upper lip; pain on inner side of r. knee; itching of anus. In $\frac{1}{4}$ h. after, all sufferings ceased.

h. 8th, 9 a.m., took about 1 dr. of milk flowing from plucked leaf-stalk of a strong plant on tongue. It caused burning corroding sensation on tongue, followed by nausea and sense of fulness in abdomen. In 5 m. sense of heat in teeth; pressure like that of a ribbon on forehead and temporal region, and anterior lobes of brain, inside cranium; stitch in border of ribs on l. in cardiac region; violent itching on back of r. hand near joint of 3rd finger; fit of coughing without expectoration or previous provocation. In $\frac{1}{4}$ h. itching pricking sensation in inner canthus of l. eye; transient tearing over l. eyebrow, and then over r. in a diagonal direction; pricking pain in l. meatus auditorius; pressure in occiput with drawing pain in occipital muscles on l. side towards nape; pressure in larynx; slight pricking in tonsils during empty swallowing; pain in spine between shoulders; weight and pressure in brain; eructation. In an h. after experiment no symptoms remained.

i. In afternoon I tried experiments with external application. Fresh juice streaked on hand had no effect, except yellow stains very difficult to remove; nor rubbing in tincture on hand. Upon this I rubbed 5 dr. of freshly-prepared tincture into each eye. This caused no sensation in lids. The tincture that was put between lids into eye caused burning in eye, especially in caruncula lachrymalis, and sense of heat in eye. In 1 m. these sensations ceased, and in their stead commenced feeling of freshness and coolness in eye. In $\frac{1}{4}$ h. I washed the yellow-stained lids (so the fears about the caustic effects on the eyes are unfounded). The soap used for this purpose caused slight burning of outer skin of eyelids. In $\frac{1}{4}$ h. pressure on forehead and transient tearing over r. eye; pain in 3 l. upper back teeth on chewing, and pressure also of gum on that side; pressure between shoulder-blades in spine.—9th. Pain in teeth as on previous d.; towards e. continued pains in them without being touched. A leaf bruised and laid on suffering teeth removed pains for $\frac{1}{4}$ h., after which they became very violent till bedtime, and extended to l. ear; cold water in mouth relieved them.—10th. Pain in said teeth on pressure all d. On awaking pressive pain in l. upper eyelid; conjunctiva of lower eyelid is much reddened. Heaviness and drowsiness all d.—11th. Awoke with extraordinary perspiration and no cessation of pain in teeth; tongue coated yellow. (Previously, when suffering from a cold, or, more rarely, from toothache in consequence of a cold, I used to get rid of it when perspiration commenced. Therefore, in this case, I considered perspiration as well as toothache as medicinal symptoms, which, from the quickly repeated action in various ways on the 8th and 9th, were more continuous than I had intended. Besides, nothing had preceded to account for the pains in teeth, which, moreover, had constantly occurred during previous provings.) Towards e. tooth pains grew more violent (air had cooled and an icy north-wester was blowing); gums very painful to touch in l. upper jaw; frequent

unusual erections; weariness all d.; perspiration immediately on lying down. Awoke about midnight with violent pains in l. upper jaw and corresponding molar, drawing to l. ear and eye. Because pains hindered sleep, I got up and read till 2, when drowsiness came on and quiet sleep till about 7.—12th, 7 a.m., awoke with toothache (weather as yesterday e.; thermometer at 6° Cent.; the wind brought some flakes of snow). Tongue thickly coated yellow, with red edges, on which pressure of teeth leaves visible marks; l. half of face burns, and is reddened, swollen, and tense, as in erysipelas, also l. ear. The redness ceased $\frac{1}{2}$ h. after rising. Drawing pain in l. upper jaw, nostril, eye, ear, temple, half of nape, shoulder-blade, and ankle; cold feel in feet, especially l.; collection of water in mouth; l. upper gum and half of hard palate swollen and red; weariness and drowsiness; pain in palate and gum is aggravated by every movement of mouth; pain in l. side of throat on swallowing; stiff neck, l. side; much thirst; drawing in thorax; no stool as usual soon after rising; small pustules with red border on neck, shoulder, and head, *all on l.*; appetite unaltered; some sleep after dinner. Awoke with confusion and heat of head; every movement of mouth makes pain in the teeth more violent; mouth always full of stringy mucus; pain on swallowing is less remarkable, but violent on l. side of palate from pressure of tongue during deglutition; tongue still thickly coated yellow; pulse all d. about 100; urine not altered in quality, passed frequently from drinking much water; no stool; tightness of chest, as if compressed by a cuirass; pain in l. hollow of knee; outside of neck on l. and l. cheek swollen and painful on pressure; l. ear as if stopped; great languor and feebleness, so that a walk in country had to be given up. Pain in jaw and mouth only permits speaking in a low voice; tongue cannot be fully extruded, nor mouth opened as wide as usual. Looked ill; shivering after drinking water; eyelids fall when writing; shivering chill for some m. on lying down in e.—13th. General perspiration; tongue not very thickly coated, more white than yellow. On l. side of hard palate, near furthest molar, a whitish coloured tumour of size of bean, out of which, after puncture with lancet, some thick, yellow, inodorous and tasteless matter issued; pains in teeth, jaws, and palate, milder than yesterday; swelling on the neck diminished; stool not till afternoon, very dark brown, consistence normal. At stool anus as if swollen, with pain like a wound in it afterwards.—14th. Drawing in spermatic cords and testicles; swelling of neck and cheek gone; drawing pain in upper jaw towards l. eye and ear; teeth still a little painful on pressure, also palate when touched with the tongue.

8. Mad. B.—, æt. 32; choleric-nervous; hair dark brown; weak muscles, tendency to leanness; can only eat a little at a time, dislikes water and fruit, can only drink water when very thirsty, indigestible food causes acidity of stomach and loss of appetite, wine and old beer agree with her; skin dry, very little inclined to perspire. Till puberty, scrofulous swelling of nose and upper lip, afterwards migraine and spasms of stomach. Shortly before menstruation frequent swelling of abdomen and pain in sacrum; had six living children. Cough from taking cold; internal organs healthy; in perfect health at time of

proving; mind acute with fine perception; highly sensitive to medicine, even much diluted.

a. Oct. 28th, 1867, 10 a.m., took 30 dr. of tinct. In 10 m. unpleasant heat in pit of stomach; jerking of fingers of l. hand; jerking in eyelids; sensation of constriction in muscles of nape, as if head were drawn back. In 20 m. weight in back of head; humming in ears, which seem as if stopped; burning in eyes; dryness and sense of constriction in throat, forcing her to swallow; difficulty of swallowing; eructation of air; hiccup; cramp in fingers of l. hand; often obliged to pass water. In nose sensation as if cold air were streaming through to throat on inspiration. In 2 h. had to pass water 6 times in quick succession, in small quantity; tearing pains in teeth of l. lower jaw, increased by chewing; obliged to take deep breath for 5 m. together; difficulty of breathing; pain in knee-joints. She cannot extend l. leg without violent pain in knee; pain like a wound in knee-joints, increased by pressure; feels as if temples were compressed. 7 p.m., tightness of chest; pain in l. knee; sensation as if l. hand were swollen, benumbed (without feeling) and paralysed, as if she could not bend it; amelioration by rubbing it; several times dry short cough; burning and redness of l. cheek; feet as if paralysed; pricking like needles under l. heel; burning in l. leg; weight and tension of muscles of nape and occiput have gradually ceased; articular surfaces of knee-joint painful on moving, as if injured. About 11 p.m. knee pains cease, but violent pains in occiput set in, with dull pressure and weight; on lying down, she cannot raise her head, but has to lift it with her hands; occiput painful on feeling it, as if it were broken loose from the rest of the cranium; sensation as if head on being raised fell forwards, whilst occiput lay still, held fast by nape; same sensation on awakening frequently in a.; otherwise, as if benumbed.—29th, a.m., feeling like a wound on under surface of l. knee-joint; in walking, she must put out l. leg at full length, and, after bending knee, is obliged to extend it slowly, lest the movement should excite violent wound-like pain in joint. Sudden cessation of pains 24 h. after dose.—31st. Menstruation commenced 2 d. too soon; increased, but without any suffering.

b. Nov. 5th, 9.30 a.m., took 90 dr. In 10 m. pain in occiput more violent than in first proving; pains in eyes, as if lids were forcibly pressed down; short and difficult breathing, with oppression and anguish in chest; breath hot; mouth and lips dried. In $\frac{1}{2}$ h. twice obliged to pass water, with cramp-like pains in urethra; bruised feel in legs; stumbling gait; shivering; unusual sense of hunger; sudden pricking in l. eye, with feeling as if it were torn out, 5 times in succession; feel in l. lower teeth as if they were all loose, shaky, and too long. At noon, restlessness and agony of conscience as if she had committed a great crime and must run away, and yet could find no rest; trembling all over body; glowing heat all over head; both cheeks with well-defined patch of dark red; thirst; pulse full, 90; nausea, as if fainting; can only get into bed tottering; violent pulsation in arteries, with violent pains all over head, from ear to ear, with dread of light; speaking becomes difficult; all limbs as if bruised; heat in face lasts $\frac{1}{2}$ h.; feet icy cold; cold shuddering, as if drenched with cold

water; during rigor, short quick breathing; legs as if paralysed and dead; violent pain in all teeth in speaking, and in both jaws; frequent yawning; nausea on attempting to take broth for dinner, she can get nothing down; frequent dry short cough; provocation to cough in the larynx; frequent stitches and jumping pains in l. temple; looks ill and suffering; pale sunken face; on closing eyes, whereby pain in head is somewhat alleviated, singing and ringing in ears; believes she cannot think, and has lost her intellect. A fit of anguish, with nausea and retching, about 3 p.m.; during anguish bright glittering specks before eyes; she cannot clearly distinguish any object; she gets up. About 4 p.m., the tearing pains in head transversely crossing crown become intolerable, forcing tears; from walking she is so faint as to be obliged to go to bed again; she raises herself in agony, and tears clothes from her neck and chest; vomits some mucus, without relief from headache, and thinks she must die; faints for a long time; extremities feel cold; pulse and beating of heart imperceptible; rubbing soles of feet restores consciousness, but she declares she does not feel the rubbing; continuance of rubbing relieves headache; she says it is as if all her intestines were torn out of abdomen, producing loss of senses; attack of violent pain in sternum at each inspiration; cold all over body; in spite of warmed covering cannot get warm in bed; pulse 50, the intervals not quite uniform. About 7.30 able to leave bed; head less painful; from time to time tearing in l. eye and temple; can eat some bread and butter; feels very languid and drowsy, and cannot move at all; wishes room to be quite hot, heat is a comfort to her; twitching in arms and legs and head on moving arm; pain like a bruise in sacrum on moving. About 8.30 p.m. pressure on pit of stomach; frequent waking at n.; cannot think aright on any subject; pains in occiput; incoherent dreams; awaking with short cough.—6th. In m. weight in head, and, on moving, pain in lumbar vertebrae as if they were crushed. No symptoms then till 5; inclination for acids; pulse 90. About 5 pains in the lumbar vertebrae become more violent, and extend forwards to chest; trembling all over; anguish, restlessness, oppression of chest; clothes feel too tight on chest; glowing heat in face; burning in cheeks, which are coloured with dark red patches; dryness of mouth and throat; thirst; cannot take deep breath for pains in front of chest; at each inspiration pain inside chest, with short dry cough, which increases pains, and troubles her at short intervals; violent pain at every breath all round lower angle of shoulder-blades. She is obliged to sit upright, and durst not move, because it makes pain in chest intolerable; is obliged to breathe short and quick to enable her to endure chest and back pains in any measure; heat and anguish till 7; chest pains increase in violence till 9, after which they cease. She could take nothing at supper-time but water. About 11 a little more appetite again. All through n. awoke often from short cough, with pains in back, and strong itching in occiput.—7th. No symptoms till 2 p.m.; then pains in back and sacrum; 4 stools in $\frac{1}{2}$ h., pappy, with some pains in intestines. From 3 to 4 violent pains around navel; pains again in chest on inspiration, aggravated by movement; spasmodic pains close over pubes, with frequent urging to pass water;

pain across above navel, as if abdomen were constricted with a string, till 6.—8th. Sound sleep all night; cannot rouse herself properly; inclination for vinegar and sour food; vinegar tastes less sour; pain in r. shoulder all day, worse when moving. 9 p.m., on getting her clothes ready for the wash, attack of faintness, with feeling of anguish in chest, trembling, and short cough; is obliged to go to bed, and soon falls asleep.—9th, 8 a.m., continual pain in r. shoulder, more violent than yesterday; fits of anguish in e., with feeling as if perspiration were breaking out on forehead; felt quite well in open air.—10th. From 8 a.m. to 2 p.m., drawing pain in the occiput, with anguish in chest, through which appetite is gone at dinner-time, with tendency to weeping; pains in l. shoulder-blade and sacrum whole d. At n., frequent awaking from toothache in l. upper jaw.—11th. Since the proving she has never been able to recollect in m. what she has dreamt; often awoke in n. from toothache; hair comes off in quantities from occiput by combing.—12th. Lower lumbar vertebra and shoulder-blades painful under pressure; pustules on r. cheek like chicken-pox; toothache in n. as last n.—17th. Every night till to-day, toothache; daily loss of hair from occiput; hair over r. ear matted for breadth of 4 fingers; hair drier than usual; pustules on bosom; pain in sacrum and headache in occiput, from morn till noon. About 3, dull pain in both jaws on l. side, extending up towards eye close to nose, and even to temple; throbbing pain there; close to nose throbbing as when a gumboil is going to form (she once had a gumboil on this spot); pain is increased by touching l. side of face. From 6 to 8 above-mentioned pain increases to great violence (chilly weather commences with mid-day breeze); this pain is relieved by magnetic pass with hand; continued chills; often awakening in n. from these severe pains; sound sleep from 5 a.m.—18th. About 2 p.m., pressive pain in region of liver, on edge of ribs; pressure of clothes there causes severe pains; much eructation; coffee distasteful to her. About 5, same pains in teeth as yesterday; they feel too long; painful spot on cheek appears to her swollen and gathering, though no swelling is perceptible; pains in knee-joints, calves, and lower part of thigh, till 9; calves are painful when grasped; she cannot advance her legs to walk without fatigue, and often knuckles at the knee.—19th. She awoke with strong coryza; as she sometimes suffers in this way, it may easily be due to other influences, so that the subsequent symptoms have no longer any value. She has grown thinner during the proving.

r. Dec. 3rd, 10 p.m., took 2 dr. of tinct. in half a glass of water. In 10 m. pricking pain in region of larynx, with sensation as if neck were swollen externally in region of larynx; stitches in quick succession through larynx, externally and internally in throat; sensation as if air could not pass owing to swelling of larynx; dryness in throat; the throat seems constricted; eructation. In 5 m. more, the sudden pain in throat better; copious discharge of water by drops from l. nostril (less from r.), with burning of outer edge; in 3 h. pain in region of liver, quickly spreading downwards transversely above navel through intestines; she feels as if on this place abdomen was constricted by a cord; in bed, much flatus.—4th. Slept well; urine in m. turbid

directly after passing; stool more lax than usual; less appetite for breakfast. About 9 a.m., two spoonfuls of mixture of ʒ dr. in half a glass of water. In 5 m. pain in l. shoulder, extending down to deltoid. In ¼ h. pain in lower part of thoracic wall on r., reaching to side, a hand's breadth in extent, aggravated by each inspiration; sudden call to pass urine twice in quick succession. In ¼ h. pains of chest increasing; pressed to pass water every ¼ h.—five times in 1 ¼ h. 17 a.m., took a tablespoonful. In 10 m. pain in r. knee-joint, aggravated by movement. At 2 p.m., two dr. at once in water. In 10 m. pains over navel in intestines, with constriction across; oppression in chest; want of breath; pressure in front of stomach; pain, like a bruise, from r. shoulder-blade down back; pain in last lumbar vertebra, as if broken; tensive pain in forehead, as if from band over eyes; pressure and pain in eyes, as if they were squeezed in, on upper part of eyeball, more in l. than r.; she keeps her eyes closed, because of the relief it affords them; sudden severe anguish with palpitation of heart; heart's beats not more frequent nor irregular, but so intensified that clothes are lifted by movement communicated to thorax, and she hears beating of heart so plain that she fancies others must hear it, for 5 m.; pain in inguinal region which prevents her from walking, about 4 o'clock. Several times persistent stitches for some m. on r. side of thorax, which compel short breathing, and are intolerable when deeper breathing is attempted; great cold in face; cheeks pale and feel quite cold for 2 h.; pulse generally 70, now 50; stool loose, bright yellow; great weakness; frequent yawning; languor and prostration all over body; total loss of appetite. Slept from 7 till 9 sitting on a sofa; cessation of headache on awaking; pressure on stomach; oppression of chest; in nape and shoulder-blades sensation as if bones were torn out of their place; cold feeling all over without diminution of temperature; frequent eructation, whereby stomach is somewhat relieved; taste somewhat bitter; continued dry cough in two fits in quick succession; when coughing, pains in chest and sacrum; pain in larynx; pain in r. knee as if broken. At n. on awaking often confusion, and heaviness in occiput; if she wishes to sit upright, occiput seems to be fastened on pillow.—5th. After getting up muddled and beclouded; pain in the sacrum on moving. About 5 p.m., confusion of head and vertigo; nausea, as if she must vomit; palpitation of the heart, as yesterday, with anguish for some m., but not so violent; total loss of appetite; eructation, relieving nausea; frequent yawning; pain in occiput with sensation as if head were drawn backward. Since the proving she has become strikingly thinner.

d. 6th.—At 10 a.m. 6th dil., 20 globules at once. In ¼ h. after pressure on bladder 3 times in ¼ h., with discharge each time; eructation; frequent yawning; pain in last lumbar vertebra, alternately with pain in shoulder-blades, aggravated by movement; loss of appetite; pains in inguinal region, hindering walking. From 1.30 to 2.30 burning heat in l. cheek; small circumscribed spot on l. cheek, which in ¼ h. attained size of crown-piece, circular, dark red, and somewhat raised; eructation all d.; great languor. 8 p.m., pains in the last lumbar vertebra; she cannot sit straight up, as if she had no strength in sacrum; slight pain in sacrum on bending upper part of body forwards;

stool twice, pappy.—7th. In n. on awaking, she can with difficulty raise her head from weight in occiput; pains in first cervical vertebra, aggravated by moving head, and by pressure. She has eaten scarcely anything for some d.; boiled food is very disagreeable to her. Pain in neck continued till 2 p.m. In m. after rising, burning in eyelids and pressive pain in eyeballs, as if they were squeezed into head, worse on l. side; redness and swelling of lower eyelids, and also redness of conjunctiva of lower lid. In forenoon she took nothing, at noon only two spoonfuls of soup; tongue clean; eructation all d. 2 p.m., when pains in neck ceased, a red, hot, circular, somewhat prominent spot, as yesterday, on l. cheek, lasting 2 h. In e. violent pressive pains in l. eye, in middle of ball, as if it were so large that upper eyelid could not be closed over it, alleviated by closing eyes; conjunctiva of lower lid is reddened; frequent weeping; lamplight aggravates pains; failure of appetite.—8th. No more symptoms; appetite better.—9th. About 10, as she was standing in dining-room, busy with jam pots, she suddenly felt uneasiness in all limbs, compelling her to make movements. She struve to stand still, but was obliged to step out, and to move arms; she could not describe the sensation she experienced; she had to walk up and down for a few m., and then was able to stand still again. If she were to make a comparison, she might be like one who suffered such restlessness from ennui as not to know what to do. She has not, with this, experienced any disquiet or anguish of mind. Afterwards, it was agreeable to her to be able to sit down. She had a similar attack on the 5th, p.m., whilst sewing, when she was quite well, but said nothing about it because she thought she could not describe sensation with sufficient accuracy. She had to get up quickly and walk about, whereupon she soon got rid of the restlessness in limbs.—10th, 21 a.m., took 30 globules of 6th. In 10 m. oppression of chest, with eructations, which relieve it; heat for an h., mounting up from chest to throat as far as larynx. In $\frac{1}{2}$ h. after dose, red spot on r. cheek; gradually spot extends over whole cheek. On upper part of r. cheek many red pimples, somewhat raised in centre, feeling rough; on l. cheek, a circumscribed red spot of size of one sixth of a thaler, for $1\frac{1}{2}$ h.; repeated yawning; $\frac{1}{2}$ h. after dose, passed urine twice in quick succession, after great urging. About 1 p.m., anguish and strong pulsation of the heart for 10 m., obliging her to sit down while it lasted; pains in sacrum, aggravated by moving. Towards e., pressure in region of larynx; sensation as if throat there was swollen, so as to impede respiration; great weariness, as if she could sleep as she sits; sudden violent pain in knee, aggravated by treading. At 9 she went to bed, as is her custom; awoke frequently with pain in throat, increased by swallowing; dryness in throat; same feeling of swelling in larynx, hindering respiration; pain in l. knee; mucous discharge all d. from vagina, colouring linen yellow.—11th. In m. burning pain in l. eye on awaking, which gradually ceased after getting up; good appetite. About 4, pain in sacrum and region of kidneys, which is very sensitive to pressure; the pressure of tapes of body-clothes causes pain about kidneys; urine lemon yellow, turbid; urging pain in bladder, with spasmodic quivering pains in inguinal region; after these pains ceased, oppression of chest.

—12th., m., repeated urging to urinate; spasmodic drawing in inguinal region; turbid lemon-yellow urine. In e., clear urine; mucous discharge from vagina. 10 p.m., took 60 globules of 6th; in 10 m. spasmodic pain in region of loins on lying down; in bed, violent pain in scrobiculus cordis, as if stomach were constricted; awaking in n. with pressure in occiput and shivering; violent pains in uppermost cervical vertebra, aggravated by moving. From vertebra the pain extends to crown up to a spot of size of a pea, in which violent jerking and pricking is felt; occiput heavy, as if it could not be raised from pillow; stupefaction; pain in region of kidneys; mucous discharge from vagina all d.—13th. From pain in region of kidneys she could not lie on her back, and was also obliged to change sides often, finding most relief from lying on abdomen. In m. on rising, violent shooting in region of kidneys, compelling her to cry aloud, and causing her to crouch down; in the room, anguish, trembling, vertigo, heat in the head, she must go into open air, where she gets better; suffering, pale face; head symptoms still continue as in n.; jerking and pricking on little spot on crown worse, cannot touch it without exciting violent pain there; disquiet of mind, wishing to die; shouting in lumbar region, increased by walking, especially in l. side, better towards noon. In afternoon, periodic urging and pressure on rectum, as if she must go to stool, without any result; heat all over face; cheeks red and burning. Towards e. great drowsiness, her eyes closing as she sits; if awakened, she falls fast asleep again; trembling in wrists and fingers.—14th. Had dreamt about a journey in long detail, and could remember most minute circumstances on awaking; chill and shivering in n. on awaking, with heaviness and trembling in knees. Forenoon, trembling in knees; heaviness in knees and legs, as if she could not step out; stool very hard and difficult, with pain in rectum. About 4, heat in both cheeks for $\frac{1}{2}$ h. At 6, shivering chill for $\frac{1}{2}$ h., with shuddering chattering of teeth as if icy-cold water were poured all over body; then great heat, especially all over head; heat in cheeks; face red and swollen; thirst for $\frac{1}{2}$ h.; pulse 90; then oppression of chest; difficulty of breathing; violent shooting pains in region of kidneys, increased by moving; bruised pain in thighs, extending to calves, aggravated by walking and by touch; heaviness in legs, as if she had to drag a great weight at each step. E., cutting pain in urethra on passing urine, still continuing afterwards; hands burning hot, swollen half way up forearm; she cannot keep her shoes on, because they seem to be too tight, though they are very wide; great tension in lower part of legs.—15th. In n. frequent awaking from tensive pain in thighs, two hands' breadth, midway between hip and knee; stiffness in knee-joint; paralytic drawing in knee-, wrist-, and ankle-joints; pain when touched in legs and forearm. In m. r. arm as if paralysed, with sensation of numbness and cold; the temperature actually lower than in l. arm, relieved by rubbing; good appetite at noon. From 2 to 6 p.m., violent pricking in r. side of chest; she has to draw her breath slowly and cautiously on account of the pain; can only speak softly; sometimes is only easy when she does not move or speak; has to pull off shoes and loosen garters; swelling of legs; visible oede-

matous swelling about ankles, also in calves; hands and forearms oedematous, still more swollen than d. before. She dreads becoming dropsical, because her legs again seem so swollen and heavy. Feeling of swelling in the thighs, two hands' breadth in extent, midway between hip and knee. In e., good appetite; $\frac{1}{2}$ h. before supper, rigor for some m.—16th. Good sleep in n., with gentle general perspiration. In m., no more swelling in arms and legs; p.m., shooting jerking pains somewhat to r., from lower part of sternum right through to back, aggravated by movement and inspiration;pressive pain in head; in highest cervical vertebræ pain on turning head; increased pain in chest from bending trunk forwards, and in back from bending backwards; frequent eructations, whereby pains in chest are relieved; indisposition to move; pale face. About 8 p.m., when sitting on sofa, had to rise suddenly and walk about; could not for the world sit still; involuntarily grasps forearms with hands, squeezes hands together, and during fit cannot prevail upon herself to speak of her condition; after a few m., during which she walks about room, she is able to sit down again. During this muscular restlessness she felt no pains in chest and head; afterwards pains set in again. At first she tried to remain sitting, but her feet would rise up in spite of her.—17th. Slept well till 4; awoke with pain in r. shoulder-blade, worse on inspiration or by moving r. arm; pains spread, after rising on r. side, round to chest, which is oppressed in consequence. After dinner, cessation of pains till 2 p.m., then they were more violent till e.—18th. After going to bed last n. she was seized with violent pain in r. shoulder-joint, whither pains suddenly withdrew from shoulder-blade; if she tries to move her arm she cannot, because then it feels as if broken; r. arm is then quite cold and stiff; pains extend from shoulder to wrist. In course of forenoon, pains gradually cease. On rising, vertigo, nausea, and watering of the mouth. About 9 a.m., burning over eyebrow towards the temple, and then over forehead up to crown, with pressure deep into brain, getting worse towards e. About 8 p.m., sudden cessation of head pains, and sudden violent pain in r. side in region of 7th and 8th ribs, increased by inspiration and movement for 2 h. With that, renewed pressure on brain. At n., awoke with violent pains in l. lumbar region, and no headache.—19th. Towards e., pressure on scrobiculus cordis, with oppression of chest and difficulty of breathing; 7th and 8th ribs on both sides painful to touch, and at every inspiration as if wounded, worse on r., and lasted there longer; cold sensation spreads from spine out to these ribs, and on in front to sternum, more on r. than l.; frequent yawning and eructation; tensive, spasmodic pain, spreading from above and outside downwards and inwards on both sides, in inguinal region; lemon-yellow urine, turbid immediately after passing.—20th. Urine of yesterday e. still turbid, with mucous greyish-yellow cloudy sediment; inner surface of vessel, as far as urine reached, is covered with reddish-yellow crystals of uric acid. Urine of this m. is again turbid when newly passed, as yesterday; towards noon it has again a greyish-yellow cloud at bottom, and uric acid precipitated, as in m.; urine passed shortly before dinner is less turbid, that in afternoon is clear; both ribs are still

painful to touch in m. and all d., worse p.m., when the cold feel and pressure on scrobiculus cordis again set in, with difficulty of breathing. Better towards e.; sorrowful disposition; she fears she has ruined her health by the proving.—21st, e., after 11 p.m., periodic palpitation; drawing forcing pains in inguinal region; pressure and oppression on chest; exhaustion; emaciation; clothes that were tight before proving are now slack; cannot use her thimble because it drops off.—22nd. No symptoms; appetite better.—23rd, afternoon, little yellow burning vesicles on r. ala nasi and l. under lip.—24th. Little yellow scabs where vesicles were; burning sensation here and there on face, as if there were similar vesicles there; appetite good.—28th. No symptoms up to this date; appetite good as before the proving; she no longer looks pale and invalided. All through January no suffering.

r.—Feb. 8th. At 1 p.m., an h. after eating, took 5 dr. of tinct.; for $\frac{1}{2}$ h. a feeling of cord about forehead and temples, cluse over brows, as if head were compressed by it; vertigo and dizziness in head; trembling in all limbs; heat in face, with red cheeks, alternating with shivering; water flows from each nostril; blackness before eyes, with sensation as if she were fainting; drowsiness and languor all over body, obliging her to sit down; inclination to sleep, with great weariness; frequent yawning and continued eructation. In $1\frac{1}{2}$ h. later, pain over navel, as if abdomen were constricted by a string, for $\frac{1}{2}$ h.; then gripping in intestines, followed by six watery stools in $1\frac{1}{2}$ h.; after each evacuation spasmodic constriction of anus. 4 p.m., every 5 m. repeated jerking pains on l. zygoma, as if lacerated; cramp in calves, with heaviness in legs, as if weights were hung upon them; pain in r. knee; utter loss of appetite till 4 p.m.; repeated urging and discharge of urine; pain in l. shoulder and shoulder-blade, aggravated by moving arm. In e., burning as if from nettles in whole face except forehead. At n. frequent gripping, with much discharge of flatus.—9th. In m. bright red spots of size of lentil, confluent, with papule in center of each, all over face except forehead; rough to touch; burning. Three times in $\frac{1}{2}$ h. thin pappy stools preceded by nipping pains in intestines; pain like a wound in all vertebrae, aggravated by movement; and pressure on spinous processes. About 2 p.m. chill, as if drenched with cold water, intermitting with dry heat, especially in face, with feet constantly cold; great weariness and paralytic sensation in limbs. During hot fit she falls asleep in sitting posture, and cold fit awakes her (2 h. long). In a, in bed she cannot go to sleep for feeling of numbness of lower extremities from cold, though bed had been warmed. In n. dreams of corpses. Towards e. she lost eruption on face.—10th, m., feeling of constriction across navel; sensation of twisting and movement in abdomen above navel as if an animal were wriggling all through intestines. Stool thin, pappy, bright yellow, three times in 1 h. 2 p.m., violent stitches in lower part of thorax on r. on inspiring, aggravated by movement and coughing; drawing pains from lower side of sternum on r. as far as spine; pain like a wound in lower ribs on r.; frequent fits of short dry cough; difficulty of breathing, cannot take a deep breath for stitches; wound-like pain in lower r. half of thorax, so that mere contact of clothes increases it; collection of water in mouth.

Towards e. cold feet; cold feeling in lower extremities. Skin all over body feels cool to touch, though room is very warm.—11th. All forenoon urging to stool every $\frac{1}{2}$ h., with gripping in intestines and constriction in rectum without evacuation. In e. evacuation normal. Towards e. collection of water in mouth; menstruation commenced following n. in excess, but without any suffering.—12th. Ribs on r. side still painful to touch, as if raw; vertigo, especially on closing eyes, as if everything whirled in a circle.—13th. Confusion of head, with a sensation of cord about forehead; pains in lumbar vertebræ like a wound; spasmodic pain in r. kidney and liver all d., worse from 4 p.m. till about 9, with perspiration on forehead and hands; wound-like pain in lower ribs and r. side; collection of water in mouth; increased thirst; burning in eyes. 4 p.m., chill for $\frac{1}{2}$ h., then heat, especially in head, with cold in legs for 2 h. Great languor; overcome by slight exertion; diminished appetite.—14th, 15th. As 13th.—16th. The same till 4 p.m.; then chill for few m. only, with heat which lasted only $\frac{1}{2}$ h., then felt quite well.—17th. About 9 a.m. sensation in forehead and temples as of cord till noon; same sensation about 7 p.m.; trembling, as if she would fall forwards, without vertigo. Muddled head; trembling in upper extremities; sensation of icy cold in calves and soles; the legs feel cool.—18th. An h. after rising, feeling of hoop about forehead and temples; inclination to close eyes; difficulty of opening lids, as if upper lids were drawn down again, till noon. Towards e. return of sufferings in higher degree; feet cold.—19th. As before; menstruation has passed unnoticed into leucorrhœa; secretion is viscid, mucous, and stains linen yellow. (Thirteen years previously, when unmarried, she suffered in same way.) No appetite in e. for 6 d. Frequent urging to pass urine, which goes off without actual discharge.—20th. Frontal headache as before, from getting up till mid-day; leucorrhœa abundant all d. Towards e. pain like a wound in lumbar vertebræ and five lower dorsal, aggravated by pressure with hand, and by every movement; also in five lower ribs on r.; pain in r. renal region, as previously.—21st. (South wind; afternoon, thick fog; barometer low.) In m. on rising, frontal headache as before, relieved by closing eyes. About 2 flying heats in face; anguish obliging her to loosen dress on chest for $\frac{1}{2}$ h.; pains in both kidneys as before; violent pains in same vertebræ and ribs as yesterday; ribs as if ulcerated; abundant leucorrhœa. She cannot take a deep breath because it increases pain; heaviness and stiffness in legs; drawing spasmodic pain from above downwards, and in iliac and inguinal region towards pubes. No appetite all d.—22nd. In m. no more leucorrhœa; urine reddish, turbid in $\frac{1}{2}$ h. In 2 h. reddish flocculent loose sediment; after standing till e. supernatant urine not yet quite clear. Same drawing spasmodic pains as yesterday, preventing walking. From increase of these pains, r. leg can with difficulty be raised; ankles painful, especially after walking, as if sprained. E., good appetite; pains as before in vertebræ all d.—23rd. From 9 to 11 wound-like pain in same vertebræ; pain in r. kidney. Towards 5 p.m. pain in forehead as before, till bedtime; wound-like pain as before in r. ribs; pain like dislocation in ankles all d., more violent in n. Directly after supper, sudden

cessation of pains in ribs; increased thirst.—24th. From 9 to 11 pain in forehead as before; dislocation pain in r. ankle, less in l., till 5; from 5 and afterwards, paralytic feeling, stiffness and coldness in r. thigh and leg; vertebrae only painful on pressure and movement. For a week past, temper much excited; daily outbreak of anger without provocation. She could beat the children, and trembles with rage at having no occasion to do so.—25th, a.m., urine clear, dark yellow. 2 p.m., urine, when passed, turbid, dark brownish red, like porter, forming bubbles round edge. (It was thrown away through carelessness, so that no examination could be made.) At next discharge, towards e., it was normal. Shortly before turbid urine passed, feeling of constriction in hypogastrium; no other suffering all d.

f. March 14th. Since Feb. 25th till to-day, daily itching in anus and rectum. 10 a.m., chewed a leaflet of C. and swallowed juice. In 10 m. fluent coryza, and sense of swelling in larynx till noon. In afternoon violent itching in rectum as usual.—15th. In m. sensation as if rectum were forced out, with spasmodic constriction of anus and rectum all d. Stool causes pains in anus.—16th, m., hard stool with great pain; burning and cutting in rectum and constriction of anus, alternating with itching in anus; vertigo with faintness; no appetite. Cannot lie on back, nor sit up, from wound-like pain in anus. An external tubercle on rectum of four millimètres diameter; alleviation of pains by standing in heat posture.—17th. Tubercle has become larger; mucous secretion from anus, not followed by evacuation. Other sufferings as yesterday.—18th. Same sufferings, and continual painful urging to stool without result. E., at 10, took a dose of nux vomica 6.—19th. In m., hard stool; later in d. soft; pains in anus and rectum have ceased. Tubercle has diminished in course of d.—20th, m., normal stool; pains in rectum trifling. Tubercle has shrunk; appetite recommencing.—April 20th. Since March 14th skin, especially of face, gradually darkened as if sunburnt. Stools have continued of usual colour.—May 1st. Colour of the skin gradually disappearing up to this d. N.B.—The prover has never suffered from hæmorrhoidal symptoms, and has never had her face tanned except during pregnancy. (*Ibid*, 106.)

g. Adolph B.—, æt. 7, the strongest built of 6 children; easily hurt and tearful; good appetite. Nine months ago suffered from pleurisy of r. side with considerable fibrinous adhesion of lung to rib, which, however, is perfectly absorbed. Quite healthy now.—Nov. 4th. At 11 a.m. took tablespoonful of a solution of 10 dr. of tinct. in a tumbler of water. His sister, 2 years older, and brother 1 year younger, had manifested no symptoms after similar dose. In 5 m. pain close to navel on l. side; pressure first in r. then in l. eye; nausea; dryness at back of pharynx and palate; pain behind r. ear; tearing pain in r. temple, aggravated by touch. No suffering after dinner. At 2 p.m. took 2 dr. at once in water. In 5 m. nausea; pains over navel somewhat to l.; shooting in throat; dizziness in head; pain in head over each ear, worse on r. side; tearing in r. temple and eye, afterwards in l. eye, reaching to temple; pain in r. side of thorax, then in l.; respiration became difficult; short fit of

coughing.—5th. At 11 2 dr. at once in water. In $\frac{1}{2}$ h. heat in head with pains; dryness of mouth; vertigo as if he had been spinning round several times rapidly; stitch in r. side. The symptoms soon pass off. At 7 p.m. 4 dr. at once in water; vertigo soon after, with heat in head; tearing in nostrils, especially l.; tearing in l. eye; pressure in throat under chin as if compressed; tearing in temples; nausea as if he must vomit, relieved by eructation; yawning; pain in forehead; pressure in r. shoulder on moving arm; pain under knee on walking; pricking in l. ear, rendering it difficult to hear; tearing behind r. ear. (*Ibid.*, 132.)

10. Reinhard B—, 9 months old, golden hair, appetite good, bowels regular and natural, in good flesh. His incisors are through his gums, previous to which he had suffered from diarrhoea and whooping-cough. Towards e., occasional attacks of the latter complaint still, otherwise quite healthy. On Dec. 6th at 10 a.m., administered 10 globules of 6th. At 2 p.m. there appeared on his r. cheek a burning, dark red, round spot, which gradually increased till 5. Redness, heat, and swelling of scrotum. He screamed the whole n., especially on being touched; heat and perspiration on his forehead.—7th, m., both eyes were glued together with dry mucus, l. especially. Redness and heat of scrotum. Here and there, on both sides, epidermis of scrotum was raised with flat vesicles, filled with yellow fluid, from size of pin's head to that of lentil—these were painful to touch; thin watery stool of dark yellow colour as before; he cries if l. leg is moved, or l. side touched. From 2 till 6 p.m. a similar gradually increasing spot on l. cheek; towards e. vesicles on scrotum burst, and red and slightly tumid skin, denuded of epidermis, discharges a little moisture. In e. another dark yellow watery stool; sleepless whole d.; will neither sit nor lie, and must be carried about continually; made water 5 times through d., attended with much effort, groaning, and holding of breath,—this till e.—8th. Slept better through n.; the l. eye is closed with dry mucus; scrotum is covered with dry, red, cracked, thin scabs; pimple similar to cow-pox, with red margin, on r. buttock; near corner of mouth, on r. cheek, small vesicle with red margin; napkin stained with reddish-brown urine, which became darker when dry; slept from 1 till 6 p.m., and from 7.30 till 5 in m.; he slept only $\frac{1}{2}$ h. in afternoon, then from 8 till 10 in e.; took some milk at 10, and then slept till 5 next m.; stool as usual.—9th. In m. a little dry mucus in l. eye; skin of scrotum natural; yellow scab with red margin on pustule.—10th. 10 globules of 6th, at 11 a.m. At end of $\frac{1}{2}$ h. redness on l. cheek, changing by degrees from bright to dark red; accelerated breathing, with five eructations; after which breathing became easier. A small pimple with red margin in same place (near mouth) as on 8th; margin round small scabs on buttock is again apparent, and becomes dark red; urine 3 times in $\frac{1}{2}$ h. After an h. redness on cheek disappeared; frequent yawning; eructations frequent till e.; after coughing, curdled milk was vomited, which had not occurred before; sleep as usual.—11th. Cried frequently in n. without awaking; increased warmth over whole body; perspiration on forehead; first motion of bowels after taking last dose occurred this m.; generally his bowels are

moved at n.; consistency of stool natural; colour lighter; urine coloured napkin a reddish yellow; dry lumps of mucus on r. eyelid; red round spot on l. cheek.—12th. Quiet sleep; napkin coloured reddish by urine; stool brighter coloured than usual; both eyes closed with dry mucus; on awaking, fretful; red spots alternately on both cheeks; red pimples here and there on cheeks; much thick mucus discharged from nose; urine of darker yellow than usual.—13th. Frequent screaming in n., increased on being taken up; eyelids glued together in m.—14th. All over r. cheek numerous red round spots, with pointed pimple in the centre; eyelids glued together in m. by dry mucus. (*Ibid.*, 139.)

11. Minna Kranke, æt. 20, was scrofulous in childhood, muscular system weak, has pains in limbs after bodily exertion, light hair, pale countenance, phlegmatic temperament; she has suffered at times from pains in her l. side, also from palpitation of the heart after exerting herself; menstruation natural; healthy at time of experiment.

Nov. 25th, 1861.—60 dr. of tinct. at 10 a.m.; after $\frac{1}{2}$ h., feeling of heat throughout body; oppression and pressure in l. side; difficulty of breathing; palpitations of heart; twitchings in r. arm; feeling as if something solid were rising in throat, necessitating effort to swallow, after which it seemed to descend; twitches in knees; dragging pain in l. shoulder-blade and neck; squeezing pain in the *regio iliaca sinistra*; twitches in calves of legs; ringing and tingling in ears; dryness and heat in mouth; thirst. Towards e. pains disappeared.—26th. 90 dr. at 9 a.m.; in $\frac{1}{2}$ h. oppressive pain and burning between cardiac region and navel, as well as in sternum; pain in nape of neck and back of head; tearing pain in forehead over l. eye, in eye and eyelid, extending towards upper part of nose; drawing pains between shoulder-blades, extending to loins; shortness of breathing and oppression as if breast were tied together and she could not breathe; shivering, and feeling of coldness over whole body till mid-day; towards e. pressing pain in forehead and back of head; alternations of heat and cold with thirst for Broihau (a kind of light effervescing beer made without hops); burning urine, with frequent urging to pass it; palpitation of heart; is unable to go to sleep at once, on account of drawing sensation in back, and headache.—27th. Awoke shortly after 4 with drawing in back, and headache; arms as if paralysed, thrilling in them; shortness of breath, short cough, anxiety, nausea; pricking and ringing in l. ear; in something less than an h. she fell asleep again till past 6. After getting up, weakness in limbs; great weariness; depressed spirits; pains in knees and drawing pains in calves; in e., anxiety; tearing pain in head, over r. ear; face hot; throat, tongue, and lips dry; dreamt much in n., but has no recollection of subjects of dreams.—28th. Awoke after 4 with anxiety; stitches in l. side; oppression of chest; cannot draw long breath on account of stitches; oppressive headache in forehead and occiput; face hot; gentle perspiration; no thirst; soon fell asleep again till past 6; after rising, headache, anxiety; paralysed feeling in arms and legs. (*Ibid.*, 140.)

12. L.—, man of 45, sanguine temperament, pale countenance, light hair. Suffers occasionally at changes of weather from debility; cats

sparingly, drinks no fermented liquors; bowels regular; perfectly well at time of experiment.—Nov. 14th. 90 dr. at 9 a.m.; after $\frac{1}{2}$ h., dizziness, feeling of heat running over whole body, pain in nape of neck. At end of an h. pains in temples; particularly much dragging pain, so that whole head is affected; nausea, as if he would vomit, but relieved by eructations; uneasiness in chest; dizziness again becomes stronger; much anxiety; oppression of stomach; much eructation, after which a rigor makes its appearance. At 10.30, hollow rumbling in the abdomen; drawing towards rectum; mouth is quite dry, so that tongue almost cleaves to palate; renewed pressure in front of stomach; renewed feeling of heat over whole body; pains in front of neck which extend towards temples; from 11 till 1, hurruplation through loins; renewed drawing in temples; renewed nausea, which is again relieved by repeated eructations; lassitude and paralysed feeling of limbs; renewed nausea, eructations, shiverings in back, and much heat in head; drawing in legs, back, and temples; much anxiety and constriction of chest; pressure in stomach, and nausea, which is again relieved by numerous eructations. At 7 p.m., cutting in bowels, so severe that whole body seemed drawn together; urgent desire to stool; three watery motions in quick succession, after which cutting abated in about $\frac{1}{2}$ h.; whole e. great discharge of wind. (*Ibid.*, 141.)

13. Pastor G—, æt. 52, of sanguineo-phlegmatic temperament; suffered in youth from *ischias nervosa*, for which he was treated with mercury in many forms. From effects of this medicine lost his hair from forehead and crown of head, and never recovered it. Subsequently suffered from bloody piles; is sensible of changes of weather, and suffers, on taking cold, from cough and slight rheumatic pains. Appetite and digestion good. At the time free from all complaints. On Jan. 6th, at 9 a.m., took 20 dr. of tinct. Soon after, strong discharges of wind, both upwards and downwards; urging sensations in rectum; uncomfortable feeling in bowels, as when one has had an evacuation after taking a purgative; metallic sourish taste on the tongue; unpleasant smell in nose like that of black soft soap; eructations till bedtime.—7th, 9 a.m., 30 dr. Immediately afterwards strong discharges of wind upwards and downwards; secretion of thin mucus in throat; increased appetite; motion of bowels delayed and confined. In afternoon oppression and coldness in abdomen, which was not removed by a warm blanket; coldness over whole body, especially close under umbilical region; drawing pain in r. side, from above downwards.—8th, 8 a.m., 40 dr. Eructations and discharges of wind; greater appetite; increased secretion of mucus from throat. Natural motion of bowels, but feeling accompanied the operation as if anus were constricted, and only permitted feces to pass with difficulty; later, another stool, soft and brighter coloured; acid taste on tongue. Towards e. drawing and pressure between shoulders, especially in r. scapula, and towards r. side; feeling as if larynx were swollen, especially on r. side.—9th, 8 a.m., 50 dr. Increased expectoration of mucus, and now and then running at nose; eructations; much mucus in mouth; p.m., drawing between shoulders; stronger stream of urine; p.m. and e. shuddering thrill from nape to back downwards; unusual feeling of chill in bowels

after drinking some water; cramp in r. calf; no motion of bowels throughout d.—10th. No dose taken for fear of constipation. Evacuation of bowels; traces of blood on wiping anus; appetite not so good in m. as on d. before.—11th, about 9 a.m., 10 dr. Immediately eructations; increased expectoration of mucus; fluent coryza; feeling of chill in body on drinking water, not usual; great discharge of wind; watery eyes; confusion of head; motion of bowels lighter coloured than usual; cold shudders between shoulders; uncomfortable feeling throughout body; vertigo; evacuation of light colour and pappy consistency, followed by improvement in condition.—12th, 9 a.m., 5 dr. Repetition of yesterday's symptoms, but less severe. At mid-day 5 dr. more; feeling of great discomfort in belly with pains, relieved by a glass of wine; confusion of head again supervened; pressure on eyelids; cold feet, distension and uneasiness of body, notwithstanding frequent eructations; lassitude, without ability to sleep; later, hot burning feet; next m. scanty stool with itching of anus.—13th. No dose. Stool lighter coloured than usual.—14th, 1 p.m., 2 dr. Immediately after, eructations of wind; pains in nape; expectoration of mucus; pressure in fore and back parts of head; horripilation in back; stiffness of neck on l. side; pain in r. shoulder, in muscles of r. side of neck, and in region of r. clavicle; fluent coryza; coldness of belly; shivering; next m. soft, bright-coloured stool. (*Ibid.*, 147.)

14. Pastor H—, æt. 52, choleric, sallow, pale complexion, black hair; inclined to rheum and catarrh of stomach on catching cold; well-developed muscular system; good appetite; regular alvine discharges; liver spots on the skin.—Nov. 25th, 10 a.m., took 90 dr. tinct. In 10 m. head confused; dull; pressure in nape; secretion of thin mucus from throat and nose; water in mouth; oppression in stomach, relieved by eructations; feeling of heat throughout body, especially in face and hands. Towards e., dull pain in head, with shivering; scraping in throat, with water in mouth; stitches in region of stomach; drawings in loins.—26th. Vertigo; scraping in throat and watery discharge from nose; increased appetite in m. and mid-day (which continued for several weeks); several thin liquid stools daily (for 8 d.); small vesicles on lips and *æx nasi* (subsequently forming scabs); dull pressure in ears; itching of anus (continuing for some d., occasionally first before); pressure on bladder, and frequent discharges of urine; frequent erections, even in d.; good spirits; more inclination to speak much in company. The following d. all these symptoms gradually became weaker, and appetite stronger. Irritability of bladder and greater cheerfulness continued for 3 weeks after taking dose. (*Ibid.*, 156.)

15. a. Miss Augusta H—, æt. 50; sanguine temperament, light hair; suffered two years previously from scarlatina, and this year from measles; bowels regular; pale complexion; weak muscles; inclined to thinness; perspires easily; skin moist every morning on awaking; great liability to take cold, on such occasions coryza and cough; appetite good.—Nov. 25th, 8 a.m., took 90 dr. tinct. After a few m. it was evident by the excitement of her manner, that a condition resembling intoxication had set in. She felt her head giddy and confused; pressure in

nape; pain in ears; dryness in throat and mouth. In the course of an h. she felt as if sand were in her eyes; not so perceptible when she shut her eyes. Pressure and nausea in stomach, relieved by eructations; drawing pains from nape down to back; lameness of arms; head hot; towards e. symptoms disappeared. Two thin pappy stools.—28th, 8 a.m., 10 dr. in a glass of water, dessert-spoonful every 2 h. After a few m. head became confused; pressure in crown; scintillations before eyes. She feels as if sand were in her eyes; pressure in nape; shooting pains in throat, in region of larynx; a little hoarseness, with pain in breast behind sternum, especially perceptible on holding in breath; nausea, relieved by eructations; dryness in throat and tongue; oppression in front part of stomach; three thin pappy stools. On 2nd d. the C. was administered as before, followed by similar symptoms. Pressure on the stomach is stronger, for which reason she took nothing on the following d. for fear it might do her harm. On the 3rd d. no symptoms remained; sleep and appetite both good.

6. Dec. 3rd. 5 dr. tinct. in water, taken by degrees in course of d.; towards e. pressive headache.—4th. 10 dr. in same manner. Severe headache on rising from bed, alleviated after breakfast. 1½ h. afterwards cerebral oppression returned; heat in head; shootings in ears; unpleasant burning in throat; vertigo; nausea. Towards e., pressive headache; scintillations before eyes.—5th. 15 dr. in same manner. She had no leisure to watch the symptoms thoroughly, but the following were strongly felt: pain in r. knee; cold feet; drawings in back; shootings in ears; drawing in teeth.—6th. 20 dr. in same manner. After 1st dose, early in m., stupid feeling; heaviness in nape; frequent diarrhoea; burning in throat; great thirst; good sleep at n. On awaking, general and increased warmth, with profuse perspiration; dryness in nose; weight over eyelids; red pimples on chin; head confused; drawing in back; pain in stomach, with eructations; noises in ears, and scintillations in eyes.—7th. 25 dr. in same manner. Drawing pains in teeth; pain in sacrum and abdomen, with frequent urgent desire to make water; smell of urine pungent and acid; shootings in ears; burning pain in larynx; cough, with some expectoration of mucus; nose stuffed; drawing in calves; pain in r. knee; headache; pressure and scintillations of eyes; loose motion 3 times; pressure in nape. On awaking in m. rigor, with cold feet; point of nose swollen and red; painful pressure on bladder.—8th. Medicine is discontinued; symptoms as on preceding d., but weaker.—9th. Few symptoms observable; constantly increasing appetite. (*Ibid.*, 157.)

16. Innkeeper K., æt. 40, never ill before; drinks no fermented liquor, as it disagrees with him; light hair, slender figure, sanguine temperament.

a. [Of this proving daily notes are stated to have been lost; consequently no reliance can be placed on the report of symptoms which he has drawn up. I (Buchmann) will therefore merely relate the symptoms which he specified at certain visits I paid him during the proving, and those which I myself observed.]—Dec. 7th. Took 5 dr. Five m. after taking dose bowels were moved, which operation had habitually taken place at 9 o'clock or later. After 3 or 4 h., pricking and burning in

l. side of chest, extending upwards to back, and wakening him from sleep on following n. Some d. later, after he had increased dose to 12 dr., he felt great weariness in all his limbs, sleeplessness, ill-humour at every trifle, irritability, and peevishness. Having made a journey, he recommenced the experiments with a daily dose of 12 dr., consequent on which an eruption broke out on *alae nasi*, with red pimples here and there, yellowness of complexion of face, neck, and breast, which symptoms continued for upwards of 8 d. White of eyes also became of a dirty yellow, and edges of lids were much inflamed. [I myself observed these objective symptoms when paying him a visit for the purpose of directing the experiment.] Subsequently he increased the dose to 20 dr., and observed that this was followed by bright specks before eyes; transient dimness of vision, so that in reading everything was dark before him; pains in making water, and afterwards pain in urethra, and drawing in l. testicle. This last symptom induced him to suspend the experiment, as he had formerly suffered from hydrocele on l. side, brought on by contusion, and then experienced same sensations as now, which made him apprehensive of return of complaint should he continue the doses. After leaving off drug, all symptoms speedily disappeared.

6. May 4th, 7 p.m., took 15 dr. Since last experiment had not observed any symptoms about him. Three m. after taking dose, a thin stool; gripings in abdomen; up to 11 p.m., four thin, yellow, slimy stools, with some discharge of blood at last.—5th, 7 a.m., 15 dr. In 15 m. afterwards pains in back, and drawing in all the body, which continued for 3 h., and gradually became easier towards mid-day. In forenoon three thick, pappy stools. At 11.30 drawing in l. testicle, accompanied with pain. Temper peevish and morose. 12 a.m., 15 dr. At dinner ate lentils with sour sauce, and felt no symptoms p.m., except a remarkably quarrelsome temper. 8 p.m., 20 dr. At 9 pappy stool; afterwards gripping pain in abdomen, which extended to back and chest, but subsequently disappeared after discharge of foetid flatus; quiet sleep.—6th. Nothing taken; no symptom.—7th, 8 a.m., 15 dr. After 1 h. usual stool, mixed with a little blood. After 2 h. nausea, with inclination to vomit. 12 m., 20 dr. Immediately after dose heat in face and burning in back, continuing for 2 h. Motion of bowels natural; nausea. 8 p.m., 20 dr. Severe nausea immediately after dose. After an h. a little vomiting of tenacious mucus. From 8th to 15th took no dose, as he was much out of sorts, and constantly trying to quarrel with his neighbours.—15th, 6 a.m., 20 dr. Heat in face followed immediately after dose, and continued for 5 h. 1 p.m., 25 dr. Stool followed immediately; repeated three times within an h.; watery. In afternoon large pustules on forehead; at same time observed a yellowness about face, the whites of eyes, and hands. Scintillations before eyes, which rendered vision uncertain. Took no dose in e., as he was afraid of an attack of weak eyes.—20th. The pustules disappeared within 4 d.; also yellow tinge of skin and eyes.—25th, 5 a.m., 30 dr.; in $\frac{1}{2}$ h. violent pains in head, with throbbing in both temples for 2 h.; then flashes before eyes for 3 h., followed after their cessation by diarrhetic stool. 1 p.m., 3 dr.; in 1

h. after anxiety, lasting till e. Drinking water causes weight and pressure on stomach; seltzer water does not cause flatulence. Uneasy sleep, with dreams of death and a funeral and wedding.—26th. I have taken no more, on account of fluent coryza.—28th, 7 a.m., 30 dr.; soon afterwards great hunger, which can hardly be appeased. Three pappy stools before 12. Oppression of chest, ceasing gradually at 12. 10 p.m., 12 dr.; immediately after, drawing in calves and knees, up to thighs. Very restless sleep; lassitude next m.—29th, 8 a.m., 12 dr.; in 1 h. oppression of chest for 3 h.; drawing in r. shoulder; itching of skin. At noon 10 dr. At 1 great weariness and sleepiness; at 5 chilliness. 10 p.m., 10 dr.; continued chill; weariness; restless sleep. At 4 next m. awoke with gentle perspiration.—30th, 9 a.m., 10 dr.; in 1 h. great anguish, and jerking in all limbs; burning in soles. At noon 10 dr. No symptoms but chill, which he ascribes to the circumstance of having, against orders, eaten salad. 9 p.m., 9 dr.; in 1 h. nausea, which went off on lying down; quiet sleep; about 4, awoke with gentle perspiration. On account of various hindrances, had to give up the proving for the present.

2. July 2nd, 7 a.m., 2 dr. in a cup of water; in 1 h. pain in upper part of chest; stiffness of neck, especially in nape. In 4 h., violent beating in both temples. In 6 h., drawing and tearing from knees down to feet. 1 p.m., same dose. In 1 h. pain in l. shoulder; in 3 h. drawing in l. testicle, up to hip, for 1 h. 8 p.m., 3 dr. Before 12, restless sleep; at 5, awoke in perspiration.—3rd, 7 a.m., 3 dr. At 8, burning in palms; angry irritability; capriciousness; terror at least noise, as when one has not a good conscience, and cannot but feel alarmed. At noon 3 dr. In 3 h., heat in face; stiffness in nape; burning in urethra; anxiety at every little noise. 10 p.m., 3 dr. Restless sleep; dreams about enlisting in army, with great misery, so that my wife was induced by my crying to awaken me.—4th. Took nothing, because in m. was troubled with anxiety and beating in temples.—5th, 7 a.m., 4 dr. In 1 h., pain in back, on rising from stooping posture; drawing in legs, from knees to great toe; in 3 h., weariness and paralytic feeling in thighs. At noon, 4 dr. In 4 h., great weariness; pains in intestines; drawing upwards to chest for 2 h., then rumbling, with discharge of flatus; chill about 6. 8 p.m., 4 dr. In 1 h., violent chill, so that I had to light fire to warm myself.—8th, 6 a.m., 4 dr. In 2 h. heat and redness of cheeks for 1 h.; then shivering and stitch in r. side of chest for 2 h.; burning in urethra on passing urine. At noon, 4 dr. In 2 h. heaviness in head, especially forehead, as if it would fall out; heaviness in eyes; when reading, letters run into each other; at 4 p.m. stiffness in nape; forced to attempt eructation, without succeeding; chilliness; drawing in r. testicle throughout d. 9 p.m., 3 dr. Phantasies unmeaning and incoherent, whilst half asleep, till midnight; fear of death, and of serving in army. 4 a.m., awoke with pains all round sternum, as if it were pressed in, till about 5; from 5 to 6, strong perspiration, which removed pains in chest.—9th. After rising at 7, was so peevish, weary, and exhausted that I was obliged to discontinue the doses. This day's sufferings continued for 3 d., and then quickly disappeared. (*Ibid.*, 158.)

17. a. H—, a schoolmaster, slender, thin, with a sickly look, very sensitive and excitable, but soon comes to himself; has had several illnesses since youth, but is now quite well.—Nov. 24th, 1861, 9.45 a.m., I took the medicine sent for proving by Dr. X—, 100 dr. at once.* In ½ h., nausea set in twice, but very slight; then pain in r. side of forehead, and at noon pain on a small spot behind l. ear, as if from slight blow, only for a short time. At 1.45, pain on l. shoulder, as if I had lain too long on it; sleepy in e.—25th. In e., sleepiness. 10 p.m., pain in r. forehead, as if from blow, only for short time; drawing and stiffness in nape.—27th. Pain in shoulder shows itself also in arms, especially l.; all afternoon, comfortable warmth all over.—28th, p.m. Warmth increased; pulse feeble.—29th. Pain in shoulders, nape, and arms, down to wrists. These pains particularly affect l. side, and either commence p.m. or become more continuous and sharp then, whilst the other sensations soon disappear.—Dec. 3rd and 4th. In e., drawing pains in parietes of abdomen; spirits in general good.

b. Dec. 9th. From this date I took same medicine again, but only about 6 dr. in a cup of water twice a d., m. and e. After 9 a.m., pain in penis and testicles; dull headache in forehead; head heavy; stiffness and paralytic pain in nape; then pains in anus and perinæum, which soon ceased. P.m., pains of nape, l. shoulder and arm increased considerably; besides I still had drawing pains in back and chest. In e. all pains were gone, except in head.—10th. Nape stiff and painful; pain increased in l. shoulder and arm; pressive pain in chest and back, which spreads to between shoulders. In e., pains in parietes of abdomen on l., increased by contracting abdomen; also pains again in genitals, of short duration.—13th. About noon, strangury; p.m., drawing in both hips; on l. side of spine, where ribs cease, pain, as if from blow, for a short time, in a small spot; then same pain in r. side of spine; moreover, on r. ischium, pain as from blow, and lastly, a similar pain in l. cheek-bone. Pressive pain in liver, about an inch from scrobiculus cordis; pain in middle of r. thigh as from blow. In e., insulated stitches, like pin-pricking, in different parts of skin; pressive headache.—14th. Stomach-ache and sense of distension, with slight pain in lower bowels; pain as before in l. arm; feeling of cold in stomach and some distension, as if spasm of stomach were commencing; at same moment, wandering pains in all directions in back, to up between shoulders. In e., stitches in skin in individual parts; when in bed, pain in little toe of l. foot and the one next to it, as if from blow; same pain in l. thigh, three fingers' breadth from hollow of knee. In m., pain in forehead, especially at root of nose.—16th. Pains in chest and back, strangury, and some abdominal pain; pain in arm and nape, as before; likewise head pains.—17th. Pain as from blow in second phalanx of l. ring finger; pains in region of liver and spleen, in neck, back, and chest; pain in l. metatarsus beneath, as from blow; dull pain in forehead.—19th. In forenoon feeling as of sand in eyes, with tears; headache continues. As the pains in the arms, neck, back, chest, and region of stomach were too unpleasant and lasting, I ceased

* Nature of preparation not mentioned.—EDS.

taking the doses, after which the pains gradually disappeared, and were quite gone by the 29th.

c. Jan. 2nd, 1862. This m. at 10.30 I recommenced medicine, taking only 3 dr. In e. pain in forehead.—3rd. On account of the trifling effects of yesterday's dose, I took 6 dr. at 10 this m. P.m., pains in head increased very much (like those arising from intoxication); at 2.30 former pain in neck and shoulders recommenced.—4th. Nose stuffed on awaking; spot behind upper part of sternum pained me on coughing as if raw; much coughing, especially in m.; cough fatiguing as in consumption, with much expectoration deep from lungs; it could not be repressed on moving after awaking, whilst rattling in chest increased. Expectoration in large lumps, got up with difficulty. From 1st to 3rd d. fits of coughing were accompanied with pains behind sternum, especially at n.; much mucus in nose, obliging me to change my handkerchief daily. I had no recollection of having caught cold. On Dec. 10th I was similarly affected with catarrh, without being aware of having caught cold. (I did not mention this catarrh before, as I ascribed it to having unconsciously caught cold; but as all its symptoms have been so exactly repeated, I cannot but regard it as the effect of the medicine. On account of the catarrh I discontinued the doses.)

d. After symptoms had abated, I recommenced on Jan. 12th, and took 6 dr. every m. at 7. Towards e. former pain in arms reappeared, but very slightly; pain in head from forehead to nasal bone.—13th. Continued pain in head. About 11 a.m., strangury. P.m., the pain in head became more violent, extending to occiput; pain in scrobiculus cordis, and in back opposite. In e. bronchial catarrh. In pit of throat, and behind upper part of sternum, sensation as of dust, not removed by coughing.—14th. Headache continues uninterrupted, more or less; catarrhal feeling; neck a little stiff. In e. the paralyzing pain, hitherto in arms, attacked middle of r., then l. thigh, afterwards l. leg, and lastly, l. foot; itching in glans penis, which did not last long.—15th. Stiff neck; former pain in l. shoulder, but not so severe; head heavy, and pain in forehead, which only abated occasionally. In middle of upper part of r. thigh, pain as from strain; cold in head, with some heat.—16th. But little pain in l. arm; neck stiff; pain in head; pain in r. knee, which soon disappeared; a little aching in abdomen, with feeling of distension; rumbling at nose, and some cough; pain in r. thigh, as from much walking.—17th. Headache; pain in back, especially on rising from sitting position, or from stooping.—18th. Headache in forehead; pain in back as before. 19th.—From afternoon till bedtime dull pain in l. forehead; some pain also in abdomen towards e.; pains in sacrum continue.—20th. From 8 to 10 dr. 3 times. The pain in e. shoulder, as well as in arms, was slight, and of short duration; the pain in sacrum as before; burning pain in r. upper and lower jawbone, which extended to cheek, and exactly to e. half of both hips, accompanied with single shooting pains drawing here and there, and often ceasing, worst in e. after going to bed. In the upper jaw I have only one useless double tooth, which likewise participated in the suffering in e.—21st. Same doses. Pain in sacrum as before; rumbling in

abdomen, with some distension; emission of urine by drops with more urging to urinate; the old pain in r. shoulder; toothache after going to bed as before, exactly whole r. side of face affected; a fit of general coldness which lasted for 2 h.; cold feet.—22nd. 12 dr. 3 times; urgent call to stool. After awaking, and on rising, cough and sensation of dust under sternum; pain in r. thigh as well as in l. arm; expectoration easily detached; l. ankle pains. In afternoon pain in r. upper jaw, as severe as before in e.; distension of abdomen; itching in skin of r. leg, so severe that some spots were scratched raw; shooting pains in anus, lasting about half a d.—23rd. 8 dr. thrice; a little hoarse in m.; cough; raw feeling behind sternum; immediately after rising, urgent inclination to stool; pain as from over-exertion in thighs; some shortness of breath and oppression of chest. In afternoon pain in r. upper jaw, which after going to bed became so agonising that I was obliged to suspend the doses.—24th. Took nothing; itching of skin of legs; feeling of indisposition; chill. In e. pain in r. jaw as before.—25th. Pain in l. arm; catarrh pretty strong, often with nose stuffed; voice hoarse; pain in teeth, involving indeed whole side of face, but not so severe; raw sensation behind sternum. In e. shivering fit which lasted $\frac{1}{2}$ h.—26th. Took nothing; head stuffed in m., worse in a warm atmosphere; pain throughout d. in r. upper and lower jaws and cheek-bones, but more supportable than before; head confused in e.; hoarseness; pain in r. thigh as before, disappearing at rest.—27th. Took nothing. Coryza is still present, as well as catarrh of chest; toothache affecting whole r. face, bones, lips, and cheeks, aggravated by warmth, but alleviated for the moment by cold, and cold water. In e. a dragging feel at anus.—28th. No pains remaining.

z. June 19th, 8 a.m., 6 dr. of tinct. in water. I had observed myself for several d. previously without being able to discover any symptoms. Half an h. after taking dose frequent urine, continuing throughout the d. At 12.30, paralytic pain in r. shoulder, which continued $\frac{1}{2}$ h. In e. occasional prickings of skin as if with needles.—20th, 8 a.m., same dose. At mid-day, pricking as yesterday. For about a m. pressive pain in squamous portion of l. temporal bone. At 3 p.m., repeated dose. At 6, much pricking here and there in skin; heaviness in head; stiff neck; creaking in cervical vertebrae on moving neck; general feeling of cold, especially in hands and feet.—21st., 8 a.m., same. At 1, feeling of cold, especially in hands and feet. At 4, fit of dry coughing. At 7, dryness in throat, with feeling as of dust in it; pricking sensation here and there in skin, with incessant feeling of cold, especially in hands and feet. At 9 p.m., drawing in anus; awoke at n. with spasmodic pressure within sternum, seated about middle of same, on spot of about 2 in. diameter. The pressure spread towards bronchial tubes, with feeling of constriction in latter; fear of dying, with desire to eructate, which, however, was ineffectual.—24th. Up to this date, daily continued stiffness in nape, with cracking of cervical vertebrae on moving neck. At 9 a.m., feeling of coryza, and after 10 fluent coryza with much sneezing. At 3 p.m., took same dose; at 5.45, painful drawing in l. shoulder.—25th. Pressure on crest of ilium, more on r. than l. 4 p.m., eructation once with pyrosis which

soon ceased.—26th. On awaking, general perspiration. 8 a.m., took same dose; at 8.45, drawing in anus; at 9, sense of distension and of cold in pit of stomach, with diminished appetite; pricking here and there as if with needles; stiffness in nape with cracking of cervical vertebræ on moving neck; head confused; tongue coated white; at 4, violent fit of chilliness; eructation, pyrosis and nausea with feeling of being downright ill; pain in lumbar vertebræ; abdomen distended with wind. On account of incessant chill, I went to bed at 7, but could not get my feet warm till about 10, though I applied a hot brick. Four times in n. copious watery whitish stool with nausea.—27th. Towards m. two watery stools. Towards e., moist skin.—28th. No stool.—29th. Evacuation normal.

f. July 11th. As I had no other sufferings up to this date, I took 6 dr. at 8 a.m. At noon pressure on r. crest of ilium; stiffness in nape; crackling of cervical vertebræ on moving neck; distension of gastric region. In afternoon feeling of cold in feet. In e. diminished appetite; digging in intestines, with some degree of nausea. A little lump on edge of upper lip on l. side, afterwards forming a white blister, opening of which was followed by continued burning pain.—13th. Took 6 dr. at 8 a.m.; at 11, pain in lumbar vertebræ. Towards e., fit of coughing; sensation like dust in trachea and behind sternum, which cannot be removed by coughing.—14th, a.m., cough as last e. 11 a.m., took 6 dr.; p.m., drawing in anus. In e. an uncomfortable feel in abdomen, with nausea.—15th. Pressure on crest of ilium; unusually soft stool; cracking in cervical vertebræ on moving neck, with pain in muscles of nape; tongue coated white; diminished appetite; cough with sensation of dust in trachea; peevish temper; dislike to speaking. Next d. no more suffering.

g. 22nd, 3 a.m., took 12 dr. in water; nausea in $\frac{1}{2}$ h.; towards e. fit of chilliness with chattering of teeth, and cold hands and feet; peevishness; confusion of head; cold feel in gastric region.—23rd, 9 a.m., took 6 dr.; shortly after, paralytic drawing in l. arm; pricking in skin; cold feeling, especially in hands and feet.—24th. Aching sensation deep in hypogastrium; paralytic drawing in nape; sensation of distension in r. hypochondrium.—26th, 3 p.m., took 8 dr.; directly after stiffness and paralytic drawing in nape, with sensation on moving neck as if it were broken.—27th. On awaking pain in forehead; 8 a.m., took 10 dr. In $\frac{1}{2}$ h. movement in abdomen, with nausea; pressure on crest of l. ilium.—29th, 8 a.m., 6 dr., and 3 p.m., 6 more. At 4 p.m., nausea, peevishness, pressure on small spot in liver at bend of ribs in *linea mammalis*; paralytic drawing in r. shoulder; weight in head; stiffness in nape.—30th. Aching in intestines; drawing in anus; pain like pinching on small spot on r. side of glans; peevishness; confusion of head; nape as if broken on raising head; pain in l. cheek-bone; skin painful to touch close above l. brow.—31st, a.m., pain in l. cheek-bone; pain in hypogastrium. (*Ibid.*, 165.)

18. District Recruiting-Sergeant S.—:—I am 35 years old, of excitable disposition, sound in body, with exception of slight rheumatic pains, which I formerly experienced in various parts of my body, but of which I have had no return for a long time.

a. On Nov. 19th, 1861, at 1.30 p.m., I took a teaspoonful of tinct. Half an h. afterwards, feeling as if hair 2 inches above forehead, and at back of head, were bristling up on end. An h. later, two stools in quick succession, my usual habit being an evacuation in m. only. Between 3 and 4 p.m., dry heat set in over whole body, which ended in strong fever; pulse strong and full, with oppression and pressure in stomach. The oppressive feeling moved upwards towards chest as high as clavicles. At 4.15, burning pain in cheek-bones, moving thence to eyelids, with pain in forehead over eye; thence pain proceeded to occiput, and disappeared towards 5; drowsiness after dark; lying in bed, but unable to sleep, from 10 till 12, then a good sleep till towards m.—20th. From 3 till half-past, dry heat as yesterday, pulse stronger, beating from 110 to 120. At half-past 3, fever began more violently, and ended very suddenly after 4. Burning sensation in eyes lasted till half-past 4; some thirst; drowsiness in e.; comfortable sleep from half past 11 till m.—21st. Fever at same time as on 19th and 20th, but attack was slight. In e., pressure in temples; slept well; cheerful state of mind. I remarked an unusual feeling of good health. Perspiration was insignificant; dreams confused, but not painful.

b. December 8th. At 7 a.m. and at 7 p.m. took 2 dr. No change throughout d. At 6, in e., suffered from heartburn; 5 m. after taking the 2 dr. it disappeared. From 10 till 11, restlessness in bed; dryness in throat; nausea and flow of water in mouth; good sleep from 11.30 till nearly 7.30.—9th. Two dr., as on 8th. No effect.—10th. Four dr. as on 8th. Excited, but in other respects pleasant state of mind. In bed, rheumatic pains in occiput, also in forehead.—11th. Four dr. at 7 a.m. and at 12 p.m. No symptoms in forenoon. From 3 p.m. drawing together of abdominal muscles, and pain round navel; digging in stomach. 12th and 13th.—Took nothing. 14th and 15th.—Six dr. at 7 a.m. and 2 p.m. No a.m. symptoms on 14th. At 12, crawling and itching in rectum; 5 m. after, pricking in great toe. The same at 10.30 p.m., followed by renewed crawling and itching in rectum and scrotum, which lasted for 3 or 4 m., with frequent inclination to urine. At 7.30 p.m., another stool.—15th. At 3, crawling in perinæum and glans penis, extending to toes and point of nose, later in perinæum; stitches in lower part of l. lung. At 4, burning in eyelids; watery eyes. After 5 I observed nothing more.—16th, 17th, and 18th. Took nothing in consequence of rheumatic pains here and there, restlessness in bed at n., and general indisposition.—19th. Eight dr. at 7 a.m. and 2 p.m. At 9, pains in navel; at 10, crawling in r. hand, and at half-past 10, in perinæum. At 2, a little nausea rising from stomach. At 2.45, stitches in thorax, tense feeling in r. region of occiput. At 5, crawling at anus; 5 m. later, in forehead; rheumatic pains over whole body.—20th and 21st. Took nothing.—22nd. Eight dr. at 8 a.m. At 12, crawling in r. thumb, and at 8 in point of nose. From 23rd to Jan. 1st took nothing, as itching and crawling sensations became insufferable. During this time I observed no other symptoms.—2nd. At 1.15, took 9 dr. At 2, burning pain in eyes. At half-past 2, crawling in front joints of toes of r. foot. At 2.45, rheumatic pain in r. forearm. At 3, drawing in r.

testicle; 5 m. after in upper incisors; 5 m. later, drawing in r. testicle. At 4, drawing pain in r. side of occiput; 10 m. afterwards, drawing in r. testicle; excitement; good sleep after 11.—3rd. Eight dr. 8 a.m. From 9 till half-past 9, rheumatic pains in r. wrist; at 10, in the point of nose; 5 m. after in sinuiput; at 10.45, in r. forearm. At half-past 1, took 8 dr. At 2, pressure in eyelids, with tears. At half-past 4, pain in pit of stomach. At 4.45, crawling in point of nose. At 5, tense feeling in cheeks between eyes and mouth. At half-past 6, nausea. At half past 10, painful crawling in rectum. The rheumatic pains move about through whole body; good sleep from 11.—4th. Took nothing, believing that the rheumatic drawing might be the old complaint, but this opinion was not confirmed. At 3.45, spasmodic pain in pit of stomach. At half-past 8, pricking in r. great toe. At 9, spasmodic pain in cardiac region on r. side. From half-past 10 till 12, restlessness in bed, afterwards slept; frightful dreams twice.—5th. At half-past 10, took 8 dr. in water. At 11.15, same pain as yesterday in cardiac region; when this ceased, spasmodic pain in r. eye which lasted for 2 m. In e. excitement of body from 10 till half-past 11.—6th. At an early h. *Suavis* coryza, without any cause for it. At half past 8, took 8 dr. At 9, stitch in third joint of r. forefinger. At half-past 9, stitch in second joint of same finger. At half-past 5, stitches in fore part of lower region of thorax, which move thence into intestines below navel. At 7, stitches close under heart; no sleep from 10 till half-past 11, then sound sleep till half-past 7; great lassitude in early m.—7th. At 10, took 8 dr. At 11, oppressive pain in cardiac region above.—8th. Took nothing. At half-past 10, stitches under ribs on r. side. At 12, rheumatic pains extending from l. shoulder to elbow. In consequence of the doses taken the previous days, I am in such an excitable state of mind that I feel myself obliged to stop for some days. The symptoms are so varied that some cannot be recorded. My complexion is a greyish yellow, so that my unhealthy appearance strikes everyone; my hands also are become yellow; my bowels are confined since two days, notwithstanding efforts to move them; I slept well,—on 8th, from 11; on 9th, from half-past 10; on 10th, from 12; on 11th, from 1.15; on 12th, from 11 at n. till 8 in m. In intermediate hours from 10 much restlessness in bed. On 12th I was troubled with distressing dreams. On 13th my complexion, as also my hands, had resumed their natural colour. From 8th to 12th my stools were of a reddish-white colour, instead of a brown grey as formerly; they were also harder than usual.

c.—12th. Took 8 dr. at 8 a.m. At 10, stitches between shoulders. At 12, crawling in perinæum. At 4, burning in urethra on making water. At half-past 5, oppression between shoulders.—15th. At half-past 8 took 8 dr. Throughout day dull pain and heaviness in head. At 8.45 p.m., constrictive pain between shoulders. At 10, crawling in rectum, immediately after which considerable oppression of chest. Slept well from half-past 10 till half past 7 in m.—16th. Took 8 dr. at half-past 8 in m. At 12, crawling in rectum, and same at 3 p.m. At half-past 1, took 8 dr. At 3.15, oppression of the chest, and rheumatic headache. From 2 till nearly 6, heat in eyes, relieved by closing them. Slept from half-past 11.—17th. Took 8 dr. at half-

past 8. At 10, stitches in perinæum. At 10.15, stitches in r. side under scapula, and 5 m. afterwards same in perinæum and testicles; 5 m. after in r. shoulder. At half-past 11, same in scrotum. My whole body is in an excited state. The symptoms appear so frequently that they can no longer be recorded. Stool at half-past 12, light red and painful.—18th. Took nothing. At 10 p.m., stitches in liver. Unusual excitement throughout d., as well as at n. Slept from half-past 11, restless and dreaming, but not distressing dreams.—19th. Cheerful. At 3, pricking in liver; from 10.30, sleep, with light dreams.—20th. At 8.30, took 8 dr.; no change a.m.; 3 p.m., congestion in occiput; from 4.15 to 5, cheeks burning; after 10, sound sleep.—21st. At 1.30 took 8 dr. From 4 to 6, congestion in head; eyes and cheeks especially hot; 5 p.m., crawling sensation in rectum.—22nd. Took 8 dr. at 8 and at 1.30; burning in eyes all d.; lips dry, brittle, and crusty; itching sensation in meatus auditorius, first of one ear, then the other; from 10, sound sleep.—23rd. Took 15 dr. at 8; nothing remarkable a.m.; lips better. At 2.45, spasmodic pressure on stomach; at 2.30, considerable congestion with heat of head, till about 4; at 2.45, pressure on stomach, with nausea.—24th. Took 8 dr. at 8 and at 1.30. At 10 and 11, crawling in perinæum and rectum; burning in r. eye; at 4, crawling in perinæum; dryness of nose and lips.—27th. Took 8 dr. at 8. At 10, pricking in r. shoulder and testicles; at 11, pricking pain in forehead, r. side; at 2 p.m., almost uninterrupted itching of perinæum; lips dry, eyes burning; at 4, pricking in r. great toe, repeatedly; at 4.30, pricking in glans and r. great toe.—28th. Took 8 dr. at 8 a.m.; head confused.—29th. Took 8 dr. at 8. At 5 p.m., spasmodic contraction of region of navel; then pricking pains in r. meatus auditorius and upper part of forehead.—Feb. 15th. During whole fortnight since Jan. 30th troublesome tormenting itching in the anus and rectum.—March 8th. Since Feb. 15th slighter itching of the anus and rectum, from d. to d. From March 8th I suffered from noise in the ears and hardness of hearing for some weeks, so that I had to discontinue the proving for some time; as the noise in ears did not go off of itself, a dose of sulphur caused profuse perspiration, and the noise ceased.

d. Having felt no inconvenience for more than a week I ventured on April 6th to resume the proving.—April 6th. At 11, 1, and 3, took 3 dr. each time in water; in 2 h. after, dull pain in temples.—7th. At 11, 1, 3, and 6, took 3 dr. in water; in afternoon, drawing pains all over body, with fluxus coryza; violent drawing pains from crown to r. temple, so that I had to go to bed at 8.—8th. Took no more on account of continued pains as yesterday.—9th. At 9, 11, 1, 3, and 6, took 2 dr. in water; at 11, pricking in point of nose.—12th. At 8, 11, 1, and 5, took 2 dr.—13th. Drawing pain through lower middle incisors early; at 8, in r. cheek-bone.—14th. At 7, 9, 11, 1, and 8, took 2 dr.—15th. At 8, 10, 12, 2, and 10, 2 dr.; urine soon after passing it became reddish and turbid; stool whitish red.—18th. At 9, 12, and 10, 3 dr.; at 3 p.m., itching in rectum, and at 4 in point of nose; general heat, with restlessness, and paralytic sensation in the legs all d.; urine reddish; pressive pain in occiput.

r. Up to the beginning of June I had to give up the proving for want of time for observing. As far as I could notice I had no suffering during the interval.—June 11th. At 8, 10, 2, and 10, took 2 dr.; at 8 p.m., cutting in intestines, all round navel.—12th. Sleepless till after 11; in m., tongue shaggy, coated with grey, which could be partly scraped off; hawking up of lumps of phlegm; at 8, 10, 12, 2, 6, and 8, took 2 dr.; ringing in ears, yawning, burning and redness of cheeks.—13th. Sleepless till after 11; distressing dream that I was going to be shot. At 8, 10, 12, 5, and 10 o'clock, took 2 dr.; from 5 to 6, burning of tip of ear, pressure in upper jaws; about 8 p.m., chill; at 10, dull pressure in r. cheek-bone, extending to r. ear; tongue coated grey all d.—14th. At 9, 11, 1, 3, 6 and 10 o'clock, took 2 dr.; at 3 p.m., pressure with ringing in r. meatus auditorius; at 5, itching in anus, pricking pain in forehead several times; tongue cleaner.—15th. At 9, 11, 3, and 8 o'clock, took 2 dr. At 11 a.m., toothache in l. upper jaw.—16th. At 9, 11, 12, 3, and 5, took 2 dr.; sleepy p.m.; at 3, pain in r. cheek-bone and upper part of occiput; at 7, pressure and constriction from r. shoulder-blade, spreading through chest towards sternum; pressure on larynx, as if it was constricted; oppression of chest.—17th. Same symptoms, so I took no more; at 5 p.m., burning in tips of ears.—18th. Same pressive pain in chest, with great tightness.—19th. At 10, 12, and 2, took 3 dr.; heat all over head all d.; tearing from cheek-bone towards ear, and all around it, on r. side; from thence it extends towards occiput in upper part, towards suture with parietal bones; feeling as if hair was bristling.—20th. Heat, with feeling as if hair bristled; feet and tips of fingers cold.—21st. At 7.30 and at 2 p.m., took 5 dr.; at 8.15, constrictive pressure in scrobiculus cordis, dryness in throat, shortness of breath, and ringing in ears; feet and fingers cold.—22nd. At 10, took 5 dr.; feet and tips of fingers cold; pressure on bladder, with frequent scanty urine; hair falling off.—23rd. Took none; at 11, itching in anus; at 5, pain in r. little finger.—25th. At 9 a.m., 5 dr.; at 3 p.m., burning in eyes, then in forehead; at 5.15, itching on r. ankle, at 7, on l.; at 9, pricking in r. wrist, itching in r. ear, burning in tips of ears, and reddened cheeks; loose stool.—26th. Took none, stool as yesterday.—27th and 28th. Constipation.—29th. At 9, 5 dr.; at 10, three pappy light grey stools.—30th. Perspiration on awaking, after distressing dreams; dryness in nose and throat. At 10, took 10 dr.; at 11, itching in r. ear, at 11.15, in rectum; at 5.30, sense of swelling in r. cheek-bone, pressure in eyes, burning in tips of ears, and cold in tip of nose; at 6, itching in anus, burning cheeks, glitter before eyes, itching in ears and anus, excitement and restlessness, frequent yawning, pricking close under l. shoulder-blade.—July 1st, m., sweat after good sleep and disagreeable dreams. At 1 p.m., 10 dr.; from 3 to 7 p.m., heat in face; at 9, rigor; sleeplessness from 10 to 11.—2nd. At 6 a.m., 10 dr. At 11.30, shooting on inside of l. lower eyelid; burning in lower eyelids; at 2.45 p.m., pain in nasal bone; stuffed cold; at 5 p.m., dazzling before eyes.—3rd. At 11 a.m., 10 dr. Immediately afterwards pain in r. shoulder; ringing in ears; at 1 p.m., aching in chest under both arms, constriction as though chest were

tightly bound; itching in perineum; at 5 p.m., burning in tips of ears; dull aching in r. temple extending towards vertex; from 7 to 8 p.m., rigor with chattering of teeth.—4th. At 8 a.m., 10 dr. Constant chilliness.—8th. At 2 p.m., 10 dr. At 5 p.m., tensive pressure below l. scapula; aching in temples; ringing in ears; burning in l. ear, whilst r. is quite cold. At 6 p.m., aching in sacrum, which slowly rises to below scapulae, and lasts till 10 p.m.; itching in point of nose.—9th. At 10 a.m., 10 dr. At 8 p.m., itching under l. great toe ball, and shooting under l. little toe; falling out of hair continues. At 9 p.m., aching under r. scapula; burning in forehead. About 10 p.m., pain in occiput, in the midst of which I fell asleep.—10th. At 1 p.m., 10 dr. At 5, shooting on border of l. ribs; at 5.15, aching pain in r. thumb; at 5.30, shooting in frontal bone right over l. eye; thereafter on l. side of occiput. At 6 p.m., 10 dr. At 7, shooting in r. heel; ringing in r. ear; dryness in throat; great weariness.—11th. Dream of a journey at n. At 6 a.m., 6 dr. Roughness and dryness of throat; swollen belly; at 8.45, burning in r. thumb-ball; about 10 a.m., sleepiness, dazzling before eyes, shuddering. At 1 p.m., 10 dr. At 1.30, violent throbbing in temporal arteries, with headache; aching pain in r. temple, then in r. parietal bone, lastly close over r. eye; itching in l. ear; viscid ear-wax of a whitish colour, like flour paste; at 6 p.m., burning in l. ear, whilst r. is cold.—14th. At 11 a.m., 10 dr. From 3 to 4 p.m., burning in cheeks; shooting in inside of r. eyelid; aching in r. temple and itching in r. ear.—15th. At 10 a.m., 10 dr. At 4 p.m., general dry heat, with pulse 100 to 110; cold ears; pain behind r. ear, in forehead and vertex.—16th. At 9 a.m., 5 dr. At 11, dryness and itching in l. nostril; from 1 to 2 p.m., tearing in meatus auditorius and temporal bone; at 8, aching pain in r. malar bone; at 10, itching in l. toes, at 10.15 over r. ankle.—17th. At 8 a.m., 5 dr. At 10, itching in r. sole.—22nd. At 10 a.m., 5 dr. Itching on coccyx; at 1.30 p.m., stiches on inside of l. lower eyelid; dryness in throat and nose; at 2.45, drawing in l. great toe; at 2, pain in r. malar bone and below l. scapula; at 4, short jerk in upper incisors; pain in l. ankle, especially when walking.—23rd. At 6.30 and 11 a.m., and 4 p.m., 5 dr. At 1 p.m., itching in anus; at 4.30, cold ears; dry nose; hot forehead, with headache; constriction of stomach. At 4.45, itching in second joint of l. middle finger, at 7.30, of point of nose, at 7.45 in anus; at 8, heat in nose; from 10 to 11, heat and burning in ears, point of nose, malar bones and forehead; itching in r. sole.—24th. At 8 a.m., 5 dr. From 10 to 11, pain in sacrum; shooting pain in l. parietal bone. At 11, 5 dr. At 12.30, pain under r. scapula. At 1.15 p.m., pain in l. side of chest; shooting pain in r. parietal bone; itching in l. nostril; pinching pressure below l. clavicle and up neck; flying heat of face. At 3, 5 dr. Restlessness in bed till after 11.—25th. At 9 and 11 a.m., 5 dr. At 12, itching in l. nostril; at 12.15, shooting in l. index; wandering pains throughout body; ringing in both ears; at 12.30, dull aching pain below r. scapula; aching in stomach; at 3, pain in r. upper eye-tooth; till about 6 p.m., pinching in back, extending round l. ribs; at 6, shoots in l. index. (*Ibid.*, 189.)

19. *a.* District Secretary P.— On Nov. 19th, 1861, p.m., Dr. X— gave me a small teaspoonful of a bitter medicine with which I was unacquainted, and he wished me to tell what I felt after taking it. In a short time I had eructations without any particular taste, and a discharge of flatus. Later, sudden shooting in r. upper eyelid, which soon went off. Then there came on a rush of blood to head and chest, which lasted some h. I felt heat in face and burning in ears; a certain but not great degree of anxiety of chest, during which arms and legs were rather cold, particularly so towards e. The next d. the fever recurred about the same time, but did not last so long. Later, no particular symptoms except a better appetite.

b. I am 34 years old, of middle size, rather delicate constitution, and, as my habits are sedentary, I have suffered much for many years from colds, which, however, of late years have not been so troublesome, owing to diligent washing with cold water, and in summer cold bathing. I am also troubled with a weak digestion, at least I suppose so, as I have often heartburn, especially at n., but also by d.; I have also piles, which rarely bleed. Hitherto I have seldom suffered from cough, but have often a considerable amount of expectoration (without cough). My temperament has not much of the phlegmatic in it, but is rather restless and passionate. My manner of living is regular; it may happen that I sometimes eat more than I ought; I am moderate in drinking; I seldom touch spirits, and then only in small quantities, never in the house; I take Bavarian beer several times in the week, on an average two pints. For some time during last summer and autumn I had slight epistaxis after taking beer. At present I am quite free from symptoms. From Dec. 10th I have taken the medicine given me by Dr. X—, by drops, in a cupful of water.—10th. In e., 6 dr. Thereafter eructation and transient formication in forehead.—11th. In m. 6 dr. Soon afterwards dull headache; drawing in shoulders; transient cutting belly-ache and drawing in l. meatus auditorius; fluent coryza. From thenceforward to 20th inclusive took every m. and on some e. from 6 to 8 dr.—12th. Cramp-like belly-ache betwixt navel and scrobiculus, not lasting long, soon after taking medicine.—13th. Pain in bowels as on 12th, but not so severe. In e. 6 dr., followed by stitches in chest.—14th. Ringing in l. ear; no other symptom observed.—15th. No effects.—16th. Some belly-ache and transient sacral pain; eructation; soon after taking, bowels opened, not diarrhoeic; I have had this regularly each time after taking medicine.—17th. Headache and fluent coryza. After taking the medicine again in e. deep-seated pain over pubes.—18th. Rumbling in bowels and some diarrhoea; disagreeable cutting feeling in urethra during and after urinating.—19th. Rumbling in bowels and some belly-ache; at n. and the following d. pains in l. side.—20th. In m. rumbling in bowels and diarrhoea; in e. at first no effects, afterwards tearing in l. side of occiput, over ear and towards front; eructation; coryza. I now made a pause until Jan. 6th, on account of violent catarrhal fever.

c. Jan. 6th—16th. Took every m. 6—8 dr. On 6th, no effects.—7th. Violent painful tearing in r. arm and head; paralysed feeling in r. arm.—8th. In m. no effects; in e. itching in rectum, then teat-

ing in r. arm and paralysed feeling in it; itching and shooting in different parts of skin. Till 16th, no particular effect, except itching of skin of back, calves, and shins. On m. of this d. some distension of stomach and abdomen, and much itching in skin all over body.—17th. In m. 12 dr. Itching of skin; shooting on different parts of skin, especially on back, arms, and legs; stomach-ache, alternating with violent headache from nape to forehead and temples, which returns. In afternoon ill-humoured, cross; repeated attacks of violent throbbing pains from nape to occiput and forehead. I have dreamt much since taking medicine, but not slept badly.—20th. In m. 8 dr. Violent itching on calves and shins, also on back and forearms, sides of the hips to axillæ, also on ribs, particularly in the afternoon and towards e., so that I scratched my calves till they bled.—21st and 22nd. I went on a journey, and took no medicine. Itching on the forehead and temples continued.—23rd. In m. 8 dr. Itching of skin.—24th. In m. 8 dr.; in e. 6 dr. The same.—24th. In m. 8 dr. Itching of the skin continues; single pimples on back and loins.—25th. Immediately after taking dose, itching on belly.—26th and 29th. I was away and took no medicine.—27th, 28th, 30th. In m. 8 dr. Itching of skin.—31st. In m. 14 dr.; in e. 16 dr. Itching here and there on skin continues, and I scratched my arms till they bled. In e. transient aching pain in l. scapula; call to stool; eructation previously. On the whole I feel much better after taking medicine; I have a better and heartier appetite than before; feel stronger and more vigorous, and complain less of cold feet, from which I used to suffer so much in winter.

d. On April 5th I recommenced proving. In the interval I felt quite well. At 7 a.m., 10 dr. in a cup of water. Soon afterwards pressure in abdomen and urging to stool, without diarrhoea; pressure in abdomen (umbilical region) lasted an h.; thereafter itching in skin of abdomen, breast, and ribs on l. side.—6th. At 7 a.m., 12 dr. Itching of skin; single small shooting pustules in different parts of skin.—7th. At 7 a.m., 15 dr. Soon afterwards dull pains in forehead; ill humour; stool brown and watery; continued pains in teeth, which obliged me to leave off the proving.

e. 21st. At 7 a.m., 12 dr. Weariness all d.—22nd. At 7 a.m., 10 dr. Soon afterwards eructation; pain in bowels and gastric region; discharge of flatus; call to stool without diarrhoea; weariness all d.—23rd. At 7 a.m., 9 dr. Itching of skin, and small pustules on various parts; weariness.—24th. At 7 a.m., 12 dr. Increased itching all over body.—25th. At 7 a.m., 9 dr. Sleepiness; aching pain in forehead and itching of skin all d.—26th. At 7 a.m., 9 dr. Until noon fluent coryza; in afternoon, tearing pains in forehead; heartburn, which went off immediately after taking 3 dr.—27th. At 7 a.m., 20 dr. Until noon, perspiration on upper part of body, and ill humour; about 9 a.m., transient pain in l. side of chest. At noon, 12 dr.; at 7 p.m., 20 dr. Thereafter dull headache until bedtime; sweat at n., also towards m.—28th. At 7 a.m., 20 dr. Soon afterwards pain in bowels, in umbilical region; frontal headache and itching of skin; at noon digging pain in gastric region, lasting after eating. At 7 p.m., 20 dr. Pain above navel comes on immediately after taking medicine; tran-

sient pain in l. meatus auditorius; shooting and itching of skin in various parts; dull frontal pain; sweat towards m., three soft stools.—29th. In m. 22, at noon 10, in e. 12 dr. Each time after taking, eructation; all forenoon pain as before in umbilical region, and itching in anus; in e., after taking drops, transient pain in l. side of chest, and frontal headache; perspiration towards m.—30th. At 7 a.m., 20 dr. Soon afterwards eructations; violent pressing spasmodic pain in umbilical region for a second only, but often recurring; in afternoon pain is more constant, spasmodic; during d. 3 soft stools mixed with mucus.—May 1st. At noon, 15 dr. Half an h. after, itching of skin; tearing pain in r. shoulder; thereafter pains in l. chest; itching in anus and great weariness; after 2 h. shooting in forehead under skin, followed by dull frontal headache; eructation and constant itching of skin till e. At 7 p.m., 20 dr. Soon afterwards tearing in r. arm; sweat towards m.; stool as yesterday; good sleep, with dreams about ordinary things.—2nd. At 7 a.m., 24 dr. Throughout forenoon confusion of head; pressure in forehead and temples, especially l.; shoutings in l. chest. At 3 p.m., aching pains close above navel, drawing up to l. chest; tearing in r. arm; frequent discharge of flatus; in e. 20 dr., thereupon pains in umbilical region and dull pain in forehead.—3rd. At 7 a.m., 24 dr. Immediately afterwards eructation; tearing in r. shoulder and dull frontal headache; on awaking, on blowing the nose, thick black blood appeared among the nasal mucus (I had been rather subject to epistaxis). Repeated bleeding of gums in the forenoon. At noon, 15 dr. In $\frac{1}{4}$ h. eructation, itching of skin, tearing in r. shoulder, and shooting in skin here and there.—4th. At 7 a.m., 20 dr. Soon afterwards transient pains in r. chest.—5th. At 7 a.m., 20 dr. Immediately eructation and pain in side, like yesterday; aching pains right over navel. At 2 p.m., 20 dr. Soon after again same belly-ache and pains, first in r. and then in l. side; severe fluent coryza. At 6 p.m., 25 dr. Soon afterwards tension and swelling in gastric region; shoutings on inside of l. arm near elbow-joint, frequently recurring, also on inner side of l. thigh; pain in l. side of chest; took nothing more till May 19th, and felt no symptoms.—19th. At 7 a.m., 18 dr. Soon afterwards pain in r. side of forehead; later still pain all over forehead; drawing in l. meatus auditorius; itching of skin on different parts of trunk. At noon, 18 dr.; at 6 p.m., 20 dr. No symptom except itching of skin.—20th. At 7 a.m., 10 dr. Soon afterwards rumbling in bowels, and 2 h. after, until noon, continued dull frontal headache; in afternoon, rigor. At 6 p.m., 20 dr. Many dreams, and sweat towards m.—21st. At 7 a.m., 20 dr. Rigor, and itching of skin all d.—22nd. At 7 a.m., 20 dr. In an h. painful feeling in glans; frontal headache; drawing pain from l. scapula to l. upper arm, followed by painful drawing in back of l. hand. At 6 p.m., 20 dr. Immediately afterwards drawing pain from l. ear to l. upper teeth.—23rd. At 7 a.m., 20 dr. Soon afterwards rumbling in bowels, followed by dull frontal headache, and later burning, shooting pain in r. metatarsus and bones of toes; in afternoon no symptoms. At 6 p.m., 20 dr., whereupon pain in third toe of r. foot recommenced.—24th. At 7 a.m., 18 dr. Soon afterwards aching pain in gastric region, and pain in 4th and 5th toes of r. foot;

after this drawing from l. meatus auditorius to l. temple; dull frontal headache; 2 h. afterwards severe tearing in r. then in l. temple; tearing pain in thigh; no symptoms in afternoon.—25th. At 7 a.m., 18 dr. In $\frac{1}{2}$ h. tearing in l. upper arm and drawing in l. hand; transient pain in r. chest; dull frontal headache; repeated attacks of pain in r. foot extending towards toes; drawing in l. side of nape and l. meatus auditorius; drawing rheumatic pains here and there all d.—June 2nd. As the drawing pains lasted all yesterday I took no more of the medicine till to-day. At 7 a.m., 20 dr. Soon afterwards pains in r. side of chest, and frontal headache; urging to stool. At noon, 20 dr. Soon afterwards rumbling in bowels. At 7 p.m., 20 dr. Violent pain in l. side of forehead towards l. temple, soon passing off.—3rd. At 7 a.m. and 7 p.m., 20 dr. Tearing and shooting all d., here and there; worst in r. leg, spreading from above downwards.—4th. At 7 a.m., 25 dr. Soon afterwards transient violent shooting pain in belly right over navel. At noon, 25 dr. Great weariness after dinner; in afternoon tearing in r. shoulder. At 7 p.m., 20 dr. At n. perspiration and many dreams.—5th. In m., 25 dr. Soon afterwards violent toothache in l. side of both jaws, which recurs and lasts several m.; aching pains in both temples; about noon, heartburn and great weariness. At noon, 25 dr. Repeated tearing in teeth of l. side in afternoon; the pain spreads into l. meatus auditorius; sweat bursts out when pain comes on. At 7 p.m., 20 dr. Continued toothache all n. long.—8th. Toothache continued, with few intermissions, till yesterday, wherefore I took no medicine. At 7 a.m., 20 dr. Soon afterwards toothache in r. side lasting till e.; violent but transient shoots in r. side of chest. At 7 p.m., 20 dr. Toothache again passes to l. side.—9th. During n. toothache extended to whole l. cheek, but was occasionally also felt in r. side, in consequence of which I took no medicine to-day.—18th. Until the day before yesterday still frequent attacks of toothache, now on l. now on r. side, alternating with flying stiches in l. chest. At 7 p.m., 24 dr. Soon afterwards drawing in l. ear and molar teeth.—19th. At 7 a.m., 24 dr. Soon afterwards confusion of head; in course of 2 h. two stools of ordinary character.—20th. At 7 a.m., 24 dr. Soon afterwards tearing in r. arm; drawing in l. teeth and l. meatus auditorius.—23rd. In m., 20 dr. Soon afterwards pinching in bowels and rumbling; cough caused by irritation in larynx, soon going off; drawing in l. meatus auditorius.

f. July 4th. From to-day I took the drops without water. At 7 a.m., 5 dr. Immediately afterwards violent aching shooting in r. eye, soon afterwards in l. eye; drawing in molar teeth and in l. meatus auditorius, afterwards in l. knee; slimy taste in mouth; eructation; thereafter drawing in teeth, first on r. side then on l.—10th, m. and e., 20 dr., without effect.—11th. At 7 a.m., 15 dr. Itching in rectum; tearing in teeth here and there.—22nd. At 7 a.m., 20 dr. Immediately after heat in head; eructation. At 8, same dose. Immediately afterwards shooting in l. eyelid. At 2 p.m., same dose. Warmth and restlessness in whole body; eructation; sweat in axillæ; transient toothache, first on r. then on l. side; itching in l. palm; shooting in 2 corn on r. foot; paralysed feeling in l. forearm; dull aching frontal

headache; itching in anus; tearing in l. teeth. At 7 p.m., same dose. Shooting and tearing in teeth, first on l. then on r. side.—23rd. Early in m. tearing in teeth on r. side; dazeling before eyes, and vertigo, lasting more than $\frac{1}{2}$ h. At 7 a.m., 10 dr. Immediate eructation; occasional drawing in teeth; dull frontal pain; drawing in l. molars and malar bone. Noon, 15 dr.; no effect. 3 p.m., 10 dr.; tearing in l. teeth. 7 p.m., 10 dr.; same tearing in teeth.—24th. At 7 a.m., 10 dr. Soon afterwards violent drawing pain in l. upper jaw and cheek-bone, with heat in cheek up to eye.—25th. At 7 a.m., 15 dr. Immediately afterwards shooting in anus and l. thigh. At 11, 20 dr. Immediately afterwards eructation. At 7 p.m., 20 dr. Drawing pains in teeth; fluxus coryza.—26th. At 7 a.m., 20 dr. Coryza continues; itching in anus; aching frontal headache; transient pain in r. side of chest; continued drawing in teeth all d.—27th. On account of continual drawing in teeth took no medicine.—28th. At 7 a.m., 20 dr. Soon flying shoots in r. chest; drawing in both cheek-bones and l. meatus auditorius. At 9, 30 dr. Soon afterwards tearing in shoulders and l. arm. At 11, 30 dr. Periodical toothache; in afternoon frequent tearings from r. ear into r. teeth.—29th. Toothache like yesterday. At 7 a.m., 200 dr. at once. Toothache extends into cheek-bones; tearing in l. arm; violent shooting in a decayed r. molar.—30th. Pains returning periodically all n. as yesterday, and are still to-day troublesome.—31st. At 7 a.m., 160 dr. at once. Throughout d. violent toothache, especially after eating warm food; sweat every m. for five weeks past.—Aug. 3rd. Periodical toothache on 1st and 2nd; last n. little sleep on account of violent toothache on l. side.—7th. Toothache not gone yet; frequent tearing in l. ear and l. upper arm; flying stitches in side and pains in chest.—22nd. For last fortnight toothache has never left me for whole d.; appetite became bad, so that I could eat but little; pains were worst last n.; they extend into l. temple and forehead, with heat in l. side of forehead; pain is periodically tearing also in l. ear; as the pains were insupportable they gave me Arsen. 30, whereafter the pains became better; emaciation; pale sunken countenance; hypochondriacal humour.—Sept. 9th. The toothache, which always extends into l. temple and forehead, where also continuous violent tearing is felt, has recurred almost every d.; I have no relish for food; I feel languid and disinclined for all work; motions are, on the whole, looser, and occur several times daily; spirits have been very low for some weeks; I feel very unhappy and have no disposition to talk.—30th. Until the 16th I suffered daily from toothache periodically occurring, which, however, after returning from a three days' excursion into the Hartz hills on the 17th, did not recur; my countenance has again a fresh appearance, and my spirits are cheerful; my appetite also has returned. (*Ibid.*, lxxi, 4.)

20. Frederick Augustus R.—, private secretary, æt. 54, very thin, 5 ft. 8 in. high, strong bones, muscles moderate. Skin white; complexion pale; hair blond, thin, soft; eyes blue; appetite very good, sometimes almost morbid, continuing after a meal. I have given up beer and cigars, as they are very injurious to my throat, causing dryness and a choking sensation. Character: very easily excited to anger, soon repented of; after a fit of vexation, loss of appetite; easily affected by

the sufferings or sadness of others, or by reading sad stories; of a yielding sympathetic disposition, cheerful; love of music (not noisy music) and song and cheerful society; make up mind rapidly; courageous. Other peculiarities: rheumatic sufferings before and during wet weather; damp, cold, and draughts of air cause suffering; dry wind in the open air agrees; dry cold or heat are not disagreeable; easily tired with standing, or with mental or bodily efforts, the latter readily producing perspiration; being in a newly scrubbed room, and the smell of newly washed linen, very disagreeable, headache and vertigo caused thereby.

α. Jan. 20th, 1862. At 10 p.m., 10 dr. of tss dil.; slept from 11 till 8 without dreaming.—21st. At 11 a.m., 10 dr. of tinct. At 10 p.m., 15 dr. At 8 a.m., tensive feeling on r. side of head from r. temple to middle of forehead; at noon, yawning, stretching, drowsiness, as after a sleepless night; disinclination for work; laziness all day; ill humour; dizzy heaviness and tension on upper part of head, especially in vertex, which pains as if raw when touched, unaltered by rest, motion, warmth or cold, only aggravated by thinking; on combing hair pains in roots of hair as if ulcerated; gurgling or quivering movement in front of neck above larynx, without pain, lasting some seconds and returning in a few m., all d. long; bowels, as usual, regular.—22nd. At 10 a.m., 20 dr. At 5 and 9 p.m., 25 dr. Undisturbed sleep; dreams of funerals and corpses; on rising from bed vertigo, with inclination to fall forwards (for a minute); all symptoms of yesterday unchanged. At 10 p.m., the tensive heavy feeling in top of head extended into occipital protuberance, and head feels as if surrounded by a band; in throat and windpipe choking feeling, increased by breathing, as from taking beer in former days, or strong cigars; an eruption on dorsum of l. hand, which was there 16 years ago, and only showed itself every year by a slight desquamation of cuticle, comes back in increased intensity; back of the hand is somewhat swelled; red reticulated patches appear which gnaw and itch without exuding, and then scale off; constipation.—23rd. At 10 a.m. and 7 p.m., 30 dr. At 5 p.m., 25 dr. Slept from 11 till 4 undisturbed; wide awake from 4 till 5, then sound sleep without dreams till 9 a.m.; no vertigo on rising, but symptoms of yesterday continue unchanged; fixed pain as if raw in l. lung, which was inflamed 4 months ago, pain increased by deep breathing; motion hard, knotty, and passing with difficulty, with sore pain in anus.—24th. At 11 a.m. and 3 p.m., 40 dr. Again sound sleep in n.; dreams of cemeteries and funerals; drowsy laziness, yawning, stretching, cross, ill humoured; still like band round head; pain of hairs' roots; tenderness of vertex; choking in throat and windpipe; quivering in neck near larynx; pain in l. lung less; constipation.—25th. At 8 a.m., 35 dr. At n. pretty sound sleep without dreams. The other symptoms continue. At 5.30 p.m., there occur, in addition, intoxicated vertigo with nausea till 9 p.m., and warm perspiration on the face, neck, and chest, with internal and external heat, regular pulse, and no thirst, for ½ h.; vertigo and nausea unaltered by walking, sitting, lying, in open air or in room. At 6 p.m., stool, very hard, knotty, difficult, with cutting pain in anus and rectum; after stool rumbling in

bowels, with sensation of deranged stomach, lasting 2½ h.; pain in l. lung again felt, increased by coughing and sneezing. At 9 p.m., a kind of tingling in feet as after a long walk; at same time internal and external chilliness, with great weight in occiput and drawing in nape from above downwards; at 10.30 p.m. in bed, which had been warmed, increased chilliness and chattering of teeth for about ¼ h.; then sound sleep with few, unremembered dreams; pulse regular.—26th. At 9 a.m., giddy weight in upper part of head, like band round head; tenderness of vertex and of hair; rheumatic drawing pain in nape, worse when turning head to r. or l.; choking sensation in throat and larynx; quivering in neck; increased pain in l. lung; anorexia; nausea with pasty taste; tingling in feet continues; chilliness or heat not noticeable; at noon slight rheumatic pains in l. hip and l. knee for 5 h., and in r. elbow-joint until 10 p.m.; constipation; at n. very quiet sleep without dreams.—27th. Giddy weight in head diminished, but feeling of band round head is still there; moreover, sensitiveness of throat and lung are less; rheumatism in nape scarcely observable. Gone are: rheumatism in hip, arm, and elbows, the nausea and bad taste; the quivering in neck only occurs every 3 or 4 h.; stool at first rather hard, then passed more easily and without pain; great thirst for cold water, which when slaked always returned.—28th. Symptoms of yesterday milder; vertex, when touched, feels as if a wound was healing below it; head still feels bound round, but with looser band; hardly any pain in lung; choking in throat less, but still there; quivering in neck occurred only a few times during d. for an instant; eruption on l. hand gone; bowels regular without effort, stool not hard; sleep quiet, dreamless.—29th. In m. still some oppression of head, and in place of choking feeling, rough and scrappy feeling in throat; no other symptoms observed; great thirst for cold water; mind freer, more cheerful, increased inclination for work.

Addenda.—1. During proving, mind and spirits were more passive, depressed. 2. Desire for cold water went off, and wish for warm drinks came on. 3. Pulse even in the febrile state was always normal. 4. No perceptible effect in urine and genitals.

5. Before commencing the next proving, I observed myself attentively for more than a week, but noticed nothing peculiar that could be confounded with the symptoms caused by this medicine; moreover, I have not reperused my former proving of this medicine, in order to protect myself against the influence of the imagination, and I believe I have recorded all that happened to mind and body truly and faithfully. Although several symptoms, especially the affections of the mind and spirits, were extremely disagreeable and troublesome, and though my body to this day feels the effect, still I made the proving with pleasure and enthusiasm.

June 16th.* At 2 p.m., slight confusion of upper part of head; at 5, pressing sensation in top of head; scalp is tender and hot to touch, also heat in upper part of head; after taking some mild beer, increased heat of head; painful sensation in eyeballs on looking up; no stool;

* The prover has omitted mention of doses taken during this proving. In all probability they were such as before.—Eds.

profound sleep without dreams.—17th. Diminished aching in head; sore feeling of upper part of scalp, and heat is felt there; aching extended into occipital protuberance; shooting pain and heat in index and middle fingers, which had been sprained by a fall eight weeks before; pain in eyeballs less felt to-day; at noon, choking sensation in larynx and surrounding parts (as formerly after taking beer and cigars); tongue white, furred; slight nausea without loss of appetite. At 6 p.m., drowsiness; dimness of eyes; after rubbing them a little, burning feeling in them, in lids and the surrounding parts.—18th. At 8 a.m., pressing sensation in vertex and occiput moderate; scalp tender and hot; drowsiness; dimness of eyes; burning in them and lids; slight pain in eyeballs on moving them; choking and pressing in larynx more felt; shooting and heat in fingers continue; tongue furred, white; slight transient nausea; diminished appetite. At 6 p.m., still giddy weight in forehead; very sound sleep from 10 p.m. to 7 a.m., uninterrupted, dreamless.—19th. At 8 a.m., whole head heavy; aching in forehead and temples extending to nape; on moving eyes pain in eyeballs and feeling of sand in eyes; drowsiness; itching of borders of eyelids; scalp painful and hot to feel; on combing hair, roots of hair are painful; on moving head neck is stiff on both sides, and painful on taking deep breath; feeling in l. lung as if a wound was there; frequent yawning, and thereupon pains in sternum just over scrobiculus cordis; shooting in index and middle fingers as yesterday; saliva viscid and slimy; skin since commencement of proving dry; no chilliness, rather warm; difficulty of thinking; inclined to anger and peevishness; sound dreamless sleep.—20th. Almost all symptoms are in abeyance, those in head only are still perceptible, but milder; there is, however, weariness, unstrung feeling and stretching in limbs; yawning. At 1 p.m., irresistible sleep, which lasted uninterruptedly till 4.30; after that weariness still continues, and there is bruised feeling in all the limbs as after a long walk. At 6 p.m., all head and throat symptoms return as yesterday at 8 a.m., only in slighter degree, but lung-symptoms are not felt; these symptoms last till n.; restless sleep with tossing about and unremembered dreams.—21st. At 7 a.m., feeling as if I had not had sleep enough; cross, peevish disposition; dull weight in head; incapacity for thought; scalp pains on being touched, is hot; stiffness in nape worse when moving; weariness less felt. At 4 p.m., symptoms of head and throat, as also choking feeling in larynx, worse; l. lung is again painful; drawing pain from neck over r. shoulder into r. wrist, intermitting for a few m., then recurring, worse when using arms, especially when writing; in e., weariness.—22nd. In m., dull empty weight in head; cross, peevish, taciturn disposition; sensations in upper part of scalp, in nape and cervical vertebræ as yesterday, also choking feel in larynx; lung pain quite gone; rheumatic pain in upper r. side from neck to wrist no longer intermits, but lasts all d.; in e., early drowsiness; sound sleep at n.—23rd. At 2 a.m., painful sensation of interior of throat in neighbourhood of larynx, worse when swallowing food and drink, or even the saliva, it feels raw; œsophagus feels swollen and constricted, at same time a gurgling choking, with scraping feeling in it. (In former days

I have frequently felt this after taking cold, especially in feet, for weeks at a time, often increased by drinking beer and smoking cigars; but it often came on without assignable cause.) Cross, peevish humour, dull weight in head, sore and hot feeling in scalp, continue; on the other hand, the rheumatism in r. side of neck, shoulder, arm, and wrist is scarcely felt; lung is quite painless; irregular sleep, with unremembered dreams.—24th. Inflammation of throat to-day more painful; swallowing food and drink more difficult than yesterday; choking and scraping in throat worse; tongue furred white; little appetite; insipid, nauseous taste; at the same time, very cross, quarrelsome disposition; feelings in head and scalp as yesterday; rheumatism gone; restless sleep, disturbed by sore-throat and inclination to cough.—25th. Throat and other symptoms precisely the same as yesterday; pretty sound sleep, without dreams.—26th. Throat symptoms somewhat better; throat still painful on swallowing, scraping and choking are still there; tongue but slightly furred; appetite and taste better; head not so heavy as yesterday; feeling on scalp too is better; no trace of rheumatism; quiet, sound sleep, without dreams.—27th. Throat much better; swallowing no longer difficult, only choking and scraping are present in slight degree; tongue clean; appetite and taste good; head still somewhat heavy, with little discomfort on top of head; sleep quiet and sound, no dreams. On account of urgent affairs calling me away I omitted the provings for some d.

c. July 4th. In m., as though I had not slept; still sleepy at 8 a.m.; slight confusion of head, worse towards e., with feeling as if there was a lump in brain; cross, peevish humour. At 3.30 p.m., such an uncommon good appetite that I ate nearly twice as much as usual, and drank some glasses of beer; sound sleep at n.—5th. At 7 a.m., still desire to sleep; dull weight in head. At 4 p.m., weight in head extended over to r. side of head; then rheumatic drawing goes into r. side of neck, shoulder, arm, and wrist, involving two sprained fingers; rheumatic drawing is also felt in r. side of chest, its seat not seemingly in lung, but in flesh, as it is not aggravated by breathing. Here again occurred an intermission of several days' duration.

d. 10th. At 4 p.m., dull weight in forehead; noise in ears for $\frac{1}{2}$ h.; flying rheumatic shoots in l. upper arm for a few m.; then increased aching in forehead, extending r. and l. towards temples, and about 6 p.m. involving occiput. At 10 p.m., hoarse roaring in ears like distant storm of wind; aching in forehead extends to orbits, which pain as if raw, when eyes are moved; restless, dreamful sleep.—11th. At 7 a.m., weight in head somewhat diminished; on the other hand, scalp on vertex is very tender; on brushing hair, roots feel as if gathering; in eyes, itching as if from taking too much spirits; tongue furred, white; insipid taste; pain in r. middle finger (sprained one); sleep pretty tranquil, dreamless.—12th. At 7 a.m., aching weight of whole head as if tightly bound and pinched in; stiff neck, most felt on turning head; aching in eyes as from sand; scalp still painful; roots of hair as if gathering; peevish, irritable humour; difficulty of thinking. At 9 p.m., noises in ears, like storm of wind, which continued in bed; deep sleep as if stupefied until 7 a.m.—13th. Head to-day some-

what lighter, pressing feeling in it still there; pain in orbits, especially on moving eyes, as if I had not slept enough; stiffness in nape; scalp and hair-roots as if gathering; tongue but little furred; appetite and taste good; better humour than yesterday. At 2 p.m., weight in head increases, with feeling of undulation in brain and upper part of scalp. At 4, after taking some small beer, undulation and weight in forehead, extending over upper part of scalp and towards temples, is very painful and disagreeable. At 8 p.m., there comes on, besides, roaring in l. ear, like wind howling, till sleep came on, which it did late; then undisturbed sound sleep till 7 a.m.—14th. In m., only aching pain in top of head, forehead, and temples (no undulation). Stiffness in nape; pain in nape on turning head r. or l.; tongue still furred, whitish; taste and appetite good; orbits painful, worse on moving eyes, and drowsy aching in them. In the e., early tired and sleepy after walking 2 h.; sound sleep without dreams.—15th. In m., aching in forehead, worse on turning eyes; at same time, pain in orbits, and aching in eyes, like sand; stiffness in nape slight, but still perceptible; tongue whitish, with normal taste. At 6 p.m., aching in forehead diminished somewhat, when walking in open air; at 8 p.m. it is again as before. Great weariness and uninterrupted sleep at n.—16th. Aching in forehead less, also pain in orbits. Pain in eyes as from sand, together with tenderness of scalp and hair-roots, unaltered; drowsy stretching, yawning; tongue whitish; taste and appetite good; nape still stiff, almost worse than yesterday; rheumatic drawing in r. shoulder to r. side of chest, also drawing in r. upper and fore arm to wrist, ceasing a few m., then recurring. At 4 a.m., slight rheumatic drawing comes on also in l. upper and fore arm; it only lasts a few m., and returns after long intervals; quiet, sound sleep, without dreams.—17th. Head is pretty free, and dull aching is perceptible about middle of head. Feelings connected with the scalp and hair-roots, also rheumatism, are gone; stiffness of neck is scarcely felt; tongue bright red; taste quite pure; appetite very good; cheerful, happy disposition; desire for work.—18th. Weight in head quite gone, also stiffness of neck; no other symptoms felt.—19th. Quite free from symptoms. Cheerful humour; comfortable feeling of health and inward strength.

r. 21st. At 5 p.m., aching in top of head, extending to r. side of forehead and l. side of occiput; aching in eyes and orbits, worse on moving eyes, as if I had passed sleepless n. At 9 p.m., roaring in l. ear like wind; at n., pretty good sleep, with dreams of falling and bloody wounds.—22nd. In m., whole head as if bound with band, inwardly pressing heaviness. At 11 a.m., undulating feeling in head; anorexia; nausea; white furred tongue. At n., deep stupefied sleep.—23rd. As if I had not slept enough; all limbs as if bruised; weight of whole head, with undulating feeling in it, worse on moving eyes; pain in orbits, aching in eyeballs as from sand; tongue white furred; disagreeable taste; little appetite; rheumatic drawing from r. shoulder to upper arm; sore pain in l. lung, worse on breathing deeply; early drowsiness, sound sleep until 8 a.m.—24th. In m., as if I had not slept; cross, irritable humour; low spirits; confusion of head, most on l. side from forehead to occipital protuberance; l. side of neck stiff on

moving; rheumatic drawing pain from l. shoulder to upper and fore arm and wrist; in l. lung feeling of an unhealed wound, especially when breathing deeply; tongue furred white; disagreeable taste; no appetite. At noon, rheumatic drawing pain in r. shoulder, upper and fore arm, as far as wrist; drawing in l. side somewhat abated. At 4 p.m., rheumatism at one time in r., in another in l. side of upper part of body, alternately, till 10 p.m.; sound sleep.—25th. In m., drowsiness, as though he had not slept all n.; dizzy weight in head, undulation in it towards forehead; tenderness of scalp; painful hair-roots; stiffness of neck as if paralysed on turning head. Rheumatism in shoulders and arms not present to-day; on the other hand, larynx feels swollen, with choking gurgling in it; nothing perceptible to external touch. L. lung as yesterday; tongue furred white; taste disagreeable; without appetite; early fatigue, drowsiness; restless sleep at n., with great weariness.—26th. At 4 a.m., sound sleep first came on, lasting till 8 a.m.; bruised feeling of whole body as after walking for many h.; head still heavy, but weight fixed more in the middle of head, without undulation. Symptoms of neck, larynx, lung, scalp and hair-roots as yesterday; tongue somewhat cleaner, also appetite and taste somewhat better than yesterday; on the other hand, cross humour; indisposition to work, especially to think deeply. Fell asleep late with great weariness.—27th. In m., great weariness, ill humour, laziness; dull weight in middle of head; aching in orbits and eyeballs, as from sand in eyes; neck still painful on moving head, on both sides, as if paralysed; choking in throat much better; pain in lung as yesterday, also in scalp and hair-roots. At 10 a.m., rheumatic drawing in r. upper half of body, shoulders, upper and fore arm, and wrist; humour as yesterday; tongue clean; appetite and taste good. At 4 p.m., after taking small beer, weight in head worse, and there occurs an undulation in it; l. lung also is painful; rheumatism and other symptoms continue. Restless sleep, full of dreams.—28th. In m., weariness and bruised feeling continue; head heavy as if bound; aching in orbits and feeling of sand in eyes. Pain in neck on moving it still there; choking in throat gone, lung free; rheumatism in shoulder quite gone. Sleep quiet and sound.—29th. In m., weariness and bruised feeling, especially in lower extremities, knee and ankle joints; trembling and fatigue of whole body, as after long walk. Head still heavy, but less so than yesterday; pressing sensation quite gone; better humour; desire for work. Sound, quiet sleep.—30th. Great lassitude of body, as after severe disease; lower extremities and joints tired and bruised as after a long walk; in head some dull weight, nothing more. Sleep sound and tranquil.—31st. Whole body still languid as yesterday; unhealthy look, with deep-set eyes, surrounded by blue rings; weariness of lower limbs; head quite free; no other symptoms. Cheerful, happy spirits; appetite, and good taste of food; has disinclination for movement. (*Ibid.* 37.)

21. Mrs. R.—[no further particulars concerning her] took, on Jan. 25th, at 9 a.m., 10 dr. of 1st dil. About 10, dizziness in head; painfulness of vertex on touching it; shooting in l. side of vertex, going off and recurring at short intervals; frequent yawning, stretch-

ing; disinclination for work; vertigo, as if she should fall forwards; would like to lie down and shut her eyes, as if she was intoxicated with alcoholic drinks; ears feel too full. At 1 p.m., shooting tearing here and there in head, all over it; duration of symptoms until 10.30 p.m., then sound sleep and many dreams, which she cannot remember.—26th. At 8 a.m., same symptoms, with exception of the tearing, which has gone off, continue; and at 9 there occurs also nausea, no appetite for food; and at 10.30, vomiting of potatoes eaten yesterday, with a sharp, sourish taste, and scraping in the throat. Neuralgia in face, coming on in consequence of a cold caught, cut short the proving. (*Ibid.*, 70.)

22. CH. WISEN.—I am 44 years old, short, delicate, pale, blue eyes, blond hair; easily excited to anger, but easily appeased; of sensitive disposition. I am more disposed to constipation than to diarrhoea.

Feb. 15th, 1862. At 5.45 a.m., took 100 dr. of the medicine [strength not mentioned.—Eds.]. At noon, confusion of head, especially in forehead; in afternoon the headache went off; on the other hand, I had cough with constant tickling in larynx.—16th. No symptoms.—17th. Discharge of blood during coitus. (It once occurred before, and lasted about four weeks. I took homœopathic remedies for it, and until to-day it never happened again).—18th. At 5 a.m., I again took 100 dr., as I observed no symptoms on the 16th and 17th. This time I had no headache, but the irritation of the larynx causing cough, which became so bad in e. that tears ran out of my eyes.—19th. Still cough, but not so frequent; no cough at n., but very healthy sleep.—20th. About noon, headache in forehead; towards e., with shoots on l. side. Till 26th, no symptoms.—27th. At 5 a.m., I took 40 dr. No symptoms. Though several more doses were taken no effects were obtained. (*Ibid.*, 70.)

23. Mrs. S.—æ. 39; temperament sanguine; constitution weak; muscular system inclining to thinness; hair reddish brown; has nursed five children, which always made her very weak and exhausted. Two years ago she suffered for fourteen months from the consequences of articular rheumatism, and in autumn, 1861, for three weeks from expectoration of bloody mucus from the throat, without cough. Since then she has felt quite well, and careful observation does not enable her to notice any particular symptoms.

o. April 26th, 1862. At 3 p.m., 10 dr. of tinct. in a cup of water; of this she took the third part. Immediately, oppression of chest and stomach; after 1½ h., stool at unusual time; hammering sensation in ears; eructation and yawning. At 6.30 p.m., took another third. Immediately, oppression of chest and stomach for 10 m.; constant eructation and yawning; slight headache and aching in eyes; in 1 h., sensation of weakness in legs. At 10 p.m., the last third.—27th. Sound sleep in n., with sweat towards m.; cheerful spirits; good appetite; discharge of much flatus. At 9 a.m., 3 dr. in water; same at 12, 3, and 8 p.m. Cheerful spirits all d.; urging to urinate oftener than usual.—28th. At 6 a.m., 3 dr.; at 4.30 p.m., 5 dr.; in ¼ h., shoots in r. side, 5 m. later in r. shoulder, also in r. meatus

auditorius; aching in sacrum and abdomen. At 8.30 p.m., 5 dr. Immediately, oppression in stomach, yawning, and eructation; shoots in r. shoulder; drawing in teeth; feeling of warmth in stomach; cheerful spirits.—29th. At 8.30 a.m., 5 dr.; same at 2.30 p.m. Increased appetite; cheerful spirits; frequent discharge of flatus all d.—May and. At 4 p.m., 8 dr. Oppression, with yawning and eructation, immediately after taking medicine, as before; in $\frac{1}{4}$ h., shoots in r. shoulder; twitching now and then in head, with headache; jerks in teeth; noise in ears.—3rd. At 10 a.m., 8 dr. Immediately, yawning and eructation; discharge of flatus; stool very hard and dark brown; in $1\frac{1}{4}$ h., alleviating gurgling in stomach, as if air-bubbles rose into it and burst.—4th. At 9 a.m., 8 dr. Cheerfulness; increased appetite.—5th. About 5 p.m., 10 dr. The same.—6th. At 8 a.m., 10 dr. Inward uneasiness. At 10.30 a.m., 10 dr. Precordial anxiety; discharge of much flatus. At 1.30 p.m., 10 dr. Precordial anxiety; in $\frac{1}{2}$ h., cutting in stomach; constant yawning for 10 m.; jerking in sternum and r. shoulder. At 6 p.m., 10 dr. Trembling in limbs, with eructation and yawning; in $\frac{1}{4}$ h., shooting in l. hand. In $\frac{3}{4}$ h., shoots in l. shoulder-joint; 5 m. later, shoots in l. hand; ringing in l. ear. At 8 p.m., shooting boring in l. tibia; both ears as if stopped up; shooting between shoulders.—7th. At 7 a.m., 10 dr. Shooting pains everywhere in head and shoulders; shoots in r. side behind ribs and in l. leg; cheerfulness and increased appetite. At 11 a.m., 10 dr. Immediately, headache with shooting in ears and vertigo; drowsiness; stiffness in nape; cutting in stomach.—8th. At 7 a.m., 10 dr. Drowsiness; weariness in legs; watery stool. At 2.30 p.m., drowsiness, yawning, and eructation; shooting in neck and r. shoulder; vesicles here and there in mouth and lips; shoots close under r. scapula.—10th. At 7 a.m., 15 dr. Immediately, inward uneasiness; shooting here and there in throat and head, soon passing off. At 2 p.m., 15 dr. Oppression and anxiety at stomach immediately; shooting in chest, shoulders, and head; on account of the cutaneaemia left off the proving.—16th. The shootings formerly mentioned have recurred every d. till now in head, chest, shoulders, &c.; to-day stitch in chest, with difficulty of breathing.

d. 22nd. At 7 a.m., 20 dr. in water. Immediately, yawning and eructation; in $\frac{1}{4}$ h., stitches under r. scapula; languor of whole body, and restlessness; dull pressure in vertex. At 1.30 p.m., 6 dr. Immediately, yawning and eructation; stitches under l. scapula. At 5 p.m., 10 dr. Immediately, yawning and eructation; shooting pain in l. calf towards foot. At 6 p.m., 10 dr. Immediately, yawning and eructation; discharge of much flatus; shoots in r. shoulder and r. side of occiput; water runs from nose; dazzling of eyes and dimness of vision; shoots in l. upper arm and cardiac region, with dry cough. At 7 p.m., 10 dr. After $\frac{1}{4}$ h., shoots in r. shoulder up to neck; pain in lumbar vertebræ. After 2 h., toothache in a r. upper tooth for $\frac{1}{4}$ h.—23rd. On account of some dull headache, took nothing; shoots in head and shoulders; frequent fits of coughing.—27th. At 8 a.m., 12 dr. After 5 m., yawning and eructation; after $\frac{1}{2}$ h., stitches in border of l. ribs; languor of all body; shooting in fourth and fifth r.

toes. At 10.30, 8 dr. Immediately, yawning and eructation; after 10 m., shoots in r. side, behind ribs; dim sight; roaring in r. ear; increased appetite. At 2 p.m., 10 dr. in water; took half of it. Immediately, yawning and eructation; after $\frac{1}{2}$ h., drawing all over body; pressure in vertex; heat in cheeks; about 3 p.m., great drowsiness, so that I could hardly keep awake. At 4.30, took remaining half. After 10 m., yawning and eructation; aching pain in vertex; stitches close under heart; drawing in head, teeth, jaws and shoulders. —28th. In m., disgusting sweetish taste of blood, with blood-streaked mucus in throat, on account of which I took no medicine; shooting in r. shoulder, also in l.

c. June 19th. The taste of blood, and bloody mucous expectoration from throat, every m. until to-day; 10 dr. in a cup of water, taken at three times—in m., noon, and e. In m., immediately after taking it, yawning and eructation; pain in sternum just above scrobiculus; redness and heat in cheeks. At 2 p.m., toothache in l. side; discharge of much flatus; stitches just under r. scapula at every breath, lasting 10 m.; discharge of much flatus; anxiety and sleeplessness. At 5 p.m., labour-like pains from lumbar vertebræ over hips down into abdomen for $\frac{1}{2}$ h. At 8 p.m., immediately after taking medicine, yawning and eructation. —20th. Sound sleep all n., with sweat on waking, after many dreams; sweetish taste of blood in m.; at same time I felt so disturbed and restless that I could take no medicine; hawked up mucus streaked with blood; palpitation of heart for an h.; fatigue and weariness in legs; falling out of hair; heat and redness in face coming and going; aching in vertex; cross, sad, anxious humour, as if I had done something bad, that will allow me no rest; stitches under l. scapula; much thirst; dryness in throat; constant shivering; shooting pain in vesical region, with frequent calls to pass water. —25th. Till yesterday the above symptoms gradually declined. At 8 a.m., 3 dr. Immediately, violent stitch in the cardiac region, 6 times repeated; violent palpitation of heart, with anxiety and restlessness. At 2 p.m., 3 dr. Immediately, 5 or 6 violent stitches in rapid succession in cardiac region, as in m.; at 4 p.m., heat and redness of face, and burning in eyelids, till about 8 p.m.; aching in vertex; occasionally violent pains extending from vertex to nape, compelling me to raise shoulders involuntarily, shut eyes, and tread softly when walking; no stool. —26th. At 8 a.m., 10 dr. at once. Soon afterwards, heat in face, and burning in red eyelids; aching and drawing in head, like yesterday. At 5 p.m., drawing pains from lumbar vertebræ over hips into abdomen as before. —27th. Stitches in vesical region, with frequent desire to pass water; urine for 3 d. reddish, of sharp, sourish smell. —28th. At 8 a.m., 3 dr. in half a cupful of water; a tablespoonful every 3 h. Yawning and eructation. At 9, burning in cheeks; anxiety and restlessness; heat in eyelids. At 1 p.m., stitches in vesical region; at 2, dryness in throat, with thirst; at 5, pressure in bladder, discharge of flatus; from 6 to 7 p.m., periodical toothache; at 8.30 p.m., dull shooting in cardiac region; at 8.45, shooting pain in r. tibia, just above ankle; at 9.15, again toothache. —29th. Sound sleep; dry lips in m.; heat in eyelids; at 9 a.m., cold finger-points

and feet. At 10, 5 dr. in a cup of water, a tablespoonful every 3 h.; at 2 p.m., stitches in r. side, just under mamma; at 4 p.m., the same, with empty eructation; at 5, stitches went from r. side to cardiac region; at 7, burning in cheeks and eyelids; constant increased appetite.—30th. Took the medicine as yesterday. At 1 p.m., shooting in r. thigh; at 1.30, shooting in r. wrist; at 2, shooting in r. hip; at 3, toothache in lower teeth, l. side; at 4.30, shooting in r. thigh; from 5 till bedtime, swollen lips, skin of which peels off; palpitation of heart.—July 1st. On awaking, burning of eyes and cheeks; paralysed feeling in legs; cold finger-points. At 9 a.m., 10 dr. in a cup of water; 2 tablespoonful every 3 h. After 10 m., anxiety and trembling of hands; at 9.45, trembling in knees; at 10, urging to urinate; at 10.30, shooting in r. wrist, afterwards in l. forearm towards wrist; eructation. At 10.45, boring pain in r. knee and in front of ankle; at noon, shooting in l. forearm, also from l. ear to nape; cough; at every cough abdomen contracts painfully. At 1 p.m., stitches close under heart; at 2, stitches in r. forearm and heat in cheeks; shooting pains felt sometimes in arms, sometimes in legs; at 2.30, pain in lumbar vertebræ, over hips down into abdomen; at 3.30, boring pain in r. ear; eructation and yawning till bedtime; stitches here and there in body.—2nd. Confused dreams at n.; in m., stitches like yesterday, lasting all d., now in arms, now in legs.—3rd. At 8 a.m., 5 dr. at once in water. In an h., heat in cheeks; at 2 p.m., stitches just under mamma; painful contraction of abdomen on coughing.—4th. At 8 a.m., 5 dr. at once; this d. I experienced nothing but twitching now and then in various parts.—5th. In n. I dreamt of a great procession through the town with music, so distinct that I was awakened by the kettledrum. To-day I took none, owing to a visit intervening. Twitching in legs and arms.—6th. Took none. Drawing all over body; eroding itching in legs, obliging me to scratch.—7th. Same sensations.—8th. At 10 a.m., took 10 dr. at once. In 5 m., eructation; in 2 h., an unusual stool; at 2 p.m., pricking in r. forearm; at 5, pricking in region of liver; at 9, heat in cheeks and burning in eyes.—9th. At 10 a.m., 10 dr. at once. Shortly after, Saccidity; pricking in region of heart; at noon, heat in cheeks; continued falling off of hair; at 8 p.m., pricking on ribs (r. side).—10th. At 10 a.m., took 10 dr. at a time in water. At once eructation; in 3 m., buzzing in ears; twitching in eyelids; palpitation of heart; at 11, burning in cheeks and ringing in ears. At 1, took 10 dr. in water. Immediately, eructation and yawning for 10 m.; pricking in r. hip, and pain from r. upper arm on inner side, extending to fingers; roaring in ears; toothache, extending up towards eyes; at 2.30, pricking in r. middle finger; at 3.45, pricking in third r. toe; continued pain in foot, close under r. inner ankle; pain on inner side of r. upper arm, extending to lower arm, then on inner side of l. lower arm; pricking in l. hip; $\frac{1}{2}$ h. after, twitching in l. temple; pricking in r. side on ribs, felt on drawing each breath; pricking pain in l. knee. At 6 p.m., took 10 dr. At once, yawning and eructation; twitching in arms and legs; feeling ill all over.—11th. On awaking out of confused dreams after sound sleep, with perspiration

and dry lips, abdomen distended; scraping feel in throat. At 7 a.m., took 10 dr. in water. In $\frac{1}{2}$ h., twitching on inner side of thigh, in feet, and whole back; pricking in head, over l. eye, with twitching of lids; pricking between eyebrows towards r. eye, in l. temple, and over l. ear; weight in head, with pricking here and there. At 12.30, took 10 dr.; in $\frac{1}{2}$ h., pricking in r. shoulder, and on fore side of r. upper arm; at 2, pressure on crown; heat in cheeks; pricking pain in l. clavicle, then in r. lower arm and close under r. shoulder-blade; pricking in r. eye; at 7.30, pricking in back, and continued pricking boring pain in crown, with twitching of eyelids, and in l. clavicle; yawning; pricking in l. lower arm over wrist; yawning and eructation; at 1.45, pricking in r. ear, extending up towards crown; $\frac{1}{2}$ h. after, in l. ear. About 3 p.m. menstruation commenced, 4 d. earlier and more copious than usual, an h. after an attack of vertigo and reeling had occurred; twitching in limbs unabated; twitching and pricking in l. clavicle very painful.—12th. I took no more. Since I took medicine, the usual perspiration of my feet has ceased, and my feet have remained permanently dry; the pricking and twitching, and also vertigo, go on as yesterday; besides, I feel myself much excited.—13th. Pricking in head on coughing.—14th. Pricking in r. arm, head, and hip; cough; dryness of hands.—15th. As yesterday.—16th. Ditto.—17th. Felt no symptoms.—18th. P.m., violent pain in head, clavicle, and limbs; pricking pain between shoulders; drawing in teeth; twitching pricking in temples.—22nd. Pricking in r. chest, and on inner side of l. upper arm.—24th. Drawing through upper incisors; p.m., above l. eye-tooth, a swelling formed rapidly in gums, from which blood flowed, whereupon it disappeared.—25th. Toothache at n.

d. 28th. At 7 a.m., took 5 dr.; at 12.30, same. At once, shuddering; pricking in l. hip; at 1.15, weight in head, lameness in legs; at 4 p.m., pricking here and there in chest; palpitation of heart; at 4.30, pricking in scrob. cordis, then in back, then in l. and next in r. cheek-bone, towards temple; at 5, pricking in r. wrist, then in r. foot—first on inner, then on outer ankle. At 5, continued yawning and eructation; pricking in upper part of chest.—29th, 7 a.m., took 5 dr. At once, shivering; in an h., pricking on inner side of r. thigh; at 8.30, great anxiety and oppression. At 11.30, 5 dr. In 10 m., pricking on inner r. ankle; anxiety and restlessness, with palpitation; yawning and eructation. Between 2 and 3, pricking in r. wrist; towards e., pricking here and there in chest; perspiration at n.—30th. At 9 a.m., took 5 dr. In $\frac{1}{2}$ h., pricking in r. middle finger; at 10, pressure in upper half of l. thigh. At noon, 5 dr. At 2, pricking below inner r. ankle; at 2.30, pricking and boring pain in l. cheek-bone, alternating with pain in l. upper eye-tooth; itching at tip of nose; at 4, water flowed from nostrils. At 6, 5 dr. All e., pressure on crown, and pain in l. cheek-bone and l. upper teeth.—31st. Dreamt that my husband and I were burying two men alive; pricking as yesterday in cheek-bone on awaking. At 11, took 5 dr. At 12, pricking in l. foot and thigh, in r. thigh and foot; at 3, pricking high up in sternum and l. leg; yawning and eructation.—Aug. 1st. No symptoms.—2nd, m., pricking close under l. clavicle and in cheek-

bones.—3rd. Ditto.—4th. Twitching in l. eyelids; pricking in the inner r. ankle; pricking and boring in the teeth. Next d. I had no striking symptoms. (*Ibid.*, 70.)

II. *Poisonings*.—I had sent Mr. N— a bottle with about ℥xij of tinct., he having, at my request, undertaken to prove the medicine on himself. He had given the bottle to his wife, remarking, by way of caution, that she must shut it up carefully, because it was poison. Various engagements prevented him from at once commencing the proving. This lady, generally calm and intelligent, 38 years old, mother of seven children, on Dec. 17th, 1862, after her husband had left the house in a rage owing to her reproaches, drank, in a fit of jealousy, every drop of the tinct., intending to commit suicide. Being informed of this, I received about four weeks afterwards (at my own request to Mr. N—) the symptoms which he had observed in his wife and had obtained from her, written out as follows:—

During first 3 d., great excitement of mind, with quarrelsome and peevish humour. From 4th d., daily in forenoon and afternoon, violent burning in vagina, lasting each time a full h.; this till 18th d. From 8th d. after poisoning, constant pricking and burning, as if from grain of sand, in inner corner of l. eye, which had not quite left her after 14 d. At commencement of pains, inner corner of eye was red and inflamed, with feeling of great heat there, and after 14 d. eye was still weak and watery. During this time she complained of pricking in l. side when sitting, and was often sleepy; at other times in constant excitement. Often, in e., violent palpitation, lasting some h., which at other times commenced earlier after dancing. For several d. she complained of violent pricking in throat, as if from a fish-bone. With this came on, also, hoarseness with dry cough, which at times brought up lumps of mucus; besides soreness in nose, and sometimes redness and flying heat in face. At various times, severe pain in crown and l. temple; headache so serious as to deprive her of power of thinking. Ever since poisoning, thinking has been difficult to her, and she easily forgets what she is going to do or has done. On 18th d., after supper fit of chill and nausea; great tightness of chest; headache on crown and l. temple; shortness of breath lasted an h. On next e., pain in head returned, with chill; oppression and cramp of chest, with nausea. These sufferings continued till m.; at noon, after eating, sufferings returned, except chill, instead of which came inward heat, with internal burning between chest and shoulder-blades. On the following d., no more symptoms occurred. (*Ibid.*, 100.)

CHENOPODIUM.

Chenopodium anthelminticum, L. Wormseed. Nat. Ord., *Chenopodiaceæ*.

II. *Poisonings*.—1. Man took about ℥ss of the oil. Symptoms were those of a narcotico-acrid poison, affecting brain, spinal system and stomach. He was insensible, convulsed, and loaming at mouth, but recovered under use of emetics, demulcents, and stimulants. All remembrance of having taken poison was completely wanting on recovery. (SMITH, *Pharm. Journ.*, 1862, p. 330.)

2. A slave child was given one or more ℥ss doses of oil for worms. She fell

into coma, with deep, heavy, stertorous breathing, accompanied by very peculiar rattle, as if there were a ball rolling loose in trachea; pulse small, feeble and frequent; eyes insensible to light or external objects; convulsive movements of r. half of body; extremities cold; any attempt at deglutition excited instant suffocation. She died in 36 h. from onset of attack. (*Bart. Med. and Surg. Journ.*, xlv, 173.)

3. Man, *æt.* 22, took in m. about 3ʒ of oil with ʒo of turpentine. There followed disagreeable eructations; nausea; staggering like drunken man when walking; deafness to sound of voice, but exquisite sensibility to sounds of passing vehicles, each as it rolled by sounding like roaring of immense cannons right into ears, in which also there was annoying buzzing. He craved for his usual cigars, but found them disagreeable and soon left them off. No disposition to converse, and some aphasia and agraphia. Symptoms of hearing and speech increased as d. went on; he took wrong place at table; kept repeating words and actions. Toward close of r. meal, while holding a piece of bread, there was spasm in r. forearm and hand, fingers were firmly clenched and hand strongly flexed. On being taken to bed he made some resistance, commenced to groan, drew himself up, and coiled from side to side of bed, as if from abdominal distress. He soon became unconscious, and r. arm lay paralyzed. Next d. there continued impairment of motion and sensation in r. side, with insensibility to touch of r. eyeball. During 3rd d. frequent twitchings and stiffness of r. limbs, culminating in a unilateral convulsion at daylight on 4th d. Urine passed involuntarily unless drawn off. In afternoon the heavy breathing, with flopping cheeks, of apoplexy appeared. There was also more or less constant regurgitation of yellow frothy material from mouth, sometimes so profuse as to embarrass respiration; this, with perspiration, smelt of wormwood. During one of the attacks of dyspnea, and while in a drenching sweat, which suggested imminence of dissolution, he was gently turned in bed, when a general convulsion with opisthotonos came on, lasting about 2 m. By this time a decided stertor appeared, which had been noticed only the d. before. He died about 5 d. from beginning of illness in profound coma, and with high axillary temperature. (*Babwin, Maryland Med. Journ.*, Nov., 1871.)

4. *æ.* Child, *æt.* 12, suspected of having worms, was ordered mixture of ʒj of oil of C. with ʒj of turpentine and ʒij of extractum spigeliz. He took a full teaspoonful at 8 p.m. on May 22d. On 23d. was found in m. breathing heavily, and was with difficulty aroused. Gait, when he tried to walk, extremely unsteady, and without assistance he would have fallen; was wholly unable to button clothes or perform any ordinary complex movements; complained of severe frontal headache and loud ringing in ears; deafness very marked; appeared less intelligent than usual; vision normal. During d. tinnitus and deafness remained, but gait and general co-ordination improved. Slept soundly. On 23rd headache, deafness and tinnitus same; more drowsy; gait weak and shuffling; much prostrated by mile walk, 24th.—Slept heavily without waking till 6 a.m., when he was found aimlessly wandering about house in nightclothes. Mind now evidently affected; weak, feverish, and very drowsy during d.; has kept scarcely any food on stomach since 22nd. 25th.—All previous symptoms aggravated. Remained in bed for first time to-day. 26th.—First seen by Dr. N.—, at 7 p.m. Found unconscious, and had slept heavily all d. Temp. 100°; pulse 84, weak, and compressible; breathing normal; pupils widely dilated, sluggish to light; had vomited on taking food during d. (Stupor gave way on r. of 27th to restlessness and hallucinations, but patient had taken gr. ʒv of bromide of potassium every 3 h. No action of bowels since 24th, in spite of calomel and croton oil. Gradual improvement till 31st, but sleep obtained only by strong hypodermic morphia.] June 1st.—Patient much better; mind clear; appetite fair, no vomiting for 3 d.; headache decidedly diminished; sits up in bed, and can walk a little; but hearing very little better, and complains as much as ever of ringing in ears. 4th.—Slight improvement in aural symptoms; no pain in ears at any time, and no change visible on examination. On 5th could just hear watch with l. ear on contact, with r. ear at 2 in.* A good deal of frontal headache, but no other symptoms save weakness.

5. Sister, *æt.* 20, took same dose at same time. Awakened towards m. by extreme nausea followed by profuse vomiting. Fell asleep, and woke again at 7 a.m.;

* Up to the 26th, reporter says, deafness was little changed in either.

still much nauseated. On rising, had some inability to walk and adjust clothing, some deafness, ginnitus and headache as brother; but never fell into snoring or took to bed. Improved readily though slowly, deafness and headache being very persistent. Hearing on June 5th $\frac{1}{4}$ in. in l., $\frac{1}{2}$ in r.*

6. Two more children in same family received a dose. Girl, $\text{æt. } 7$, took tea-spoonful, vomited soon after, and had nothing next to, save slight and short-lasting nausea. Boy, $\text{æt. } 4$, had half tea-spoonful without apparent effect. (NORTH, *Am. Journ. of Otolary.*, July, 1880.) [The mixture of turpentine and spigelia with C. in this observation might seem to render it inadmissible; but (1) the reporter points out that the spigelia must have sunk to the bottom, nor do any of the symptoms belong to it; (2) the dose of turpentine was very small, nor do its effects appear in the narrative; (3) the symptoms are in perfect keeping with the three preceding cases, in one of which also (No. 7) turpentine was mixed without appreciable effect. We therefore judge the case to be one of true poisoning by C., and have admitted it accordingly.—Eds.]

CHINA.

Cinchona Calisaya, Wedd. Peruvian bark. Nat. Ord., Rubiaceæ.

1. *Proving*.—1. HAHNEMANN, *Fragmenta de Viribus*. Contains 122 symptoms from self, and 99 from authors.

2. *IBID.*, *Mat. Med. Pura*, vol. iii of original, vol. i of translation. Contains 427 symptoms from self, 575 from 22 fellow-observers, and 141 from authors.

3. *IBID.* "I took, by way of experiment, for several d. ʒij or good bark twice a d. My feet, finger-ends, &c., first became cold, and I felt tired and sleepy, then my heart began to beat, and my pulse became hard and quick; I got an insufferable feeling of uneasiness, a trembling (but without rigor), a weariness in all my limbs; then a beating in my head, redness of the cheeks, thirst,—in short, all the old symptoms with which I was familiar in ague appeared one after another, yet without any actual chill or rigor. In brief, even those particularly characteristic symptoms which I was wont to observe in agues—obtuseness of the senses, kind of rigidity in limbs, but especially that numb disagreeable feeling which seems to have its seat in the periosteum of all the bones of the body—all put in an appearance. This paroxysm lasted each time 2 or 3 h., and came on afresh whenever I repeated the dose, but not otherwise. I left off, and was quite well." (NOTE to transl. of CULLER'S *Mat. Med.*, ii, 108. 1790.)

4. JÜRIG instituted provings with a tinct. of 1 part to 6, and with powdered (yellow) bark.

a. ENDERS, Nov. 21st, 1821, took 18 dr. of tinct. in ʒj of water. Soon after nauseous taste had subsided, agreeable warmth from stomach to navel. 22nd.—36 dr. in ʒij . On 23rd, two stools, contrary to custom. 24th.—At 9 a.m., 70 dr. in ʒij . Feeling of warmth in abdomen; very good appetite; 3 stools, of which last was pappy. 25th.—At 9 a.m., 120 dr. in a tumblerful. Nausea and unpleasant taste. At 1 p.m., soon after dinner, considerable palpitation, increased by movement, lessened by quiet, continuing till 7. Feeling nervous and anxious, went to bed as early as 8.15, soon fell asleep, but awoke frequently. 26th.—Awakened at 3 a.m. by considerable palpitation,

* See note on preceding page.

not lessened by any change of posture, but increased by lying on l. side; pulse small. At 4 this subsided, and he fell asleep again. At 9 it returned with diminished force, but increased with motion of body. Towards e. perfectly well again; bowels not moved till next d. (JÖRG, *Kritische Hefte*, 1823, H. 2.)

5. HACKER, æt. 20. Nov. 21st.—Took 18 dr. of tinct. in ʒj of water; inclination to vomit, nausea, eructations, flatulent discharges. 22nd.—36 dr. in ʒij; same results only. 24th.—70 dr. in ʒij. Less appetite, more frequent eructations, discharges of very foetid flatus, less nausea, but more turgor of cutaneous veins. 25th.—120 dr. in a tumbler; same effects, with thinner stools and painful sensations in his hæmorrhoids; on each of the 4 succeeding n. not inconsiderable emission; greater prominence of cutaneous veins. (*Ibid.*)

6. FRAUCHMANN, æt. 23. 21st.—18 dr. in ʒj at 9 a.m. Continued bitter eructations till mid-day; agreeable warmth in abdomen; sensiblings and rattlings in intestines; urine somewhat darker; no evacuation for 2 d. 22nd.—36 dr. in ʒij. Same effects; belly much swollen for a short time till eructations occurred. 24th.—70 dr. in ʒij. In 1 h. nausea, constant eructations, bitter slimy taste, watering of mouth; scanty and dark-coloured urine. Dec. 3rd.—140 dr.; besides effect of former doses, no appetite all d. (*Ibid.*)

7. MEURER, æt. 27. a. Dec. 9th.—At 9 a.m., took ʒij of powder stirred up with ʒij of water. Directly after, tasteless eructations till towards e. At 11 sharp pains in abdomen for 8 m.; from 2 violent flatulences. At 5 same dose, followed by eructations as before; unquiet sleep, interrupted by erections. 10th.—No eructations, but more flatus than usual; n. as last. Appetite throughout rather increased.

b. 18th.—Took ʒj of tinct. in ʒvj of water at 9 a.m., and repeated dose at 10.30. At 5 and 9 p.m. took ʒij. No immediate effects save eructations, and the elevation induced by the alcohol. Very sound sleep, only twice awakened by thirst and two calls to urine (unusual). 19th.—Head somewhat affected; throughout d., during digestion, colicky pains; two pappy stools. No further symptoms. (*Ibid.*)

8. STRISSACH, æt. 23. a. Dec. 9th.—At 9 a.m., took powder as 7 a, repeating at 5 p.m. Nothing noticed save eructations, and a rather harder stool. Costiveness continued during 10th and 11th.

b. Dec. 18th.—Took tinct. as 7 b. After each dose slightly intoxicated, excited, and cheerful; appetite very good. In e., feeling lively, lay on sofa and smoked. At 11.15, quite unexpectedly, slight vomiting, chiefly of sour-tasting water, smelling of tinct. Slept for some h., waking frequently, as after unusual alcoholic potations during d. 19th.—Head still somewhat affected. Nothing more or further. (*Ibid.*)

9. KLEMM, æt. 34, took same doses as 7 and 8. Nothing after powder save costiveness, and nothing whatever (he being used to spirits) after tinct. (*Ibid.*)

10. GÜNTZ, æt. 21, took same. After 1st dose of powder nausea and weight at stomach; after 2nd some spasm there. Two stools next m.; for 5 d. after rather costive. Tinct. produced nothing but slight intoxication. (*Ibid.*)

11. WALTJ took daily ʒij of powder. Nothing noticed till 4th

and 5th d., when unusual appetite came on, so that he ate twice as much as usual; at same time motions were easier. Then took $\frac{3}{4}$ ss or tinct. daily. Appetite continued the same; but he felt no other unusual symptoms. (*A. h. Z.*, xx, 367.)

12. PSEER took an injection containing \mathfrak{ij} of powder. In 5 m. nausea and hot rising from stomach; soon after, taste of bark quite sensible all over mouth; some confusion of head with tense pain in forehead and orbits; movement of eyes painful, with feeling of mechanical hindrance; nausea, and such active disturbance in abdomen that he was obliged to eject clyster in 10 m. Evacuation delayed by tenesmus; pain in head suddenly ceased, and patient saw closet (in which a candle was burning) all in dazzling sulphur-yellow light, a few m. later glittering with rosy light. On returning to sitting-room illusion passed off, and did not recur. Pain in eyes and nausea in slighter degree till he fell asleep. No further symptoms. (*Ibid.*, xix, 202.)

13. Woman took 10 dr. of tinct. Sleeplessness entire n.; right-sided face-ache; profuse perspiration, with feverish heat; dreadful feeling of excitement; face flushed and swollen; needle-like pains in l. face, chest and hand. (*ROBINSON, B. J. of H.*, xxv, 323.)

14. Young woman took 3 dr. 3 times a d. After 3 d. cold colicky cramp in bowels, followed by slight diarrhœa. (*Ibid.*)

15. JOHN M. WALKER tested effects on pulse.

a. Pulse 66. After taking 1 gr. of red bark, it rose between 10 and 20 m. to 72, and became full and tense, gradually declining to normal during 35 m. more. At height of action there was slight headache.

b. Pulse 64. After 12 gr. of resin rose during corresponding time to 73, falling in 25 m. Face flushed at acme of effect. Pulse noted as "full" only.

c. Pulse 66. After 12 gr. of extr. fell in first 5 m. to 60, but was full and strong; then rose during 40 m. more to 72, full and tense; falling during 40 m. more.

d. Pulse 72. After 12 gr. of gum, similar change in quality, and rise (45—55 m.) to 82. After 75 m. was still 75.

e. Pulse 72. After 2 oz. of decoction, in 5 m. became 62 and soft, became gradually quicker and fuller, till in 75—90 m. it was 77, tense, with flushed face. After 100 m. 66 and full.

f. Pulse 64. After 2 oz. of infusion, gradual rise, with increase of fulness and tension, to 76 (60—80 m.); fall occupied 20 m. more. (*ALLEN'S Encyclopædia*, x, 460.)

16. If a man in perfect health takes a small or moderate dose of bark, no obvious effects are produced,—or perhaps a little thirst, with some slight disorder of stomach; or a temporary excitement of appetite may be brought on. If the dose be increased, the alimentary canal becomes disordered (indicated by nausea, vomiting, loss of appetite, thirst, and constipation, or even purging); a febrile state of the system is set up (manifested by excitement of the vascular system, and dry tongue); and the cerebro-spinal system becomes disordered, as is shown by the throbbing headache and giddiness. The disturbance of the functions of the stomach is produced not only when the bark is

given in the more nauseating form of powder, but also in the form of infusion, decoction, or tincture. (PEREIRA, *op. cit.*)

II. *Peissings*.—1. *a*. There are two diseases which the manufacture of quinine from bark induces in the workmen. The first is the so-called "quinine fever," to which those only are subject who work in the mill, and are much exposed to the bark-dust. This manifests itself in chill and heat, like an intermittent. But according to all our experience it always comes to an end with one violent fit, without the use of any medicine whatsoever; and it is remarkable that the workmen who have once got over this single fit can ever after expose themselves with impunity to the dust; only a few, however, incur the risk, the greater part preferring to give up the employment. This fever attacks all the workmen, with very few exceptions, who inhale much of the dust.

b. The second disease is an eruption from which many suffer during the early period of their service, who are occupied with the further elaboration of the medicine. In some cases this eruption spreads all over the body, so that they have to leave off work, whereupon rapid improvement occurs; but as soon as they resume work the eruption reappears, and then nothing remains for them but to leave off their employment altogether. In a few this eruption was very serious, and the sexual organs were swollen. As a rule, however, the affair is trifling, and disappears entirely after some time, so that ultimately the work can be done without inconvenience. The eruption shows itself in every operation of the manufacture, with the exception of the grinding,—the inhaling of the dust being never followed by it but always by the fever.

c. Our men have never suffered from the diarrhoea which other manufacturers, especially in Paris, have observed among their people. (GARMS, *Eröffnung eines neuen Weges zur sichern Indic. der Arzn.*, 1853, p. 407.)

2. A healthy man drank a considerable quantity of a strong decoction of China. There occurred headache, vertigo, chilliness, restlessness, indescribable anxiety, trembling, staggering gait, cold sweat, palpitation of heart, intermittent pulse. After enduring this for several h. he was relieved by drinking hot tea, which caused diaphoresis and diuresis, but the same symptoms occurred occasionally for a long time afterwards, especially after mental emotions, particularly the palpitation of heart and intermissions of pulse. The 9th beat was followed by an intermission, after which 3 or 4 rapid beats occurred. Physical examination showed dilatation of the *r.* ventricle. (GöZ, *Russ. Med. Z.*, 1851, quoted in *Z. f. hom. Klin.*, i, 117.)

III. *Experiments on animals*.—1. Friend states that ʒiss of strong decoction injected into jugular vein of dog caused in 15 m. strong palpitation and frequent spasms. On ʒas more being injected, there followed tetanus and death. The blood was found after death liquid, the lungs red and turgid; the *r.* ventricle was distended with blood, the *l.* contained scarcely any. Rauschenbusch has also made experiments with C. bark. In animals to whom he had given it for some d. he found stomach and alimentary canal contracted, and their coats

thickened, but no traces of inflammation. Heart was firmer, lungs covered with red spots, liver yellowish, bile watery and greenish. When blood was exposed to air, it remained dark coloured longer than usual, was less coagulable, and serum separated more slowly; it appeared like that drawn in inflammation. During life pulse was stronger and fuller, and animal heat increased; but when bark had been used for a long period muscles were pale and their energy enfeebled. (PEREIRA.)

Chininum.—An alkaloid obtained from China bark,—quinia or quinine, $C_{20}H_{24}N_2O_4$. Generally employed in form of sulphate ($C_{20}H_{24}N_2O_4 \cdot H_2SO_4 \cdot 7H_2O$); which is to be understood as used in provings, &c., unless otherwise specified.

1. *Provings.*—1. A young man of 24, of sanguine temperament, took in m. fasting 0.30 grm. There was no change in feelings or appearance, save that next m. urine was a little cloudy. (WETTMANN, *Das schwefelsaure Chinin als Heilmittel betrachtet*, Mainz, 1827.)

2. A young man of 18, of nervous temperament, took in same manner 0.20 grm. He complained only of a little coldness, and his pulse was slightly accelerated. No change in stool or urine. (*Ibid.*)

3. A robust peasant, æt. 20, of lymphatic constitution, took of sol. of 0.30 grm. in 150 grm. of peppermint water 2 spoonful every 2 h. without effect. Next d. took 0.30 grm. in powder three times at 3 h. intervals. In e. he had shiverings, pulse became rapid, mouth dry, thirst; n. was restless, and urine showed next m. a brick-dust sediment. Digestive system, however, was unaffected. (*Ibid.*)

4. BÜLLER, æt. 24, strong and healthy, of sanguine-phlegmatic temperament and nervous constitution, took several m. running, fasting, 0.02—0.10 grm., and nearly every time had following symptoms:—sense of heat in stomach; in $\frac{1}{2}$ h. eructations; sometimes feeling of drawing in stomach and œsophagus; gurglings in belly; headache. After 2 or 3 h. escape of wind following a cup of cocoa. After a simple dinner dryness in mouth, more violent headache, heat of face as if he had drunk coffee; towards e. increased temperature of skin and congestion to head, pulse rapid and slightly fuller. Urine more abundant than usual, clear and pale. Doses of 0.35—0.40 grm. developed same symptoms, but in greater intensity, especially as regards cerebral congestion and headache. After 3 doses of 0.30 grm. each in 9 h. headache was intense, especially in e., when arteries began to beat with violence as if head would fly open. With this burning face, giddiness, ringing and roaring in ears, sparks and flashes before eyes, frequent and strong pulse, urine less copious than might have been expected, sleep uneasy and disturbed by dreams. Next d., frequent breaking up and down of wind, occasional coating in ears with transient deafness, and dull headache. (*Diss. de Chinino sulphurico*, Leipzig, 1828.)

5. Another young physician, less excitable, of melancholic temperament, and venous and atrabillious constitution, lean and strong, took 0.60 grm. without effect save increased heat of stomach, followed by stronger appetite. (*Ibid.*)

6. Man, æt. 25, delicate but healthy, of sanguine temperament,

took at 7 a.m. 0·30 grm. An h. later, having taken coffee as usual, felt slight heat in stomach and duodenum, lasting some time, with eructations of air. At 9, some constriction, then tickling in pharynx and larynx, with more frequent pulse. At *djékwé* hungry but without appetite. Heat continued till dinner, which he ate with his usual relish. On lying down at n. slight pain in hepatic region. Sleep peaceful. Next d. several stools, more liquid and less dark than ordinarily. (*Ibid.*)

7. Man, æt. 26, of somewhat choleric temperament, of scrofulous, venous and hæmorrhoidal constitution, digestion weak, took 0·30 grm. He experienced heat in stomach and diminished appetite, bitter eructations during 3 h., and slight frontal headache all d., worse in e. Next d., headache persisted, with anorexia, distension of abdomen, constipation, increase of hæmorrhoidal trouble, itching at rectum, slight tenesmus. Same symptoms recurred 8 d. later after 0·10 grm. (*Ibid.*)

8. A physician, æt. 30, robust, sanguine, active, but liable to determination of blood to head and cardialgia, took after breakfast 2 doses of 0·10 grm. each at 3 h. interval. Bitter taste lasted long; after having eaten bread and butter he felt nauseated and all but vomited; bitterness in mouth increased and he felt pressure in præcordium, accompanied by expulsion of wind. At 3 next m. he was waked from a sleep, till then good, by violent pressive pain in occiput, continuing till he rose. On 3rd d., after 0·15 grm., all these symptoms recurred, and in e. his head became congested. (Three d. afterwards he was suddenly seized, after moderate repast of pork and vegetables, with nausea, vomiting, heartburn, constriction of stomach and distension of abdomen. All kinds of food, however light, provoked pressure in stomach and recalled above symptoms, so that following n. was very disturbed. On 4th no stool, abdomen still distended. Under strict diet cardialgia subsided and appetite returned.) (*Ibid.*)

9. *s.* Dr. OTTO FISER, æt. 21, tall and lean, of venous constitution and sanguine temperament, uses no coffee or tobacco. Oct. 10th, 1837, took in m., fasting, 0·01 grm. without effect. Next d., 0·02 grm. At 2 p.m. disagreeable sensation in epigastrium; and besides, e., inflation and tension of belly causing dull pain on pressure, with a little oppression of chest. At same time pressive pain in forehead and in orbital cavities, increasing on rolling eyes or turning head; also prostration and lassitude. Same e., 0·05 grm. Sleep profound and peaceful. Next d. felt somewhat weakened, and had continual desire to yawn. Yesterday's headache persisted; it lasted 3 d. Abdominal tension had ceased. Lassitude in legs; general deadness of limbs and trembling at least exertion (*for 2 d.*); urine throughout copious, high coloured and cloudy. Each d., a somewhat difficult stool. Sleep deeper than usual without being so refreshing.

10. Some time later P— took again, fasting, 0·10 grm., with same results. Following symptoms were most marked:—tension of belly, stronger than before, without emission of flatulence or alteration in stools; headache as before; peculiar dryness of eyes; obscuration of sight, sometimes as by network, and once as by a dark mist. The lassitude in limbs also reappeared. One symptom observed in both

experiments was peculiar sensation in r. hand, as if a drop of liquid mounted thence to axilla; it was painless. It recurred in third experiment.

c. From 10th to 19th July he took daily doses, 1.10 grm. in all, ending on 19th with 0.60 grm. Up till 22nd he experienced following symptoms:—nausea after meals, malaise, several vomitings (after dose had reached 0.15 grm.), headache, somnolence, bulimia at n. (once), appetite much diminished, tongue dry and covered with yellow coat, viscid mucus in throat, palpitation, roaring in ears, obscuration of vision, abdomen much inflated (p.m.), difficult though not hard stool, sensation in r. arm as above described, face earthy, with dirty sclerotics and sunken eyes, somnolence in d., lassitude, buccal cavity very pale. After dose of 0.60 grm. oppression of chest, headache with vertigo and difficulty in reflecting, hiccups and startings, great prostration. Symptoms developed in order as given.

d. Oct. 11th, at 9 p.m., 0.20 grm. Malaise; eructations, now acid, now bitter, not reaching to vomiting. Sleep good at n. as usual. Urine next m. very frothy, which it was not before. 11th.—Nothing abnormal till 5 p.m., when unwonted sensation of cold pervaded whole body, internal trembling and pale face. Urging to micturate and emission of pale urine. N. quiet. 13th.—Urine saturated, depositing, as it cooled, fine powdery sediment of a whitish yellow. 14th.—At 3 p.m. a distinct rigor; at 6.30 heat of face, lasting till 9; no sweat subsequently. The urine, nearly as clear as water, had deposited this m. a quantity of limpid, transparent crystals, presenting under microscope quadrangular prisms with acute angles; there were about 0.01 grm. of them in 300 grm. of urine. They were covered with viscid mucus, like a spider's web. N. peaceful. 15th.—Urine as on 13th; delaying stool. 16th.—During whole afternoon, peculiar coldness quite inconsistent with temperature of air. P—awoke after midnight with loud and sustained cry; he knew he was crying out, but could not prevent it; he felt urged to throw himself out of bed, covered himself with bedclothes and sat on a chair; after some m. he came to himself, returned to bed and slept peacefully till m. Nothing further noticed. During attacks of coldness dorsal vertebræ resented pressure more than cervical or lumbar. (*Diss. de explor. medic. naturæ*, Leipzig, 1838.)

9. Dr. NOLEK, æt. 30, temperament sanguine, disposition lively, in excellent health at time of experiment, with no morbid tendencies save to toothache with swelling of sub-maxillary glands. Urine always rather saturated.

a. Aug. 4th, at 8.45 a.m., took, fasting, 0.01 grm. At 9, sense of obstruction in nose, and sneezing. At 9.30, urine having been passed $\frac{1}{4}$ h. before, desire to micturate again, and at 10 emission of 515 grm. of pale straw-coloured neutral urine. From this moment considerable thirst set in and lasted all d. Immediately after each meal, shootings in chest and over apex of heart, only lasting a m. In e., while writing, unwonted heat for 2 h. During d. he passed at seven times 2115 grm. (a little above his maximum in health) of urine, for most part yellowish red. Pulse at first 80, was at 1 p.m. 64 (usually at this h. 73—75).

In e. it had become 75. Restless n.; urine at 5 and 10 a.m. saturated, troubled, and strong smelling. At 4 p.m. slight headache. At 10 very hard burnt stool. Urine of d. normal in quantity and quality; pulse 75 to (after dinner) 80. On 6th, no symptoms. At 10.15 a.m. took 0.2 gm., pulse 83. In 20 h. it had fallen to 75. Urine of d. 2145 grm., generally clear, in e. very saturated and odorous. No other symptoms; n. good. 7th.—Took 0.5 gm. Spent d. in open air, and observed no symptoms; urine only 425 grm. (about $\frac{1}{2}$ of normal minimum), highly saturated and odorous, forming a whitish-yellow sediment, of penetrating odour, clinging to utensil. No stool. 8th.—After meal, malaise with strong and frequent eructations for $1\frac{1}{2}$ h.; much emission of wind; copious hard stool at 1.30. In writing eyes closed from lassitude, he found it difficult to reflect, head affected, tipsy sensation there, changing to weight. Hands and arms refused to do their work. In e. violent frontal headache. Pulse at 3 p.m. 100. Urine as yesterday. 9th.—Deep and refreshing sleep. At 9 a.m., pain in hepatic region for 15 m., disappearing after pressure with hand. Much thirst a.m. Urine 2265 grm., that of m. and e. highly saturated, rest clear. No stool. 10th.—In m., fasting, another 0.5. After meal, frontal headache, weight of head, heat of face, thirst, fulness of stomach, tension in abdomen, pappy stool. Towards 4 p.m. frontal arteries began to beat strongly; heat in face increased so as to make face quite red, most so about eyes, which watered at light (5 p.m.). First and second dorsal vertebræ (but these only) were painful on pressure. In e., while walking in open air, pricking shoots, as from needles, lasting 2 m., in skin of chest, back and legs, followed by slight perspiration on chest and back. The frontal headache, weight and embarrassment of head, lasted till bedtime. Pulse at 3.15 a.m. 90, at 6 p.m. 75. Urine dense and strong all d., 2415 grm. 11th.—Headache still felt on rising, but less; went off a.m. Much lassitude and little disposition to mental work. Tongue white coated; pappy stool. At 9, hunger, which increased in spite of much bread and butter. Urine dense, 1215 grm. From 12th to 15th, well, save that he had no stool on 12th and 14th. Sexual appetite, generally vigorous, was depressed throughout proving.

b. Aug. 16th, at 6 a.m., 0.10 gm. triturated with sugar; pulse 70. At 10, movements felt in bowels, as if diarrhoea would occur, but nothing came save wind. For some m., pressive pains in spleen. At 11, in open air and afterwards indoors, peculiar sensitiveness to light, eyes watering when light came fully on balls. At 6.30 p.m., headache for 1 h., first in forehead, then in occiput. No stool. Urine 2985 grm. 17th.—On rising movements in belly, which is distended and tender. After a good meal, violent hunger, changing to feebleness and malaise, which, however, were transient; continual thirst; considerable inflation of stomach, ineffectual desire for stool. After supper, hunger and malaise. In e., difficult evacuation of scanty but soft feces. Urine 1395 grm. Spirits depressed all d. 18th.—Found in *vase de nuit* a clinging brick-dust sediment dotted with numerous brown points like urinary calculi, their total weight about 0.01 gm. They were rounded, oval, like kidneys; all had a horizontal facet with a nucleus,

covered with clearer scales. One of largest showed under microscope several circular depressions of lighter colour. Examined with power of 300 diameters, they were of size of mulberry; and their entire surface had form of a fine group of crystals. In n. 17th—18th collection of great quantity of viscid mucus in throat, which forced him to cough and woke him. Throughout d. frequent emissions of flatulence. Urine 1515 grm., dense and strong, but without deposit. 19th.—No stool. Urine 1515 grm.; after 24 h. deposit of about 0.005 grm. of clear brown corpuscles, which under microscope appeared as conglomerated crystals. They were much smaller than yesterday's, without depressions or horizontal facet. 20th.—Took at 8.30 a.m., fasting, 0.15 grm.; pulse full, strong, 75. Afternoon, continual scratching in throat, and desire to cough, with difficult expectoration of mucosity. At 7 p.m., pressive pain in l. chest, very bad on deep breathing, and even worse when prover quickly put l. arm behind back. It seemed to extend round chest to back, and ceased when he sat in position as for writing. After an h. it had for the most part disappeared. Pain in throat, with roughness of voice, continued till n. Urine 1080 grm., which by next m. had deposited crystalline conglomerations, looking under microscope like sugar candy, but whose nature could not be exactly determined. At 9 p.m., short lasting, constrictive pains at urethral orifice after micturition.

Although prover seems to have taken no more of the drug, the symptoms excited by it, frontal headache, tenderness in upper dorsal vertebrae, pain in chest, saturated urine depositing crystals, coated tongue, and gastro-intestinal disturbance, continued to trouble him up to the first week in September. The irritation in throat, moreover, causing cough, which began on Aug. 20th, increased and became incessant, developing into a regular angina faucium, and accompanied with daily attacks of hoarseness. [These last symptoms were so severe and so long continued, that, arising after a comparatively small dose, and peculiar to the present prover, we do not feel warranted in giving them *in extenso*, and note them only for verification.—ENS.] From Sept. 3rd—9th cough diminished little by little, and finally completely left him. Hoarseness and angina did not recur, even when provoked by violent shocks of larynx. No more crystals were seen in urine. Through whole proving, N— had a sickly appearance; he emaciated greatly, and sexual functions were profoundly depressed. For some time there remained great sensibility of body, and he was very subject to toothache. At end of Sept. he had some herpes labialis. His body gradually recovered its elasticity, and digestion became as good as before. (*Journ. f. Arzneimittellehre*, ii.)

10. L. W. LEONHARDT, medical student, æt. 23, sanguine, brune, in good health, though liable to giddiness and faintness, and pulse easily quickened on exertion. Habitus very regular and simple.

æ. Aug. 12th, 1838, at 7.30 a.m., took 0.05 grm. Four stools in d., first natural, rest liquid, with slight cuttings. 13th.—Tongue yellow at root, m. Appetite diminished for several d. Dull pain in splenic region, going off on pressure, but recurring frequently in paroxysms during next few d. 14th.—Frequent yawnings, oppres-

sion in chest, attacks of anxiety, prostration. 15th.—No fresh symptoms. Next m. urine had thrown down a rose-red sediment. On supernatant fluid floated several brownish corpuscles, which by degrees fell to bottom; total quantity was about 0·01 gm. Under microscope, deposit showed flat crystals of rhomboidal shape and some double pyramidal. At bedtime, another 0·05 gm., and same on waking next m. Splenic pain persisted with same intensity; in m. ineffectual desire for stool; p.m. slight frontal headache; during whole d. unwanted serenity and indolence; urine moderate in quantity, reddish yellow in appearance, and next m. showed rose-red sediment, having crystals as before. Pulse, on taking drug 60, was at four times of counting during d. 84. 17th.—Urine as yesterday; no stool. 18th.—Towards e. pinching in forehead and head affected; urine soon decomposed after emission and became thick, depositing granular sediment, sandy yellow, of crystalline consistence. No stool; pulse 84 m. and afternoon, 60 e. 19th.—Pulse 60. From noon till e. extremities, chin, nose and ears cold; dull pains in head, drawings from temples towards mid-forehead; all d. torpidity and indisposition to work, till at 9 p.m. walk in open air brightened him up. Splenic pain had entirely disappeared. In e., natural stools. Urine contained great number of round crystals, which under microscope looked at several points like glands. 20th.—Headache continued all d. At 2.30 p.m. 0·15 gm. Sad and ill-tempered, proverbs spent afternoon and e. on sofa; idea of work was repugnant to him; he yawned every moment. At n. sleep very restless, disturbed by *bizarre* dreams, ending by his falling out of bed. Passed 885 gm. of urine, yellowish red, containing about 0·08 gm. of rhomboidal or columnar crystals. 21st.—Headache, lassitude, indolence, yawning. To these were added, during m., shooting in r. chest, extending towards shoulders, hindering respiration, relieved by bending body forwards, lasting only a few seconds, but returning paroxysmally during d. Breathing was also oppressed as if chest were bound by a hoop. Belly distended all d.; much emission of stinking flatus, and in e. normal stool. Urine much as yesterday, but with mucous sediment also. Great pallor of face and somnolence throughout d. 22nd.—As yesterday; urine more abundant and paler, with fewer crystals. 23rd.—Same. Complexion earthy, eyes sunken. Urine 1530 gm., forming sediment like a lemon, 0·06 gm. in weight, crystalline as before. Peaceful sleep. 24th.—Some dartings in l. chest; towards e., heat of face; continuance of headache, somnolence, and sadness. Urine as yesterday, crystals yellow. Dull headache and lassitude continued till noon of 27th, after which came gaiety even to extravagance. No crystals in urine of 26th and 27th.

5. 28th, 8.30 a.m., 0·20 gm. No sensations, but crystals in urine as before. 29th.—After disturbed n., full of dreams, rose with burning in forehead and pressive pain there; also pains in both sides of neck, pretty bad on pressure, later passing into larynx, and disappearing towards e. Root of tongue yellow coated since m. Afternoon, headache was mainly temporal; it lessened by degrees and disappeared in e. Towards 7 p.m., all at once cuttings and twistings in epigastric and umbilical regions, radiating all over abdomen and lasting 1 h.; with

malaise, lassitude, and chills. Urine abundant and free from crystals. 30th.—In m. colic of last e. returned, less violent but lasting longer; normal stool; frequent yawnings, but extremely gay humour. Urine more saturated, with some crystals.

These symptoms of intestines and urine continued with slight variation till Sept. 4th. On 15th, drawing frontal headache, inappetence and thirst occurred, followed next d. by lassitude and fresh deposit of crystals. These continued 2 d. more, with occasional headaches. The equilibrium of the functions seemed now restored though face continued pale. This prover also noticed depression of sexual functions. (*Ibid.*)

11. *a.* Fritz, medical student, æt. 25, robust, but liable—since an intermittent two years ago—to headaches, and to blood-spitting with shootings in chest. Aug. 11th, 1838, took at 5 a.m. 0·01 grm. Towards 9, violent frontal headache lasting 24 h., with tinnitus aurium and general heat. Soon after taking it, malaise lasting all d.; besides this frequent eructations, movements in abdomen as if diarrhoea would ensue, and emission of much flatus. These symptoms were accompanied with prostration. After troubled sleep he woke earlier in m. than usual; all symptoms persisted, but in less degree. They disappeared during d., and no trace was left on morrow. On 14th took at bedtime 0·05 grm. N. calm; on waking in m. head felt empty, with frequent but transient tinnitus; sensation as if he had fasted, with unusual thirst and excellent appetite. For 4 d. from this, tongue was coated with thick yellow slimy fur which he could not remove; and throughout time he felt peculiar feebleness and lassitude. On Aug. 20th, at 5 a.m., 0·08 grm. Towards noon violent pain in region of l. temple, extending to eyebrow, forcing prover to lie on sofa, and seek cool place on which to press for relief; continual ringing in ears, dry mouth, thirst, heat of face, were concomitants. Emission of much flatus and movement in bowels, with soft stool (he had been constipated on previous days). Urine seemed augmented, it contained a great quantity of orange crystals, some having form of rectangular prisms or columns, others rhomboidal. On following d. no symptoms; but in e. of 22nd frontal headache recurred, less violent than on 20th; dorsal vertebrae tender on pressure. N. sleepless from dry heat all over, and insupportable prickings in skin, followed by sweat, especially on face. This was accompanied by a certain sense of anxiety which several times forced him to get up. On rising he took 0·15 grm. Towards noon began pain in forehead and in temporal region, increasing gradually till e., when it attained a great height, with beating in temporal arteries, heat of head, and ringing in ears. Whole body felt prostrate, he could hardly stand upright. He had lively thirst and drank much, passing also much urine, but without crystals. Anxiety also persisted all d. On 24th, after a fair n., headache had much diminished in violence, now mainly dull and empty feeling. Tongue coated with slimy mucus, yellow at back; buccal cavity very pale. Appetite good, and in e. even strong. After eating, however, he had pressure on stomach and cutting in epigastrium and mesenteric regions. Anxious feeling was increased, and became actual anguish, as if he had committed a crime. 25th.—

State as yesterday; cuttings in epigastrium were particularly strong. 26th.—Abdominal pain aggravated by pressure with hand; prostration and trembling of limbs (especially knees); diuresis. Next d. same, but trembling most in feet. On 28th and 29th nothing but the headache and dyspepsia to which he was accustomed; but on 30th abdominal pains recurred, descending from stomach to umbilicus. They continued next d. in same force. Trembling had quite disappeared, but ankles still ached. Towards 11 a.m. shudders with pale face, frontal pains and tinnitus. Appetite strong, and unusual thirst, obliging him in e. to drink freely. Much lassitude and sadness. Next d., pains in belly had ceased, and headache and tinnitus were less. Took at noon 0.30 grm. Towards 4 p.m. headache again as on 23rd; rest of body in unwonted excitement; face pale; thirst great; much weakness and benumbed feeling in feet on walking. 2nd.—As yesterday; from time to time, sweat over whole body while at rest. From m. through whole d., violent abdominal pains, with such distension, especially in l. hypochondrium, that he had to unbutton. To this next d. were added shootings there, but headache had ceased. Urine after passing became troubled and full of mucous floccs, forming a lemon-coloured greasy sediment. On 4th, all symptoms had disappeared, and for next 2 d. he felt in his normal health.

6. Sept. 6th in e., and 7th in m., took 2 doses of 0.20 grm. each. In n. no sleep save a few h. towards m. Perspiration so great that bed was soaked. About 9 a.m. headache came on with extreme violence (especially, as on last occasion, on l. side), with vertigo and tinnitus, also prostration as after a long illness. Appetite strong, but at same time thirst, eructations, and malaise; much flatul. From this time maxillary joints commenced to give discomfort when he opened mouth. 8th.—As yesterday, with in addition pains in throat, especially on turning neck or swallowing. 9th.—To-day also loose cough; swelling on neck, not tender, behind r. sterno-mastoid; continual renal pains; he looked ill and eyes were sunken. 10th.—In m. throat at its worst, but thence gradual improvement till in e. it was well. Frequent tinnitus; vertigo on stooping; pains under sternum, almost lancinating, felt especially on deep breathing or rapid movement. These did not cease entirely till 14th; but, save slight headache, he was otherwise well. On that d., at 11 p.m., took 0.40 grm. N. was calm; on waking tongue thickly coated yellow at root. On opening mouth, cracking in maxillary joints as before, and same in shoulders on raising arms, audible to others. Head as if benumbed, and pain, especially in l. temple; tinnitus and transient deafness (l. ear, in which also tinnitus seemed chiefly seated). Great thirst, drank much more than he passed in urine. Appetite of twice its usual force. Pulse 75, regular, weak; prostration; looks ill; face pale; eyes sunken and grey-circled. Same on 16th and 17th, appetite and thirst continuing great. On 18th, immediately on rising, headache more violent than before, especially on bending or turning head; tinnitus all d.; cracking of joints more frequent; transient but recurring substernal pains as before; cuttings in belly without stool; hunger became a veritable bulimia. For 2 d. more state continued same. In n. 19—20th sleep disturbed

by great heat and thirst; headache and tinnitus considerable on rising. Belly swelled and tense, going down after free emission of flatus. On 21st, at moment of rising, pretty severe pain in r. chest, lasting till noon; at same time feeling as of suppuration within liver; both recurred for a few h. next m., and very slightly on 24th. By 25th health was perfect; but pallor of face lasted some weeks yet. (*Ibid.*)

12. *a.* JEANNE BARRA, æt. 17, brunette, very subject to coryza, and (for last 3 years) to dyspnoea and oppression of chest on rapid movement. No catamenia yet; but for some time past a bland leucorrhœa. Abdomen a little large and tense. On Aug. 29th, 1858, took in m. 0.05 grm. In course of m., some pains in hypogastrium, pressing towards pubes, quite unusual. On 30th, in afternoon, was seized with chill lasting 1 h.; temp. of air, from 8 a.m.—2 p.m. + 15° R., at 4 p.m. was + 20°. This d. and next, irritation of throat provoking cough without expectoration. No leucorrhœa to-day; but next d. it returned, mixed with blood, and vagina was found hot and turgid. Sanguineous tinge continued on 4th, but had ceased by 5th. On 6th, took in m. 0.15 grm. Increase of thirst and appetite, and next d. slight frontal pain after food. On 10th at n. and 11th in m. 0.15 grm. Towards noon, malaise for an h. with frontal and l. temporal pain; inappetence; trembling and coldness of limbs, pallor of face; no leucorrhœa. No symptoms for next 3 d. save some tempo-frontal pain on 14th and 15th, with on former d. some tinnitus and diarrhetic stools. On 16th, took in m. 0.55 grm. Shootings soon came on in l. breast, preventing deep breathing, and lasting without cessation till next d., when they gradually went off, but had not quite left up to 20th, when there came also drawings in hands and feet, and also in forehead and l. temple, lasting some d. On 24th, at 6 a.m., 0.60 grm., without effect save very dreamful sleep on 24th—25th. On 26th, in m., vertigo and turnings in head, and during d. inappetence. For 2 d. more perfect health.

b. On 28th, at 1 p.m., took 1 grm. After ½ h. felt so ill at ease that she went to bed. She had vertigo, turnings in head as if there were a windmill there, tinnitus aurium so loud that she could not hear; at same time veil before eyes, and frontal headache so violent that it seemed as if head would burst; malaise; vomitings; diarrhœa with violent colic traversing abdomen. At first there were chills, and strong trembling of limbs; on getting to bed great heat, frequent yawning and sneezing, followed by profuse perspiration. She could not sleep till midnight. Next m. slight traces of attack of yesterday, which soon disappeared, leaving only lassitude for some d.

Four weeks after appearance of blood with leucorrhœa, catamenia appeared naturally. (*Ibid.*)

13. I administered to myself, at various times during winters of 1826 and 1829, repeated doses of Ch., taking altogether more than 60 grm. I was then in excellent health. My observations were made from 9 p.m. to 2 and 3 a.m., while lying in bed and preparing lectures.

a. During the 46, d. of my first experiments, 5 times only pulse rose 2—3 beats, and 3 times out of 5 this rise could be otherwise accounted for. Otherwise it always fell by 4—12 beats, especially when taking larger doses (4 grm. in course of e.). When doses did

not exceed 1 grm. I felt gay and my head free, though a certain uneasiness pervaded my whole body. Larger doses caused somnolence, disturbed thoughts, tinnitus, and hardness of hearing. Once, having taken between e. and 10 next m. about $4\frac{1}{2}$ grm., pulse, which at first was 64, fell only 8—9 beats, but became weak; I became sleepy earlier than usual, and perspired much during n., though it was winter; I awoke without vigour, depressed, deaf, and my head dull. In getting out of bed I became giddy, and walking was difficult. This condition lasted till dinner-time, when affection of hearing and general malaise ceased; but I remained weak till next d. Generally, appetite was increased; mouth was clammy in m., but never after eating; urine varied in quantity; stools were unchanged. (Taking once 75 centigrm. after 60 grm. of rum, which had quickened pulse by 8 beats, it fell 7 beats ere he slept, and next m. was 12 below normal rate.) (GIACOMINI, *op. cit.*)

14. a. Man in strong health, sanguine temperament, took (pulse 75) 3 h. after dinner 20 gr. After 2 h. pulse 84, small; but nothing felt save slight drawing in abdomen. He took another 20 gr. In $1\frac{1}{2}$ h. vertigo, he felt as if tipsy though mind was clear and steady; complained of roaring in ears and of intense heat all over skin. Pulse 80. Took a third dose. Tipsy feeling increased so that he could not walk, limbs not obeying will; frequent shuddering; roaring in ears so great that he was nearly deaf; heat of whole body, followed by perspiration; pulse 100. No pain anywhere and no abdominal disturbance. N. sleepless and agitated. Next m. all symptoms had disappeared save the tinnitus.

b. K— repeated experiment on other persons with results generally the same. Having himself taken 20 gr. he felt trembling in limbs which he could not restrain and agreeable warmth all over body. "This heat," he says, "gradually increases and ends in perspiration; tinnitus lasts long and there is no pain or abdominal disorder; pulse always quicker, but never strong, hard and full as after alcohol."* (KREMER, *L'Hém. Méd.*, 1878.)

15. Dr. FAIRER, of Boghar, in Algeria, took from Jan. 10th, 1847, daily doses of Ch., beginning with 4 decigr., and doubling dose every 3rd d. till he had taken 18 grm. He was somewhat plethoric at commencement, and for first 3 d. felt lighter and better. For next 3 d. he had tinnitus; more frequent craving for food, without real increase of appetite; pulse lost force and frequency, falling from 57 on 10th to 50 on 16th. From 16th—19th somnolence; confusion, or rather vacancy of ideas; more intense tinnitus, with deafness; no appetite, but drawing in stomach as when there is need of food. During last 3 d. weakness was extreme; he longed for sleep, solitude, darkness; was deaf; pulse scarcely perceptible, 45, even 40; he felt like one

* "Each day's observation proves more strongly that Ch. in full doses excites in a great number of subjects a very marked febrile movement. The characters of this fever, and the epoch at which it manifests itself, vary much in different individuals. Most frequently tinnitus aurium, deafness and a sort of intoxication precede the invasion of this fever; a light rigor then is added, a dry heat accompanied by headache succeeds the first symptoms, subsides gradually, and ends in moisture" (BRAYONNEAU, quoted by Trouessart and Fidouz).

exhausted by a too prolonged fast. On leaving off drug, symptoms soon disappeared and strength returned. (RABUTEAU, *Élem. de théor. et de pharm.*, sub voce.)

16. KERNER took daily increasing doses. When he had got beyond 1 grm., he found that gymnastic exercises which would ordinarily raise his temperature more than 2° cent. now did so by only 0.2° or 0.3° . Also, usual free perspiration of summer became greatly diminished or even suppressed while under its influence. (FRITZGER'S *Archiv*, 1870.)

17. a. A healthy man, 75 kilos. in weight, whose urine was quite clear when iodine in solution was added, took at 11.20 a.m. grm. 0.1. 11.35 a.m., urine not affected by iodine, straw coloured. 11.55 a.m., darker colour. 12.20 p.m., colour of urine still darker. 1 p.m., urine dark orange, slight sediment. 3.30, colour darker and sediment more apparent. 4.30 and 8 p.m., same as at 1 p.m.

b. Same man took at 4 p.m., the urine being quite clear, grm. 0.2. 4.30 p.m., no difference in urine, feeling of fulness in epigastrium. 5 p.m., beautiful thick sediment, and opacity of urine. (HINZ, *Vierteljahrsschrift für Naturgesch. Medicin*, xlvj, 166.)

18. a. Mrs. E—, æt. 20, nervous.—March 15th, 8 p.m., 10 gr. At 8.45 p.m., great roaring in ears, weakness, fatigue, pale face, pulse slightly quicker. 9 p.m., very pale, weak, especially in feet, cannot walk, roaring in ears louder. 12 p.m., vertigo and palpitation of heart; slept ill in consequence of palpitation. Next m., pale, loud roaring in head and ears.—19th, 8.15 p.m., 6 gr. In 1 h. roaring in ears.—20th, 9 a.m., still roaring in ears. Pulse slightly accelerated; temperature very slightly increased.

b. Mrs. L—, æt. 27, healthy.—March 14th, 8 p.m., 5 gr. In $\frac{1}{2}$ h., roaring in ears, which increased after another $\frac{1}{2}$ h. 9.45 p.m., roaring in ears less, temp. and pulse slightly increased. Next m. quite well, temp. fell 0.4° .—15th, 8 p.m., 10 gr. 8.45 p.m., excited, face and eyes red, pupils dilated. 9 p.m., less excited. 12 p.m., noise in ears, resp. and pulse accelerated, temp. slightly diminished; slept well.—16th. Felt quite well.—19th, 8.15 p.m., 10 gr. In 1 h., roaring in ears, resp. slower, temp. slightly diminished.—20th, 9 a.m., resp. and pulse slightly quicker, temp. slightly increased.

c. Mrs. S—, æt. 26, in good health.—March 14th, 8 p.m., 5 gr. In $\frac{1}{2}$ h., roaring in ears, increased after $\frac{1}{2}$ h. 9.45 p.m., roaring in ears diminished. 12 p.m., pulse slightly accelerated, resp. slightly quicker, temp. fell 0.3° .—15th, 8 p.m., 10 gr. 8.45 p.m., roaring in ears, otherwise well. 9 p.m., pulse and resp. accelerated, complains of roaring in head and ears, temp. normal.—16th, 9 a.m., noise in ears, resp. accelerated, temp. normal.—19th, 8.15 p.m., 10 gr. In 1 h. roaring in ears.—20th, 9 a.m., resp. and pulse slightly accelerated, temp. slightly diminished. (JERUSALMSKY, *Ueber des phys. Wirk. des Chinins*, 1875.)

19. Dr. NORTON, on July 9th, 1851, took $\frac{1}{2}$ gr. 3 times. 10th.—Unusually good appetite at breakfast time. Took gr. $\frac{1}{2}$ twice, and gr. j once. 11th.—In course of m. some nausea. Took gr. $\frac{1}{2}$ once and gr. ij once. 12th.—Took 2 gr. and 3 gr. doses. Scarcely any

nausea. 13th.—Nausea and tenderness at epigastrium during d. At 5 p.m., 3 gr. 14th.—Defecation attended with much wind, feces indolent and inclined to be relaxed. Took 4 gr., 4 gr., and 6 gr. doses. About $\frac{1}{2}$ h. after last painful or uneasy sensation at anus, somewhat relieved by straining. In e. after coffee buzzing in r. ear spreading through head. 15th.—Slept well; noise in ear gone; soreness at anus still there, but less severe. Took 5 gr. at 11 a.m. While out walking some slight febrile heat (most unusual with him) with tingling or stinging in front of both thighs. About 3 p.m. stool, first part flaccid and jelly-like, second natural. At 4 p.m. 6 gr. In an h. had some tea, soon after which ringing in r. ear returned. On 16th and 17th no medicine; symptoms same. 18th.—Took 12 gr. in course of d. Nausea; ringing in both ears, but specially r.; trembling and weakness; cough with a little mucous expectoration; urine increased in quantity. Face has become pale and sickly looking. More than usual perspiration during sleep. 21st.—At 11 a.m. took 40 gr. Soon after was seized with swimming in head and ringing in ears; fell forward upon a table in room; recovered in a few m. with head full and heavy. Bowels moved 3 times during d.; feces pappy, frothy, and flaccid. Above symptoms continued a few d. and gradually subsided. (*Brit. Journ. of Hom.*, xvii, 463.)

20. Dr. BURT, temperature normally 98° — $98\frac{1}{2}^{\circ}$, proved Ch. with view of observing effect on bodily heat. Jan. 11th, 1871, took 2 gr. at noon. At 1, temp. 98° ; at 3, $99\frac{1}{2}^{\circ}$; in e., 98° . 12th.—At 6 a.m., temp. 98° , took 4 gr. At 8, $98\frac{1}{2}^{\circ}$; at 10, 30, 12, and 3, $99\frac{1}{2}^{\circ}$; at 10, 98° . 13th.—At 6 a.m., temp. 98° ; at 7, $98\frac{1}{2}^{\circ}$; at 10, 99° ; at 12 and 4, $99\frac{1}{2}^{\circ}$; at 9, $98\frac{1}{2}^{\circ}$. 14th.—At 7, $98\frac{1}{2}^{\circ}$; at 12, $98\frac{1}{2}^{\circ}$; at 9, 98° . 15th.—At same h. always 98° . Symptoms caused by these 3 doses were, light hollow feeling in head; memory confused; frightful dreams with restless sleep; constant ringing, hissing sound in ears; intensely acid stomach for 4 d., with distress in epigastrium; constipation for 1 d.; great weakness and weariness of arms and legs. (*Cinchona officinalis*, 1871.)

21. J. C. P.—, æt. 41, in good health. Jan. 25th.—Temp. at 9 p.m. $98\frac{1}{2}^{\circ}$. 26th.—Took 5 gr. at 6 a.m. At 7, temp. 97° ; at 9, $99\frac{1}{2}^{\circ}$; at 10 and 12, 100° ; at 3, $99\frac{1}{2}^{\circ}$; at 6, $98\frac{1}{2}^{\circ}$; at 9, 98° . 27th.—Temp. m., noon, and n., 98° . Ringing in ears was produced, with sensation as if they were stopped up. (*Ibid.*)

22. Mr. Gill and I investigated the effects of large doses on pulse and temperature.

a. A healthy girl of 13 had a pulse of 60—64, and following tables show effects of a daily dose:

Dose		Rise began	Reached
gr. 2	...	in 15 minutes	...
" 10	...	in 15 "	...
" 12	...	in 95 "	...
" 20	...	immediately	...
" 20	...	in 50 minutes	...

In the last observation the pulse, for the first 30 m., fell in frequency; but this did not occur in the other instances. Pulse was at its fastest

when (see *b*) the temperature began to fall. The increased frequency continued, after gr. x, 170 m.; after gr. xx, 195 m. In every instance there was loss of force with increase of frequency.*

b. On same girl, and on boy of 10, convalescent from rheumatic fever, we studied effects on temperature. The following table shows results:

BOY.			GIRL.		
Dose.	Effect on temperature.		Dose.	Effect on temperature.	
gr. 10	...	None	gr. 5	...	Fell 0.2°
" 10	...	Fell 0.2°	" 10	...	None
" 10	...	None	" 10	...	None
			" 10	...	Fell 1°
			" 10	...	Fell 0.4°

The depression under the two doses of gr. xx occurred in 55 and 80 m. respectively, and lasted between 3 and 4 h. on the first occasions, for 45 m. only on the second. (RINGB, *op. cit.*)†

23. Dr. RANKER took gr. xx in 2 doses, to ascertain effect on urine. He found quantity of uric acid fall from 0.544 to 0.317 grm. Five similar experiments on 3 persons were made with like result. (*Med. Times and Gaz.*, 1857, i, 537.)‡

24. J. C. MORGAN, M.D., bilious temperament.

a. Took gr. $\frac{1}{2}$ or 1 of 32 cit. once or twice a d. for 14 d. from March 19th, 1874. After first dose in a few m. feeling behind mid-sternum as if food had failed to go down; and on bending over table, throbbing in head and shoulders. Forgot this on going out; but, vessels being quiet, felt gloomy, as if evil were impending, for about 1½ h. Some trifling pains at ankles and elbow. 19th.—In m., unusual coldness (after dose) while writing in a warm room; more force and buoyancy than usual. 20th.—Near m., awoke with painful oppression at epigastrium; tucked over, and fell asleep again. During d., when conversing with patients in warm rooms, very drowsy; eyes and frontal region feel heavy. Transient neuralgic pains about face in e. 22nd.—Recurrence of feeling of impending evil. 23th.—Again pains about face, 10th.—After 3 gr., in 15 m. noticed feet getting cold, with sneezing.

b. March 30th, at 7 p.m., took $\frac{1}{2}$ gr. granule (sugar coated). Soon after, on suddenly rising to a standing posture, quick stitch in l. upper parietal region. Sitting, with r. arm in malposition, rheumatic threatening in r. deltoid muscle; later, in the course of musculo-spiral nerve to back of forearm and hand, riding in car and resting the palm on seat; also in ulnar nerve, adjoining pisiform bone. Walking, tired feeling in upper front of thighs, as if overworked. Have made a number of mistakes in talking during last few d. This e., at 6 took a nap with hands joined over top of head, lying on back. Was awakened at 6.45, heart beat with abnormal impulse, felt through large part of chest, and too frequently; better by lying still a while, then stirring about moderately. Hungry this afternoon. While waiting the above, stitch at inner l. eyebrow. 12.25 p.m., took another $\frac{1}{2}$ gr. granule. Another

* A series of experiments were made to determine action of Ch. on pulse, various doses from 5 to 30 gr. being taken every $\frac{1}{2}$ h. Almost no effect was produced on number of beats, but volume was increased (*Am. Journ. of Med. Sc.*, n. 1, lii, 97).

† "Dr. Wood and Reichert show that cinchona alkaloids increase both heat formation and heat dissipation, the latter being much in excess of the former" (1870).

‡ This fact has been confirmed by Kerner, who found that when about 9 gr. were taken in 6 course d., urea was decreased not quite $\frac{1}{2}$, uric acid little less than $\frac{1}{2}$, kreatinine slightly increased, and nitrogenous matter decreased about $\frac{1}{2}$. When 38 gr. were taken in m., urea and kreatinine were decreased about $\frac{1}{2}$, as was also collective nitrogenous material; phosphoric acid about $\frac{1}{2}$, and uric acid about $\frac{1}{2}$ (H. C. WOOD). BAYNELOW thinks he has ascertained that while Ch. lessens excretion of uric acid, it does not diminish that of urea (*Med. Med.*, sub voce).

on rest, at 11.45 a.m. Soon after this slight exertion, empty, then slight sensation in breast, l. of sternum, as of spasmodic state of oesophagus from indigestion. Post-prandial stool, it proved scanty, with habitual prostration. Deteriorate tooth in r. lower jaw (bicuspid) somewhat sensitive, or rather its socket; subject to it in cold, damp weather, but weather to day mild and pleasant. 12, m., another granule. 2 p.m., subcutaneous cutting stitch in l. hypochondrium. 4.50 p.m., took a granule, sitting; drowsy feeling like warmth about eyes and down to throat; directly another little cutting stitch outer l. groin, subcutaneous, whilst sitting. Warmth extends downwards (subjectively) to external chest. Throat feels a little full; clogging of upper pharynx by mucus, slowly detached by repeated swallowing. Twitching of *l. lingualis* muscle while writing. Later, warmth is felt mainly in forehead, then in face. Going out for a m., air growing slightly cool and windy, felt slight chill from occiput over whole space of trapezius muscle and to upper arm. Renewed sensitiveness of r. lower bicuspid (I often have this also after a glass of ale); slight palpitation,—these symptoms after resuming upstairs and commencing to write. Again I mistakenly wrote l. instead of r. 5.30 p.m., warmth now felt down l. side of face. After repeated irritation in upper r. nasal passage, sneezing, followed by snuffling and slight flow of water. After going downstairs (5.30 p.m.) sticking in l. *mearus aulicorus*, very slight, but recurrent; similar sensations in anterior teeth, especially l. side. Later, walking in the open air, noticed that the raising of mucus by cough was renewed, and that I kept my teeth involuntarily pressed together, as has been the case frequently during proving, but having had the same tomesly at times overlooked it. Cool air blowing on r. side of face, felt dull pain in *zygoma*, malar, and nasal bones, extending to side of head, with slight tingling in nose as before sneezing. Began also (just walking) at same time to feel as if bones at inner half of r. knee-joint did not fit, impeding locomotion, increased to drawing in inner part of popliteal space, and up inner hamstring muscles; thought I should have to stop walking; did stop once or twice and shook limb to relieve tension; it caused awkwardness of gait. It subsided whilst making a call. At 7.30, after supper, going from one room to another, tingling in l. side of nose, sneezing, and flow from the r. side. At 9.15, whilst sitting in warmish room in shirt-sleeves, writing the above, l. arm feels slightly cool; single strong sneeze, tingling and snuffling afterwards; slight sense of stoppage alternates with the snuffling. After eating ice cream it seemed to cause a continuing coldness in stomach and slight uneasiness, less when clothes were loosened. Later, eructation, tasting of ice cream. 10.25, took another granule. Soon after, whilst standing holding head down, a little dull stitch in upper l. parietal, felt also to root of nose, l. side. Then, sitting, tingling within nose; slight. On holding head up suddenly to r. a little shock across lower occiput; just before going to bed hips felt rigid as if from a long march; almost a stiff feeling, l. side most. Woke in m. feeling inert; dull feeling in head; hard to get up. April 1st.—At 10 a.m. took a granule. During d. felt rather odd and "wooden"; motions and speech unusually deliberate. Proximal palmar portion of last phalanx of r. thumb felt sensitive to pressure, as in incipient felon. 11.40 p.m., at various times to-day, rheumatic feeling in one or other deltoid muscle extending half way down outer arm when limb happened to be in malposition. The feeling like a felon in r. thumb scarcely perceptible since 9 p.m. At various times since proving began, little shocks or pricks like neuralgia or rheumatism in divers places, as supra-orbital nerve, r. ear, r. elbow, r. knuckles, &c. Sitting now in office, inclining to l. side, slight l.-sided colic. At 12 took a granule. At 12.15 decided laryngeal tickling; cough, raising and swallowing mucus; then whilst writing, dull ache, r. side, extending as a sharp neuralgic sensation to r. outer brow, and, dull, later to r. maxillary process, recurring slightly to brow and up temporal ridge same side. Again in ear, r. side, then back to brow. Later, a catch in middle of r. *sterno-mastoid* muscle when turning head that way. Later, standing, notable cramp in l. colic region causing me to give down somewhat. April 2d.—This m., as daylight approached, frequent waking, sleep almost semi-conscious. Was called up at 6 a.m. and went out. Felt weary. Breakfasted at 11.30. At 10.30, took two granules (gr. j). For some time felt as if they had lodged half way down; directly afterwards, in street car, felt drowsy and heavy. Walking from it, muscular system felt inert, the will also. Stopped forward in walking that gravitation might supplement the inertia. Found my will positive in insisting on professional orders, but self-restrained and deliberate. At 4.30 p.m.,

at home, felt weary and drowsy. Slept from 5.30 until roused at 6.30 for supper. Hard to get awake, felt very heavy in getting to supper, and ate almost mechanically, although with good relish. Previous to sitting down, whilst moving arms, felt chilly creep over l. shoulder, shoulder blade, and side of neck. After sitting down, the room being rather warm, felt warm about face, shoulders, and downwards and backwards, gradually all over, with throbbing of heart and arteries, in feet and hands; whilst eating, found pulse 76, 72 after washing the above, full, forcible. Now and then a feeling as if perspiration might follow (about neck and face). When warmth got to feet, an inactive corn on l. little toe began to twinge under pressure of slipper, passed off on changing its position. Repeatedly whilst eating took a long inspiration, wearily, followed by loud sighing, heaving, groaning expiration. Having written this, feeling as if I would perspire, spreading from r. scapula to l. face and hand, forehead, and nape of neck and down back successively. Found my underclothing slightly moist with general slight perspiration. Ate some pickle at supper. Putting on my boots again, r. foot felt a little swelled. Going out and whilst in the street, repeated yawning and long expiration, with inclination to end in an audible ha! ho! 11.30 p.m., ceased and chewed some fresh orange peel, then ate some white sugar and drank some cold water after it. Immediately, as repeatedly heretofore has happened, dull but smart pressure in sub-occipital space, preceded by salivary tension and flow; afterwards repeated shuddering of the head, no chilliness. This attack differs from others in being more instantaneous. Relief after a few m. by eructations. Frequently at present, I find sudden motions cause catching or spraining pains, e.g. in outer fibres of deltoid tendons when raising arms; in tendons in front of l. ankle, when flexing joint suddenly. Prior to proving had a sprained feeling in last articulation of r. little finger, especially when shaking hands with others; it seems worse of late, especially after doves. April 3rd.—Having to visit Vineland, N. J., on important surgical business to-day feared to take a dose last n. or this m. On arriving attended to consultation, dressing wound, &c., then walked out, whilst doing so sudden transient scuffling in r. ear like tone of a bell in E., then neuralgic twinge at inner r. eyebrow. Returning in a close railroad car, very drowsy; fell asleep. 7 p.m., sitting in office, sudden neuralgic twinge in r. side of head from brow to lambdoidal suture. 9.45 p.m., walking in open air another neuralgic twinge, r. side of head, lingering some time in upper r. temple. Perspiration of parts pressed by clothing, as axillary, axillary, and perineal regions. Sticking above r. external condyle of humerus, then, sitting in office, in dorsum of r. forearm, then l. brow, then colicky in transverse colon; commotion in rectum, pressure of Sigmoid. Sickness in l. upper and anal matters. (From beginning of proving have had an habitual symptom considerably increased, i.e. disposition to contract eyebrows.) Whilst writing the above (11.15 p.m.) neuralgic pain in l. supra-orbital nerve, slight. Palmar intermetacarpal sticking, r. hand, between 1st and 2nd fingers. Increasing scale and disagreeable flavour of mouth, as has been pretty constantly the case for a week or more past; odour somewhat affected likewise. Pressure of Sigmoid and commotion in rectum; sitting. Neuralgic twinge again, outer r. brow, 11.30 p.m. Itching, dorsal, r. side; friction, voluntary by clothing, caused chilly creeping, round from back to side and front of chest. 12.10 a.m., neuralgic pain (slight) from same intermetacarpal space, along digital nerve, inner aspect of 1st phalanx, 1st finger, r. hand. Later, on raising eyebrows, neuralgic pain from outer r. brow, up that side of head. Then slight twinge in outer end of l. eyebrow. Sunday, 4th.—After breakfast went to church; sitting, felt neuralgic twinge in r. supra-orbital nerve. Pulse (in temporal artery) beat very strongly under finger, bounded, counted 90 to 100 per m.; no other sign of fever; skin soft, and general feeling fair; heart's action subjectively perceptible—this whilst sitting partially doctored up. After going home neuralgic twinge in l. supra-orbital nerve. When about to dine, and whilst standing, return of twinge, from outer r. brow to lambdoidal suture, i.e., above temporal ridge. Sickness in dorsum of r. forearm, when putting the hand behind me. P.m., visiting a patient; neuralgic twinge from last l. upper molar to zygoma. Slight crampy feeling at angles of 2nd true ribs, r. side. Neuralgic twinge behind tracheartery; felt afterwards in walking; also similar crampy feeling at inner border of r. scapula. Then, chilly creeps over whole tract of trapezius muscle; later from spines of scapulae to shoulders; and till later, on taking hat off in the house, from trapezius, over occiputs, to vertex, and behind ears. Twinges above r. inner brow, and various other

places. Rheumatic feelings in tendons of both deltoids, and of l. biceps, from muscular effort or strain from time to time. 10.15 p.m., considerable sickling at bifurcation of trachea (behind upper end of sternum); rough, and raising and swallowing of phlegm. For some d. have had a sore pimple, like a small boil, concealed by beard, on r. upper part of chin; culminating yesterday; passed it, watery discharge; it is much reduced. At 10.45 p.m., five broken granules, 2 1/2 gr. iju, pulse being moderate; caused and left a good deal of bitter taste in back of mouth. In 30 m., neuralgic twinge in front of lower end of fibula. A few m. later, feeling as if something indigestible had been eaten, behind lower sternum; better, temporarily, from slight eructation. Threatening of dull headache, l. occiput. Repeated slight eructations, tasting of supper mainly. Then rising of ingesta whilst sitting bent. 5th. —Slight neuralgic sensation, r. inner brow, when bending forward. Slight and transient tenderness in r. ear. 10.50 a.m., sudden fullness of head (head leaning to l.), especially l. side and top, after writing. Then (sitting), bear's action subjectively felt, extending to head; having just had an incomplete stool, after postponement to attend office patients. 11.30, took 4 gr., previously feeling a little drowsy whilst standing. Went out, took street car. Rheumatic feeling in l. shoulder, sticking in r. ear. Whilst waiting on descent, sneezing. Later, continuous pain in l. lower jaw, like pressure of dull knife-blade downward and forward from 1st molar. Later, in car, flashing in branches of infra-orbital nerve, same side. All d., eyes feel as if they had been in a glare, or as if atmosphere were too dry, as if parched; drowsiness less notable. Passive forced flexion of l. ankle (sitting), followed by slight sprained feeling in front of joint; afterwards, in walking, similar feeling on both sides of astragalus, within joint down to attachments of internal lateral ligament; later, under inside of l. instep. At dinner, 6 p.m., took 4 gr. In a few m., whilst writing, slight and transient pain referable to l. ulnar nerve in middle third. On rising from seat, rheumatic feeling about lower end of r. fibula. Full feeling in stomach. On going out, looking over a letter with head down, sharp neuralgic twinge in and behind l. parietal protuberance; then in forearm, in dorsal branches of radial nerve, then, suddenly and sharply, in digital nerves of adjacent sides of ear and fingers of l. hand, middle phalanges. At 7.30 p.m., in street car, riding in a smart draught of cool air blowing on my l. shoulder, felt less rheumatic sensations than I ordinarily do in like circumstances. Walking in the wind just before, I also observed the cessation of the parched feeling in the eyes; and in the r. there was lachrymation. 8.35 p.m., walking; increasing tension in rectus muscles of thigh; got almost rigid; obliged to pause to allow it to pass off. The morale from the first has resembled the physical symptoms; dull feelings in both coexisting; in both simultaneously, sharpness; the former in the beginning, the latter at present. The several shifting neuralgic pains, in the localities most frequently mentioned, have recurred at other times, in slight degree, in addition to those here recorded; also, once or twice, in ball of r. thumb. Whilst writing the above (7.40 a.m., after sleeping) rheumatic feeling in r. deltoid. (Some of upper deltoid pains should perhaps be rather referred to insertions of spinatus muscles into tuberosities of humerus; some of the lower, perhaps, to the brachialis anticus—at least, as participating therein. Being rather transient, it is difficult fully to test this by muscular movements; and especially, as they usually cease with change of position.) 7.45 a.m., reading bent forward, steady neuralgic pain from r. supra-orbital foramen, straight up to vertex in a narrow line, ceased after sitting up straight. 6th, 11 a.m. This m., symptoms all seem wanting for first time. Whilst writing, with head inclined to l. side, dull headache on l. side (similar to early symptoms), extends to l. side of neck and throat, and r. mastoid process, then to vertex, then to occiput; shifting then to brows (varying with position of the head); now, pressing in both temples, extending over coronal suture. Later, neuralgic aching in dorsum of r. forearm, 2 in. below head of radius (over belly of supinator longus); neuralgic twinges, or rather sticking (like sharp wires), in dorsum of r. wrist. 11.30, noon, wandering, bent forward, rheumatic feeling in small portion of l. gluteus maximus. 12, midnight, during d. have had alternations of former symptoms, as rheumatic feeling in tendon of r. deltoid; in street car, crampy feeling in r. side of chest, 4 in. outside of and below nipple; then sharp neuralgic twinge in inner digital nerve of l. and finger; then rheumatic pain along inner border of l. rectus femoris whilst walking. Since supper I taste it now and then, and when sitting doubled up, equalization, and a sense of fullness and uneasiness

in stomach. Itching in vertex and occiput, l. side. While writing above, similar itching above edge of frontal hair both sides; then below r. eyebrow; then r. side of top of head; then l. vertex, r. chin, l. post-mastoid surface, inner eyebrow, &c. 1 a.m., sitting, preparing medicine for mailing, eructation of half-digested matters quite frequent, causes me to loosen my clothes. Slight pyrosis. Dull, crampy pain at i. border of l. upper rectus abdominis, while going about, recurring more sharply when sitting. Recurrence of dull cutting in l. lower jaw. Neuralgic twinges alternating in both jaws, rather dull in character. Before going to bed, whilst making some motions with the arms, sharp cramp in anterior half of left deltoid.

Similar symptoms continued to recur for some d. later. (*Am. Journ. of Hom. Med. Med.*, May, 1875.)

II. Poisonings.—1. Dr. Bazire, having unbounded confidence in Ch., gave his wife, when attacked by intermittent fever, 16 grm. in short space of time. She fell soon into stupor with weight in head, swimnings, dimness of sight, deafness, &c., and difficulty in moving. He now gave her 35 grm., on which previous symptoms increased with frightful rapidity; she became entirely deaf and blind, respiration was much embarrassed, pulse poor, skin cold. Being at this time himself threatened with the fever, he took within a short time 60 grm. by mouth and rectum. Same symptoms appeared as in his wife; he rapidly lost sight and hearing; respiration was frequent and shallow, as in pneumonia; pulse small and irregular; limbs icy cold. In spite of this he continued to take drug, and in 8—9 d. had consumed 3v. Dr. Reveillon, then called, found him covered with cold sweat; completely deaf and blind; breathing difficult and rattling; stupor profound; he looked in face like a man dead drunk. When he could be made to hear, he answered rationally; but soon *delirium* supervened, breathing became more embarrassed, and he died. An autopsy could not be obtained. Mad. B., released by her husband's illness from further poisoning, recovered slowly, with impaired sight and hearing for a long time. (*GUESANT, L'Hom. Méd.*, 1878, p. 485.)

2. Man, æt. 45—50, took by accident ʒiij in solution at 6 a.m., and went for walk. An h. later felt uneasy in stomach and head, as if intoxicated; little by little his strength left him; sense of turning in head increased; he had nausea and cardialgia. He persisted in his walk, but malaise grew insupportable; he fell and lost consciousness. He was taken to a house and after some h. came to himself and was brought home. Seen at 2 p.m. he was found lying supine, motionless, face pale, lips and fingers slightly livid, extremities cold. Temperature of whole body was subnormal; breathing slow and interrupted by sighs; slight syncope from time to time; pulse regular, but slow and extremely small, hardly perceptible; heart-beats corresponding; pupils very dilated; sight and hearing quite extinct; voice very feeble; great thirst; tongue not dry, but pale at edges and coated white in centre; breath nearly cold. Under warmth and stimulants he gradually recovered. (*GIACOMETTI, Ann. Univ. di Med.*, xvii, 389.)

3. Man took dose of ʒ grm. to avert a periodic asthma. Some h. after tinnitus, stunned feeling, vertigo, and horrible vomitings. Seen 7 h. after he was found blind and deaf,* delirious, unable to walk for

* Dr. Menière has seen persons who, after the long-continued use of Ch. in

giddiness, vomiting constantly. Symptoms gradually subsided during n. (Trousseau and Præpoux, *op. cit.*)

4. The disturbances of vision have been carefully described by von Graefe. After small doses, photophobia, as well as temporary amblyopia, is frequently observed. Under continued use of larger doses, however, graver disturbances of function occasionally show themselves, which may persist for a long time and obstinately resist treatment. Thus, a man to cure an intermittent took Ch. in increasing doses till he had swallowed 30 grm. While dose was being increased one third daily, weakness of vision appeared in r. eye, followed in a few d. by complete blindness, l. eye remaining healthy. Nothing abnormal was revealed by ophthalmoscope 3 mos. later, but quantitative appreciation of light had disappeared from r. eye. As v. Graefe regarded disturbance of the intracranial circulation as the cause of the affection, blood was drawn from temple. Quantitative appreciation of light first returned, motion of hand could next be appreciated, and after some time eye returned to its normal condition. In another case, in which 1·8 grm. was taken daily for same purpose, and in which bilateral amblyopia of high degree appeared, full power of vision returned spontaneously in l. eye, but r. regained only power of reading large print. (LEWIN, *op. cit.*)

5. Large doses often dim sight and sometimes cause temporary blindness. I have noticed on some occasions that the defect of vision is strangely limited to one eye or begins first in one eye. The pupil of the affected eye is very generally dilated, and sometimes to an extreme extent.* (RINGER, *op. cit.*)

6. In 1858 Gubler observed that after taking a full dose of quinia, he experienced tinnitus in the l. ear only, and this effect recurred on several occasions. It then occurred to him that he was at the same time suffering from hemicrania of the opposite side, an affection to which he was subject, and he suspected that the vascular congestion of this side might have prevented the tonical effects of the quinine from being developed. (STILLÉ, *op. cit.*)

7. A gentleman, after a thorough wetting during a fire at a theatre, was taken with inflammation of r. great toe. Physician pronounced it gout, from which patient had never suffered; and ordered leeches and various remedies without effect. At last, thinking he saw something

strong doses, have had tinnitus for years. He cites also a case of a child which became deaf after taking it, remained so for years, and could not be completely cured." (See also Basily, *Gas. Méd. de Paris*, 1850. Koch finds in such cases the membrane tympani of a tedious whiteness, apparently the result of chronic inflammation and thickening. *Berl. kl. Woch.*, Dec. 5, 1881.) Dr. van Buren reports an amblyopia of three weeks' duration, and quite intractable, after 4 gr. doses every 4 h. for a week (*N. Y. Jour. of Med.*, vi, 21).

* After 50 gr. doses ophthalmoscopic examination found "in 1½ h. disc and retina both very anæmic; disc looks dry, and vessels running over it smaller than usual." In 2½ h. "both sides now decidedly paler than ten min." (NICOL and MESSOP, *Brit. and For. Med. Ch. Rev.*, 1873, i, 303). Dr. Hammond has obtained opposite results. In a man who had taken 10 gr., retina and tympanum were found showing hyperæmia of external parts; and in a cinchonised rabbit the same condition was seen in the brain, when a hole was made in the cranium (see *Brit. Med. Jour.*, Jan. 2, 1876). Koch also finds congestion and hæmorrhage in the ears of small animals poisoned by it (*Berl. klin. Woch.*, Dec. 5, 1881).

periodic about it (which patient could not confirm), he gave Ch. Scarcely had a few gr. been taken, when attack of fever in due form supervened, violent chill, followed by heat and copious sweat; it returned next m. at same h. (though no more drug had been taken), but was slighter, and next d. only traces of it were felt. "*Similia similibus*," exclaimed the patient; but the physician would not admit it. However, the toe was no better. (HYGIA, xvii, 301.)*

8. The quinine fever has been observed by M. Guérard, member of the Council of Health. This distinguished practitioner has informed me that he once received into the wards of the Hôpital St. Antoine at Paris a workman in a quinine factory. He was the subject of a tertian fever, against which Ch. failed completely. He was then given salicine with perfect success. (GUÉRARD, *L'Hom. Mil.*, 1879, p. 362.)

9. A girl, æt. 7, who had frequently suffered from intermittent fever, had a tertian. Comatose symptoms supervening with each paroxysm, Ch. was prescribed, a gr. every 2 h. during the apyrexia. The child took the 1st and 2nd powder without inconvenience, but had hardly taken the 3rd when there occurred suddenly shivering and chill for 15 or 20 m., then heat extending over whole body, which passed off in $\frac{1}{4}$ h. with gentle perspiration so that patient could leave her bed. After every succeeding powder same symptoms set in. Reporter witnessed next d. one of the attacks (which was slighter than those of previous d.). The patient was pale and complained of chill and shivering; lips and nails became bluish; pulse spasmodically contracted, but little altered as to frequency. This state continued perhaps 15 m., when a moderate general heat followed; face and lips grew red again, pulse stronger and fuller; patient often longed for drink; at last general perspiration appeared, and in $\frac{3}{4}$ h. the little girl was quite well again. The expected paroxysm set in at the right time, but was slighter and without coma. The powders were continued; and the bark fever occurred after each, but slighter, till from the next m. they ceased entirely. The intermittent paroxysm also did not return. (HIRSCHEL, *Hufeland's Journ.*, vol. lxi.)

10. A woman, æt. 45, convalescing from a low fever (*febris nervosa variabilis*), took for debility moderate doses of Ch., but "after each dose had a well-marked fit of ague." (She took, it appears, gr. $\frac{1}{2}$ in m., and same twice in 6. In about 1 h. there occurred a shivering chill for 1 h., then a hot fit, and afterwards a sweat of several h.) Medicine was discontinued and attacks ceased, till 10 d. later a decoction of bark was prescribed, when a single dose sufficed to produce a fit precisely as before. (OSANN, *Ibid.*, Suppl. of 1825.)

11. (Hæmorrhage.) Baguet observed on three occasions of giving 3 or 4 gr. to prevent relapses of intermittents (in same patient, at

* M. Piory formally denies that Ch. produces intermittent fever in healthy persons. However singular this effect may seem, we can assure him that we have seen several instances of it, and we are happy to be able to cite in support of our assertion the authority of M. Gondomp, one of our most distinguished military surgeons. The result of the experiments which he has made on himself is that Ch. excites on the healthy body genuine attacks of intermittent fever" (AUBAN, *Revue Médicale*, 1840, i, 461).

different times) hæmorrhage from mouth, lasting from 4—48 h., and 2nd time accompanied by purpuric spots on arms and legs. (*Ann. de la Soc. de Méd. d'Anvers*, 1844, p. 633.) Cachère reports 2 cases in which Ch. was given to children. In one, a boy of 13, on 5 occasions hæmaturia followed each attempt at administration; in the other, a girl, hæmorrhage from vagina ensued. (*Arch. Méd. Belg.*, 1871, p. 114.) Gauchet has observed one case, and Simon de Ronchard several, of hæmoptysis occurring after moderate doses. The affected persons had healthy lungs and hearts. As soon as the drug was discontinued the hæmoptysis ceased, but blood once more made its appearance in the sputa when it was again used. (Lewin, *op. cit.*)

12. (Eruptions.) GRISAC classes the eruptions which may appear after the internal use of quinine as purpura, roseola, scarlatinous erythema, and eczema.

a. Vèpau first observed the petechial form. He reports that in the case of a lady suffering from neuralgia, who took first 0·1, later 0·15 gm., spots of purpura developed all over the body after 2 d. They disappeared 9 d. after the suspension of the remedy, but again showed themselves when its use was recommenced. The eruption increased in violence and extent with the increase of the dose, and hæmorrhage took place from the gums while it lasted. Gauchet observed a similar petechial eruption on the person of a lady who had previously suffered from hæmoptysis after taking drug. The petechiæ were abundantly scattered all over the body and disappeared on the discontinuance of the remedy.

b. A simple roseola has been repeatedly observed by Daubœuf in males and females. It made its appearance attended by intense itching, usually after a number of doses had been taken, in one case even 8 d. after last dose was taken. It was sometimes confined to the extremities or trunk, and sometimes spread over the whole body; usually appearing only in the form of disseminated patches.

c. The scarlatiniform erythema was first described by English authors. (See ii, 13, 15, 16, 18.)

d. The mixed form of quinine eruption, a combination of scarlatiniform erythema and acute eczema in its earliest stage, is illustrated by a case of Köbner's. An eruption which was mistaken for scarlatina, preceded by chills, præcordial anxiety, nausea, vomiting, and burning on skin, appeared in a lady after taking 0·22 gm. When medicine was again administered, face became slightly bloated, and was covered with a uniform dark redness which spread also over scalp, ears, neck and extremities. A few spots of normal skin remained on arms; and flexor aspect of lower third of both thighs was normal, while extensor surfaces were the seat of isolated papules, of size of pea, dark red in colour, becoming pale on pressure. Intervening tissue was healthy, and epidermis showed fine wrinkling. Heisinger has communicated a somewhat similar observation. A nodular eruption appeared in a lady after 0·025 gm. only on eyelids, cheeks, and a portion of forehead, with headache, fever, nausea, sensation of intense burning and marked œdematous swelling. On another occasion in same subject, after 0·01 gm., herpetic vesicles only appeared on cheeks; disappearing with branny desquamation

immediately after use of drug was abandoned. Denk reports case of a boy in whom, after use of 0·8 grm. in 4 d., an eruption appeared without itching, which extended over whole body, became pale on pressure, was of a scarlatinal redness, and presented numerous yellow vesicles of pin-head size, most thickly connected on neck, in axilla, and over sternum. The general condition, save for a slight elevation of temperature in m. and e., was not affected. After drug was discontinued vesicles began to break and dry up. Desquamation occurred in small scales and large lamellæ.

According to Grissac, the appearance of an acute eczema may be still more closely simulated than in the cases just cited, if the numerous vesicles burst and form thick crusts. (LEWIN, *op. cit.*)

13. a. A small dose of quinia in one of my patients always brings out a uniform red rash over the whole body, most marked on the back of the neck, accompanied by very severe stinging pain, especially on the nape, and in the clefts between the fingers. Desquamation, as free as after an attack of scarlet fever, always follows the rash.

b. A patient tells me that even small doses always excite violent urticaria, her face swelling till she can hardly see out of her eyes. She is so intolerant of it that a quinine hair-wash brought out a crop of urticaria on her head, and a tooth-powder containing a small quantity of the drug caused her lips and gums to swell. (RINGER, *op. cit.*)

14. Gr. $\frac{1}{2}$ was given to lady in aperient pill; in 30 m. patient was conscious of irritation over skin of head and face, which ended in erysipelatous redness and œdema of r. side of face, eyelid, &c. This lasted 12 h. The patient gave following previous experiences of the drug: She first took a dose when about 16 as a tonic at bedtime. Passed a very restless n., and in m. entire head was much swollen, and opening mouth to take food was difficult. Shortly afterwards took glass of port wine, in which was very small quantity of solution of C., and was attacked by same symptoms, only less severe. On another occasion, when recovering from smallpox, C. was taken, and produced large wheals with local redness over neck, chest and arms. All preparations of bark acted in the same way. (NEWMAN, *Brit. Med. Journ.*, 1871, i, 361.)

15. A lady, æt. 40, took 2 gr., and was shortly attacked with erythematous rash and œdema of face and limbs and præcordial uneasiness; arms felt ready to burst. The rash subsided in 3 or 4 d., and was followed by desquamation. (GARRAWAY, *Ibid.*, 1869, ii, 388.)

16. An elderly lady took 2 doses of mixture, containing 1 gr. in each dose. Afterwards she passed sleepless n., and in m. was covered with vivid red rash attended with great itching. Slight puffiness of face, white tongue and præcordial uneasiness were also present. The rash persisted several d., and was followed by desquamation, which lasted more than three weeks. (HARRING, *Ibid.*, p. 533.)

17. A young woman took C. on several occasions, and each time suffered from rash resembling measles. (THOROGOOD, *Ibid.*, p. 631.)

18. A lady was given $\frac{1}{2}$ gr. doses three times a d. After second pill rigor followed by heat occurred, and a brilliant scarlatinoid eruption appeared all over body, accompanied with pain and intolerable itching.

Afterwards the skin exfoliated for nearly three months. Some months afterwards same lady received a mixture containing $\frac{1}{4}$ gr. in each dose. After first dose same symptoms followed. (SKINNER, *Ibid.*, 1870, i, 103.)

19. Bark in large doses and in not very soluble form, excites dyspepsia. Soluble preparations soon appear in urine. Small doses sometimes irritate kidneys and bladder, especially in old persons. Doses of about 1.0 to 1.5 gram. cause giddiness, ringing in ears, vomiting, sleeplessness, and general prostration, sometimes disturbance of hearing and vision. The frequency of the pulse increases after small doses, the contrary after large doses; by the latter the pressure is lowered. 12 to 15 gram. cause death from paralysis. The spleen of warm-blooded animals contracts under influence of quinia in a few hours. It becomes tougher, and its surface is thrown into folds. In moderate doses it temporarily lowers temp. One dose of 1.5 gram. reduces amount of urea by 24 per cent., and sulph. ac. by 40 per cent., but raises quantity of water. Ch. prevents putrefaction of nitrogenous substances, and simple fermentative processes. In both cases it acts directly on the protoplasm. Diminishes absolute number of white corpuscles. Lymphatic glands become small and dry. It limits the escape of white corpuscles from the vessels, and hence diminishes suppuration. It prevents the protoplasm from absorbing oxygen from the air. (BINZ, *Elem. of Therap.*, sub voce.)

20. MONNET, from wide experience in treatment of acute rheumatism with large doses of Ch. (2—6 gm.), reports following pathogenetic effects.

a. One cannot say that the digestive canal receives with impunity the larger doses of C. At first, in most cases, there is nothing but nausea, disgust, and occasional vomiting. But if its use be continued several d. vomiting becomes more frequent and obstinate, a great quantity of yellow or green bile being brought up, leaving unpleasant taste in mouth. I have observed in ten patients pains in epigastric region, in xiphoid cartilage, or behind sternum. The epigastric pain was increased on pressure or by deep inspiration. It extended through rest of abdomen. Constipation was more frequent than diarrhoea; 3 complained of very painful tenesmus. Some had pain or sense of dryness in fauces and pharynx, without visible swelling there.

b. The prolonged use of large doses produces, in many cases, the features of true poisoning, characterised by three orders of phenomena, nervous, gastro-enteric, or typhous.

The troubles of the nervous system show themselves $\frac{1}{2}$ — $\frac{1}{4}$ h. after 1st dose, progressively augmenting towards e. They are "paracousia," vertigo, amaurosis, intoxication. (1) The patients hear divers noises, which they compare to those produced by a pendulum or a windmill, by rain, steam, distant bells, &c.; most commonly it is dull and continued, like a humming. It is nearly always alike in both ears. It is very troublesome, as impeding hearing; deafness is rarely complete. This "paracousia" precedes other troubles of senses, and persists with great force for 24 h. (2) Vertigo is rarely absent, but varies in intensity. Most feel it only on rising and sitting down, but with others there are such strong turnings in head that they stagger as if drunk.

It is not associated with headache, and one patient who had this trouble constantly ceased to experience it while under the treatment.* The vertigo of Ch. resembles much that of typhoid fever, and may be accompanied (as there) by stupor, hebetude, and the peculiar typhoid expression of face. (3) Troubles of vision are less marked and constant. Sight is blurred, and objects appear as if seen through a cloud, in about one third of the cases. Amaurosis was only observed four times; in one case, though complete, it lasted only 24 h., and in two a still shorter time; but the fourth, the subject of a local and non-febrile rheumatism, entirely lost her sight, after having taken during 2 d. 3 gr. Some unusual phenomena, as drowsiness, lively itchings of skin, and a little delirium, led me to think that some morbid predisposition was present here, but these accidents ceased completely after 5 d. (4) The quinic intoxication may be characterised by great excitement, or by a prostration and collapse quite typhoid in appearance. In the former case the patients are agitated, seek sometimes to leave their beds, speak with a voice broken, trembling, often indistinct, and affirm that they are quite free from their rheumatic pains, though the redness and swelling of joints persists. The second form is more common; prostration, stupor, great weakness, a certain slowness of intelligence and memory, and a discouragement which leads them to refuse their medicine. At same time eyes are sunken and lids only half open.

c. The gastro-enteric symptoms of Ch. are the effects of its local action on the alimentary mucous membrane. They are closely related to those produced by irritant poisons. The inflammation seems hardly or slightly to involve the large intestine; and is peculiar in the frequency with which it is accompanied by membranous formations in the mouth, and by vomiting of green or yellow bile.

d. The typhoid symptoms generally supervene upon those of gastro-enteritis. In two patients, however, they appeared alone. The first showed a profound alteration in expression, stupor, great prostration, repeated epistaxis, and a number of small but well-characterised ecchymoses on the abdomen. The second had headache, injected conjunctiva, hebetude, altered countenance, and a state of prostration and exhaustion as great as in the most severe enteric fevers; the collapse seemed even threatening to life. The *ensemble* of symptoms presented by these and other patients gave so exact an idea of the typhoid state, that, had we not known their real cause, we might well have set down these subjects as affected with actual enteric fever.

It thus appears that Ch. produces three orders of toxic phenomena: the first, which quickly follow the administration of the medicine, being due to its absorption and action on the nervous system; the second, slower in production, depending on its direct and prolonged action on the alimentary mucous membrane; the third revealing a general morbid condition of a typical kind, and probably due to some alteration in the blood. (MONNERET, *Journ. de Méd.*, 1844.)

* "Severe frontal headache, with dull, heavy, tense, and sometimes agonizing pains, are some of the most distressing and frequent symptoms that follow a large dose of quinia—gr. xx. Even small doses, in persons very susceptible to the action of the medicine, will produce the headache" (RIMONDI).

21. Mr. Scott, surgeon, for intestinal neuralgia took quinine 4 times a d., increasing from 2 gr. by $\frac{1}{4}$ gr. a d. to 20 gr. doses. When the dose amounted to 15 gr. he began to feel heat of skin, dryness of mouth and fauces, and obstinate constipation; at the same time lost power of naming substantives, and was obliged to think for a long time before naming familiar things. The simplest arithmetic became impossible to him. His perception of quantity was impaired, so that in prescriptions he wrote ounces for drachms, ordered liquids to be made into pills, &c. Nevertheless, he continued increasing the dose until he took 20 gr. 4 times a d. The symptoms increased and he was often unable to stand and used to fall suddenly in the streets. He discontinued it for a while and on recommencing found that 8 gr. doses now produced the same symptoms.* (*Lond. Med. and Phys. Journ.*, 233, 1, 59.)

III. *Experiments on animals.*—*r. a.* In the experiments performed by Majendie, and also by Molier, Ch. given to dogs in 3ss doses acted poisonously and was rejected from the stomach, unless the œsophagus was tied. When this precaution was taken, however, death occurred in about 24 h., and was preceded by retching, agitation, trembling, and an unsteady gait, with a drooping and feeble aspect. The pupils were dilated, the pulse frequent (120); and coma, with muscular spasms and laboured stertorous breathing, preceded death. On dissection, lungs were found engorged with blood; vessels of brain and stomach were congested, and blood contained in them was liquid, or else formed a soft gelatinous clot, and the serum was turbid and discoloured.

b. On injecting Ch. beneath skin of frogs Eulenburg found movements of heart diminished in force and frequency, and respiration, after growing irregular and feeble, ceased; but heart pulsed for some time after breathing was suspended. (STILLÉ, *op. cit.*)

2. Eulenburg has also found that the drug in poisonous doses abolishes in frogs all reflex action before voluntary motion. According to the experiments of Chapman, this lessening of reflex action is due, not to a direct influence of Ch. upon the cord, but to a stimulation of the inhibitory reflex centres which Setschenow has proved to exist in the cerebrum of the frog; and this result certainly accords with the experimental observation of Eulenburg that in quinia poisoning no stage of excitement of reflex action precedes that of the depression of function. (H. C. WOOD, *op. cit.*)

3. LEWISKY coated a rabbit thickly with wax, and injected C. into veins. In spite of loss of heat being prevented, internal temperature fell almost as rapidly as when no such coating was practised. Moreover, in latter case internal and external heat underwent parallel

* A Washington lawyer was guilty of strange escapades. His father writes: "Thinking it a safe thing to do, my son has been in the habit for months of carrying Ch. in his pocket, and taking it in small but frequent doses. The result is an elevated sanguine state of mind, quite beyond the bounds of reason. His memory is not yet impaired, and the marked improvement already consequent upon being deprived of the drug gives his friends reason to expect complete restoration in a short time" (*Journal of Mental and Nervous Diseases*, July, 1892).

depression; while, were loss of heat from surface the cause, it would be otherwise. (*L'Hon. Milit.*, 1879, p. 155.)

4. Experiments have confirmed in an absolute manner the fact that after suitable dose according to size of animal, death always supervenes with diastolic arrest of heart; and this is cause of death. Cardiac muscle is the first to die in quinine poisoning; it has lost electric contractility while other muscles have retained it. (*COLEB.*, *Ibid.*)

5. Dr. BALDWIN made a series of experiments on animals. The principal symptoms were general restlessness, speedily followed by muscular agitation or tremulous movements of body and extremities, with constant movement of head resembling paralysis agitans. When under full influence of poison power of locomotion and even of standing was lost, extremities being apparently paralysed. Great excitement of vascular system was present, pulse rising from 110 to 160 and even to 240, with great oppression of breathing and frothing at mouth. Pupils much dilated, and, so far as could be judged, vision entirely lost. Convulsions were observed in every case but one. In a few instances, animal seemed as if stunned by a sudden blow or violent fit of apoplexy; this only when drug was administered to young dogs by jugular veins or peritonæum. Purging was present in some cases, and when drug was given by mouth vomiting invariably occurred, unless œsophagus was tied. The time required to produce death varied greatly. In some instances 15 or 20 gr. proved fatal in a short period, in others only in a long period after 120 gr.; peculiar idiosyncrasies, as in the human subject, appearing to favour or retard its action as a poison. The chief *post-mortem* appearances were a dark, fluid, and defibrinated condition of the blood, a congested state of the lungs and brain, and strong vascular injection of stomach and bowels. (*Amer. Journ. of Med. Sci.*, 1847, p. 292.)

6. Experiments on dogs showed that (1) Injected into veins near the heart in sufficient quantity, it arrests the heart's beats, causing instantaneous death by syncope owing to destruction of the contractile power of the heart. *P.M.* shows l. side of heart and aorta full of scarlet blood; the lungs without the slightest trace of congestion, of pink colour. (2) In smaller quantities than required to produce instantaneous death, the effects of quinia are seen for at least 24 h., as shown by the diminution of the blood-pressure (tested by Poiseuille's hæmadynamometer). Given by the stomach it increased the proportion of fibrin in the blood, and diminished the amount of blood-corpuscles, and slightly increased the quantity of serum of blood. (*BRIQUET, Traité Théop. du Quinquina.*)

7. From numerous experiments on dogs J. concludes: (1) that in small and medium doses C. causes increased quickness of heart's beats, before death a slowing is sometimes observed. (2) This increased velocity of heart's movements is partly owing to excitation of excitomotor centre and partly to paralysis of heart-regulating apparatus. (3) The force of the heart's contractions and the height of blood-pressure is at first increased, then much diminished in spite of the accelerated pulse. This is owing to excitation of the cardiac ganglia, paralysis of nervi vagi, and affection of vascular centre; the last is first excited, afterwards paralysed. Toxic and frequently repeated medium doses cause

a rapid paralysis of all vaso-motor centres and momentary stoppage of heart which cannot be removed by any irritant. (4) The respiration is always increased in rapidity; large doses cause quick, laboured, interrupted, rattling breathing, and asphyxia. This action is explained by the affection of the respiratory centres. The occurrence of pulmonary congestion and hæmoptysis is owing to pulmonary hyperæmia caused by paralysis of the vascular system. (5) C. does not always lower the temperature. In most cases the temperature is lowered to an inconsiderable degree, but not rarely it is raised and fluctuates about the normal limits. He concludes that C. lowers the temperature by altering the changes of matter. It excites the heat-centres and by means of the trophic nerves influences the changes of matter in the tissues. Large doses cause the temperature to rise by paralyzing the centres. (6) The rapidity of the circulation is diminished by C., by the contraction of the vessels in the primary action of the drug, or else by their subsequent dilatation. This is caused by the relation of the alkaloid to the vascular centre, the peripheric vessels, the vagi nerves, and the weakening of the heart's action. (7) C. acts on the white blood-corpuscles, and their emigrations in inflammation. (8) C. diminishes the size of the spleen [when increased by disease, by cutting the semilunar ganglion, the plexus lienalis or the spinal cord]. (JERUSALIMSKY, *op. cit.*)

8. In 1867 Prof. Binz announced the fact that quinia added to human blood in the proportion of 1 part in 4000 immediately checks and in a short time arrests the amœboid movements of the white blood-cells. Confirmation of this has been furnished by Scharrenbroich, by Kerner, and by Geltowsky.* His investigations also appear to show that the alkaloid lessens the ozonising power of the blood; and also (confirmed by Schulte) that it checks the development of acid in the blood after it is drawn from the body. Both these operations appear to be oxidations; and Binz has demonstrated that quinia checks them by acting on the red corpuscles.† (H. C. WOOD.)

Cinchoninum.—An alkaloid of china, commonly used as a sulphate ($C_{20}H_{24}N_2O \cdot SH_2O, x + 4H_2O$), in which form it was employed in these proofs, &c.

1. *Proving.*—1. Mrs. M—, æt. 48, well, except that she was subject to profuse perspiration after moderate exertion, took on July 16th in e. a gr. ʒ h. after first dose she had eructations, rumbling in abdomen at n. and till next m. The following d. ebullition to and heat of head.—18th, e., a gr. The same symptoms, and also roaring in ears at n., frontal pain pressing down to eyes, aggravated by movement and when walking, heat in head, especially around eyes, sleep feeling in eyes, so that the lids constantly closed.—19th. Constant heaving, eructation of air, rumbling in abdomen, tearing on back towards r. shoulder; pains and tension in nape on moving it, weariness and drowsiness, dreamful sleep at n., and starting up from sleep in fright.—20th. Quite well; she was never afterwards troubled with the perspiration. (ROCK'S *Proving, Hygea*, xvi, 151.)

2. JULIANA PIETZSCH, lady's-maid, suffered for some time from oppression of chest andpressive pain beneath middle of sternum, dyspnoea, disposition to shed

* "Although Ch. possesses the power to stop the movements of the colourless globules, yet this action perhaps can only be obtained on the slide of the microscope. On injecting into the blood doses which cause the death of the animals, Ch. has no influence on the colourless blood-corpuscles" (GALTOWSKY, *Pract.*, viii, 334). Schwabe has obtained similar results.

† "Dr. Culler and Bradford find that Ch. diminishes the red and increases relatively the quantity of the white corpuscles of the blood" (REMARK).

tears, tendency to constipation.—July 13th, e., 1 gr. Next m. eructation of air, rumbling in bowels, distension of abdomen, discharge of flatus; feeling of agility of limbs and unusual good health. Afternoon, frontal headache and pressure on eyes; a soft stool; great urging to urinate, checked in by pain from both sides of abdomen to hypogastrium; passed frequently large quantities of urine, when the pain gradually declined, and at length disappeared. The urine had a copious, white, flaky sediment.—17th, e., 2 gr. Next m. the symptoms were the same as before, except that she felt fatigued and lamed in all her limbs.—19th. No more symptoms. (*Ibid.*, 154.)

3. WILHELMINE DISTEL, a healthy girl, æt. 19. m. Took on July 22d and 23th, m., 2 gr. —24th. Frequent stitches in the sides, first one side, then the other, aggravated by movement. The 2nd, 3rd, and 4th d., the pains went off, but returned on the 5th d. From this d. (25th) the shooting pains extended all along back, but were especially located between scapulae. The 1st d. (24th) 2 stools and 3 micturitions; and d., 1 stool, 4 micturitions; 2nd d., 2 soft stools, 7 micturitions; 4th d., 4 soft stools, 3 micturitions. From 5th d. had daily 1 stool, 7 and 4 micturitions. Every m. headache all over head, with singing tinnitus aurium, great thirst (especially 6th and 7th d.), heat in mouth, at first anæsthesia, from 7th d. great appetite, frequent eructation, distended abdomen, great hiccorygmus, loose fatiguing cough, shaking the head, withpressive pain under sternum (since 3th d.), and hoarseness (since 6th d.), with feeling as if the throat had been burned with hot drinks, and as if something stuck in glottis; always great heat and perspiration, especially at n.; trembling of limbs and weakness. On 9th d. (Aug. 5) she looked pale and hollow-eyed.

6. Aug. 1st, e., 2 gr. The shooting pains, which had ceased for a d., did not return till 5th, but from that to 8th they were present. They seem to come from the back, thence involving hypochondria, relieved by standing and sitting, recurring when lying and coughing; loose cough with mucous expectoration coming from deep down on chest; hoarseness, which has lasted since the 6th d. of first proving. Lows breath when walking quickly. The heat and burnt feeling of mouth and throat continued.—7th. Headache involving whole head, brought on by stooping, with stupid feeling.—8th. Headache gone; on looking closely at anything, all becomes black before eyes, tongue has a thin coating of mucus in its centre; head always hot and dry; about noon, pulse 65, small, weak, slow. Menstrue have come on 2 week too soon, and are scanty.—10th. Stitches in side occasionally, none yesterday, but instead some frontal headache and stupid feeling. Still lows breath when walking quickly; feeling of heat in mouth, roughness and scrape feeling in throat, hoarseness returns when she gets overheated.—11th. Well. (*Ibid.*, 155.)

4. WILHELMINE WALTERS, housemaid, æt. 17.—Aug. 7th, 7 p.m., 2 gr.—Erb, m., nausea, lasting all d., retching, eructation of air, flow of saliva, especially a.m., little appetite; p.m., thirst and copious micturition of clear urine; e., hard, scanty stool. 10 a.m. till noon, rigor, confusion of head, pressure in eyes. 6 p.m., vertigo. Great weariness in feet all d. 10 p.m., pulse quick, soft.—9th. After a restless n., broken by frequent waking, in m. soft stool; a.m., pain in back between shoulders;pressive pain in scrob. cordis and hepatic region; p.m., nausea, frequent sour eructations, noise in ears; urine greatly increased.—10th. The 2 first dorsal vertebrae painful when pressed, from m. onwards a tearing and gripping pain in l. side of hypogastrium all d.—11th. The pain in bowels continued; great dryness and roughness in throat. Noon, before dinner, transient nausea and inclination to vomit; p.m., when walking in open air headache with vertigo and great thirst. From this time the symptoms almost ceased, except occasional confusion of head.—12nd. Chilliness as though washed with cold water, headache, backache and bellyache. In m. 2 diarrhetic stools.—13rd. Bellyache continues.—14th. Still pain in belly, whirling in head, anæsthesia, hard, painful stool. In forenoon took a gr. P.m., violent frontal pain; e., chill; n., restless dreamful sleep. (*Ibid.*, 156.)

5. LAURANTIA FAZT, nurse in surgical cases, æt. 25. m. Oct. 20th, 10 p.m., 2 gr.—11st. All d. much thirst, gripping in umbilical region and discharge of much fetid flatus; constipation; restless sleep.—22nd, 9 a.m., 4 gr. Soon nausea, eructation and discharge of flatus. This continued the next 2 d.—24th, e., 6 gr. Soon nausea and at n. general soreness of body.—25th. On waking, headache as if the head would burst, especially in occiput, with ringing in ears; thick yellow fur on root of tongue, with clean moist borders; hunger without appetite, distension of abdomen after

eating; cutting in upper part of belly more towards r. side, lasting all d.; rumbling in bowels, constipation; increased discharge of urine with burning sensation on urethra; pricking pains in throat when swallowing as with fine needles; whistling respiration, tightness of chest, feeling as if thorax were quite hollow; all d. chilliness and chattering of teeth; great weariness, so that the feet can hardly be dragged along, making him go to bed in afternoon; the limbs go to sleep in every position. 10 p.m., heat in forehead, spreading thence all over head; profuse sweat and thirst at n., sacral pains; soreness of whole body, especially of eyes, ears, and genitals.—16th. Yesterday's symptoms continue; especially troublesome were, roaring in ears, thirst, eructation, great exhaustion, trembling of limbs; c., chilliness, dry heat, and at n. sweetish, unhealthy-smelling prostration; urine deposited white sediments.—17th. The same symptoms having continued on 17th, he had to-day throbbing l. sided headache, aggravated by stooping, trembling of limbs and great muscular weakness.—19th and 20th. Confusion of head m., with vertigo, worse on stooping; great appetite. The last 3 d. the hair fell out much. After 3 d. the headache was not quite gone.

6. Nov. 27th, 10 p.m., 12 grs. Immediately great nausea; much thirst and perspiration, and restless sleep at n.—27th. On rising violent frontal headache, spreading to occiput, lasting till noon, then ceasing for a h., and returning till bedtime. At same time heat in head, ringing in ears, eructation, loose stool; noon, slight stitches in chest, more on r. side, into scrob. cordis at front of insertion of diaphragm; eyes felt deeply sunk; dimness of vision.—28th. Pale, unhealthy complexion; bluish-grey rings round eyes, frontal headache till e., thirst, exhaustion, drowsiness, trembling, increased secretion of urine; profuse sweat at n.—29th. Violent headache.—18th. Headache, very fecid flatus, rumbling in bowels. No more symptoms except general exhaustion for a long time. (*Ibid.*, 159.)

6. Dr. OTTO PIERA.—Feb. 21st, 10 p.m., 3 grs. Bitter taste for a few m., followed by a 2d., sweetish taste. Then for ½ h. some scraping in larynx.—21st, m., face round eyes very swollen, felt when opening eyes. P.m., sudden epistaxis while seated, the blood very thin and bright red. The urine passed in m. deposited after 24 h. a slimy sediment of brownish-green colour, and it had a purrid smell. The urine passed during d. was darker, and the sediment was brickdust colour. The urine passed was scantier.—22th. Urine the same as yesterday, only it did not deposit any sediment. The m. urine had a brownish-green colour and a slimy sediment, and from 12th deposited a thin red crust. From 13th the normal state returned. (*Ibid.*, 162.)

7. BIRKNER, medical student, æt. 23, healthy except a disposition to constipation. —February 26th, 11 a.m., 4 grs. Pulse before taking dose 36, 1 h. later 50, after dinner 34; 10 p.m., 54; no stool. Passed urine 4 times, twice it had a sediment; it was acid. 10 a.m., pressure in gastric region, and also at 7 p.m., but then it was more on l. side.—27th, m., pulse 54, noon 32, e. 60. 10 a.m., stuv stool. Passed urine 4 times, once (m.) with sediment.—28th, 7 a.m., to bed, chilliness, cutting in bowels, discharge of flatus. 8 a.m., copious loose stool. All a.m., cutting and rumbling in bowels; occasional pulsation in gastric region and chilliness, especially in scrob. cordis. 11 a.m., a second diarrhetic stool. Passed urine 5 times, 3 times it showed a sediment. Pulse, m. 56; 1 p.m., 75; 9 p.m., 64.—March 1st. No stool. Passed urine 5 times, twice with sediment. Pulse, m. 52, noon 72, e. 54.—2nd. Urine passed 6 times, once with sediment, constipation. Pulse, m. 52, noon 30, e. 62.—3rd., 3 a.m., 3 grs. Pulse, m. 55, later 68, after dinner 38, at 10 p.m., 63. Soon after taking dose, chilliness, which recurred in forenoon several times. 10 a.m., soft stool; confusion of head with feeling as if brain had increased in size. At same time cutting in bowels, feeling of fulness of abdomen and pain in scrob. cordis, increased by pressure, oppression of chest and rapid breathing. 11 a.m., head free, but pain returned at 1 p.m., changed into heaviness of head, and was worse in e., when it became pressing pain in occiput and on region of coronal suture. The fulness of abdomen, the cutting and rumbling in bowels, and the pain in scrob. cordis, lasted all d. Eructations, discharge of flatus. 9 p.m., great heat all over body, with great turgescence of veins; great weariness made him go early to bed.—4th. Restless sleep at n. 9 a.m., confusion of head, lasting till noon. 4 p.m., constant heat of head with cold extremities, worst at 6 p.m., with general burning heat and dryness of skin. Much flatulence discharged up and down. 9 p.m., along with heat of head, confusion,

pressive pain in head, and a kind of dazedness. No inclination for work, thoughts lost. Pulse, m. 56, noon 80, e. 72. Urine with a sediment.—5th. Restless, had sleep. On waking, headache, especially in occiput, relieved by rising. Pulse, m. 54, noon 78, e. 51, rather irregular. Urine had a sediment only m.—6th. Pulse, m. 54, noon 76, e. 54. Slight sediment in urine.—7th. Pulse, m. 52, noon 71, e. 54. Sediment in urine, m. Stool normal. (*Ibid.*, 162.)

1. K. H. GYER, medical student, æt. 24. a. April 3rd, 9.30 p.m., 2 gr.—4th, m, anorexia, full feeling in stomach, eructations with taste of rotten eggs, great exhaustion. After dinner painful full feeling and pressure in stomach for some h. Sleep disturbed by disagreeable dreams.—5th, 10 a.m., painful stiffness of nape, 10 p.m., tearing in stomach.—6th. Last n. wake by pain under sternum; the lower part of sternum seemed drawn or pressed inwards.—7th, afternoon, great prostration and languor; constantpressive pain in sternum.

b. April 20th, 9 p.m., 4 gr. At n. sweat between scapulae, later itching there.—11st. Great weariness with much yawning and stretching of limbs. Next n. sweat.—22nd. Much eye-gum had accumulated during n. After dinner great weariness and constant painification; very little appetite, easily satiated.—23rd, m., great weariness; bruised pain at insertion of deltoids; frequent intolerable twitching and creeping at mouth of anus, removed by scratching; tightness of chest, as though ribs were contracted anteriorly; stool loose, thin in shape, passes slowly with pressure; the sphincter ani is very lax as if paralyzed, rectum contracted, as shown not only by the thin shape of the excrements, but by a peculiar intolerable sensation during stool.—24th. Burning in stomach and lower part of oesophagus; frequent pressure in the waist, cruris.—25th. Continued pain across hypogastrium as from accelerated flatulence at 10 a.m. Noon, pressure in stomach, e., bruised feeling in sacrum.—26th. In m. in bed twitches in cartilages of l. 5th and 6th ribs for $\frac{1}{2}$ h.; occasionally repeated throbbing pain in r. half of forehead; great weariness all d.—27th. Nightmare at n.; soon afterwards lascivious dreams and painful erections. Afternoon, great sexual excitement and erections; painful tension across chest.—28th. At n. tiresome dreams; pain in anterior hemispheres of brain as though a net were drawn through the cerebral substance of that part; bruised pain at insertion of deltoids, the shoulders can hardly bear the coat; perspiration on forehead after moderate exercise in cool weather; involuntary jerking motion of l. 2nd and 3rd fingers; in r. hand spasmodic pain here and there, without moving hand or fingers.—29th. Pressive pain on head as though a great weight pressed the parietal bones against brain; pressive pain in forehead and under sternum.—May 1st. After constipation for several days a stool of firm and large pieces; the sphincter ani very strong, at same time an obnoxious cutting pain in anus, and thence forward to navel, as also fine pricks in scrob. cordis. The first d. there was great weariness, which in the first 5 days was intolerable, incessant yawning and stretching; appetite constantly very bad, often soup alone caused satiety and fullness of stomach; discharge of wind upwards and downwards.—3th. Peculiar sensitiveness and feeling of tension of scalp, soreness of roots of hair, as though matter were under scalp, chiefly on r. side.—June 1st. He still complained of drawing in anus and pain in bones of extremities. (*Ibid.*, 163.)

9. Dr. A. NOACK. a Oct. 22nd, 9 a.m., 2 gr. Taste at first bitter, changing into sweetish, something like alum. Pulse at first 85, after $\frac{1}{2}$ h. 75, at 8 p.m. 65. Eatenness, slight rumbling in bowels from flatulence, painful tension of gastric region, nausea for several h. after dinner; 3 p.m., copious stool, at first consistent, afterwards diarrhetic; great retention of urine, e., great lassitude in thighs.—23rd, 5 a.m., pulse 66, 10 a.m. 70, 9 p.m. 60, pulse in m. weak and small.—24th. In m. in bed cutting in middle of belly, later spreading to upper part of belly and lasting 2 h.; third all d. Urine copious, very acid, with a glittering scum; pulse small and weak. 10 p.m., urging to stool, and soft stool passed with difficulty. At n. tension of abdominal, cutting, drawing in abdomen and urging to urinate, relieved by passing a large quantity of urine as clear as water.—25th. In m. in bed great exhaustion. Copious secretion of urine, which was quite watery, but soon became turbid and deposited a fine reddish-yellow sediment. No stool.—26th. Much watery urine; no stool.—27th. Copious light yellow urine; large stool.

8. July 16th, 11 p.m., 10 gr. After a quiet, sound, dreamless sleep, lasting longer than usual, felt unrefreshed on waking; back (especially between scapulae), ribs, arms and legs as if bruised; slight gasping and rumbling in bowels for 1 h.,

abdomen tense, full, heavy; tongue covered with a thin coating of saliva; taste pappy; hawking of a quantity of very viscid mucus; chest felt hollow, so that breathing was peculiarly easy; skin dry, its veins prominent. At 4 p.m., copious stool of dark greenish-brown colour and ordinary consistence, but of such large size that the anus was painful from its passage; after dinner, feeling of heaviness in abdomen as if a stone lay there, lasted all afternoon. All d. abdomen tense, some very fetid flatus passed. Urine very dark m., less so afternoon, copious, acid. Confusion of head, some frontal headache, especially on r. side, lasting all afternoon. Pulse in m. small, weak and compressible, afternoon larger and undulating; 7 a.m., 66; 10 a.m., 86; 3 p.m., 75; 9 p.m., 75.—13th. Increased secretion of urine, dark coloured. (*Ibid.*, 170.)

10. RUIT says it causes heat in epigastrium, quick pulse, slight perspiration. Larger doses cause greater heat of stomach, dryness in mouth and fauces, thirst, dry tongue, with yellow tae, burning in throat, eructation, flatulence, constipation, warm skin and turbid urine. (*Reut's Mag.*, xii, H. 3.)

11. BERAUDS says 15 to 20 gr. cause increased saliva, nausea, pain in bowels, sometimes diarrhoea, quick pulse, dimness of vision, noise in ears, headache, weight in head and rush of blood to head. (*Osade's Annals Univ. de Med.*, Nov. and Dec., 1849.)

12. BARRETT says 6 to 8 gr. act strongly on intestinal canal, after $\frac{1}{4}$ to 2 h. causing movements, distension of bowels, and throbbing in epigastrium; the intestines seem to be in parts distended and hardened, there is abnormal contraction of muscular fibres and violent colic; heat of stomach spreading to abdomen and chest and head, especially severe in throat, burning thirst; sometimes 2 or 3 hard stools with tenesmus, sometimes constipation, also weakness, and soon and then pain and drawing in limbs. (*Traité Hém. de Mar. Méd.*, 2^e Edit., i. 357.)

13. ELSON made experiments to ascertain effects of sulphate of C. upon healthy pulse. On 1st d. took gr. x every $\frac{1}{4}$ h.; on 2nd d. took gr. x at same intervals; on 3rd d. gr. xx in like manner. On d. of no medication 6 observations made; mean pulse 70 $\frac{1}{2}$. On days of medication, three appeared:—1. (12 doses) 11 observations, mean pulse 76 $\frac{1}{2}$; 2. (12 doses) 11 observations, mean pulse 78 $\frac{1}{2}$; 3. (11 doses) 11 observations, mean pulse 79 $\frac{1}{2}$. Thus C. decidedly accelerated pulse. (*Am. J. of Med. Sc.*, N. S., lii, 97.)

14. Sulphate of C. applied to the mucous membrane of the mouth produces a sensation of tolerable bitterness, which disappears promptly on rinsing the mouth two or three times; at first the mouth becomes dry, then the secretion of saliva is augmented, but remains viscid and frothy; on increasing the dose, the nasal fossae participate in this condition, a sensation of warmth is experienced at the epigastrium, together with a slight tendency to vomit, and an insignificant amount of pain, which may extend over the entire abdomen. Given in powder or dissolved, it is easily absorbed; from the stomach and intestines it passes promptly into the blood and the secretion. The influence of sulphate of C. upon the circulation is but slightly appreciable in a dose of from grm. 0.10 to 0.15; but in doses larger than this, up to 0.70, the pulse is quickened, the heart palpitates; præcordial pain supervenes, which appears to embrace the entire l. side of the chest; the respiration becomes embarrassed and slowed; on standing up the legs yield, the arms become heavy, and sometimes syncope ensues; the skin becomes hot, the face animated, the eyes brilliant, heavy and difficult to open; sometimes the pupil dilates, at other times contracts. With a dose of 0.70 the head becomes heavy and aching. In this dose the drug produces a special headache, affecting chiefly the anterior parts of the head, accompanied by a very remarkable feeling of compression. A species of transient intoxication ensues. In large doses, humming noises in the ears as with sulphate of quinine, but this phenomenon is less constant; a desire to sleep, and if sleep comes it is accompanied by strange dreams. In a case observed by M. Grunelle, where the subject had taken grm. 1.50, retention of urine manifested itself, but the pulse remained at 55. (*BOUCHARDAT, DELONDRE and GIRAULT, l'Annuaire de Thérapeutique*, 1856, p. 22.)

II. *Pairings*.—12. Twelve out of twenty-three patients (intermittent fever), treated with various doses of C. sulph., have experienced symptoms of uneasiness due to the medicine. One of these is constant headache, occupying frontal region and temples. The patients feel constriction of the whole anterior part of the head,

varying much in intensity, sometimes intolerable. I have never seen the headache extend to or attack only the hind part. (Case I observed vertigo and acute pain in the limbs. (MOUTARD-MARTIN, *Mém. de l'Acad. Imp. de Méd.*, T. xxiv.)

2. Of 191 patients subjected to administration of sulph. of C., 94 had no trouble, 19 had cephalalgia, 40 buzzing and whistling in ears, 33 vertigo and dizziness, 44 trouble of vision, 46 tubation, 8 epigastralgia, 4 nausea, 8 colic. (LÉVY, *L'Union Médicale*, vi, 163.)

III. *Experiments on animals*—1. BALSQUET found injection of 1 grm. into jugular of 4 dogs produce in 3 instant death (apparently from weakening of heart); in 2 convulsions, passing off in 1, in other becoming more intense, and ending in death from meningitis (*post-mortem* examination). (*Op. cit.*)

CHININUM ARSENICOSUM.

I. *Proving*.—1. Dr. MUHA triturated for 1 h. 10 gr. Chin. ars. with 90 gr. milk and sugar. While triturating he carried on a conversation with a patient. Suddenly had a bitter metallic taste, but continued to triturate and made 2nd trit. E., very painful cutting in bowels, lasting $\frac{1}{2}$ h. Sleep broken. Next m., 6 o'clock, the heart commenced to tremble, with a rumbling noise, and he could not distinguish the heart's beats. This lasted one h., then the heart's and pulse's beats (the latter could not be felt on l. side) became irregular, and 200 per m. In solar plexus pressure (like that caused by indigestible food) felt towards the back as a squeezing; touching the spine there caused pressive pain. Painful weariness of shoulder- and elbow-joints. Weakness of lower extremities. Slight pressive pain in forehead and temples. Noon, heart's beats more regular. Pulse could be felt in temples and r. radial artery, still 200. Pressure behind stomach, not removed by eating. Heart's beating felt when leaning the back against something. After 1 p.m. did not feel heart's beats, but felt a stoppage of the heart and very slight, rapid beating of temporal arteries. Pain in solar plexus gone; less weakness; breathing quite easy, as if thorax were hollow. After 2 p.m. recurrence of squeezing pain to spine. Palpitation again felt on leaning back; pulse 200, regular. Took verat. 2. After 4 p.m. pulse 88, head still confused. In l. ear sensation and noise like that made by grasshoppers. Later all symptoms went off except sleepiness. (*A. A. Ztg.*, lxxxviii, 39.)

CHLORALUM.

Chloral; product of action of dry chlorine gas on absolute alcohol. Commonly employed as hydriate, $\text{CCl}_2\text{CH}(\text{OH})_2$.

I. *Proving*.—1. a. Dr. D. A. BABCOCK took 6x trit. in frequently repeated doses. Only effect noticed was that on 2nd d. he could not keep thread of sermon in church.

b. Took 15 gr. of crude drug in one dose. After a few m. feeling as if hot band was drawn across forehead from temple to temple, directly over eyes, with sensation as of a burning ring around each eye; also tush of blood and transient sensation of heat in face. Soon after,

severe pain in frontal region, right over supra-orbital ridge, which nothing relieves, aggravated by movement. After 1½ h. sense of nausea and oppression in stomach, without inclination to vomit; relieved by supper, but returning later in e. After 1¾ h. dull heavy headache in occiput, and in forehead over eyes; there is sense of weight and soreness, seemingly wholly inside cranium, aggravated alike by lying down and by moving about, but somewhat relieved by going into open air. After 12 h. pupils contracted and insensible to light. Premature emission this n. and the next.

c. Took repeated doses of 1. After ½ h. pulse (normally 72) 84, and headache in head extending to occiput. After 4 h. spells of feeling as though legs were asleep; also dull aching pains in calves, at times running down into feet, and sense of fullness of skin there, with throbbing; severity of pain lasted about 1¼ h., when it gave way to a dull, steady headache, not very severe; it returned next d. more severely. On 2nd d. awoke in m. with feeling as of cold in head; throat and posterior nares seem sensitive, raw, and burning. Dull and full feeling in head all d.

d. Took 2 gr. of crude drug without effect, save some looseness and increased frequency of stools. (ALLEN, *Encyclopædia*, vol. iii.)

2. Same proved drug on G. A. T.—[manner not stated]. After 5 m. belching of wind, lasting till after eating. After 2 h. headache over both eyes, running down into eyes, l. worst, with feeling as if eyes were constricted; within 2 h. it gradually passed away. (*Ibid.*)

3. P. H. M.—(as 2). After 1 h. dull, heavy, pressing headache over eyes, especially l., while at supper, lasting about 1 h., then gradually wearing away. On another occasion, after 2 h., similar headache, with nausea and sour eructations of liquid. After 7—9 h., two soft light yellowish stools, voided with some sharp pains in rectum. On 2nd d., loss of appetite; slight throbbing pain in l. eyeball, aggravated by leaning forward. On 3rd d., stool in m. soft, but voided with great pain in rectum. Very sleepy in e., and retired early; did not feel refreshed on waking next m. (*Ibid.*)

4. W. B.—(as 2). On 2nd d., woke at 8 a.m. with feeling of fulness and constriction of head; all d. dull aching pain therein, aggravated by sudden motion, with inability to concentrate thought; also pain in stomach and abdomen, with slight dyspnoea. (*Ibid.*)

5. a. Took ℥ij in ʒss water and syrup. It produced for 45 m. a muscular and moral excitability similar to a slight champagne intoxication, whereby the prover felt pleasant, smiled, and danced. Without any trouble he fell asleep as soon as he lay down. The sleep was quiet, natural; not disturbed by any dreams or hallucinations. Forcefully awakened, clear consciousness returned easily, and he replied promptly to any question. Left again to himself, he fell immediately again into his natural sleep, which lasted for 10 h., a thing which had never happened to him during his whole life. He woke up refreshed in m. without any bad symptoms, but could not recollect the disturbance by which he was awakened, nor that he replied. The chloral sleep was therefore profound and lasting.

b. Pulse 68, resp. 28, temp. 37.2°; took ℥ij in mucilage. Imme-

diately a pleasant excitation for $\frac{1}{2}$ h., pulse 88. At 10 a.m., quiet sleep; pulse 74, resp. 28, temp. 36° ; both pupils somewhat dilated. 10.30 a.m., quiet sleep, although a good deal of noise in hospital (prover suffers from a slight bronchial attack). 11 a.m., prover goes with another patient to the bath-room and takes a lukewarm bath. 11.45, returns from the bath, takes hearty meal, and at 1 p.m. goes to sleep again. 5.30 p.m., wakes up refreshed, waiting for his supper; pulse 72, resp. 32, temp. 37° . (*Amer. Hom. Obs.*, vii, 293; from *Wiener Med. Wochenschrift*.)

6. Dr. CAVIUS took, 1st. n., ʒj, 2nd n. ʒij, 3rd n. ʒiij. On each occasion symptoms were same in character but differed in degree. After largest dose, in 10 m. there was great confusion of mind; a feeling of being in some distant place, with anxiety to get home; consciousness of everything going on, with propensity to utter what was felt to be nonsense; extreme restlessness; violent palpitation; panting respiration; congested face; bloodshot and staring eyes; and profuse perspiration. These symptoms continued from 11 p.m. without intermission till 6 a.m., when he slept for 2 h., and awoke with violent headache. For 3 weeks thereafter there was painful sense of drowsiness; eyes were inflamed and sensitive to light, and temper very irritable. (*Ed. Med. Journ.*, xvi, 375.)

7. Dr. ANDRZEWS tested action of Chl. on pulse.

a. Gr. x reduced pulse of healthy person 6 per m.; scarcely any drowsiness. Gr. xx; after 5 m. pulse from 78 fallen to 72; 25 m. after, increased in volume, 66; in 50 m. volume increased, drowsy, 54. Gr. xxx; in 10 m. pulse, which was before 84, fell to 72; 20 m. after increased in volume, 66; in 60 m., lessened in volume, 60. Gr. xl, during digestion; pulse 78; 5 m. after, 78; 15 m., 72; 30 m., 66, no change in volume; 90 m., 60, much reduced in volume for some h., drowsiness. Gr. xl; pulse before taking, 66; 30 m. after, 60; 75 m., 54; 180 m., 54, greatly lessened force in heart's action for some h.

b. Other effects: In 3 m. heat and burning in stomach, drowsiness, difficulty in keeping eyes open. In 15 m. sleep, in spite of resistance; when aroused, talkative, tongue thick, speech indistinct (characteristic of intoxication). After $\frac{1}{4}$ h., contraction of pupil as in natural sleep. After $1\frac{1}{4}$ h. fell asleep. Slept for 1 h.; awoke. After 3 h. again overcome with sleep for 1 h.; easily aroused, but went to sleep again. After $3\frac{1}{4}$ h. awoke and took a hearty meal. His gait was unsteady, as if somewhat intoxicated. In 5 h. after taking dose he went to sleep and slept for 10 h.

c. Conclusions: (1) That the effect of Chl. is to reduce the number of pulsations. (2) That the primary action is to increase the force of the heart's action and arterial tension. (3) That in large doses, within safe limits, the pulsations are not reduced in number proportionately to the size of the dose, but the effect is more prolonged. (4) That the secondary effect is to diminish the force of the heart's action and the arterial tension. This will be apparent by comparing the number of pulsations, and the diastolism of the first tracing with the last in the 4th experiment [tracings given.—EDS.]

d. Order of effects is: sense of heaviness of head, a tingling of the

extremities; feeling of weight, as if the part was asleep; and gradually increasing drowsiness. There is inclination to talk, with thickness of tongue and inability to speak plainly, especially if the patient is talked to or otherwise disturbed. If he is quiet he yields readily to sleep, and this intoxicating stage will not be observed. Then occurs the profound sleep of Chl. On awakening, if the effects have not completely passed off, there may be a recurrence, in a mild degree, of the state of intoxication. (*Amer. Journ. of Insanity*, xxviii, 35.)

II. *Poisoning*.—1. In a fit of insanity Mrs. J. S—, æt. 65, took about $\frac{3}{4}$ ss in solution. She had taken several smaller doses within a few d. for the following symptoms: sleepiness at n. with restless irritability; confusion in head; melancholy; inclined to wander away and hide herself; avoided shrewdly the vigilance of her friends; would then return, unable to give any account of where she had been. 12 h. after taking Chl. an emetic (zinc. sulph.) was given and vomiting ensued. Deep sleep, lasted 36 h., pulse normal, breathing easy, regular. On awaking was calmer, said she felt better, pain in head relieved, but could not get up. Sensation and motion paralysed in both legs. The following d. a smooth, bright scarlet eruption appeared over whole body (face, limbs, &c.). That on face was erysipelatous, and face was so much swollen that she could not see. Eruption disappeared after 4 d., paralysis after 1 week; since which (2 years) she has been free from headaches and mental symptoms. (J. H. SHERMAN, M.D., *N. Eng. Med. Gaz.*, 1874, p. 412.)

2. Soon after experiments with Chl. were commenced in this asylum I noticed a singular flushing of the head and face in many of the patients taking the drug. Of 40 cases in which Chl. was tried in a certain period this blushing was remarked in 19 to a greater or less extent; and it was not unusual to see a pale anæmic patient, to whom Chl. had been given, presenting at certain times a floridness of countenance resembling that of rude health. This was especially the case when alcohol in any form was given along with it, and it was rarely seen unless the drug had been given regularly for some little time. In one case, typical of many, $\frac{1}{4}$ h. after 15 gr. had been taken, the face up to the roots of the hair and down to the ramus of the lower jaw was of a dull scarlet colour, very persistent under pressure, most intense over the malar prominences and bridge of the nose, and thence shading off in every direction. The ears partook of the same colour, which was also scattered in blotches over the neck and chest, the lowest blotch being over middle of sternum, and the largest about the size of a florin. This condition was associated with slight contraction of the pupils, injection of conjunctivæ and excitement of the circulation; lasted about an h. and then disappeared during a paroxysm of sneezing and emotional perturbation, to recur after the next dose. (CRICHTON BROWN, *Lancet*, 1871, i, 440.)

3. E. R—, æt. 30, was noticed about an h. after a dose of Chl. to be much flushed and to present over her whole body a diffuse inflammatory redness, so closely resembling the smooth eruption of scarlet fever that it was thought prudent to isolate her in the hospital for contagious diseases. When these characteristic symptoms developed, a

number of long pale elevations or wheals showed themselves in the legs, shoulders, and waist, while similar ones could be produced on other parts of the body by scratching. At the same time burning, stinging sensations and a feeling of tightness and hardness over whole surface were complained of, along with wheezing respiration, sharp pains in the eyeballs, headache and lassitude. (*Ibid.*)

4. M. A., subject to periodic attacks of mania, entered on one of her wonted paroxysms on March 1st, 1870, and was ordered 20 gr. of Chl. ter die. This produced sleep and cutaneous anæsthesia, and on March 4th an unexpected result, in the form of a bright red blush, erythematous in aspect but permanent under pressure, over the chest and shoulders. This blush had on the 6th pervaded the entire trunk and limbs, and had become mottled with livid patches and deep red spots. The lips and buccal mucous membrane had contemporaneously become red and raw looking, the gums spongy and the tongue blistered and ulcerated in several parts. The breath was fetid, pulse 120, feeble and compressible. On March 11th the symptoms began to abate. On the 15th a sort of general desquamation had set in, followed by convalescence. (*Ibid.*)

5. Woman, æt. 46, labouring under heart disease, l. hemiplegia, and dementia with excitement, took 15 gr. ter die. from Feb. 24th to March 15th, when numerous reddish-purple blotches appeared round l. elbow, on following d. enlarging and uniting with others on shoulder and forearm. Next d. dull purple spots and discolourations were seen on legs, abdomen and back, being restricted in last-named situation to a band 2 in. in breadth along each side of vertebral column. There was great prostration of strength, tendency to somnolence, weakness and irritability of pulse, raw state of lips, which were entirely denuded of epithelium, and fissured and thickly coated tongue. On 19th spots had spread in every direction, and had lost their vividness of hue, having assumed a deep purple tinge. Symptoms of pulmonary congestion also appeared. Strength gradually ebbed, and after several attacks of syncope death took place on 22nd. (*Ibid.*)*

6. *z.* Dr. LUDWIG KERN reports cases of chronic poisoning by Chl. A lady, prostrated by long suffering, had of late experienced attacks of severe dyspnœa, which had increased to asphyxia; at the same time the face was swollen, the facial muscles paralysed, and there were also signs of cerebral effusion. Every remedy had failed, and the patient seemed on the brink of the grave. The consulting physician ordered the daily dose of 45 gr. of Chl. to be stopped, and the symptoms vanished in an almost magical manner, the respiration becoming normal and the cerebral disturbance ceasing. The dyspnœa may be anatomically explained by its analogy with the effects of Chl. on the skin and mucous membrane, hyperæmia of the lungs being produced through the vaso-motor nerves. This confirms the assumption that Chl. operates upon the vaso-motor centre and the medulla oblongata, and that its paralyzing influence extends thence to the peripheral branches of the affected nerves.

* "The symptoms which these cases presented were of an unique kind, and almost unparalleled in asylum practice at the present day."

6. The same author reports a case of blood-poisoning produced by Chl. in nightly doses of 45 to 75 gr. over a period of 10 weeks. A young, strong, previously healthy person, suffering from uncomplicated mania, developed in 9 d. a rash in groups of red spots which soon became confluent. On 20th d. temperature and pulse rapidly rose to febrile pitch. 3 d. later temperature had reached 106.7° ; large and repeated doses of quinine were given without effect, and baths only temporarily relieved. Oedematous swelling of face, cheeks, eyelids and ears now set in. During the whole course of the disease the skin did not resume its natural condition but was the seat of now impetiginous, now moist, now scaly eczema, and now ichthyosis, so that desquamation occupied many weeks, during which great sheets of epidermis were cast off from all parts of the body. There was shedding of the hair and a gradual falling off of all the nails. At the same time the mucous membranes were affected, first of the intestines, causing watery diarrhoea, and then those of the conjunctivæ and bronchi. From the 6th week onwards a series of large abscesses formed on both arms, over the shoulders, and within the armpits, which secreted considerable quantities of pus. There was for 8 weeks continuous fever, occasionally remitting. This patient was thus continuously dosed with Chl. when it first came out, and it was not credited with producing severe constitutional symptoms. (*Practitioner*, x, 361.)

7. A child, æt. 8, was given 5 gr. ter die for whooping-cough. After a few d. an eruption appeared on arms, legs and face, and subsequently over whole body, in large blotches of different shapes raised above surface, and of a deep red colour. The conjunctivæ were injected, and the face had a puffed, swelled appearance, especially below the eyes. Gradually these blotches coalesced till the whole skin was in this red blotchy state, more nearly resembling measles than anything else. There was high fever, thirst, coated tongue, and loss of appetite, with intense irritation and itching of the skin, preventing sleep at n. (*Dyce BROWN, Monthly Hom. Rev.*, xv, 348.)

8. A stout, middle-aged woman was given 25 gr. in syrup, and after taking it was severely attacked with urticaria. Later, 10 gr. were given with same result. (*S. W. FISHER, M.D., Brit. Med. Journ.*, 1871, i, 331.)*

9. Feb. 9th, 1870, J. S.— was admitted, suffering from slight anasarca and bronchitis, connected with chronic Bright's disease. He was restless and nervous, and unable to sleep, and was ordered 30 gr. of Chl. at bedtime. Soon after taking it he jumped up in bed, clutched at his heart, and complained that medicine produced a sense of burning. In a few m. he became violently delirious, and after this had subsided was so much depressed that heart's action could with difficulty be sustained. Gradually pulse returned, and in a few h. he was out of danger. (On theory that an alkaline state of stomach might have converted Chl. into chloroform, a second dose was given later in combination with an acid, but same results followed.) (*FULLER, Lancet*, March 25th, 1871.)

* See also DYCE BROWN, in *M. H. Rev.*, xv, 349; and LEWIN, *op. cit.*, p. 170.

10. A young lady, in fair health, but restless and nervous, was given 30 gr. at 10 p.m. Almost immediately she became much excited, and complained of pain in chest. In about an h. excitement passed off, and she fell asleep and slept heavily all n. In m., still sleeping heavily and looking very pale, her medical attendant was summoned, and found deep sighing respiration, no pulse at wrist, extremities rather cold. It was impossible to rouse her in the slightest degree. Stimulants and warmth had little effect. Dr. Fuller saw her at 2 p.m., and found her in same state. Skin was dry; pupils large, but sluggishly contractile under a strong light; pulse scarcely perceptible, but heart beat regularly though feebly (120). Muscular system normal, and swallowing power intact. In spite of strongest stimulation she died at 9 next m., never having exhibited slightest consciousness or moved a muscle from time she first fell asleep. (*Ibid.*)*

11. a. The Committee appointed by the Clinical Society to investigate the morbid effects of prolonged and continuous use of Chl. reported that over 70 replies had been received out of 1000 applications; 29 stated that no ill effects had been observed. The other correspondents found morbid effects. Cerebral anæmia (Fothergill) with melancholia and impaired mental power; muscular prostration, more especially affecting the legs, causing staggering and debility, almost amounting to paraplegia, and believed to be spinal in origin. With this are occasionally associated peculiar pains encircling the joints above and below, with great dryness of skin (Anstie), and several observers have noticed a singular affection of the fingers, consisting of erythematous inflammation, followed by desquamation of cuticle, superficial ulceration about edges of the nails, with great pain and tenderness to touch (Prof. Smith, of Baltimore). Cardiac debility is alleged to follow in some cases the prolonged use of Chl.; and pharyngeal congestion, with a universally diffused red rash, resembling that of scarlet fever. Other skin affections are also recorded assuming the form of spots of roseola coalescing to form patches of erythema, or of deep flushing of the face and head following the use of stimulants (Crichton Browne and Kirn), or petechial and purpuric eruptions may appear (Cholmeley), and may even run into a species of pyæmic condition, in which the ulceration of the gums and great prostration simulate scurvy closely, abscesses and deep ulceration of the skin supervening, and even leading to a fatal result.

b. *Nervous system.*—Dr. Inglis, of the Royal Edinburgh Asylum, in a reprint records a case of Chl. eating, in which at last 180 gr. were taken daily, followed after seven years' indulgence by grave perversion of the moral sense, epileptiform convulsions, great mental enfeeblement, and general nervous debility, necessitating asylum treatment, under which recovery took place. Dr. Woodbury mentions a case in which nightly doses of 20 to 30 gr. during four months were

* Dr. Crichton Browne says that Chl. in fatal doses acts by paralysing the heart through the inhibitory nerves. Like chloroform, it appears to have the power of reducing the natural force of action of the heart, and sometimes of stopping its play. Facts are not wanting to indicate that it exerts this power through the sympathetic system, operating through the inferior cervical ganglion. He relates several cases in which the *post-mortem* signs resembled closely those caused by chloroform. (*Loc. cit.*)

followed by a violent attack resembling delirium tremens. Dr. Easton records the case of a lady who experienced ataxic symptoms with numbness and burning sensations, following the nightly use of 30 to 40 gr. during two years. Many other observers report similar results.

c. Circulatory system.—Dr. Langdon Down has noted failure of the l. ventricle.

d. Digestive system.—Dr. Althaus reports a case of digestive derangement with loss of appetite and constipation. Dr. Carroll mentions the case of a lady in whom epigastric tenderness, dry brown tongue, vomiting and diarrhoea followed 30 gr. nightly doses for two months.

e. Cutaneous system.—Dr. J. Thompson mentions the case of a female, *æt.* 44, who took 20 gr. for three months, at the end of which time defective circulation of the hands was noted with a line of ulceration round each nail. Mr. Humphry sends a case of pempholix (*pemphigus*) produced by *Chl.* Dr. Fothergill notes peripheral paralysis of arterioles with blueness of extremities. Dr. Langdon Down has observed liability to the production of facial erysipelas. Many others record skin eruptions. Dr. Buzzard and others have observed lachrymation and conjunctival irritation.* Dr. Sharpin reports two cases of troublesome itching of the legs.

f. Urinary and other systems.—Dr. Longhurst mentions a case in which irritability and subsequently temporary paralysis of the bladder followed doses of from 10 to 20 gr. taken for some months. (*Trans. Clin. Soc.*, xiii, 117.)

12. Dr. DABBS relates effects of overdose given for asthmatic breathing to a woman pregnant more than 7 months. She got, Sept. 28th, 8 p.m., 30 gr.; at midnight, 20 gr.; at 12.30 another dose. About 2 a.m. sat suddenly bolt upright in bed, complained of agonising cramps in legs, feeling of suffocation, of swimming in head, and of absolute inability to co-ordinate movements of lower extremities. She seemed in a peculiar state of consciousness, knew that she was very ill, and herself insisted on my being sent for. At 4.30 I found head bent upon chest, face intensely flushed, eyelids closed and with some little difficulty opened, and whole conjunctivæ injected. The odour of *Chl.* in the breath was something sickening. There was slight tendency to vomit; a teaspoonful of last dose came back. The pulse was quick and bounding, 120, but gradually decreasing, till at 8 a.m. it was only 96. She was with difficulty roused either to speak or take food; at 4 p.m. (Sept. 29) she tells me she does not remember a single circumstance after swallowing the second dose at midnight, but that the sensation had been one of unlimited rest, unbroken by anything, but quite different from sleep. The only symptom to which she could herself refer was to the cramps, which even now remain to a very slight extent. She says herself that the agonising pain in her legs was the only occasional

* "Its habitual use is very apt to produce an injected and irritable condition of the eyes, which we have observed in the case of a lady who took from 10 to 20 gr. every m. for several months. This state did not disappear until several months after the medicine had been omitted." (571244).

break in her otherwise complete mental monotony. (*Med. Times and Gaz.*, 1870, ii, 435.)

13. Man, æt. 35, took 24 grm. of cryst. Chl. in order to destroy himself. Seen $\frac{1}{2}$ h. after, patient in deep sleep, face red, veins of neck fuller than normal, resp. deep, pulse 100. After $\frac{1}{2}$ h. (and cold applications to head) face, forehead, head to nape of neck flushed, with deep redness on lips and cheeks, livid colour. Pupils much dilated, veins in neck and head gorged, radial pulse hard, tense, 92. No abnormality at heart, temperature of skin 39.5° , respiration stertorous, intermittent. Employed artificial respiration, faradic current. After $\frac{1}{2}$ h. respiration ceased entirely, facies hippocratica, deadly pale, veins collapsed, mucous membr. became livid. Beat of apex and radial pulse imperceptible, in carotid scarcely to be felt. Heart's sounds hardly audible, pupils much contracted, body cold. Temp. 32.9° (a fall of 6.6° in $\frac{1}{2}$ h.) [Dr. L— then injected strychnia, with success.] (*LEVINSTEIN, Viertel. f. gerichtl. Med.*, xx, 227.)

14. Lady, æt. 45, of slight but compact frame, keen intellect, suffering from sleeplessness and dyspepsia, for upwards of two years had taken Chl. up to 60-70 gr. in 24 h. Much reduced in *morale* and *physique*, unable to walk 100 yards without sinking from sheer exhaustion. Confusion of mind, inability to concentrate thoughts, impaired memory. Erythema of head and neck, with well-marked dark areolæ (much intensified after ingestion of smallest quantity of wine, beer, or spirits), with most distressing palpitations, for about 2 h., the hyperæmia disappearing last of all from the forehead in curiously well-defined patches. Partial paralysis of œsophagus with nervous disinclination to take food or drink, interfering with her nutrition. Dimness of sight with eyes bloodshot and overflowing with tears. Marked projection of eyeballs. Feeling of intense sickness (without vomiting) frequently for a few m. after taking drug. (*MURPHY, Lancet*, 1873, ii, 150, 191.)

15. Man, æt. 29, lightly but strongly built, remarkable for courage, suffering from sleeplessness from mental worry, took Chl. for eighteen months, repeated dose once or even twice if first was unsuccessful. Led open-air life, with violent exercise. Lost daily strength, nerve, and capacity for business. One m. awoke to find power of his lower limbs completely gone. Paralysis was transient. He found it necessary to increase dose. Sometimes large dose proved wholly ineffective, sleep fitful and restless. On awaking intense thirst with dryness of tongue and fauces, headache, vertigo, nausea, great nervous sensibility. Erythematous flush, intensified from beer or spirits. Violent palpitations forcing patient to lie down for 2 h. at a time. Completely prostrated. Eyes affected as in No. 14. Acute wandering pains in lower limbs, especially in calves of the legs, occurring during many weeks previous to cessation of Chl. Had a feeling at times, on putting his feet to the ground in m., "as if his legs were all in a mash," as if he could not distinguish clearly between one part and another. Finally, on rising one m. found his legs suddenly give way under him; was unable to stand or walk, had to get into bed again. Passed off in course of d., but left great nervous depression and bodily weakness, accompanied with a

feeling of utter vacuity of mind, and inability to concentrate the attention upon anything. (*Ibid.*)

16. The symptoms of chronic Chl. poisoning, according to Richardson, are: sleeplessness, mental irritability, and muscular prostration; uncertainty of movement, with tendency to fall forward; caprice of appetite, nausea; and injection or yellowishness of the conjunctivæ. The urine may be albuminous; the bowels are constipated, and the stools pale and hard. All these symptoms we have met with, and also a state of mental depression, irresolution, and gloom, which threatened to end in insanity. (*STILLÉ, op. cit.*)

17. *a.* According to Kirn, disturbances of the respiratory processes are excited in rare instances, which may increase from a feeling of anxiety, terror, and shortness of breath to attacks of dyspnoea, and even of asphyxia. Shaw also, after about 1 grm., observed spasmodic breathing, with irregular action of heart. Marsh states that after an ordinary dose he has found changes in the mucous membrane of the respiratory apparatus, as shown by the occurrence of acute bronchitis.

b. Among other incidental effects, Curschmann reports swelling of epiglottis and false vocal cords, and Reimer the occurrence of bedsores under very slight external pressure, while epidermis is intact. Here and there cases are reported in which jaundice is said to have occurred after the use of this agent. Thus Wernich mentions the case of a drunkard, in whom a fresh icterus appeared after 4 grm. had been taken. Arndt also witnessed the occurrence of this condition in a paralytic after he had taken the drug for 14 d.; it passed off when medicine was stopped, and reappeared when it was again used. (*LEWIN, op. cit.*)

18. Mrs. R.—, æt. 24, took mixture of Chl. with tolu and peppermint water. Suddenly sore-throat, swelling of parotid and submaxillary glands, face bloated out. Face, shoulder, chest intensely red, suggesting the appearance of scarlet fever, or a mild attack of erysipelas. Medicine was discontinued; on its being later resumed, was covered from head to foot with urticaria, with intense scalding pain in eyes, and a continual running of a semi opaque fluid from them, as if from the intense heat of the surface. (*CHAPMAN, Lancet, 1871, i, 666.*)

19. *a.* Medical man, æt. 70, in habit of taking Chl. Desquamation of fingers of both hands, with superficial ulceration, especially about borders of nails; pain and much sensibility to touch, acceleration of pulse, general malaise.

b. Young lady, taking Chl. for a month every n., had erythematous inflammation, desquamation, and ulceration around border of nails. (*Bost. Med. and Surg. Journ., 1871, p. 33.*)

III. *Experiments on animals.*—1. A rabbit was given 30 gr. In 5 m. respirations 10, irregular; sat quietly, ears semierect; in 10 m. moved about, but seemed very stupid, heavy, ears lying on its back; 15 m., respirations 47, sat quietly, occasionally lifted its head smartly as if trying to shake off sleep, and gnawed at a box near it; 17 m., appeared greatly excited, but was unable to keep itself steady; 17 m., snuffing about; 18 m., has again settled down; 20 m., respirations 34, still moved when noise was made; 22 m., was holding its nose on the ground, but raised its head when noise was made; 25 m., tried to move, but seemed paralysed in hind legs; 26 m., scratched at floor with fore-feet; 27 m., made an unsuccessful attempt to "dress"

itself, snuffed excitedly round about it; 29 m., did not move when noise was made; 36 m., again attempted to "dress" itself, moved its jaws as if trying to eat, smelt its hind legs as it about to lick them, continued the movement of jaws; 37 m., did not move when the glass tube over it was roughly shaken; 38 m., respirations 34, free and full, abdominal, licked several parts of the body; 40 m., it sniffs slowly and lazily about, has complete command of its forelegs, but not of its hind legs, ears very warm and lying flat; 50 m., ate oatcake eagerly, and quite recovered. (*Edin. Med. Journ.*, Aug., 1872.)

2. *a.* In Liebreich's original experiments, gr. ʒ administered hypodermically to a rabbit produced a lethargic sleep lasting 9 or 10 h., during which animal was thrown over back of chair without its awaking. Similar results were obtained with dogs. Richardson, by internal administration to pigeons, produced sleep with 2 or 3 gr., during which respiration became slower and temperature fell. In frogs, 1 gr. caused almost instant insensibility, coma, and death, usually preceded by spasms or convulsions. Experiments upon other creatures gave substantially the same results; and in all it has been particularly noticed that the sleep produced by *Chl.* differs from that occasioned by other anaesthetics or narcotics in this, that it is less profound, is easily disturbed, and is easily removed when the animal is left to itself.

3. When animals are killed by large doses, the sinuses of the brain are found, after death, distended with dark fluid blood; the membranes are injected, but the brain itself is free from congestion, and is of a natural colour. The same appearances are presented by the spinal cord. The muscles are dark in colour, and filled with fluid blood, which flows freely from them when they are incised. The heart contains blood in both sides, preserving the distinctive arterial and venous characters. The lungs are pale, and contain blood, but are not congested. The blood coagulates with moderate firmness; its red corpuscles are sometimes shrunken and cretate. (*STRICKER, op. cit.*)

4. In conjunction with Professor Stricker, I found that when large doses are given, the temperature gradually falls until it can no longer be measured by the clinical thermometer. Animals which have received a dose that would certainly kill them if left exposed, recover from the effects if they are wrapped in cotton-wool. If dose be still further increased so as to kill the animal even when carefully so covered, it may still be kept alive by being put in a warm place. (*BRUNTON, op. cit.*)

5. The paralysis and loss of reflex excitability induced by chromic are not muscular in origin, for Laldée has found that after death the muscles respond perfectly to galvanism. Both Lahtée and Kaprisky have found that the motor nerves are in no wise affected by large or even fatal doses of chromic, which must therefore act upon the spinal cord to produce the paralytic phenomena. The experiments of Kaprisky have afforded positive confirmation of the conclusion arrived at by this process of exclusion; for he found that in the latter stages of *Chl.* poisoning direct irritation of the spinal cord gave rise to much less clonic spasm than in the unpoisoned animal. (*H. C. WOOD, op. cit.*)

CHROMIUM.

Including *Acidum chromicum*, chromium trioxide, Cr_2O_3 ; *Chromium oxidatum*, chromic sesquioxide, Cr_2O_3 ; and *Kali bichromicum*, potassium dichromate, $\text{K}_2\text{Cr}_2\text{O}_7$. (Unless otherwise specified, the last will be understood as the preparation employed.)

1. *Provinge*.—1. *a.* The following list of symptoms is the result of several provings with low dilutions of chromic acid on myself in the course of several months. The symptoms appeared only after a long-continued and repeated taking of the acid.

Pains on l. side are worse and longer lasting than those on r.; quick walking gives relief; cold water and strong draught of air cause or increase pains. Tiredness and weakness. Mostly in e., disagree-

able prickling and itching here and there, with uneasiness in limbs, so that he was obliged to get up from sitting or lying, and walk about. Notwithstanding good sleep at n., great sleepiness in daytime; but if he lies down for a nap he cannot fall asleep. Wakes at early dawn, and cannot fall asleep again, although still sleepy and not excited. Heavy, dull, stupid. Diminished vision. Occasionally, sensation in r. ear as if water was in it, coming and going suddenly. Soon after going to bed (10 p.m.) two attacks of very violent toothache on r. side, each lasting about 10 or 15 m., with free interval of several m. During 2nd attack, painful teeth seemed as if too long; pain extended into forehead; he was frequently obliged to change his position, and afterwards felt such uneasiness in limbs that he was compelled to get up and walk about. Even next m. teeth of r. side felt too long, and cold water produced pain. Repeated toothache of short duration, especially in r. lower jaw; during attacks corresponding artery beats more violently than that of other side. In n. sudden violent pain in several undecayed teeth in l. lower jaw, with similar arterial involvement. In m., after usual rinsing of mouth with cold water, toothache in l. lower jaw for short time. During eating, though food tastes natural, sense as if exhaled air smells putrid, almost causing nausea. More hawking of phlegm than usual. Transient nausea at different times when stomach is empty; in $\frac{1}{4}$ h. after a simple supper, nausea, gradually increasing, with sensation as if stool would follow. Sudden violent stitch in region of heart, pain disappearing only gradually after several m. For almost 3 weeks, apparently deep-seated pain, with stiffness, from l. scapula and shoulder, up neck to occiput; for several d. so violent that slightest motion of affected parts was very painful, at n. even sleep was impaired, only certain positions were endurable; rising from recumbent position caused much pain, and turning of head backward or towards l. was impossible; pain felt least when standing and walking; at times it extended to elbow and to muscles below shoulder, all muscles connected with shoulder were more or less painful to touch, and use of l. arm was impeded; least draught of air increased pain; there was stitching on deep breathing, and very violent pain on coughing (after taking *Daphne indica* this pain departed, first moving down to pelvis, making lumbar region sensitive). Several times short-lasting pain, with lameness, in middle of upper arm in front, as from a severe blow. Arms fall asleep easily. Drawing deep seated pain, as if in bone, in upper r. thigh, in front, extending to hip-joint.

b. After a few dr. of r. dil. shortly before supper several times vomiting of food, then three times of bile, with much retching, at intervals of 5 or 10 m., with (warm) perspiration; quick walking relieves nausea which precedes each vomiting. Between attacks, pressure and fulness in stomach, obliging him to loosen clothes. (F. G. OEHME, M.D., *N. Y. Journ. of Hom.*, i, 367.)

2. a. DUFFIELD took 5th dil. of chronic acid for 3 d., 3 doses daily. Experienced sense of lightness of head, like vertigo, with heat in face; dull pain over l. eye as if headache would set in; pulsative sensation from region of heart to l. eye and l. side of head, with general

fulness in frontal region; slightly acute pains in l. hypochondrium; pulse full and a little accelerated; late going to sleep, with restlessness during n. and anxious dreams.

8. Took 6th dil. in same way for 4 d. On 2nd d. very painful external piles; pulse at 7 a.m. 48, at 3 p.m. 64. On 3rd d., piles internal and bleeding. On 4th d., fulness in head at n., with peculiar sensation of lightness at heart, and vertigo when descending stairs; rawness or soreness in chest, with slight dry hacking cough; pulse at 10 a.m. 82; feet, naturally burning hot, were cold. On 5th d., fulness and throbbing in fore part of head, emptiness of chest with soreness on pressure, and cold feet; eyes succ, feeling heavy as if inflamed; after dreaming of it in n., attack of stranguary in m., from which he did not get relief for nearly 2 h.; slight pain and throbbing in l. lung; pulse at 8 a.m. 72, at 4 p.m. 84. Without note of time,—Accumulation of tough mucus in throat, with constant inclination to swallow it, as it cannot be hawked up; hæmorrhoidal discharge from anus during stool, pretty copious, with weakness in small of back; pain in lumbar region at 9 p.m.; dull aching pain on top of l. shoulder, as if from great fatigue, lasting 2 h., at 10 a.m., also sensation as of paralysis in r. leg, from knee down; distressing dreams at n., about to be put to death by poison, and at same time innocent of crime. (Allen's *Encyclopædia*, iii, 275.)

3. 9. Nov. 24th, 1842, Dr. DRYSDALE began to take 1 gr. of Cr trit. of *C. oxidatum* 3 times a d. 25th.—Dull pain at inner angle of l. scapula in e. 26th.—In m., transitory undefined pains in elbows. 27th.—After breakfast and dinner, fetid musty smell in posterior nares, chiefly perceived in expiration. In forenoon dull confusion of head. In e. pricking in skin at various points, smarting in eyelids. 28th.—For several d. dull, bruised, fatigued feeling in legs, especially above knees, with some pain on firm pressure; transitory pains in various parts; feeling of dryness and uneasiness in r. eye and r. nostril. 29th.—Bad taste in m.; fulness and slight shooting pains about anus in m. and forenoon; itching of skin round eyes and over cheek-bones in e. 30th.—Dreamed of having pain under apex of heart, and woke with such pain; sudden inclination to vomit in m. while dressing, with flow of water in mouth and dull pressure in stomach; unusual hunger in middle of d. Dec. 1st.—Metallic taste in mouth before dinner; pricking in tongue; itching and smarting round eyes, especially inner canthi; deep seated pain in back of l. chest and corresponding place in front, with feeling on deep inspiration as if roof of lung could not expand and was painful. Itching in various parts in e., in toes burning and itching like chilblains (to which he is not subject). 2nd.—Woke early from vivid dreams with pains suddenly shifting to various parts of the trunk—at one time dull at inferior angles of scapulae; then pressive in r. hypochondrium, edge of false ribs, region of bladder; then dull pressive over r. eye; then in knees. Fulness about rectum, and difficult evacuation of a soft scanty stool. For several d. frequent passing of flatus and frequent aching and shooting pains about epigastrium. The symptoms seem to be generally most in m. 3rd.—Same pain about l. scapula, in m.; pinching pain at epigastrium; a sort of sudden

jerk of both eyeballs for a second. 4th.—In n. severe boring pain in l. chest below axilla, about 4th rib, not increased by motion or respiration, going off on turning to r. side; pains in knees; itching and drawing pains in balls of feet, at root of toes, painful on treading. 5th.—In e. in bed, pain in region of heart, a fine-drawing, nervous pain, at times reaching through chest to shoulder and neck; on lying on l. side, sort of clucking painful sensation on deep breathing. In e. violent disagreeable pain as from flatulence came on in r. side from lumbar region round to cæcum, brought on by any movement of trunk or by deep inspiration—not felt on sitting or lying still. 6th.—This m. in bed same pain still felt very troublesome; rather better on getting up. 7th.—Still pain in loin; it seems to arise in a spot which is tender to pressure about 1 in. to r. of middle lumbar spine. Rheumatic pains about r. shoulder and various parts of back. Flatulence and rumbling of abdomen have continued troublesome for several d.; also almost daily pricking in tongue at various times. Superficial burning pain about middle dorsal vertebræ; sudden jerking pains in l. ear; cold feeling in small spot in meatus of l. ear. In bed severe quivering burning deep-seated pain in inner side of thighs, especially l. 8th.—Pain in loins continues; occasionally indistinct pains like a strain about balls of feet; shooting pains in l. temple. 9th.—Still lumbar pain, most felt in m. in bed; itching in r. palm; pricking in tongue; several sharp cutting pains over l. eyeball at n. in bed; smarting and heaviness in eyelids in e. 10th.—Lumbar pain gone; same symptoms in tongue and eyes. 11th and 12th.—In m. heavy muscular pains in neck and shoulders, and various parts of trunk, soon going off and only slightly felt in back during d. 13th.—Drawing pains in l. scapula occasionally throughout d., but most in m.; sharp drawing pain in bones and ligaments of r. foot.

6. Dose was now changed to gr. j of 1st trit. 4 times a d. In m. uneasiness, stiffness and dull pain in muscles, chiefly in scapulæ and nucha, also between shoulders and in hips, coming occasionally during d. till e. 15th.—Cutting pain across l. eyeball, with flow of tears, in m. in bed; pricking itching in various parts. 16th.—Pains in scapula; quivering of lower lip. 17th.—Fixed pressive pain at apex of heart as before; flatulence; itching in armpits at n.; frequent dull deep-seated pains in hands and fingers; pains in back as before. Proving was now discontinued; pains in back persisted for some d., and then gradually disappeared. (*Hahn. Mat. Med.*, Part 1, p. 54.)

4. Dr. DRYSDALE'S provings of Kali bichromicum. All experimenters used (unless otherwise specified) solution of gr. v to ʒj, taking 1—100 dr. several times daily for periods varying from several d. to 2—3 weeks.

Its action is developed within a few h. if less than 20 dr. have been taken, and when the dose has been larger frequently within a few m. Where it has been taken in moderate doses, duration of action does not exceed 3 or 4 d. after discontinuance of medicine. In doses of 20—100 dr. (gr. ʒ—j) it generally caused nausea and vomiting. The following symptoms also were developed in the majority of cases.*

* Some of these symptoms may belong to the chronic workers (see U, 10—13).

Sudden, transient attacks of vertigo; stupid, giddy sensation in head, expressed by terms "swimming," "mazziness," or dulness; listlessness, languor, and disinclination for mental or bodily labour (in many stages of provings); headache in temples, or shooting pains in one; frontal headache, generally over one eye; itching of eyes; redness of conjunctiva; itching and redness of tarsi; watery discharge from nose, with or without soreness; stuffing of nose, with pain across bridge; sensation of a fetid smell; tongue thickly coated at root with yellowish fur,—dry and thickly coated in m. (constant); sour or coppery taste; loss of appetite; no relish for food; great thirst; sensation, after meal eaten with relish, as if digestion stopped, and food lay like lead; uneasiness in stomach; aching in r. hypochondrium, and corresponding place in lumbar region, with metallic taste, confusion in head, and clay-coloured stools; much flatulence (at all stages); belly generally tumid; occasional griping pains in abdomen; cough in m. with tenacious expectoration; scratches under sternum through to back; on awaking, heaviness at chest as if something were pressing on it, with soreness, better after rising; pains in loins and sacrum; stiffness in nape on bending head; rheumatic pains in fingers, knees, and hips, latter felt chiefly in daytime and on motion; aching in legs, with tremors; darting on top of r. foot; weariness and weakness in limbs; transient flying pains in all limbs, without definite character (constant); when gastric symptoms reach any height, rheumatic symptoms subside; waking early from disturbed and unrefreshing sleep; sleep disturbed, and with vivid dreams. The symptoms come on quickly and subside soon; most appear in m. or are worse then; pains fly rapidly from one place to another. (*Arit. Journ. of Hom.*, vol. ii, App.)

5. Dr. HAMILTON, æt. 29, sanguine temperament, took at different times 10, 20, 60, and 100 dr. After 10, 20, and then 60 dr. in same d. was attacked with vertigo and heavypressive pain in vertex, without other symptoms. This went off in 6—8 h., when severe pain in lumbar region came on, extending into sacrum and down thigh; at first an aching pain, proceeding to a numb sensation, pain increasing to such a degree that he could hardly rise from his chair. It continued for 3 d., and gradually decreased in severity. Appetite remained good, and bowels regular. Urine was scanty, high coloured, and deposited a pearly-white sediment. (*Ibid.*)

6. Dr. R. RUSSELL, æt. 28, nervous-lymphatic temperament, took at different times 20—40 dr. Vomiting was almost always produced, and in a great measure prevented other symptoms from being developed; sometimes, however, 25 and 30 dr. produced no apparent effect. After 40 dr. nausea and diminished appetite; after breakfast vomiting with much straining, great watering of eyes, injection of lids, and drowsiness. After $\frac{1}{2}$ h. again vomiting of brownish-yellow pappy matter. In 3 h. vomiting returned, with violent retching and very bitter taste in mouth. Nausea lasted all d., occasional gripings in bowels, and sudden attacks of vertigo. Other symptoms noted are—transient smart shootings in r. temple, lasting 2 or 3 m., and returning at intervals of 10 m.; awaked as these are commingled with the others in Drysdale's scintilla; but we have eliminated them as far as possible.—Eos.

on m. after 40 dr. by itching of lobe of r. ear; flapping and singing in ears; loss of appetite; languor, and disinclination to exertion; offensive taste (with nausea and salivation). (*Ibid.*)

7. JOHN WRIGHT, æt. 20, florid complexion and dark brown hair, made two provings, an interval of some months between. Took from a few dr. up to 20 first time, and up to 60 dr. second time. On 2nd d. of (second) proving, in afternoon, dull, heavy pain over l. eye; shivering and sense of coldness, chiefly in arms and shoulders. Took 20 dr. at 4 p.m.; in e. pain in cheek-bones, uneasy sensation in gums, discharge from nose. At 11 p.m. 15 dr. Awoke about 2 a.m. with extreme nausea but inability to vomit, and frontal headache, preventing sleep; after a time these symptoms subsided, and restless slumber supervened. On 3rd d. 45 dr. Dull, cold, heavy pain in region of heart, with tightness in chest and dyspnoea, griping in bowels. On 4th and several following d. hands felt in bones as if they had been bruised. Other symptoms are—2nd d., soon after dinner, dull, heavy, throbbing pain in forehead, feeling as if it would burst, above eyes, extending into head, with desire to lie down, and relieved by lying down or resting head on anything, and by open air, worse on stooping or moving; sight confused and dim; slight pain under l. eye, and uneasy sensation in gums (30 dr.); tickling in nose, and sneezing; sore-throat; awoke with severe pains in stomach; griping in lower belly, as if something was piercing bowels, worse on deep inspiration, better on pressure, lasting 2 d. (60 dr.); constipation during proving; coldness and shivering in arms and shoulders. (*Ibid.*)

8. a. H. TURNER, æt. 31, took 1—6 dr. Great weight in head; dryness of mouth and throat; food tasteless; constipation; waking with saltish taste in mouth.

b. Gave to son, æt. 4, 2—4 dr. doses. Sore-throat; severe pain in abdomen, followed by blackish watery stool. (*Ibid.*)

9. R. BOWEN, æt. 35, bilious lymphatic temperament. In good health, save for a chronic eruption. Took 1st trit. in gr. doses twice daily for weeks. Violent shooting pains from root of nose along l. orbital arch to outer angle of eye, with dimness of sight as if scale was over eye, beginning in m., increasing till noon, going away towards e., for 3 weeks. (*Ibid.*)

10. S. J.—, girl æt. 14, having lepra vulgaris, but otherwise well, took 1—5 dr. daily for several weeks. Had after some d. darting pain in small spot over l. eye, spreading over forehead, but still remaining worst at original spot; aggravated by motion, with gastric derangement. Also, after breakfast, aching pain, beginning at navel and rising into throat, for ½ h. (*Ibid.*)

11. DR. DRAYDALE, æt. 28, nervous-sanguine temperament, took from a few dr. to 60 several times a d. for a fortnight. For first week, with smaller doses, flying rheumatic pains in various parts; in second week, disorder of digestive organs and liver to such an extent that proving was suspended. On 3rd d., sharp tearing and shooting pains in r. hypochondrium, of short duration. On 4th d., burning smarting sensation over r. trochanter major. On 5th d., smarting of external canthus; throughout d. sensation from throat to stomach as if food

remained in œsophagus; urine scanty, with white film and whitish deposit; frequent yawnings. On 6th d., sharp pain, like a strain, in tendo Achillis in walking; in e. weariness, distension, hiccup, water-brash; at n. deep-seated, dull, shooting pains under scapulae; vivid dreams, and woke early, then fell into a confused heavy half sleep; in m. unrefreshed and weary. On 7th d., transient heavy pain in r. temple immediately after eating, frequently recurring in afternoon, accompanied with uneasy craving sensation in stomach; pains in r. hypochondrium, as on 3rd d.; dull pressive pains in different parts of back, going off in e.; deep-seated aching pain in upper angle of l. scapula. On 8th d., after dinner external stitches in epigastrium and breast into nipple, and in r. hypochondrium; also dull pressive pain on r. side of spine about 9th dorsal vertebra, with uneasiness in stomach. On 9th d., woke with general heat and perspiration, quick pulse, palpitation and dyspnoea; soreness and swelling of r. ala nasi; sensation of swelling and enlargement of lower extremities in bed, first one and then other. On 10th d., gastric pains were relieved after eating, and rheumatic pains reappeared. From 10th d. till a few d. after leaving off, scanty pale clay-coloured stools, sometimes twice a d., with aching in r. hypochondrium, metallic taste, fetid breath and confusion of head. On 10th and 11th d., tearing pain from l. ham down leg; and on 11th redness of conjunctiva, with sensation of heat and uneasiness, as when eyes are opened under water.

Without date,—After taking ʒj at bedtime, woke in about 2 h., with great uneasiness in stomach, and soreness and tenderness in region of same, particularly in a small spot towards l. of xiphoid cartilage; pains continued for some time, with nausea, restlessness, heat of hands and feet, dryness of mouth, and wakefulness; then subsided, with perspiration of hands, feet, and legs. Pains flying about head, darting or aching on one side of head; stinging and pricking pains in tongue (frequently); sharp shooting pains in l. tonsil towards ear, relieved by swallowing; nausea, relieved by eating; sharp irritative fixed pain in region of apex of heart, unaffected by respiration or position; sense of coldness in stomach; while walking, fine irregular stitches in l. breast, without palpitation and unconnected with respiration; violent tearing aching pain in l. shoulder (after ʒiss); at n., soon after lying down, tearing pains in shoulder and upper arm, on side not lain upon,—on turning, pain went to other arm; pain, heat, and throbbing in toes. The feverish symptoms and epigastric pains returned in a slight degree on second n. after leaving off medicine. (*Ibid.*)

12. Dr. NEIDHARD took ʒrd trit., 1 gr. twice daily. Shooting pain in l. maxillary bone towards ear. (*Ibid.*)

13. Mrs. F—, æt. 32, lymphatic-sanguine, took from ʒ to 6 dr. Pains, darting or aching, on one side of head; giddiness and dim sight after breakfast (2nd d.); redness of conjunctiva, with aching in eyes; swelling of genitals; pain across back and thighs as if before catamenia (1st d.); stiffness in shoulder-joint, transient darting pains in mammae (1st and 7th d.). (*Ibid.*)

14. A. B—, æt. 23, single woman, sanguine-lymphatic, took ʒo—40 dr. several times daily for 4 d. Sour taste in mouth whole of 3rd d.,

but taste of food unaffected; hiccup during whole proving; nausea like sea-sickness; same on 4th d. with feeling of cold, trembling and hunger, and relieved by eating; on another occasion with vertigo, followed by vomiting of clear watery fluid, attended with cold perspiration of hands and coldness of body, followed by heat with still persistent feeling of cold; menstruation too soon, with vertigo, nausea, feverishness, and headache; coldness and shuddering with vertigo and nausea, then heat with feelings of cold and shivering, and shooting pains in temples—without thirst. (*Ibid.*)

15. X. Y—, single woman, æt. 30, lymphatic-sanguine temperament, took 10—60 dr. for 10 d. Loss of appetite, languor, and disinclination to exertion; stomach disordered, with heat at n., yellow-coated tongue, gnawing at epigastrium, fetid eructations (12th d.); nausea like sea-sickness—after breakfast—on moving about, relieved by lying down, and violent shooting pains in stomach, then vomiting of medicine; vomiting, on moving about, of undigested food, followed by nausea, for several h.; after breakfast squeamishness, and in $\frac{1}{2}$ h. vomiting of food, quite undigested, and not in the least acid; constipation (through proving), griping in bowels, and flatulent eructation; gnawing pains in stomach and sacrum, with flatulence; transient darting pains in mammae. (*Ibid.*)

16. Mrs. K—, æt. 30, nervous-lymphatic, took 8—10 dr. several times daily for 5 d. Pains, darting or aching, on one side of head; sinking at epigastrium; sharp tearing and shooting pains at r. hypochondrium, of short duration; shooting pains through bowels; smarting and rawness at anus,—also boring and smarting there; costive, with languor, foul tongue, headache and coldness of extremities; smarting and rawness in vulva; yellow tenacious leucorrhœa, with pain and weakness across small of back, and dull heavy pains in hypogastrium (2nd—4th d.); slight rheumatic pains in flesh of legs, arms, and fingers; continued rheumatic pains in all limbs, and swelling of finger-joints,—when acuteness of pains subsides, feeling of excessive weariness in limbs (5th d.); sharp pains like needles in muscles of calf, with tenderness on pressure (2nd d.); feeling of cramp in knee-cap; pain, heat and throbbing in toes; soreness of heels in walking, for some d. after proving; frightful dreams. (*Ibid.*)

17. J. W—, woman of 36, light complexion and red hair. Paroxysms of vertigo every 2 h., lasting for 12 h., and succeeded by nausea, headache (particularly at frontal protuberance), with extreme prostration of strength (after 30 dr.); in afternoon, languor, drowsiness, foul taste, and slight faintness,—all increasing towards e. (*Ibid.*)

18. Dr. WALKER, æt. 29, bilious-sanguine, took 3rd dil. for a week; then solution, from a few to 30 dr. From former, frequent micturition with slight burning feeling afterwards far back in urethra as if a drop of urine were still there, with desire, but inability to expel it; dreams of fighting. From latter, rheumatic pains between 7th and 8th ribs at their angles on r. side, increasing on bending forwards or twisting body to l. (35 dr.); transient stitch at inferior angle of l. scapula, then similar pain in toe (do.); painful shooting in 2nd joint of great toe, at n. in bed (do.); sensa-

tion of coldness in back, with desire to sit near fire, and drowsiness. (*Ibid.*)

19. Dr. DUNGRON, July 7th, 1844, took 5 dr. of a saturated sol. $\frac{1}{4}$ h. before dinner. Between this and 11 p.m. had nausea; tickling in larynx causing cough and clearing of throat; eructations with taste of food; slight circumscribed pressive pain in l. hypochondrium; smarting in eyes, worse in open air; transitory darting pain in forehead, with similar aggravation; irritable humour. At 11, took 10 dr. Shortly after, nausea; in 1 h. slight burning in pharynx, at same time dull heavy pain above eyes and in temples, aggravated by cold air and motion. During n. awoke with heartburn, and had slight transient pain in middle of lung; on rising in m., taste as of blood in mouth. 6th.—At 11 a.m., 15 dr.; in $\frac{1}{4}$ h. nausea, darting pain in outside of elbow-joint and later in r. wrist. At 1 $\frac{1}{4}$ p.m., 11 dr. Almost immediately, excessive nausea; inclination to vomit; flow of saliva into mouth; convulsive eructations. After $\frac{1}{4}$ h. nausea still continued, worse at sight of food and on motion; in 2 h. copious flow of saliva into mouth; deadly sickness and vomiting of light yellow tasteless fluid while walking in open air; during rest of d. eructations with taste of rancid bacon, though none had been eaten, and at same time imaginary putrid smells; in e. bloody taste in mouth. Great disinclination to exertion for 4 h. In $\frac{1}{2}$ h. pressive darting pains in both temples; slight vertigo on moving head rapidly, for some h.; pains, burning in outer angle of l. eye, pressive in l. eyeball, darting in præcordium, dull and circumscribed in r. chest (aggravated by inspiration), fixed and burning in mid-sternum; darting in renal region, slight pricking in glans penis; occasional smarting during micturition for 2 d. On falling asleep at n. frequent startings, tossing of arms, incoherent talking and finally snoring. Took no more. On 3rd d., bloody, putrid taste in mouth, with eructations having taste of putrid fat; pain,—shooting in forehead, pulsative in l. parietal bone, boring in l. hypochondrium, dull in hepatic region (increased on deep breathing or coughing); high-coloured urine, and some heat in passing it; irritation in larynx obliging hawking of mucus in m.; cough, causing pain in mid-sternum, darting through to between shoulders, with expectoration of thick yellow mucus containing traces of blood; a point towards middle and l. of sternum painful on pressure; dull lumbar pain worse on motion, and severe stitch there aggravated by breathing and coughing. On 4th d., darting pain in temple; smarting and watering of eyes; rawness in pharynx; nausea after usual pipe; dull, heavy hepatic pain; pressive pain in groin, as if hernia would protrude; obstruction of l. nostril in m., with discharge of thick yellow mucus; pain as of ulceration in larynx. At dinner, after swallowing first few mouthfuls, great tickling in larynx, which went off on eating more; constant pain in chest under l. axilla; transient dull pain under r. scapula; sharp shooting pains first in l. afterwards in r. renal region, extending down thigh, worse on motion; lumbar pain and stitch as yesterday; great sleepiness and yawning after dinner. On 5th d., violent shooting across forehead and temples, whilst walking, relieved by rest; slight shooting in liver region, and dull aching there posteriorly; pressive pain in r. eye and soreness of caruncula; risings after eating; copious dark evacuation with

tenesmus; escape of prostatic fluid at stool; sprained pain (on movement) in lumbar region; shooting in l. elbow; irritable humour. On 6th d., swelling of stomach in e., with fulness and pain on pressure; inability to bear clothes at all tight, worse on motion, relieved by rest; pain in l. inguinal region, darting through to r.; same nasal obstruction as on 4th d., and frequent sneezings in m. Darting pain down outside of l. thigh, and frequent yawnings. On 7th d., sinking in stomach before breakfast; taste of blood all d.; shooting in l. elbow; a red pimple on back of hand; great tendency to yawn and stretch. On 8th d., severe throbbing darting in l. wrist near pisiform bone for $\frac{1}{2}$ h.; slight aching in second joints of l. fingers; frequent micturition with slight burning afterwards. On 9th d., cutting in l. sacrum, shooting up and down. (*Ibid.*)

20. Mr. J.—, of Philadelphia, proved under Dr. Neidhard's supervision the gr. v to $\frac{3j}$ solution. Enjoys excellent health save for slight stitches in region of heart, especially in warm weather. May 22nd, 1844. —Took 5 dr. in e. before going to bed. No effect during n. 23rd.—At 7 a.m., 5 dr.; at 8, dull heavy pain in r. chest, through to back, continuing and passing off at intervals of 20 m. At 10, slight oppressive pain in umbilical region. At 12.30, sense of soreness in r. hypochondrium, coming and going at intervals during d. At 1, sharp shooting in l. chest, pain around navel having gradually disappeared by this time. Towards e. all these pains had gradually ceased. Took 4 dr. more; no effect during n. 24th.—At 6 a.m., 4 dr.; at 9, tearing in r. chest as yesterday, but less violent and only transitory. 9.30, aching in r. hip-joint; sense of stiffness in back of neck when bending head downwards. 10, rheumatic pain in shoulder and elbow on motion, with numbness from one to other. In e. much more thirst than usual; fulness and heaviness of whole head, especially vertex; on bending forwards general throbbing; increase of appetite; urine clearer and more limpid than usual; countenance fuller, clearer, and more intellectual. From 25th to 27th no medicine, and no symptoms, save on 26th slight return of pain in r. chest. 28th.—In e., 15 dr. In 20 m., extreme sickness, with great inclination to vomit, which continued for $\frac{1}{2}$ h., when it gradually passed off and he fell asleep. Next m. woke at 5 with sense of weakness about navel (as if he had taken a cathartic) and heavy pain in head. At 6, took 15 dr. In $\frac{1}{2}$ h. again sickness at stomach with still greater inclination to vomit and slight chilliness. Took breakfast at 7; appetite at first good, but soon sensation of disgust, obliging him to leave table. 7.30, sharp stitch in l. side. All d. commotion in bowels, with one loose passage; dull heavy pain in r. frontal protuberance; very languid; weakness, especially in region of navel. 30th.—In m., 20 dr. Felt only, in e., slight pain in r. forehead, and in r. chest through to back. (*Ibid.*)

21. *Dr. NORTON*, *set.* 31, Jan. 12th, took 1 gr. of 1st trit. Immediately sense of dryness in bronchi; two similar doses later in d. had no other effect. Same dose was continued daily for 5 following d. On awaking on 13th, same bronchial dryness, and pain in l. elbow for several h. During next 4 d. transient pains in r. mamma and l. elbow; stitches in r. hypochondrium; frontal and occipital headache. On

17th, frequent acid risings; acid burning in stomach once or twice in d. During afternoon taste like salt in mouth. Transient acute pain at base of l. scapula; frontal and occipital headache; earache in e. For next 2 d. no medicine and no symptoms. 20th to 26th, took 2 gr. 3 or 4 times a d. On 21st, on rising, slight dyspnoea, as if mucous membrane of bronchi were thickened. Sharp pains in r. knee- and hip-joints and l. breast and shoulder; uneasiness at stomach. 22nd.—Frightful dreams; nausea soon after a dose taken fasting; sharp pain in knee. 23rd.—Rheumatic pain in knee and chest. 24th.—Awoke with severe pain in stomach lasting $\frac{1}{2}$ h.; disagreeable dreams; uneasiness at stomach continued all d., situated about great curvature 3 in. below ensiform cartilage like feeling of an overloaded stomach. 25th.—Frightful dreams; rheumatic pains in knee- and hip-joints; sense of hair in fauces. Acute and severe stitch in side for a moment. 26th.—Headache at sundry times, generally on one side and at circumscribed spots; pain at stomach as on 24th; headache; after dinner heartburn; in e. acute twinging pain in ball of l., then of r. great toe, for about 4 m. each; pricking and stinging pains in skin of several parts of body.

b. On 26th and two following d. rubbed in trituration on inside of thighs, without notable effect. On 31st resumed internal use (manner not stated). Feb. 1st.—Pains in joints; stinging in skin and tongue; pain in one spot on head, also in course of l. sciatic nerve; stitch in r. side. 2nd.—Rheumatic pains in several parts. 3rd.—Same, and in head at a point. 4th.—Same in nearly all joints; sensation as of a hair at the back of tongue and on velum lasting a considerable time, and not relieved by eating or drinking. 6th.—Same symptoms. 7th—9th.—No medicine. Pains in joints less frequent; severe sharp pains about chest. In e. took \mathfrak{ss} of solution gr. iv to \mathfrak{ss} . 10th.—Awoke with sore-throat, pain being at palate; cough with dense, transparent, small, lumpy sputa, easily expectorated; tongue covered with thick loose fur; papillæ very long on dorsum, with brown patch. Sore-throat went away in an h.; cough continued occasionally during d.; rheumatic pains in r. hip and l. elbow. In course of this d. took in all \mathfrak{ss} of sol. = 2 gr. On 11th woke with all feelings of having caught severe cold; nose full and loaded as if going to discharge abundantly; throat dry, with pain on swallowing; tongue thickly furred, and of light brown colour on dorsum; soreness in larynx; pain in sides and nape of neck, and in l. shoulder; throat looks red and inflamed around tonsils; cough began on awaking, sputa free and thick, transparent, of staly colour. At 10 a.m. catarrhal symptoms disappeared, with exception of cough; uneasiness at stomach; frequent eructation; pain in elbow-joint; headache at a point; bruised pain in *spina tibræ*, first in one leg then in other. The doses were continued for 2 d. longer, with a repetition of the symptoms.

c. Took from 1 to 50 dr. of gr. v to \mathfrak{ss} solution several times daily for about 3 weeks. At various times headache, semi-lateral, in small spot that might be covered with finger-tip, also frontal and occipital headache, stinging and pricking pains in tongue, thick coating of same, with brown patch on surface and elongated papillæ, and pains in elbow-joint. On 4th d., pains in shoulder, down arm, and in hips, knees, and

finger-joints. On 5th d., salt taste in afternoon; sour risings and burning in stomach; rheumatic pains in nearly all joints. On 12th d., after breakfast, uneasiness in stomach lasting all d., as if from over-eating, seated 2 or 3 in. below ensiform cartilage. On 13th d., sensation as of a hair on velum and root of tongue, not removed by eating or drinking, felt for some d., and ending in sore-throat one m., which went off in course of d. On 14th d., in e., acute twinging pain in ball of l. great toe, like gout, for 4 m.; about 5 m. after it had gone, precisely similar pain in r. foot. On 16th d., pricking and stinging pains in skin, in several parts of body. Without date,—Uneasiness at great curvature of stomach, as if of pent-up flatus, with efforts to eructate, which, when successful, relieve; awake with severe pain in stomach; sharp tearing and shooting pains in r. hypochondrium of short duration; momentary stitch in r. hypochondrium; irritation at orifice of meatus urinarius; external stitches in mammae; pain in course of l. sciatic nerve, extending from behind trochanter to calf. (*Ibid.*)

22. Dec. 1st, 1860.—Feeling perfectly well, and attending to the labours of a country practice, I was one d. obliged to prepare some Kali bichr., whereby I inhaled some of it, when I was suddenly attacked at 10 a.m. by a severe burning, itching pain, as of sharp-cutting knives, in the centre of the chest, so severe that I had to throw everything away in order to support and to compress the chest with both my hands. After 2 m. of perfect quiet the pain eased off, but returned with every attempt to continue my former work. The pain begins on both sides under the clavicle, and extends over the whole chest down to the lower ribs, but is most severe in the centre of the chest. The pain is somewhat similar to that felt when walking against a cold wind, but is not only burning, but sharply cutting. Deep breathing increases somewhat the pain, or rather the pain forces me to inspire deeply. Heat relieves, without taking the pain away. The feet are cold, with shivering over thighs and back. On scapula and back quivering, as of fluid dropping about on flesh; pulsations in sharply broken motions, like the key of a telegraph. These pains kept on till noon, sometimes lasting for $\frac{1}{2}$ h., and greatly decreased after taking some warm soup. When sitting, bruised sensation in r. ischium, so that I limped when I tried to walk. All the pains passed off after dinner, without returning. (SCHELLING, *A. h. Z.*, lxxxiii, 189.)

AUSTRIAN PROVINGS OF K. BICH.—23. ARNETH began his proving 21st March, 1845, with 100 dr. 12th dil. twice in d. 22nd, m., 60 dr., 12th dil., and e., 60 dr., 10th dil. 23rd, m., 60 dr., and e., 100 dr., 7th dil. (until now, no symptoms). 24th, m. and e., 100 dr., 7th dil.; pain in r. shoulder on moving it, also at other times sensation as if parts forming joint were separating from their attachment (but without any tearing here or in other parts). 25th, m. and e., 100 dr., 7th dil.; arm quite well; swelling in l. tendo Achillis, stepping upon toes difficult; in course of d. these symptoms of foot frequently alternate with those of arm. 26th, m., 100 dr., 3rd dil.; besides foregoing symptoms, sore-throat as though from a broad substance covered with prickles impeding swal-

lowing. 27th, afternoon, same dose; foregoing symptoms continue. 28th and 29th.—Pain in tendo Achillis always diminished after walking some time, and was less during rest, but afterwards always the more severe; disagreeable sensation in arm increased after prolonged inactivity of extremity to a stiffness which was painful, even if no attempt was made to move arm, but it was increased to a high degree on raising arm. The sore-throat first began to diminish on 29th; unusual exhaustion during e. of 29th.—On 30th, e., 100 dr., 3rd dil. M., on waking, sore-throat more severe than ever, but it, as well as other symptoms, lessened in course of d. 31st, m., 100 dr., 3rd dil. Sore-throat quite relieved, but pain in arm worse, foot pains about same. April 1st—4th.—Each m. same dose. Pain extended to r. tendo Achillis, so that walking was very difficult. Great chilliness in e. 2nd.—L. foot somewhat easier, r. more painful, arm still stiff. 3rd.—No pain in l. foot, but still in r.; pain in arm much worse, especially if arm was bent at elbow, and drawn somewhat backward and outward (as, for example, when putting on clothes). Nose constantly full of thick mucus. Painful spot somewhat to r. of centre of sternum; and much oppression of chest. 4th.—Pain in arm worse, pain in foot and oppression of chest same as yesterday; unpleasant stitches in same spot (r. of centre of sternum). Small hard swelling on inner malleolus of r. foot, somewhat painful only on hard pressure. 5th.—Without medicine; symptoms unchanged. 6th, m., all symptoms less severe. Afternoon, 50 dr., 2nd dil.; pains in foot quite gone; oppression of chest and arm pains lessened; frequent, sudden, very violent cramp-like pain in middle of outer surface of r. upper arm; even after pain had disappeared the spot was sensitive. Swelling on inner malleolus increased, was very hard, of rhomboid form, immovable, apparently seated on bone, and only painful on hard pressure. Late at n. repeated dose. 7th.—Same dose twice. Swelling of ankle somewhat less; other symptoms as before. 8th.—Same doses; stitches in chest almost as before. 9th.—130 dr. 2nd dil. Quite well except transient pains like rheumatic pains. 10th.—Same dose. Disagreeable sensation in epigastric region for a moment after each dose. 11th and 12th.—Without medicine. Quite well except slight drawings in different parts; also (for first time since proving bryonia) aphthæ. 13th.—In m. noticed livid colour of gums, which neither bleed nor are painful. 14th.—Quite well. 15th.—At 10.30 a.m., about 15 dr. of solution (5 gr. to ℥i), which tasted metallic and nauseous. Uncomfortable sensation in region of stomach almost as soon as first dr. reached tongue; comparable only (after whole dose) to last stage of sea-sickness; it is not exactly constant inclination to vomit, nor is it the trouble which frequently follows repeated vomiting, but a peculiar, almost indescribable, sensation of twisting and constriction in region of stomach, with, at intervals, rush of blood to head like electric shocks; also, as in sea-sickness, great prostration and the characteristic utter indifference. After about 2 h. trying vainly to get rid of disagreeable taste by eating something, was obliged to lie down, on account partly of great exhaustion, and partly of distressing sensation in region of stomach, which was aggravated by every step, and only relieved by rest; slept 2 h. almost

uninterruptedly, but even after waking and having dinner, taste still reminded him of sugar of lead; water had disagreeable, but food natural taste. N., restless, interrupted by dreams, unrefreshing. 16th.—Feeling of constriction in stomach was frequent during d. N. less tranquil than usual. 17th and 18th.—Well; bowels regular. 19th.—At 7.30 p.m., again took 15 dr. with great reluctance; immediately feeling of constriction in fauces and accumulation of saliva; almost simultaneously pain in region of stomach, commencing as uneasy feeling of coolness, becoming constriction, which even impedes respiration; this time the uneasy feeling disappeared sooner than before. During following d., frequent bleeding from r. nostril, also frequent stoppage of nostrils; discharge of fluid from nose; impaired smell; offensive odour in nose. Frequent griping in upper abdomen, with and without stool; occasional diarrhetic stool. N. less tranquil than usual. 24th.—At 1.15 p.m. took about 30 dr. In addition to above symptoms, frequent eructations tasting of medicine. Immediately, great aversion to water. After 1 h. vomiting, preceded by frequent ineffectual efforts; this six times; ejecta had a slightly yellow colour, a somewhat sweetish taste, reminding one of the drug. During 5th and 6th repetition of the vomiting there was a bruised pain in upper abdomen, and ejection, with great straining, of a very dark brown extremely bitter substance (much more bitter than ordinary bile). Great thirst, but smallest amount of liquid caused return of nausea in stomach. After 3 h. took dinner; began to feel unwell after taking a few spoonfuls of soup; solid food seemed to agree very well. Nose bled and offensive odour in nose; late in e. able to drink iced water. 25th.—Gums much affected; griping in abdomen several times; metallic taste; aversion to water almost as before; nose bled again; pasty stools, followed by sensation as if too little had been passed; e., coryza quite suddenly (discharge almost solely from r. nostril). 26th.—Very severe coryza; occasional griping in abdomen, stool scanty and hard; tongue fairly clean and taste natural, but appetite defective; discharge of liquid mucus from r. nostril; spot on r. lachrymal bone is painful, swollen, and throbbing; boil on r. thigh. 27th.—R. side of nose sore; aversion to water; n. not so tranquil as usual; slight threatening of (previously noted) rheumatic and chest symptoms; very gloomy. 28th.—R. side of nose more tender, violent sticking when blowing nose as though two loose bones rubbed against each other; other symptoms same as yesterday; pimples on r. half of face; taste sometimes extremely nauseous, sometimes metallic; very despondent mood. 29th.—Pain in nose on blowing, continued with frequent violent sticking pains; there were frequently discharged greyish-coloured masses, sometimes of offensive odour; every sputum from posterior nares had very disagreeable taste. Water still tasted bad; stools natural; appetite not improved; gloomy mood. 30th.—Pain in nose, both when blowing it and without, continues as violent as yesterday. Sad, almost sorrowful mood. May 2nd.—Feeling in nose, as though bones rubbed against each other, ceases; but r. nostril is quite filled with clotted masses; small ulcers on external borders of nostril continue. For first time taste of water is agreeable as usual; sleepiness during d. 3rd.—Quite well, except nose symptoms

which are unchanged; scars formed by healing of small ulcers on borders of nostrils, and remained for a long time; ulcers on r. side had not quite healed before they also appeared on l. nostril, where they burned still more than on r., but healed sooner; at last tip of nose, especially towards r. side, became very sensitive. The aversion to water (especially if not quite fresh) continued till May 20th. The gums also appeared very livid. The sensitiveness of the abdomen, which in the latter part of the proving had never quite left me, came on again in the beginning of June and lasted till August. In quite fine and warm, and even hot, days, as well as in unfavourable weather, when exposed to the smallest draught of air, I got, though in slighter degree, that turning and twisting in the belly described above. Stool generally hard; and when there was no stool for 2 d., painful drawing in anus. Appetite and tongue natural. (*Essenz. Zeitsch. f. Hom.*, iii.)

24. J. J. KÖSTLER, medical student, took daily from 15th to 23rd April (1845) 1 gr. of 1st trit. Headache with which I woke in m. was excessively aggravated by the drug, until nausea set in, and at last after about 1 h. vomiting followed, whereupon all symptoms disappeared. 17th.—Immediately after dose violent nausea and eructations, not followed by vomiting. Constant flow of saliva from mouth, not relieved even by breakfast, lasting till noon; strong metallic taste. 18th.—Metallic taste same as yesterday, but no vomiting. During next few d. foregoing symptoms diminished until 23rd, when all had ceased. From April 29th to May 7th, took daily 2 gr. of 2nd trit. No symptoms at first except slight headache on May 2nd. On 6th, feeling well all d. till about 7 p.m., when I had sudden feeling as though a black plate were placed before both eyes at distance of about ten paces, so that I was unable to recognise any object at that distance. As I was looking through a closed window I thought that might be cause of difficulty, but on turning round and speaking to a person standing about two paces from me I was unable to recognise him, vision being so obscured; this lasted about 10 m., when obscuratum gave way to sensation as though a veil were hanging before eyes, and were drawn upwards and downwards; this, however, soon disappeared, and the former condition returned. I washed the eyes in cool water, hoping thereby to find relief, especially as eyes had already begun to be painful, but it was of no avail; after lasting about $\frac{1}{2}$ h. obscuratum disappeared, and a kind of vertigo set in (quite similar to that which follows too large an amount of alcoholic stimulants). This lasted 2 or 3 m., when it disappeared, giving place to a violent headache, especially in frontal and orbital regions, at times associated with sticking pains in eyes and tearing in ears; whole attack lasted till 9 p.m. 7th.—Quite well on waking, but soon after taking medicine headache again, associated with pressive pain in eyes, and frequent severe tearing in ears; later, frontal headache with ringing and pain in ears. From 15th to 22nd, took daily 2 gr. of 2nd trit. Usually after about 1 h. pressive frontal headache extending in less degree to eyes; tearing in ears, sometimes associated with roaring and ringing (not lasting long). 27th.—Took 1 gr. 1st trit.; after 3 m. strong metallic taste, inducing frightful retching, followed in 2 m. by repeated attacks of vomiting, which completely empty stomach; such

nausea and aversion to drug that slightest attempt to take it brings on frightful retching; most violent headache for several d., increasing up to June 2nd (although no medicine had been taken), when it was associated with vertigo, relieved in afternoon after three-repeated bleeding of nose. Headache in less degree next d., although I was free from it during n., and slept well. June 4th.—As headache was gone on waking, I took 10 gr. of 10th dil., and soon headache returned (not associated with nausea, vomiting, or roaring in ears), and though not severe, lasted till next d., when I took no medicine; headache ceased towards e. 6th, 7th, 8th, and 9th.—Took each m. 10 gr. without any effect. 10th.—Took 15 gr. 11th and 12th.—Same dose; slight irritation of gum l. upper jaw. 13th.—Violent headache on waking, obliging me to provoke vomiting, which relieved; irritation of gum had now become decided, pain extending to upper lip and *alæ nasi*; gum somewhat inflamed. 14th.—Took 20 gr., followed by usual nausea, slightly felt all d. and even next m., so that I took no med.; inflammation of gum had extended, involving not only entire upper lip, but both *alæ nasi*, which were very painful. 16th.—There appeared between upper lip and gum above eye tooth an oblong very painful abscess; took 2 gr., soon afterwards headache lasting whole d., less severe next d. (although 5 gr. were taken each d.) and ceased by 20th. Abscess opened (19th) and pain gradually subsided. 20th, 21st, and 22nd.—Took 40 gr. 23rd.—45. 24th and 25th.—50. From 26th to 30th (inclusive) 54 gr. of 10th dil. No symptoms except occasional sticking pain in ears (on 24th) and diarrhoea lasting from 22nd to 28th. (*Ibid.*)

25. LACKNER took daily from 20th to 29th March (inclusive) 1 gr. of 1st trit. Immediately after taking dose, disagreeable sweetish metallic taste for short time. 21st.—Burning in inner canthus r. eye on waking, soon extending over whole margin of lower eyelid, worse when writing, disappearing after ceasing to write. Metallic taste as yesterday. E., sudden irritation causing dry cough, soon ceasing. Burning in margins of both lower eyelids after writing a short time, becoming very violent, but disappearing after ceasing to write. 22nd.—Metallic taste; burning of margins lower eyelids as yesterday; after dinner till e. increased secretion of saliva, inducing frequent expectoration of light yellowish saliva. 23rd.—Metallic taste; forenoon, for some m., peculiar rumbling in intestines; rumbling in bowels for long time after stool, followed by eructations of flatus; towards noon pain in l. knee as though sprained, on rising from sitting a long time, lasting whole afternoon, at times associated with similar pain in l. ankle. 24th.—Metallic taste of longer duration than previous d.; e., for short time severe sprained pain in l. knee. 25th.—Towards e. great exhaustion and dejection, but no knee pain. 26th.—Slight confusion of head after dinner, forehead being hotter than cheeks; e., weariness in lower limbs; vivid dreams at n., particularly towards m. (of various dangers and misfortunes). 27th.—Distension of abdomen after dinner, oppression in chest followed by eructations for 3 h.; afterwards sickness, aggravated by drinking coffee. Great weakness of hands; unable to hold a paper without resting hands on table. Slept well at n.; vivid pleasant dreams. 28th.—Suddenly towards noon strong metallic (coppery)

taste at root of tongue and soft palate, with nausea and eructations. 29th.—No symptoms. 30th.—Took 2 gr. of 2nd trit. Sticking in metacarpal joints in m. on waking. 31st.—Great weakness of stomach on waking, followed by eructations; suddenly towards noon crampy contractive pain in bowels, with sickness (for $\frac{1}{4}$ h.), followed by pasty stool, after which straining and burning at anus. Similar attacks of pain at 4 p.m. and 10 p.m., but without stool. April 1st.—No symptoms. April 2nd and 3rd.—Without medicine. 2nd.—Painful sensation as though penis were constricted at root, after waking in m.; much rumbling in bowels during forenoon. Burning in eyes, e. 3rd.—Same constricting pain. Transient, sometimes severe, stitches beneath one of pectoralis major muscles, and at another time in one of intercostal muscles. From 4th to 6th (inclusive) took daily 2 gr. of 2nd trit. 4th.—Attack of sickness after dinner whilst smoking. Sudden tensive pain in middle of r. sartorius muscle, worse when walking and especially when ascending steps, relieved when sitting and lying, lasting till I fell asleep. 5th.—Burning in urethra and fore part of penis when urinating, and for long afterwards; accumulation of mucus in larynx obliging hawking; metallic taste; dry cough with stitches in chest (afternoon); sensation of dryness and tension in lungs, e. 6th.—Boring pain in r. upper molar teeth towards e. 7th.—Pressive headache on waking, especially forehead and occiput; boring pain in r. upper molars; tearing and drawing in r. temporal muscle; slight swelling of r. cheek, especially over zygoma (malar bone); weariness of limbs, great fatigue from slightest movement: foregoing symptoms lasting all d. with exacerbations and remissions; worse forenoon, better in e.; sleep disturbed by headache. 8th.—Same symptoms but less severe; swelling on cheek larger. Sudden hoarseness in e. 9th.—Without medicine; in m. tearing and drawing in temporal muscle; swelling and toothache (less). Frequent hawking and expectoration of tenacious yellowish-white mucus, which accumulates in large quantities in air passages, followed by relief of hoarseness. Twitching and jerking in r. eyelid while reading, and for short time afterwards. Hoarse rough voice in e. 10th.—Without medicine; m., hoarseness and accumulation of mucus in larynx; frequent sneezing; dry cough and hoarseness in e. 11th.—Without medicine; m., accumulation of mucus in larynx and air passages; nose bled towards noon; dry, short cough and hoarseness, e. 12th.—Without medicine; m., accumulation of mucus; e., short cough and hoarseness; sticking pain in prostate gland, extremely violent, and preventing walking in afternoon. From 13th to 21st (inclusive) took daily 2 gr. of 2nd trit. From 13th to 16th every m. great secretion of mucus in air passages; great lassitude during day; short cough and hoarseness in e. 17th.—No symptoms. 18th.—Severe cutting colic, but especially spasmodic constriction in upper abdomen. Great melancholy in e. without physical cause. Occasional transient stitches through chest, especially r. side. 19th.—Metallic taste soon after taking dose, and later towards noon. Stitches in chest, hoarseness, irritative cough. 20th.—Strong metallic taste; eructations and attack of sickness in e. 21st.—Strong metallic taste at root of tongue (suddenly, forenoon and e.), accumulations of saliva

in mouth, and nausea lasting some m., followed by insipid taste for some time. 22nd.—Without medicine. Burning and itching of skin on nape of neck, m. on waking, occurring later on l. shoulder, l. upper arm, and l. side of chest, lastly on back (from 6 to 10 p.m.). Sudden itching of skin on loins (afternoon). 23rd.—Without medicine; no symptoms. From April 24th to May 11th (inclusive) took daily 2 gr. of 2nd trit. 24th.—Hoarseness and dry cough in e.; sleepiness and somewhat pressive headache. 25th.—Irritative dry cough whole d. Occasional twitching and jerking in several muscles of thigh and upper arm, e. 26th and 27th.—Sudden irritation, causing dry hard cough for some m. (frequently during d.). 28th.—No symptoms. 29th.—Sudden violent tearing pain in l. knee, impeding movement of joint, lasting some m. and recurring in $\frac{1}{2}$ h. Later, slight sickness. 30th.—Constant urging to urinate whole d., without change in quantity and colour of urine. Sickness in e. May 1st.—No symptoms. 2nd.—Sore pain in anus impeding walking towards e. 3rd.—Sudden tearing and twitching in r. deltoid; sore pain in anus after prolonged walking. 4th.—Urging to stool towards noon; accumulation of saliva in mouth and sickness; burning pain in anus; erections lasting $\frac{1}{2}$ h.; burning and biting in eyes, lasting with intermissions till late at n. 5th.—Stitches in l. thigh and groin after dinner. 6th.—Frequent sneezing in m. 7th and 8th.—No symptoms. 9th.—Pressure in stomach region in e.; dull pain in stomach; great nausea for more than 1 h. 10th and 11th.—No symptoms. On 12th and 13th took 1 gr. of 1st trit. 12th.—Scraping in larynx, and hoarseness towards noon; former after disappearing frequently returned for a moment; hoarseness constantly increasing. Pressive headache in e. Feeling of obstruction in nose, as though hot air were passing through it; nose bled after 2 h.; burning in eyes; great sleepiness. 13th.—Great hoarseness with pressure and scraping in larynx on waking, till late in e., followed by hawking of mucus; burning in both eyes. From May 14th to 23rd (inclusive) without medicine. 14th.—Great hoarseness on waking, also burning in l. eye (transient); hoarseness worse towards noon, but less after dinner, then later becoming worse again. Scraping in larynx occasionally. Frequent expectoration of thick mucus (bronchial) whole d. 15th.—Hoarseness on waking, but less than yesterday, lasting whole d., much worse in e. 16th.—Hoarseness. Evacuation of bowels difficult and painful; feces extremely hard. Burning in eyes in e., followed by nose bleed twice repeated. Great tightness in chest, especially at bifurcation of bronchi, compelling him to take a deep breath with aid of pectoral muscles during n. 17th.—Slight hoarseness in m., disappearing towards e. Nose bleed after dinner. From 18th to 23rd, no symptoms. From May 24th to June 6th (inclusive) took daily 1 gr. of 1st trit. 24th, 25th, and 26th.—No symptoms. 27th.—Itching and burning in skin in various parts of body at different times, lasting into n. 28th.—Eructations and slight sickness soon after dose in m., followed by griping in bowels (till noon); slight sickness again after dinner, also after supper; itching and burning in skin of forearm and hands soon after lying down. May 29th, 30th, and 31st and June 1st.—No symptoms. June 2nd.—Sudden stitches in

liver while walking in e., rapidly increasing in violence and preventing further walking, but soon disappearing; followed after 2 h. by pain in l. knee as from a sprain, which also soon disappears. 3rd.—Tearing pain in l. temple, soon disappearing; later, stitches in r. chest. 4th, 5th, and 6th.—No symptoms. 7th and 8th.—Took 2 gr. of 1st trit. 7th.—Violent nose bleed in e. (about 4 oz.); transient burning in eyes; nose bleed again during n. 8th.—Severe pressive headache over whole head on waking; burning and biring in eyes; great lassitude till noon. Eructations and great nausea, soon disappearing. Nose bleed again in e. (1½ oz.). 9th.—Slight headache in m.; great lassitude lasting till about noon; nose bleed; lassitude again in e., also vertigo; later, dull headache. From 10th to 17th (inclusive) took daily 2 gr. of 1st trit. 10th.—Nausea after dose, soon disappearing; disinclined for every kind of mental occupation (afternoon) without bodily laziness. Boring pain in l. lower jaw, e. 11th.—Slight nose bleed, always from l. nostril. Constant boring pain in l. lower jaw, with some remissions. 12th.—No symptoms. 13th.—Slight nose bleed in m. 14th.—No symptoms. 15th.—Much nausea in m. Slight oedematous swelling of r. eyelids on waking, lasting till e. 16th.—Sickness towards noon, soon disappearing. 17th.—Slight nausea towards noon; violent sickness in e., inclination to vomit; dull pressive pain in region of last three (true) ribs, both sides, aggravated by deep inspiration. From 18th to 22nd (inclusive) without medicine. 18th.—Pressive pain (in side) same as yesterday; great nausea, less towards noon. Severe pressive headache (chiefly frontal) after dinner. Tensive dull pain on r. side of chest aggravated by going upstairs and by deep inspiration; tearing pain in r. shoulder and later in l. elbow and forearm, soon disappearing. 19th.—Tensive pain r. side, very slight, disappearing during d. Sudden sickness and inclination to vomit in e. 20th, 21st, and 22nd.—No symptoms. From 23rd to 27th (inclusive) took daily 2 gr. of 1st trit. 23rd.—Sudden stitches on inner surface of sternum in forenoon, followed in few m. by violent cutting and sticking pain in bowels, soon ceasing. 24th.—Dull headache, confusion of head and burning in eyes during e. 25th.—Pressive headache on waking; very sleepy towards noon; closing of eyes, yawning; tired feeling in feet; and soon after tearing and shooting in both temples, going off after noon; very sleepy after dinner; pressive headache in e. 26th.—Sudden violent bleeding of nose during dinner, soon ceasing; slight nose bleed in e. 27th.—Pressive headache and slight confusion of head towards noon, soon ceasing. (*Ibid.*)

26. Dr. ADOLPH MARZELLER, æt. 26, of small build, delicate constitution, sanguine-choleeric temperament; in earliest childhood affected with croup, later with the exanthemata, scarlatina and measles. Since his 8th year liable to pulmonary catarrh, especially in spring and autumn, with tendency to chronic mucous discharge from bronchial tubes; also suffering from rheumatic toothache.

a. June 20th, 1845, at 9 a.m., took 10 gr. of 2nd trit. Eructation, feeling of heat in whole body (immediately). After 3 h., dull tearing pain in l. scapula, l. arm, forearm, and hand, especially in thumb, more located in bones than in joints, and disappearing on movement of arm.

Pressive headache r. side, especially violent in occipital region, accompanied by severe shooting pain in latter; appetite and thirst increased; irritable mood. Symptoms disappeared towards e. 21st.—Much tough mucus in throat in m.; at 9 a.m., took 20 gr. 2nd trit. Eructations, rush of blood to head, feeling of heat in whole body. After 3 h. dull, drawing pain in in l. arm and both lower extremities, worse in r. foot, most severe in great toe; irritative cough with expectoration of tough white mucus; pressive headache, shooting pain in r. side of head and occiput; sticking pain in hollow l. molar tooth; discharge of much flatus; irritability; sleepiness. 22nd.—Took 40 gr. 2nd trit. at 9 a.m. Eructations lasting longer; feeling of heat in whole body with increased thirst; drawing-tearing pains in lower limbs, especially r. great toe; cracking on least movement of hand, foot, or vertebral joints; twitching of little finger l. hand; tearing pain on least movement of neck; stiff neck; shooting pains in various hollow and sound molar teeth l. side; transient severe stitches in r. eye rapidly recurring; itching in both eyes; smell even for strong odours blunted; tongue coated with thick yellow mucus; highly irritable mood; occasional short cough with expectoration of tough mucus; frequent sneezing; nasal secretion increased as if coryza were coming on; transient stitches in urethra, especially after urinating; irresistible sleepiness, momentarily falling asleep. 23rd.—Sore-throat on waking, sticking pain when swallowing and speaking, aggravated by lateral movement of lower jaw, and extending to ears; soft palate reddened; notwithstanding this took 5 gr. of 1st trit. Empty eructations, attack of vertigo, sickness with dull pressive headache in whole head for $\frac{1}{2}$ h. After 3 h. pains in various parts, especially drawing-tearing pains in joints of upper and lower extremities, flying from one part to another, and disappearing on movement. Sore-throat worse at noon; on anterior arch of palate were observed some circumscribed spots as large as miller seeds, and some larger, bright red, looking as though ulcers would form; cough from irritation in air passages, with copious expectoration of whitish mucus of salt taste; dull pressive headache in whole head with occasional violent twinges in temporal and occipital regions both sides; lassitude with general feeling of illness; peevishness and disinclination for ordinary avocations; dislike to society; melancholy and *tædium vite*; constipation; difficult falling asleep. 24th.—Sore-throat less in m., redness had disappeared. Dull pressive headache towards noon, also pain in limbs of same character as former d., but less severe; expectoration of mucus somewhat copious; smell very acute; nasal secretion augmented; hard, insufficient stool passed with difficulty towards e.; colour of face pale sickly, with sunken eyes. 25th.—Throat quite well except for sticky mucus adhering to it. At 9 a.m., took 6 gr. of 1st trit. Eructations; sickness with short attacks of vertigo and confusion of head (for $\frac{1}{2}$ h.), feeling of hunger yet disgust for food. After 3 h., pressive headache, tearing in whole head, especially severe in forehead and occiput, with short violent stitches in temples, always recurring at same spot; lachrymation from both eyes with transient stitches in eyelids; conjunctivæ reddened; vessels on ocular conjunctiva injected. Violent pains in bones of lower leg extending to ankles, feeling as though feet had been broken or bruised, intoler-

ably increased on moving ankles upwards, so that walking was difficult; arms and hands as though beaten and lame, thumbs especially painful; cracking in joints. Dull pain in throat recurring in course of d., but not severe; stiff neck; transient stitches in urethra; great irritability and peevishness. 26th.—8 gr. of 1st trit. After 1 h., transient vertigo, sickness with confusion of head. After 4 h., headache, shooting pains in whole head but especially in certain spots r. temporal and occipital region; empty feeling in stomach, yet want of appetite for dinner; tongue coated with thick yellow mucus except edges. Tearing pains in various joints of upper and lower extremities (hips, knees), also constant pain in bones of legs, intolerably increased on moving ankles, and preventing quick walking; no stool. Towards 8 p.m., sudden, tearing pain in all molar teeth l. side, not relieved by cold or warmth, and only momentarily by pressure on lower jaw; ceased towards midnight. 27th.—Toothache had ceased; gums swollen and painful around l. lower hollow molar. At noon dull, tearing toothache same side; shooting pains extending to ear, temples, and cervical region (which is sensitive to touch); cervical glands swollen; vague tearing pain in various parts and joints of upper and lower extremities; tongue coated yellow; along with toothache, intolerable headache shooting through whole head, occasional cutting as though knives were passing through head; chilliness; flushes of heat l. side of head and face; pulse quickened, 80, usual pulse being barely 70; complete loss of appetite; constant thirst; no stool; prostration, exhaustion; melancholy; desire for rest and sleep; 1 h. after lying down in bed felt much relieved, then violent palpitation, with dull pressive pain in cardiac region. Sleep at last, and undisturbed. 28th.—Toothache and swelling of gum had disappeared; tearing pain in various joints, especially those of r. hand and fingers. At noon, transient tearing pain in l. lower teeth of great intensity, with equally transient shooting-tearing pains in l. ear, temple, and cervical region, lasting, with slight intermissions, till e. Constrictive sore-throat, especially on swallowing and moving lower jaw from side to side; hard, somewhat copious stool in e.; irritability and disinclination for mental work lasted whole d. Sleep restless, disturbed by tooth- and headaches, also by paralysed sensation in r. arm when falling asleep, and by pressive pain in cardiac region (for $\frac{1}{2}$ h.) 29th.—Early, bruised feeling in upper and lower limbs, more violent tearing in joints of r. foot and hand aggravated by movement. Disinclination to rise or move. Suddenly, $\frac{1}{2}$ h. after moderate dinner, sickness, uneasy feeling of pressure in epigastric region; shooting-pitching pain in hepatic region; urging to vomit; rumbling in bowels, discharge of offensive flatus, violent pinching pain in whole abdomen, cutting as though knives were being passed through all parts of abdomen; diarrhoea-like stool of brown frothy water, with excessively painful pressure, urging and tenesmus in anus; these stools were repeated 7 or 8 times, accompanied by constant pain in abdomen and by nausea and inclination to vomit, after which there followed sudden complete rest, and there only remained a bitter pappy taste and whitish-yellow coated tongue; the abdominal disturbance lasted barely 1 h.; sleep fairly quiet. 30th.—Head- and toothaches and sore-throat scarcely noticeable; tearing pains

in limbs much less, chiefly in r. hand and finger-joints; general emaciation is unmistakable; yellow complexion; no stool. July 1st.—Occasional tearing pains in joints of upper extremities, shifting from one part to another; fleeting pains in teeth and in whole head; troublesome itching in nose. 2nd.—Again itching in nose. Dull, tearing toothache in back teeth, l. lower jaw, with stitches extending to ears and corresponding temple. Tearing pain in various joints of upper and lower extremities, most severe in r. ankle. 3rd.—Same symptoms, but less frequent and less severe. 4th and 5th.—No symptoms except general feeling of illness.

6. On 6th, at 8 a.m., took 9 gr. 1st trit. Immediately eructations of flatus and increased flow of saliva. After $\frac{1}{2}$ h. nausea; inclination to vomit, greatly increased by slight pressure in gastric or hepatic regions, also dull pressive pain in these parts. Rumbling and gurgling with severe cutting and pinching pain in abdomen, indescribable sensation of straining and pressure in anus, as if violent diarrhoea were about to set in; sudden cessation of symptoms after discharge of flatus. Severe itching in both eyes at noon, lachrymation, flow of water from both nostrils (nose usually dry). Pressive headache, especially in parietal regions, extending to temples. Somewhat consistent copious stool in e., preceded by slight griping in abdomen, and followed by diarrhoea-like stool, after which feeling of tenesmus for some time. At midnight awoke with feeling of pressure upon chest, which took away breath and caused extreme anxiety. 7th.—Eyes agglutinated on waking in m.; after opening them there was considerable and persistent lachrymation. At 9 a.m. took 10 gr. 1st trit.; immediately nausea, but less than yesterday; pressive headache at noon; drawing-tearing pains in different parts of upper and lower extremities and r. ankle, especially severe in r. great toe and r. thumb; loud cracking in various joints; stiffness of neck (transient); tongue coated with thick yellow mucus; metallic taste; hawking of mucus; copious expectoration of thick mucus of bluish colour; dull tearing toothache in l. lower molar, with stitches extending to l. ear and temple; lachrymation in both eyes; itching and burning, especially of upper lids, which are much reddened; photophobia; irritable mood; sleepiness; violent pressive pain on chest as from a hundredweight, awaking from sleep about midnight, after which was unable to fall asleep before daybreak; during same time severe drawing or tearing pain in r. elbow extending to hand; also in r. leg impeding outward movement of foot; also dull aching in whole of teeth of l. side. 8th.—Eyes agglutinated in m., eyelids painful to touch, lachrymation; troublesome itching of nose whole d.; itching in nostrils increased by rubbing; several transient but severe stitches in l. ear; transient drawing and tearing in various joints of limbs, also in l. molar teeth. 9th and 10th.—General feeling of illness without definite symptoms. 11th, at 9 a.m., took 12 gr. 1st trit. Immediately eructations of flatus and transitory nausea. After 2 h. severe pressive aching over whole head, but more violent in parietal regions, lasting with short intermissions till e. Tearing-drawing pain in r. tibia, ankle, and wrist, also in finger-joints, especially in both thumbs (transitory). Loud cracking on least movement of joints of limbs or back. Itching and burning of both

eyes; lachrymation; photophobia. Watery discharge from both nostrils with tickling and itching; sore pain r. side of septum of nose, especially when touched, after which it was most violent. Desire for food, but loss of appetite for dinner. Afternoon, frequent hawking, irritative cough, rough hoarse voice (for 1 h.) At intervals dull pressive pain in both temporal regions. Unusual sleepiness. Irritable excitable mood, as during entire proving. (The remarkable conditions observed by other experimenters and myself, viz. complexion yellowish or pale, emaciation, falling of hair (of head), were certainly the effects of the medicine, because after leaving it off these morbid conditions disappeared day by day, and the usual healthy aspect was restored.) 12th.—15 gr. 1st trit. Immediately eructations of flatus lasting all d. After 1 h. nausea, inclination to vomit, great prostration, weariness, lethargy, persistent yawning. Rumbling and griping in bowels, with discharge of offensive flatus. Unable for usual avocations, obliged to rest, somewhat better after 1 h. sleep, but still there was despondency and an indescribable feeling of uneasiness and illness. Noon and e., complete loss of appetite (without disgust for food). Tickling and itching in nose, feeling of coldness in r. nostril on drawing in air; dull sore feeling on r. surface of septum when touched, and afterwards burning. Watery discharge from both nostrils. Troublesome twitching and crawling-like formication, beginning in l. wing and extending over side of nose to eyelids, where it caused violent twitching. Frequent sneezing. Photophobia; lachrymation; itching; margins of eyelids reddened, burning. Pressive headache, accompanied by transient but severe stitches in parietal, temporal, and occipital regions. Violent tearing in r. tibia, in finger-joints both hands, so severe in r. thumb as to incapacitate from writing. Cracking in joints. Irritative cough (from mucus). Dull pain in region of clavicle, cervical glands swollen and painful to touch. Great despondency and irritability. 13th.—Agglutination of eyes in m., much sensitiveness to sunlight, itching and smarting, great lachrymation all d. Afternoon, photophobia so that daylight could be borne only with twitching of lids, violent lachrymation and burning of eyes; photophobia ceased towards e.; margins of eyelids much reddened; ocular and palpebral conjunctiva injected. Tearing pain in r. thumb, lasting with short intermissions till e. Dull pain in whole chest as if raw. At intervals troublesome pressure right through chest, with contractive sensation. Complexion yellow and pale. 14th.—Agglutination of eyes in m.; lachrymation; photophobia; itching and burning in eyes. Tickling and itching in nose; formication l. side of nose, associated with twitching of margins of eyelids. Tearing pain in r. tibia and in fingers of both hands (vague and transient, lasting all d.). At intervals pressive headache, with stitches in l. ear and l. parotid. Irritable mood. 15th—19th.—Drawing and tearing in various joints of limbs, but each d. at longer intervals and of shorter duration. Transient stitches in r. side of head, extending to ear and molar teeth. Short but frequently recurring attacks of nausea and colic, which suddenly ceased. Formication along l. side of nose. Twitching of l. eyelid.

c. 20th.—At 9 a.m. took 20 gr. 1st trit. Immediately empty eructations; threatening sickness; confusion of head; accumulation of

saliva; metallic taste. After 2 h. drawing-tearing pain in r. thumb, tibia, and great toe. Loud cracking on moving joints of limbs and back. Unusual appetite. Afternoon, sense of smell, even for very strong odours, lost (this symptom was observed more or less during whole proving). Violent stitches in region of spleen, extending to loins, increased by movement and pressure. Irritative cough, expectoration of thick white mucus. Itching in nose. Feeling of formication l. side of nose to eye; twitching of r. upper eyelid, lasting. Drawing-tearing pains shifting rapidly to different joints, but lasting $\frac{1}{2}$ h. in l. hip. Throbbing in l. forearm, not synchronous with pulse (for 5 m.). Violent stitches in l. ear, extending to palate, side of head, and external cervical region, which was also painful to touch. Cervical glands enlarged. Towards e. stool, at first hard and afterwards loose. After 1 h., violent shooting in hepatic region, aggravated by least pressure. After $\frac{1}{2}$ h. cutting and pinching in abdomen, as if diarrhoea were coming on. Whole abdomen painful and sore to touch for 10 m., afterwards free from pain even on firm pressure. Despondency and indescribable feeling of illness remained. Sleep undisturbed. 21st.—Eyes somewhat agglutinated on waking. Vertigo on sitting up in bed, worse again on lying down suddenly, and accompanied with nausea (for $\frac{1}{2}$ h.). Lachrymation; eyes itching and burning, especially edges of upper lids; ocular and palpebral conjunctiva reddened, and injected with large vessels; in l. eye (which was more affected than r. during whole proving) sensation for $\frac{1}{2}$ h. as of a foreign body, which, however, gradually disappeared. Watery discharge from nose, in which there is almost intolerable itching; septum painful to touch, and especially burning as from a pinch of strong snuff. Formication in l. nostril is constant. Cough from irritation in larynx, and copious expectoration of bluish-white thick lumps of mucus. Painful pressure in region of heart, accompanied with palpitation and anxiety. Tearing pain in r. tibia, dorsum of r. foot and various joints, especially thumb, tarsal, and metatarsal joints of r. hand. Dull drawing pain in l. hip, l. shoulder, and elbow-joints; cracking in joints; very violent pressive throbbing headache over whole head; violent shooting on circumscribed spot near occiput, contact with hair, especially at that spot, being painful; with increasing severity of headache, nausea recurring frequently, accompanied with shivering; transient stitches in several l. molar teeth and one upper incisor; stitches in l. ear, l. external cervical region; several transient stitches in throat induced by empty swallowing; griping in abdomen; at intervals nausea; appetite unchanged; irritable mood. Foregoing symptoms lasting whole d. with short intermissions. Solid stool followed (after 1 h.) by loose motion. 22nd.—Short attack of vertigo on waking; lachrymation and itching of eyes; tickling in nose; vague, dull, tearing pain in different parts of both extremities. Pressive headache with nausea; repeated attacks of colic. Many of these symptoms lasted for three weeks after giving up proving. (*Ibid.*)

27. Dr. MAYRHOFER began proving July 11th, 1845, without change in usual mode of life. At 3 p.m. took 1 gr. 1st tri.; experienced no effects except disagreeable taste (transitory). 12th.—At 3 p.m. took 2 gr. Very disagreeable taste with inclination to vomit

(for 1 h.); frequent attacks of vertigo in e. 15th.—3 gr. Nausea and vomiting (for several h.); at intervals during this and following d. great vertigo as if about to fall. 28th.—At 3 p.m. took 4 gr. Nausea, vertigo, and drawing in dorsum of hands and feet; noticed scab in l. nostril which, on removal, bled, immediately formed again, and bled on every removal, without marked pain. Aug. 2nd.—Scab healed. Afternoon, took 5 gr.; and on 2nd d. after, same place began to bleed, and then only healed after 14 d.; during this time, frequent transitory vertigo with fulness of head. 16th.—Took 6 gr., and drank water afterwards to lessen disagreeable taste, but with difficulty restrained vomiting; during this and following d. repeatedly sudden vertigo on standing or walking, but no affection of nose. In upper lobe of r. lung pressive squeezing sensation (quite an unusual symptom), which on great exertion increased to stitching pain lasting whole d. (18th). 19th.—Pain in lung so much worse that he was obliged to incline towards r. side when walking, and to breathe shortly, to avoid pain; frequent sneezing as from incipient coryza; violent stitch in upper part of r. lung when sneezing. At noon, similar pain at same spot when swallowing a mouthful, with choking sensation in œsophagus; and lastly single stitches through the lung. This troublesome symptom disappeared gradually in 3 d.; vertigo lasted longer, and frequently recurred, and prevented him (on account of an apoplectic tendency) from going on with proving. (*Ibid.*)

28. Dr. F. MÜLLER took, on June 16th, 1845, 1 gr. of 1st rit. at 10 a.m. While in open air, $\frac{1}{4}$ h. after dose, catarrhal scraping in isthmus faucium lasting $\frac{1}{4}$ h. and when most severe causing cough on every inspiration. At 11.30, before dinner, borborygmi, rumbling in bowels, especially during inspiration. 17th.—2 gr. in 1 oz. water. Pressive pain in l. temple extending to zygoma ($\frac{1}{2}$ h.); peculiar aching above and to l. of umbilicus; nausea with hot risings from stomach, and accumulation of sweetish flat saliva in mouth (before dinner); scraping in isthmus faucium causing retching; sore pain with bristling of hair on crown; waking at 1.30 a.m. and falling asleep again. 18th.—Tearing and squeezing over l. ankle (as if in tibia), simultaneously with crampy, tearing pain over l. wrist. Waking at 1.30 a.m. 19th.—Sharp cutting along r. parietal bone; sensation of burning or rawness from stomach to mouth; waking early in m. 20th.—No abnormal symptoms. 21st.—Took, at 10 a.m., 5 gr. Nausea and weakness of stomach; itching in canthi of eyes; dryness of lids; slight reddening of conjunctiva over its entire extent; weakness of sight. 22nd.—Itching of canthi, m.; lachrymation; white of eye dirty yellow, discoloured, seems softened, dotted here and there with yellowish-brown spots of size of pin's head, especially in l. eye, which also showed pale brown spot near inner margin of cornea which looked like resolving eechymosis; eyes hot, obliged to rub them frequently. 23rd.—Waking very early in m.; restless sleep, tossing to and fro; dimness of vision. 24th.—Anærotic weakness of sight; when fixing gaze on an object burning and smarting of eyes, and sight became obscured. From 25th to 29th, no abnormal symptoms except nausea from stomach. Vision less disturbed and only for 1 h. daily. (*Ibid.*)

29. a. N—, a woman, took (under Dr. Müller), on June 20th, 1845, at 9 a.m. 3 gr. 1st trit. in a spoonful of distilled water. Immediately, empty eructations; no other symptoms whole d. Next d. feeling unwell; some time after breakfast (of weak coffee and milk) violent shooting pain in r. hypochondrium extending to l. chest and clavicular region, acromion, and side of neck, leaving on these parts feeling as if stretched or torn. Pain was not affected by breathing or movement, but was aggravated by stooping. Entire attack lasted 1 h., during which prover was restless and prostrated. 21st.—Took 5 gr. Transient sickness. After 1 h. sticking pain in l. hypochondrium, lasting 2 while in recurrent attacks. Eructations frequently during d. 25th.—Took 20 gr. in ten spoonfuls distilled water. No symptoms except empty eructations. June 30th to July 3rd.—Each d. violent pressive pain in l. temple extending to vertex; several attacks during d. of nausea and inclination to vomit. Headache first d. only after 4 p.m.; to-day (July 3rd) already in m.

6. July 16th, at 10 a.m., took 10 dr. 3rd dil. After 4 h. sneezing with sensation of pressure in upper part of larynx extending through choanæ to nose. Pressure in larynx aggravated by talking; loss of voice. Cutting pain in l. side of abdomen in recurrent attacks lasting ¼ h. Tickling in l. nostril. The above-described pressure in larynx changed to tickling extending to mouth and ears. Violent sneezing. Gnawing in rami of lower jaw. After dinner repeated sneezing. Burrowing and beating inside root of nose (in ethmoid bone?); therewith in corresponding portion of nose there were felt externally heat and distinct throbbing, rhythmical with pulse; nose became swollen at root and hot, without being red; nose itself seemed thick and full, and she spoke "through it," snuffed. Was frequently inclined to blow nose on account of sensation of thick substance in it, but nothing was expelled. Nose remained dry; it felt as if heavy weight were hanging from it. Sudden confusion of head at 6 p.m. with sickness, anxiety, and drowsiness. N. almost sleepless on account of confusion of head and anxiety. After midnight, dryness, burning, and scraping in throat, especially in upper part of larynx to hyoid bone. Next d. dryness in throat obliging her to swallow saliva. Burning when swallowing, but throat does not appear reddened. Above-described suffering in nose continues to-day. Circumscribed swelling of size of small walnut on ramus of lower jaw (under periosteum). 18th.—Continued attacks of sneezing with heaviness of head. Striking paleness of face; eyes glistening, sunken, with dark rings about them. Anxiety as from chest. Noon, defective appetite, easily satisfied. Fatigue and weariness of arms. Stream of liquid blood flows into mouth, 3.30 p.m. Burning in l. nostril and epistaxis from it. Shivering at 6 p.m. extending from legs over whole body to scalp, which feels tightly stretched over head, recurring frequently. Heat 1 h. after chill with dryness of mouth and lips, which she constantly moistens. Great thirst following m., but no perspiration. 19th.—Rawsness and burning in throat subsided, but she began to cough. Swelling on jaw decreasing. Flow of blood from r. nostril immediately after dinner; to-day blood is thick, dark red, and after flow ceases there is tickling

in nose extending to throat. 20th.—Frequent short cough in m., and all d. much tickling in larynx with short dry cough or hawking. 21st.—In n. sickish taste, sweet or as of blood. Dry tickling cough d. and n. During cough pressure in middle of sternum and larynx to hyoid. When coughing much taste of blood in mouth. Repeated attacks of cough (every 10 m.). By 28th nearly all morbid symptoms had ceased except cough, which seems from deeper part of lungs with sweetish expectoration of yellow colour. This last symptom ceased in 3 d. (*Ibid.*)

30. K. K.—took, on June 22nd, at 10 a.m., 2 gr. 1st trit. in spoonful of water. No symptoms. 23rd.—Awoke at 6 a.m. with violent urging to stool; she was unable to reach closet soon enough—watery contents of bowel spurted from her; such violent tenesmus followed that she was unable to rise from stool. After this subsided burning in whole abdomen. Great nausea and vomiting; violent efforts to vomit which caused rumbling in abdomen. Although there was only one diarrhetic stool she felt so prostrated and weak that she feared being really ill. Pale sickly appearance all d. 25th.—Agglutination of eyelids on waking; white of eye tinted reddish yellow; great itching in eyes; tired feeling in them; eyes drawn into sockets. Weakness even to sinking down. Trembling of lower extremities. Ash-grey complexion. Prostration. She lets things fall from her hands; weakness and drawing in arms and distension of veins of arms. Pulse irregular, small, and contracted. From 26th to 29th, eyes very sore as if there were pressure in them, especially when looking long at an object; obliged to rest and shut eyes for some m.; externally eyes unchanged. (*Ibid.*)

31. Dr. REISINGER took, on July 9th, at 1 p.m., 10 gr. 2nd trit. Immediately scraping and slight burning sensation in throat. Sweetish metallic taste on tongue. Accumulation of saliva in mouth for about 1 h. until he took warm soup, when it entirely disappeared. 10th.—Took 10 gr. $\frac{1}{2}$ h. after breakfast. After $\frac{1}{2}$ h. slight accumulation of saliva; sweetish, slightly metallic taste. During n. marked itching on hairy region of pubes, which develops into inflammation of skin and formation of twenty pustules of size of pin's head, aggregated over space of an inch (never remembers having such an eruption in this situation). 11th.—Itching (almost biting) lasted all d., obliged to scratch in order to lessen it. N. restless. 12th and 13th.—20 gr. After 1 h. metallic taste, less marked, but lasting longer. Eruption painful and discharging; small pustules merged into excoriated patch. Violent stitches in back during n., waking from sleep; rest of night moderately quiet. 15th.—40 gr. Not the slightest result. Ulcers began to heal (slowly). 17th.—5 gr. of 1st trit. After 1 h. metallic taste, sweetish, astringent. 12th.—10 gr. During whole d. observed nothing abnormal, but towards e. pressure in stomach. Eructations (though I had eaten very little, and nothing likely to cause flatus). Metallic taste. Accumulation of saliva in mouth. Slight burning in throat (not lasting long). Pressure in stomach, subsides after smoking, but soon returns; continued till bedtime; n. fairly quiet. 20th.—Pressure in stomach less severe. Appetite throughout not impaired,

rather increased. 21st.—10 gr. Same symptoms. Scabs separated from ulcers; healing completed. 24th.—20 gr. Soon afterwards, pressure in stomach with continual eructations of odourless flatus. Sometimes a feeling during eructations as if something stuck in throat, lasting some time. Copious secretion from bronchial and nasal mucous membranes (without coryza). Pressure in stomach rather severe (lasting 3 h.). 25th and 26th.—Sore feeling in pit of stomach, which is painful to touch. 28th.—20 gr. After 2 h. bitter astringent taste at root of tongue. Dryness of throat. Metallic sweetish taste less marked, still enough to cause frequent expectoration; frothy saliva. Pressive pain in pit of stomach which increases hourly to severe pain. During 3 h. feeling as though beaten in region of stomach, associated with slight nausea and inclination to vomit. Confused feeling r. temporal region with pressure at root of nose. Frequent sneezing without increased nasal secretion. Very frequent yawning, though I had slept well previous night. Tired feeling in limbs, especially in r. foot powerless sensation. Fairly good appetite at dinner; little thirst (contrary to my usual habit). Wine, well diluted with water, tasted bitter. After dinner all symptoms diminished. N. fairly quiet, but woke often to pass water, which smelt strongly. 30th.—Took, fasting, 20 gr. without water. Immediately saltish sourish taste in mouth; disgust for breakfast; slight burning in throat causing dry hawking. Constant yawning; after $\frac{1}{2}$ h. pressive pain in stomach with great nausea and urging to vomit, difficult to restrain vomiting. Feeling of uneasiness in pit of stomach. Marked increase of salivary secretion, which is first watery, later frothy. Frontal headache. Cold perspiration on forehead to root of nose, rest of body dry. Sickness lasting whole forenoon, obliging me, in order to lessen discomfort, to take warm soup, which tasted well and brought desired relief. Pressive pain in stomach only remained (but less severe), so that I could not bear pressure of trousers over stomach. Eructations of odourless flatus. Felt sick and giddy in room, better out of doors. Stool very firm and knotty. Abdomen sensitive and distended whole d. (as on 31st), though I had taken no medicine. Discharges of flatus to-day (31st) more downwards. After dinner until towards e. pain in stomach increased considerably, with feeling of uneasiness in scrobiculus cordis and perspiration of upper lip. Epigastric pain is circumscribed to a small spot about breadth of hand above umbilicus. August 1st.—Fairly well. Pressive pain in pit of stomach; thirst for sour drinks and desire for quiet being the only symptoms. 7th.—Took 15 gr. Soon afterwards metallic taste with marked flow of sweetish sourish saliva. Burning at tip of tongue. After about 1 h. violent pressure in epigastric region with nausea and great inclination to vomiting, which followed in $\frac{1}{2}$ h. with much straining. Confusion of head, especially supra-orbital region. Lachrymation and burning pain in eyes. Tickling in nose which causes sneezing (without coryza). Boil on r. side of back in region of last rib, very sensitive to touch (lasted 5 d.). After other symptoms ceased, pressive gastric pain with sickness all d. so that I could eat almost nothing. About 6.30 p.m. repeated vomiting with much straining after a cup of weak coffee, accompanied with

vertigo. Frequent burning pain in stomach. Perspiration over whole body. Chill, causing shivering, vomiting of food in forenoon, and of bilious fluid in e. Great lassitude and uneasiness preventing him from falling asleep for 7 h.; feeling as if real illness were impending.

6. September 2nd, m., weakness of lower extremities and slight pressive pain in epigastric region. 8th.—Took 20 dr. 1st dil. Soon afterwards sweetish taste in mouth, with copious secretion of saliva; nausea; inclined to vomit. About 2 h. afterwards pressive pain in pit of stomach (which was very sensitive), lasting more or less whole d. Great prostration. N. restless. 18th.—Took 50 dr. Very sweet metallic taste. Scraping in throat. Flow of saliva (for 2½ h.) Dryness in nose, with pressive sensation at root of nose as from incipient coryza. Pressive pain extends to temples and whole head. Vertigo, nausea. Sickiness, with vomiting of sour liquid. Drawing pain in r. hip, extending to knee. Violent headache. Tired feeling in limbs. Aching of bones, obliged to sit down. Sore feeling of lowest ribs r. side (for 2 d.). October 1st.—Took 80 dr. Had barely taken it (while writing) when so overcome with giddiness that pen trembled; tried to go to open window to get breath of air, when violent vomiting ensued of white sourish mucus. Terrible sickness with violent pressure and burning pain in stomach. Symptoms subsided somewhat, but not 5 m. passed without nausea and giddiness, increasing to most violent and painful vomiting of similar fluid, but less in quantity. Aching of forehead, burning of eyes, face and surface generally flushed from internal heat; still internal chills, which continued even during siesta. In vomited mucus there are clots of bright blood of size of hazel-nut. Perspiration over whole body, and burning headache, with vertigo, during which everything appeared yellow. Took warm soup and wished to finish a letter, but had scarcely put pen to paper when he had to hasten to lavatory, and vomited violently three or four times, vomited matter being yellow, bitter, and bilious. Severe headache. Face covered with macular eruption from violence of vomiting. Taste bitter or saltish. Great thirst. Heat on surface, with external chills. Chest pains on deep inspiration. Pit of stomach sensitive to touch, and slightest pressure causes tendency to vomiting. Appetite gone, and rest the only want. After ¼ h. sleep vomiting is over, but feeling tired and prostrated. Face and hands flushed, arms cold; internal chills. Distension of abdomen and rumbling in bowels as if loose stool were about to occur. Discharges of offensive flatus per anum (though he had eaten nothing all d.). 2nd.—Fairly well, except slight lassitude and prostration. Eruption on forehead not quite gone, but much less. Have only feeling of distension of abdomen after eating (lasted until the 3rd or 4th). (*Ibid.*)

32. Dr. HERMANN SCHLESINGER, an old-school physician, proved *Kali bich.* on himself and on some rabbits. Dr. Schlesinger is aged 30, sanguine temperament, fairly good constitution; for nine years has suffered from occasional coryza affecting l. side of nose and involving ethmoid cells, more rarely from hæmorrhoids with mucous discharge from bowel. Otherwise in good health.

a. March 20th, 1845.—Took at 11 p.m. 10 dr. of a solution of 20

gr. to 1 oz. distilled water. (Had coffee 3 h. previously.) In 2 or 3 m. feeling of coolness in posterior wall of pharynx, gradually increasing to dry scraping, that caused repeated painful cough, which, however, passed off after few m. Several odourless eructations, and after $\frac{1}{2}$ h. slight gipping and rumbling in abdomen. Went to bed $1\frac{1}{2}$ h. afterwards and slept quietly. 21st.—No further effect of medicine; even pressive pain in frontal sinus had ceased. At 3.30 p.m. took 20 dr. Immediately cool feeling and scraping in pharynx, which, however, caused me to cough only once, and passed off more quickly than before. Went out soon afterwards and did not observe any further effects of medicine. 22nd.—At 9.30 p.m. took 20 dr. (had taken a cup of tea 1 h. before). Feeling of coolness in pharynx more marked, but scraping less, and for 10 m. inability to swallow saliva quickly. 24th.—At 6 a.m. took about 40 or 50 dr., followed only by characteristic cool feeling and scraping in pharynx in less degree. 5 m. later weak dull sensation in stomach, and repeated odourless tasteless eructations of flatus. Rumbling in bowels. Following four d. (25th to 28th inclusive) same doses had no other effects, with exception of toothache ($1\frac{1}{2}$ h.) with copious secretion of saliva. After interval of 4 d. resumed proving on April 2nd, and took two spoonfuls (80 to 130 dr.) of solution. After $\frac{1}{2}$ h. sour eructations and tendency to vomit, which rendered me unfit for hospital work, and gradually passed off after 2 h. After midnight awoke with cramp in stomach, not violent, but severe enough to interrupt sleep for 2 h., and alternating with griping in umbilical region. 3rd.—In course of d. occasional crampy feeling in bowels. 4th.—Took at 6 a.m. 2 spoonfuls. After 20 m. uneasiness in region of stomach, which increased to sickness on going out of doors, with feeling as if vomiting would relieve, but no inclination for vomiting. Towards 8 p.m. sickness much less, flow of saliva, and one sour eructation. 5th.—Took 3 spoonfuls (120—150 dr.) in m. Symptoms of previous d., only less severe and lasting shorter time. In afternoon suffered from griping in abdomen (for $\frac{1}{2}$ h.). 6th.—In course of d., while resting and also during muncement, pain in bone middle of l. tibia suddenly appeared, and after lasting few seconds suddenly disappeared, but afterwards returned; once similar pain attacked frontal bone along l. eyebrow, lasting 4 or 5 m., and did not return. About 10.30 p.m., took same dose and suffered during work till midnight only usual symptoms in bowels; after quiet n. awoke with flow of blood from r. nostril. Later much sour eructation, and between 9 and 10 a.m. pain in bone over l. eye, which spread in constant increase of intensity and extent into upper jaw of same side, causing salivation, then insensibly went quite off, whereby it was completely distinguished from the pain in the frontal sinus which is more common with me; inasmuch as the latter, when of the same violence, never lasts so short a time. 8th.—Took 3 spoonfuls with similar sensations afterwards as on previous days. At 8 a.m. pain in bone in part described soon became severe, but completely disappeared in $\frac{1}{2}$ h. At 4 p.m. felt a very strong, but quite painless, undulatory contraction in epigastrium which spread up into cavity of chest and ceased there, but within 5 m. was repeated several times in same way and then went off entirely—a sensation quite new to

me. The course of the phenomena seems to indicate that seat of pain is in stomach and oesophagus and not in diaphragm. 9th.—While walking out (without having taken any medicine) cool, sour taste at root of tongue and pharynx, and for 10 m. inclination to vomit. At 8 p.m. the pain in bone only for some m. and not so severe as previous d. 10th.—Took, in early morning, 3 spoonfuls. Much nausea, sour eructations, and somewhat severe griping in abdomen; pain in frontal bone came on punctually to its time, but was not so severe or long-continued (about 2 h.). About 4 p.m., feeling of heat in face, without any cause, and without any reddening; this lasted for about $\frac{1}{2}$ h. Same c. momentary itching in glans penis and rectum after drinking glass of beer at supper; flow of 10 or 12 dr. of bright blood from r. nostril. 11th.—Without medicine. While walking after breakfast considerable nausea; frontal bone pain less severe (for $\frac{1}{2}$ h.); eructations smelling of chromic acid (about 4 p.m.). Discontinued the medicine 12th.—14th. Frontal bone pain (only on 12th) less severe and lasting only few m. 15th.—Took 3 spoonfuls. Relished breakfast (of weak coffee); violent griping in upper and middle abdominal regions causing perspiration on forehead (after breakfast while walking out); pain gradually subsided and ceased after $2\frac{1}{2}$ h. Flushing of face (about 4 p.m.). 16th.—Without medicine. Eructations tasting of drug immediately after breakfast. Towards 8 a.m. troublesome frontal bone pain came again, and lasted rather severely for over 2 h.; despondent mood during past 2 d., and to-day more despondent than I have been for years. Afternoon, rumbling in bowels with uneasy sensation around umbilicus; flushing of face. 17th.—In early m. took same dose, followed by usual scraping in throat, but sickness and eructations less violent; frontal bone pain for 3 h.; all symptoms disappeared in afternoon. 18th.—Without medicine. Frontal bone pain as on other d. About 5 p.m. flushing of face. 19th.—Took 4 spoonfuls. Disgust for medicine very great; symptoms about the same as from former doses; no pain in stomach at all; frequent rumbling in bowels towards e., afterwards copious pappy stool followed by itching in rectum (for 2 h.). Here, the symptoms not having increased either in extent or intensity lately, and fearing the consequences for my future health, I concluded the proving. The material presence of the medicine in the bowels was evident for 4 d. after last dose by the characteristic taste of eructations. That constant symptom of its effect, frontal bone pain, lasted until 28th, that is 10 full d., decreasing daily, coming on later each d., that is typically postponing, but wearing off somewhat later for it. From 21st I had another paroxysm of the same frontal headache in e., which was equally severe, but of shorter duration than the one in forenoon. This also was regularly postponing, and ceased on 27th. The heat in face was observed only 25th and 26th, p.m. Nausea after breakfast only in first days after last dose.

6. On May 10th I began another series of provings with the attenuations. Having felt no medicinal symptom for 14 d. I dissolved gr. v of the salt in \mathfrak{zj} of water. Of this primary solution I put 50 dr. in another oz. of water; and of this 1st atten. I took a small teaspoonful (40—50 drops). No symptoms followed. 12th, 13th, 14th.—The

same after same dose. I awoke, however, in n. 14th—15th with spontaneous bleeding from r. nostril and had much trouble to stop it. 15th.—2 teaspoons of same atten. Sour eructations after 1 h., also in afternoon of following d. without having taken fresh dose. Henceforth I took same dose every 3rd d., *i. e.* 18th, 21st, 24th, &c., in order to let the medicine act. But I had no symptoms to note until June 9th, when I took the last dose of this atten. I had, indeed, pain in frontal sinus during and after that time, but not the characteristic bone pains, nor did they involve the zygoma and superior maxilla or observe a regular type, but lasted only for the first d. of the stuffy coryza of l. nostril which sets in frequently with me. I had also frequently nose bleeding, always from the r. healthy nostril. I further took 6 doses of 2nd atten. (50 dr. of 1st atten. in \mathfrak{f} of water) during the second half of June and at the beginning of July,—a teaspoonful every 3rd d. There was no disturbance; but sour eructations smelling of the drug, and also great nausea with inclination to vomit after only 3rd dose, convinced me that even 40—50 dr. of the 2nd atten. (= gr. $\frac{1}{10}$) were sufficient to produce distinct effects where there is adequate susceptibility. (*Ibid.*)

33. Dr. SCHWARZ took on most d., from March 28th to April 8th, doses of 3x trit., increasing from 3 to 50 gr. On 14th, 18th, and 25th April he took respectively 10, 20, and 30 gr. of 2x trit. After larger doses of 3rd bitter taste was observed, without further symptoms. Bitter taste distinctly after first doses of 2nd. After having taken 30 gr. 2nd trit., marked increase of salivary secretion, which was a constant symptom (though less pronounced) from beginning of proving; it became more distinct with larger doses of 3rd, but first appeared in force with the larger doses of 2nd. "Not being a very minute observer of drug-effects, I may have overlooked slight symptoms and only noticed them when more pronounced. 3 h. after taking 30 gr. of 2nd, experienced slight discomfort in swallowing, which, however, did not interfere with my ordinary way of living. Increased salivary secretion, which now first became troublesome, induced frequent hawking and expectoration, worse from smoking tobacco. 26th.—In m. dryness of throat, with slight pain in swallowing saliva; immediately after washing mouth this dryness changed into usual mucous secretion, saliva of distinctly salt taste. On examination of throat soft palate appeared slightly reddened, uvula elongated, causing sensation as of plug in throat, but not removed after frequent swallowing. 27th and 28th.—Same symptoms, but discomfort in swallowing gave place in e. to raw sore feeling in throat, which continued on 29th along with increased salivary secretion. In order to test duration of action of med., I left it off until May 10th, when I lost the abnormal salivation—cawiness of throat having ceased a few days previous. May 11th.—Took \mathfrak{f} 2nd trit. 1 h. after breakfast. In 30 m. profuse secretion of saliva, increased by smoking tobacco, saliva saltish, bitter, tenacious, frothy; hawking always loosened large masses, associated with eructations of air. Feeling as of overloaded stomach (unusual for me). This uneasy sensation soon became painful pressure, with nausea, rancid eructations, inclination to vomit, and slight griping in abdomen. Shivering alternating with flushes of heat, slight sweat on back and on inside of

thighs, with increasing sickness, ill-humour, pale face, confusion of senses, muscular weakness, and very strong desire to be relieved of this distress, so that I tried to provoke vomiting by putting finger into throat, and ejected large amount of food and mucus, after which relief. 15th.—Took 25 gr. without effect, except increased salivary secretion, which came on soon after dose. 27th.—Took 3 gr. 1st trit. Nausea and disgust at medicine, which had barely come in contact with tongue when it caused saltish cooling astringent metallic taste, remaining bitter and causing saltish eructations for $\frac{1}{2}$ h. While walking in open air unusual fatigue, limbs heavy like lead, lassitude; peevish mood; disinclined for usual occupation; desire for rest (after $\frac{1}{2}$ h.). Feeling of heat and exhaustion, as after great exertion; despondent; unable to collect ideas; desire to sit down; indifferent, sullen, distracted, wishing to cut short conversation lest I might expose myself; desire to be alone; feeling better in open air. Unusual hunger on seeing someone eat; after eating less depression, but $\frac{1}{2}$ h. later shivering, especially in extremities, alternated with flying heats and general perspiration. Eructations tasting of food, nausea, accumulation of water in mouth, disgust, urging to vomiting, which, however, did not occur. After 1 h. these symptoms wore off. I took 5 gr. on following d. without disturbance. On 29th took 10 gr., followed by similar symptoms to those of 27th, but more violent; no hunger, but nausea even to vomiting, after which I felt relieved." (*Ibid.*)

30. Dr. ZLATAROVICH began proving March 19th, 1845, by taking 1 gr. 1st trit. (5793); no effects. 20th.—Took same dose. Sweet metallic unpleasant taste, especially at root of tongue and palate (immediately), worse from smoking. Slight indefinite painful sensation r. side of face, especially malar bone and towards ear (after 1 h.). Later in forenoon unpleasant sweetish taste in mouth while smoking. 21st.—Took 2 gr. in 2 oz. water. Forenoon, again a trace of sweetish taste. Afternoon, moderately cold air was very distressing so that I hurried to get into warm room, where, contrary to habit, I had a desire for beer, which relieved me. 22nd.—Took same dose; breakfast soon afterwards; very disagreeable, sweetish metallic taste when smoking cigar (for 1 h.). Inflamed pimple on forehead. Towards noon slight threatening of burning pressive pain in stomach. At 3 p.m. a severe tearing pain on radial side of l. hand. Burning in stomach 2 h. after dinner. Pimple has gone. Later, r., roughness and slight burning in skin of forehead. 23rd.—Took 2 gr. 1 h. after breakfast. Usual taste (after 1 h.). Discharge of flatus. Slight drawing pain in throat, at first between lower maxilla and hyoid extending to malar and behind ears (not lasting long). Later, metallic taste increased while smoking cigar. Burning in anus after second semifluid evacuation. 24th.—Took 3 gr. in 2 oz. water at 10 a.m. Before taking dose troublesome sweetish metallic taste at root of tongue; desire for fresh water; rumbling in bowels with discharges of odourless flatus; several small inflamed pimples on forehead. Immediately after taking dose burning in oesophagus extending to stomach (for $\frac{1}{2}$ h.). Slight drawing behind r. ear. Slight pain in r. groin and r. hip-joint (short duration). Fappy evacuation. Later, sweet metallic taste while smoking cigar. 25th.—Took 4 gr. in m. Empty sensation in stomach soon afterwards. Accumulation of saliva in mouth. Nausea. No appetite for breakfast. Abdomen distended. Transient tearing pain inside of r. thigh (twice repeated). Disagreeable sweetish taste. Vomiting (at 10) and creeping contractive sensation in scalp. Confusion of head (noon), especially frontal and parietal regions. Slight heartburn in afternoon (during 2 h.). Heaviness and tension in r. leg. Symptoms disappeared after a short refreshing sleep. 26th.—Took 5 gr. Heaviness on waking. Discomfort in throat (increased after taking dose). Hawking of thick mucus. Scanty knotty stool, followed by burning in anus. Dislike for *caffé-au-lait*

at breakfast, and even during meal nausea, which continued along with accumulation of saliva in mouth, vomiting restrained with difficulty. Distension of abdomen. Sweet metallic taste (soon after breakfast) worse than ever, associated with nausea. While dressing inclination to vomit suddenly became violent, and all contents of stomach were forcibly ejected; vomiting was entirely without effort, left behind no disagreeable taste, and after it I felt quite well so that I was able to give my lecture. Excessively disagreeable sweet metallic taste (towards noon), returning after taking meat soup. Dislike for smoking whole forenoon. Transient bearing stitches i. axilla and back of l. thigh (at 3.30). Slight tenderness of teeth. Very sensitive to cold air in afternoon. Twitching frequently from r. axilla to upper arm and elbow. Disagreeable nauseous taste always recurs on attempting to smoke. Great sleepiness in e. Awakened often from sleep by twitching, now in upper part of body, now in whole body, now in separate muscles. 27th.—Slept well during n. and took breakfast with good appetite. While smoking cigar after breakfast recurrence of very disagreeable taste. Slight gripping in bowels. Heat and pressure in eyes. Sweet taste again at noon soon after taking clear soup. Later, pressure in stomach. Burning in stomach 2 h. after dinner. 28th.—Slight headache, frontal and parietal, on waking, in occiput after getting up. Burning in eyes. At noon, slight recurrence of pain in bones of face (as on 26th) but on l. side. Confusion of head after dinner. Heartburn in e. 29th.—Took 2 gr. and trit. in 3 oz. water. In m. before medicine sneezing as many as 10 times in succession (never happens to me). Soon after dose rumbling in bowels. Slight pressure in stomach for a short time in forenoon. 30th.—Slept well. Troublesome pressive pain in heart (for 1 h.). 31st.—Medicine as on 29th. Slept well. Immediately after dose while smoking cigar accumulation of water in mouth. Slight inclination to vomit during breakfast. After breakfast while smoking sweetish metallic taste in mouth, more particularly on middle of tongue, especially on contact of tongue with hard palate. Pressive pain in heart e. (for short time) with peculiar sore feeling there. April 1st.—No symptoms. 2nd.—Medicine as on 29th. Weakness in stomach and incipient nausea (immediately). No appetite for breakfast. Slight searing in l. half of face. Menopisism. Later while smoking cigar disagreeable resinous, astringent taste in mouth. Rumbling in bowels. Occasionally during forenoon burning in stomach with accumulation of water in mouth (only for short time). Disagreeable taste lasting some h. Violent itching at anus while walking. Slight drawing in bones of head. E., after walking a good deal, severe tension and weight in r. leg. Burning in navicular fossa of urethra while urinating. Discharge of much offensive flatus. After awhile cold feeling in thigh, rest of body being warm. 3rd.—Repeated dose. Slept very well. After dinner severe tension anterior surface of thigh. Drawing in l. temple as if in sheath of muscle. Transient stitch through abdomen towards spine. Slight pain in stomach as if heartburn were coming on, subsiding in afternoon, appearing again in e. E., severe tension in r. thigh. 4th.—Same dose. Immediately disgusting taste. Slight nausea. While smoking cigar taste became more disgusting, lastly burning, astringent. After 2 h. slight pressive pain l. axilla extending to chest when moving arm, aggravated by raising arm. Teasing in r. thumb (for short time), afterwards in l. arm and round thorax l. side. After dinner pressive pain in heart for several hours. E., while walking, tension in l. chest, more outwards. Later, lancinating pain r. side of head in several paroxysms of short duration. 5th., m., two semifluid motions in rapid succession, followed by burning in anus for several m. Afternoon, burning in stomach, itching at anus. E., constriction of chest from stomach outwards, although I had eaten nothing. Urine passed in afternoon became cloudy and covered with thick mucoid deposit. 6th.—Repeated dose. Frequent short cough in m. until several lumps of tough mucus were loosed, afterwards tenderness of larynx for short time. Cough did not return during d. Soft stool. Usual cigar tasted unpleasantly bitter. There is a large vesicle on sole of r. foot, and a pustule on the back. 7th.—Took same dose. Slept very well. Nothing except occasional hawking of mucus and slight pain in scalp. 8th.—Same dose. N. very restless, moaning and tossing about. M., rawness in throat, frequent hawking from larynx. Eyes slightly agglutinated. Mucous sediment in urine. Slight drawing in forearm and legs. At 11 a.m., pressure on vertex as if a weight were lying upon it. Drawing in limbs. Soreness of margins of eyelids; on moving them there was sensation as though they rubbed against eyeball. Afternoon and e., well, except slight feeling of fatigue. 9th.—Same dose. Slept well. On waking drawing and

tearing at various parts of body, especially limbs, at chest and between shoulder. After breakfast eructations of flatus and slight nausea, sore pain r. knee, especially on sitting down and rising. Forenoon, dryness of mouth, especially lips, without thirst. Symptoms subsided later. 10th.—Same dose. On waking slight drawing behind l. ear and l. side of lower jaw. Muscles on l. side of neck seem stiff so that head does not move freely. After breakfast feeling of pressure in upper maxilla close to orbit. Disagreeable taste. Pressure in anus after normal stool. Slight sounding in head. 11th.—Well all d. Tearing in forearm and burning in eyes in e. 12th.—Took 2 gr. sat trit. in 1 oz. distilled water. Slept well. Tearing pain in r. tibia and s. elbow. Later, burning on water surface of l. leg. At 10 a.m., slight burning in stomach. Pressure and burning in stomach after dinner. Pressive shooting and constrictive pain over spot size of half a crown in region of 7th rib, l. side, as if in costal pleura. Gums bleed easily when sucking. 13th.—Took 2 gr. 2nd trit. in 1 oz. of water in m. Slept well. On waking same pain as yesterday but in l. thorax, spot being rather tender to touch, scratches recurring occasionally during forenoon. Slight tearing in hands and feet. Accumulation of water in mouth with incipient nausea. Afternoon, no symptoms except occasionally recurring tearing pain in hands and feet. 14th.—Same dose. Eyelids somewhat agglutinated on waking. Disagreeable sensation in stomach after dose. Inclination to vomit after breakfast, and laming tearing r. shoulder; some pimples on back, e., also rather severe burning in eyes. 15th.—Same dose. Slept well. Bad tearing pains in legs and feet, also forearms and hands. These pains were peculiar; they came by shocks and were circumscribed; it was as if a nerve-fibre or bundle were suddenly torn (lasting 1 h.). A few times during d. acute pain in maxilla at lower margin of orbit. Slight gripping and twitching in bowels. Several tearing pains in hand- and foot-joints. Forenoon, burning in bulbous portion of urethra while urinating and at other times. Some burning in eyes. Dryness of mouth for 1 h. in forenoon, could scarcely speak. Good appetite for dinner. Metallic astringent taste afterwards. Some burning in eyes. Tensive pain r. knee. Sensitiveness of facial bones. 16th.—Slept very well. Dryness and burning of lips in m. Eyelids slightly agglutinated. Raucousness in throat, coughed up mucus several times. Tearing and drawing in r. leg and tibia, at same time in peritæum, then in bones of forearm. Afternoon, some burning in margins of eyelids and slight burning in stomach. 17th.—Took same dose. Slept well. Felt nothing of the enarrthal symptoms of yesterday e. Weakness in stomach, immediately. Accumulation of water in mouth with incipient nausea. Inclination to vomit after breakfast. Distension of abdomen. Rumbling in bowels. Later, dry sensation in nose, especially r. nostril, although moisture comes from nose. Dull pain in bones of nose until noon. Burning in stomach after dinner. Flow of moisture from lower part of nose in e.; dryness towards upper part and ethmoid cells. Sensitiveness of teeth, especially upper incisors. 18th.—Same dose. Afternoon, heaviness of r. leg and burning in skin of same. Burning in stomach. Sensitiveness of upper maxillary bone, especially under orbits. 19th.—Without medicine. Slept so well that I could hardly wake in m. Slight agglutination of eyelids. Peculiar wave-like contraction of muscles of back, r. side, on sitting down after great exertion in e. (for 1 h.). 20th.—Without medicine. Pappy taste in mouth in m. 21st.—Took 2 gr. sat trit. in 1 oz. water. Immediately slight inclination to vomit. Tension in muscles of face with accumulation of water in mouth. The remainder of forenoon well except some urging pressure at anus. Sickness after drinking a glass of water about 2 p.m.; inclination to vomit; slight gripping in abdomen. Heaviness in legs; burning pain in corns on sitting down. Disagreeable taste of medicine distinctly noticeable at noon. 22nd.—Same dose. Immediately inclination to vomit. Twitching in bowels. Distension of abdomen. Slight burning in margins of eyelids. After breakfast very disagreeable bitter resinous taste. Burning in anus after scanty stool. Urging at anus while walking in forenoon. Burning and pressure in eyes. Slight pressive itching in forehead after dinner. Fulness in hæmorrhoidal vessels. Pustule (painful) on back. 1 h. later, frontal aching had gone, and contractive pain in vertex had taken its place. Feeling of general exhaustion in e., especially lower limbs. Tension in temporal muscles. 23rd.—Same dose. Immediately weakness in stomach. Slight distension of abdomen. Rumbling in bowels. Burning of inner surface of eyelids. Breakfast not refreshed. After breakfast weakness of stomach; frequent eructations of flatus. Too much occupied during d. to notice symptoms. Pain for 1 h. in

circumscribed spot on upper third of r. forearm (extensor side), partly in muscle, partly in peristeum; spot is tender to touch. One of the pustules on back (noticed on 14th) is larger and has discharged sanious pus, also more painful than before. Constriction and shooting stiches in lower portion of thorax. Slight sensitiveness in cranial bones here and there. 24th.—Same dose. Slept well. Urine passed during n. is cloudy and deposits copious sediment. Slight drawing in bones of face in m., also in bones of r. hand. Discharge of scanty acrid mucus from nose, causing burning of septum. Slight burning on inner surface of upper lip. Forenoon, after great exertion urging and burning in hemorrhoidal vessels. Heaviness in r. leg. Slight burning inner surface of eyelids. Stitches in region of heart for short time in e., 25th.—Same dose. Slept well. Some rawness in throat in m. Forenoon, burning and pressure in aquæ for short time. Afternoon, burning in eyes. Eyelids felt thickened and sore on inner surfaces. 26th.—Same dose. Slight burning of eyes in m. and eyelids agglutinated. Tension of fascia over back, especially felt on stooping and on moving arms. After breakfast, acrid disagreeable taste while smoking cigar. Pimple on back before mentioned still painful. Transient stich through 1st phalanx middle finger of r. hand. While sitting dead numbness and tingling r. foot. Later, less burning in eyes and upper lip. At noon again more in margins of eyelids. In e. burning at lower end of l. arm. 27th.—Repeated dose. Slept well at n. On waking drawing pain in different parts of body, but everywhere near to bone, as if peristeum and adhering tendinous tissues were affected with it. Hawked up a goodish quantity of tenacious, thick phlegm. Soon after taking mrd. annoying pressure in back between shoulder-blades. After breakfast, which was not at all relished, gurgling and rumbling in bowels. Somewhat later, scratching and burning in throat. The pressure between shoulders along spine got worse again. After dinner tearing in all muscles of back extending to upper arms, loins, sacrum, even thighs; frequent shunt, dry cough. In e. tearing had subsided, only a certain discomfort remained at back between shoulder-blades. Before going to bed felt quite well, the pimple at back again filled with pus. 28th.—Same dose. In m. tearing in both forearms of same kind as yesterday. After awhile, tearing in l. shoulder. During d. well; in e., although I had walked less than usual to-day, a quite peculiar lassitude and sleepiness, so that I was not able to stand, read, or write, and while sitting eyelids drooped; even at supper nearly fell asleep. 29th.—Same dose. On waking again, slight tearing pain in hands, feet, occiput, face (disappeared after ½ h.). After awhile pressure and tearing between shoulders. Before dinner some tension in muscles of chest. 30th.—Gr. iv of and trit. with a oz. water. Awoke with exceeding dryness of nose. After rising, burning of eyes; tobacco-smoke especially causes burning and lachrymation, which is unusual. Slight pressure in r. nasal bone. These symptoms soon subsided. After awhile drawing in bone of r. forearm, radial side. During d. here and there drawing pain, especially in limbs. May 1st.—After rising, very troublesome drawing and pressing pain in different parts of body, especially bones of face, but also long bones of limbs. Burning of eyes. At noon more heaviness and tension r. leg, especially knee. 2nd.—For an h. troublesome dryness and soreness in r. nostril. 3rd.—Gr. iv of and trit. with 2 oz. water. Slight drawing in fascia of r. forearm. 4th.—Gr. v. Tearing in l. forearm and r. side of occiput. A few times mucous expectoration. 5th.—Same dose. Towards noon, slight drawing pain in l. hand, forearm, and nape of neck. Burning eyelids, repeatedly a single, dull stich edge of r. thorax in region of liver, not increased either by deep inspiration or motion. After dinner this pain still lasts, but rather less, and sometimes leaves its place. I have at times more mucous discharge from nose than usual; later, watery discharge. Whole abdomen is tense. In afternoon the drawing pain, and the pain in region of liver, have disappeared. Flatulence of stomach and whole of lower part of thorax. In e. slight burning in stomach going up to throat. 6th and 7th.—Gr. vij. Slept very well at n.; after rising, roughness in larynx necessitating frequent hawking. Slight burning of margins of eyelids. Pressing pain r. inner malleolus. After dinner tenderness of same place of r. hyoehondrium as yesterday, but much less (all these symptoms subsided in an h.). Much flaccid distension of abdomen. Some moisture discharging from r. nostril. Towards e. repeated stiches in metacarpal joint of middle finger of r. hand. On 7th, gr. x. Although I slept very well, yet I feel after rising great discomfort, knocked-up feeling in all limbs (lessened after being up for some time). After breakfast very disagreeable taste in mouth, like beginning sickness. Taste sweetish-sour, astringent.

Slight burning of margins of eyelids. Easy expectoration of thick phlegm. Towards noon, constrictive headache in temporal region. Later, drawing with paralyzed feeling in r. shoulder. 11h.—Same dose. Well all d., except a few times slight mucous expectoration. In e., in room, while I was not smoking, a disagreeable tickling high up in l. nostril, as if a hair was moving in it, so that I had automatically to pick my nose with finger; but there was nothing in the nose, which was quite dry. (This tickle lasted for $\frac{1}{2}$ h.) 9th.—Same dose. In m., drawing pain in r. shin, and slight drawing in r. hand. For rest of d., noticed nothing. 10th.—Gr. xv. Awoke with slight drawing in fascia, now here, now there, in neck, back, limbs. After rising it ceased. Slight burning of eyes; nose very dry. For $\frac{1}{2}$ h. burning soreness in furrow between r. ala nasi and cheek. 11th.—Same dose. Breakfast, $\frac{1}{2}$ h. after taking it, relished; but immediately after, a disgusting, hot, sweet, metallic, resinous taste in mouth ensued, especially at entrance of throat, so that I nearly vomited. After a glass of water the taste got still more disgusting; even smoking a cigar does not dispel it. This m. no trace of drawing pains of last 2 d. Burning of skin either side of nose towards lower margin of orbit. After an h. above-mentioned bad taste ceased. Soft stool, followed by burning in anus. 12th.—Slept very well. After rising, general lassitude, especially in limbs. A few vesicles π , lower lip. 13th.—Gr. xv. In m., burning of margins of eyelids, especially towards outer corner of eye. Burning inner surface of r. leg. Pressing pain in r. hip-joint. After breakfast an extremely nasty taste; forenoon, pressure and burning of chest in front about 5th and 6th ribs of l. side, judging from feelings in costal pleura, lasting some h. In e. a similar feeling, but to a lesser degree, under r. axilla. Went to dinner without any appetite, but enjoyed food. Twice stool, in m. and after dinner, very unusual with me, morions in each case scanty and not fluid. In e., drawing pain inner side of r. thigh, not very acute, also much mucus discharge from nose. 14th.—Slept very well at n., still after rising feeling as if I had not slept enough. Did not much relish breakfast. Some pressing pain under breast-bone. A few times mucous expectoration. In forenoon, a few times when drawing deep breath, tension in anterior wall of chest. In e. itching and burning of skin of forehead; feeling as if all bones of head would part asunder, as if brain was too large for cavity of skull, and was driving bones asunder. I cannot call this feeling exactly a pain, but it is very troublesome, and is felt chiefly at temporal bone, towards ears and parietal bone. External meatus of ear, especially of l. side, is somewhat tender and obstructed. 15th.—Gr. xv. In m. on waking, for $\frac{1}{2}$ h., sharp, tearing, stinging pain, whole l. side of chest, from axillary cavity to hypochondrium, rather superficial, as if in costal pleura. Later, dull pressure in bones of face, especially in infra-orbital region and nasal bones. Took breakfast without appetite; after breakfast the repeatedly mentioned nasty taste in mouth. Later in forenoon uncomfortable dryness of mouth, especially lips, without thirst. Did not enjoy dinner with usual appetite. After dinner drawing pain in r. thumb. While smoking very disagreeably bitter taste. Towards e. violent burning of skin of forehead, without anything showing there. Towards e. this burning and itching gets so violent that I feel inclined to rub my forehead constantly. Tobacco-smoke causes burning in mouth. Obstruction of r. ear and burning of concha. 16th.—Same dose. Slept very well. After taking it slight pressure feeling in crown externally; not the slightest trace of feeling in skin over forehead noticed yesterday. 17th.—Same dose after rising; dryness and burning in r. nostril, wherefrom tense, drawing pain extends to l. meatus. Immediately after rising a stool, unusual for me at this time; after which sore feeling of anus. Pain in face stopped after an h. At noon, when I got home, pressure and burning in eyes, feeling as of sharp sand in eyes. Burning in nose, especially r. nostril, extending to frontal sinuses; m.m. quite dry with sore feeling. I notice to day in albuginea of r. eye, not far off cornea, a brown spot size of pin's head. After dinner more nasal secretion and sore pain at margin of nostril. Towards e. again strong burning and feeling of increased warmth in r. eye. Skin around eye feels also burning in spells. 18th.—On waking, pretty strong headache, especially in crown, disappearing after rising, but there remained for some time lassitude, with feeling of not having slept enough. Burning of eyes; passing of flatus. A little later returns of pain in crown. 19th.—Gr. xv. On waking, tearing pain in r. elbow-bone; disappeared after awhile from there, and appeared in r. shin-bone. After rising all these pains ceased. Frequent expectoration of thick phlegm. In r. side of forehead

several inflamed nodules. In forenoon for short time, slight stitches in interior of r. ear. Later, slight stitches here and there in body. 10th.—Slept excellently, and after rising not the slightest trouble. Whole d. without medicinal symptoms. 21st.—Gr. 2c. Slept very well. On waking, eyes slightly gummed. Some roughness in throat, with hawking up of mucus. After breakfast slight sickness; a few times sneezing; working in bowels. In e. strong burning in eyes and especially margins of eyelids, which are very tender to motion and touch. Some pressing together of head from both temples. Burning in outer margin of r. nostril. 22nd.—In m. eyes gummed, otherwise quite well. After breakfast nasty taste, especially at root of tongue. Some itching vesicles on margin of lip. During d. a few itching pimples have come out on upper and lower lips. The eyes somewhat tender. In e. violent burning and itching of pimples. After supper, while smoking cigars, a very nasty, sharp astringent taste extending to throat. 23rd.—Repeated dose. On waking, heaviness of upper eyelids so that they have to be lifted with some effort (ceased after $\frac{1}{2}$ h.). Violent stitch through r. zygoma towards forehead. In e. itching of eruption of lips, although it begins to dry up. 24th.—Gr. j of 1st trit. with 2 oz. water. (As I made my triturations in the proportion of 5:95, 1 gr. of 1st trit. is equivalent to gr. xx of and anr.) Slept very well. On waking, and also after rising, a few short tearings in extremities, mostly towards hands and feet, which ceased after awhile. Instead, a pressing pain came on under both axillæ in muscles of chest, which also lasted only a short time. Nose quite dry; passage of air through it quite easy. Burning of skin at inner surface of r. leg. 25th.—Gr. ij. Immediately after for 1 h. (after breakfast) inclination to vomit. Heaviness and tension in hypogastrium, and general malaise and depression. Eruption in lips dried up. Nauseous taste. After awhile less nausea, but disagreeable coolness all over. Towards noon, smoking, frequent spitting and slight nausea; former troubles having disappeared. 26th.—Burning in skin of face and eyes in forenoon. Dryness of nose with pressure in bones of nose. On smoking cigars disagreeable taste. 27th.—Repeated dose. After seamy stool in m. burning in nose. During breakfast, nausea, with inclination to vomit after breakfast (smoking cigars), very nauseous, acrid, astringent taste. Walking at 9 a.m., griping in bowels; at 11, copious, watery evacuation without pain. Slight pressure in occiput in forenoon. Some time after stool, discomfort and distension of abdomen; slight pressure in anus. After dinner again urging to stool, but passed flatus. 28th.—A few times stitches in r. chest in forenoon, superficial and of short duration. Burning margins of eyelids. Burning upper lip under nostrils. After breakfast again disagreeable taste as yesterday but less in degree. 29th.—Repeated dose. Burning margins of eyelids again, pressure in head in m. A few times cough caused by irritation in windpipe. Short lasting tearing here and there in both axillæ and in hand. Urging in anus, and forcing in sphincter at noon. Before dinner suddenly violent pain in anterior surface of stomach, burning, constrictive, with commencing nausea. Accumulation of saliva in mouth. External pressure increases pain. After 10 m. relief, but tension and drawing in mastication-muscles, with more salivation. Soon well again, dined with appetite; after dinner, violent ineffectual urging to stool. 30th.—Occasional return of forcing in anus, forenoon. Burning eyes. Soreness in r. great toe in e., inner side, where nail touches soft part. 31st.—No med. R. leg tender at m., especially hip; could not lie on r. side. At inner side of r. leg burning pain in m. Watery discharge from nose, first painless, later with caustic pain in outer subcutaneous part of septum. In e. after walk, tense drawing pains in r. leg. June 1st.—Pretty strong stitches in region of l. nipple in forenoon, after a few h. only when taking breath, in afternoon ceased entirely. In e. soreness round anus. 2nd.—Repeated dose. On waking roughness of throat, hawking, slight burning of margins of eyelids. A vesicle containing clear fluid in r. eyebrow. After dinner strong pressure pain in r. hip. Frequent discharge of acid caustic fluid from r. nostril without causing so much soreness. 3rd.—No med. Slept well. Immediately after waking burning in margin of eyelids. Tickling in nose. Painful tension in extensor surface of r. thumb, diminishing towards noon, and only felt when moving hand. On external pressure also pain where radius joins carpal bone of thumb. After dinner, discharge of drops of water from r. nostril. Burning of skin over forehead in e. Several itching points in occiput and scalp, as if pimples would form. Tenderness in part of thumb on external pressure and moving continues. 4th.—Awake with violent pain in thumb,

almost unable to hold pen. Every motion of arm or hand increases pain. Externally neither swelling nor redness. Eyelids agglutinated and burning. Burning in occiput, &c., disappeared. Dryness of mouth. Pains in thumb lasted all forenoon, sometimes very violent, extending up to elbow, without any external sign. Eyelid-margins burn and itch constantly. Discharge of some acid fluid from nose. Head somewhat confused. I feel as if some morbid diathesis, some "psora" had been excited in me by the medicine, producing all these symptoms. Some brown spots at neck like those I had in eye, looking like freckles, which I never had before. Less pain in thumb in e., only tender when joint is touched. After chocolate, meteorism and heaviness in stomach, wore off towards e., water flows unnoticed from r. nostril. 5th, m., thumb free from pain. Watery discharge from nose causing burning of upper lip. Noon, no pain in thumb; hardly any tenderness on strong pressure. Less burning in eyelids. In e. occasionally watery discharge from nose, without burning; no other symptoms. 6th.—Repeated dose. Slept very well. In m. burning of eyes and watery discharge from nose, although on waking nose was quite dry. Lip under r. nostril slightly swollen and covered with small blisters. After medicine coolness in stomach. In open air strong burning and pressure in eyes, forenoon; flow of water from r. nostril, with sore feeling in nose. Slight tension and oppression of chest. Dryness of mouth and lips. Strong desire for beer. 7th.—After rising flow of water from r. nostril. Later, pressure at root of nose (did not last long). After normal stool burning in ano. 8th.—Slept very well; awoke well. Soon after rising slight tearing in 5th and 4th fingers of l. hand, then in l. side of face, and in r. knee, nowhere lasting long. Discharge of water from l. nostril, without feelings of coryza, and not noticed until flowing over lip. 9th.—Notwithstanding the heat of yesterday (a)° R.) constant discharge of water from r. nostril causing burning. After dinner, burning of eyes and lids. 10th.—Slept very well; on waking, and after rising, tearing and pressing pain in vacuum. 11th.—Repeated dose. Since yesterday pain in coccyx, worse from walking and touching; fluid discharge from both nostrils immediately. Oppression of chest. Slight burning of margins of eyelids. After breakfast, slight sickness and pressure in stomach. Occasional tearing in bones of face and long bones of limbs. Tension of chest all forenoon, disappeared at noon. Slow drawing stitch through meatus of r. ear. Later, buzzing in whole of head as from distant noise. Pimples in occiput have disappeared. Frequent discharge of water from nose. After eating a little in r. fullness of stomach; buzzing in head. Soreness and dryness in nose, especially margins of nose are dry, with adhering scabs. Tobacco-smoke causes burning of lips, which are rough and dry. 12th.—No med. On waking, yesterday's pain in coccyx. Later, slight burning of margins of lids, otherwise well. Discharge of fluid from nose. 13th.—On waking, pain in coccyx like yesterday; nose quite dry; slight burning margins of eyelids. In forenoon, after moderate exercise, twice a little bleeding from r. nostril (very unusual with me). Pain in coccyx and burning in anus at noon. Watery discharge from both nostrils; in afternoon from r. nostril. 14th.—Burning of eyes on waking, also slight pain at coccyx, but much less than before. Watery discharge from r. nostril. I notice some spots like freckles about neck. After dinner some burning in r. eye, at inner surface of upper lid. 15th.—No med. Slept very well. Pain in coccyx on waking. Itching and burning of whole scalp, small pimples forming at different spots of head. Later, pressure in hæmorrhoidal vessels. 16th.—No med. At 4 a. m. had kind of nightmare. I dreamed somebody had placed himself crossways over chest and belly, which caused choking sensation. I moaned aloud, and on waking, covered with perspiration, had vascular excitement. After rising felt low; had the pain at coccyx; much watery discharge from both nostrils. In forenoon, dryness of mouth with bitter taste. Slight burning of eyelids. Painful inflamed pimple at r. side of nose. Towards noon slight cutting in abdomen, more in peritoneum than bowels (for $\frac{1}{2}$ h.). 17th.—Slept very well. On waking again pain in coccyx, but much less and of shorter duration. Afternoon well. 18th.—Repeated dose. On waking pain in coccyx; after med. firm stool, with burning and urging in anus following. Burning of eyes. Little appetite for breakfast. Tearing in temporal region and maxillary joint. Biting in occiput from 9 to 10, tearing and gnawing in bones of r. arm, and in r. thumb and index; slight similar pain in l. arm. At noon, urging and biting in anus. Watery discharge from l. nostril. Gnawing in fangs of all teeth. After dinner some pain in coccyx; other-

wise well. This pain worse after walk. 19th.—No med. Waking, slight, short-lasting pain in coccyx. Fiem insufficient evacuation. Slight burning of eyes. Strong urging in hæmorrhoidal vessels at noon. Sore feeling at anus. 20th.—Repeated dose. After rising, pressive pain at coccyx. Slight nausea; burning of eyes. Dryness of nose. Pressure and burning of stomach; eructations. Slight tearing at bones of arm. No appetite for breakfast, after which rumbling in bowels. Distension of abdomen. Watery discharge from nose, causing burning of upper lip. Slight pressive pain in region of beard. Sharp burning in skin of face, eyes, and both sides of nose at 11 a.m. in open air, as if erysipelas would come on. Pressure in anus at noon. Rattling and whistling in bowels. Later, while sitting, feeling of a block in anus. Outer margin of septum of nose burns as if sore, with watery discharge. Pain in anus increases to such an extent that I am hardly able to sit. Hissing in head. Tongue covered thickly white all over; taste not disagreeable. No failure of appetite. After dinner much distension and discomfort in abdomen (wore off in 1 h.). Sharp burning and pruritus in eyes in open air, &c. Burning of skin of forehead, nose, and r. leg when I got home, also itching of anus. 21st.—Sacral pain on waking after good night. Discharge of water from r. nostril after breakfast. Twice firm stool followed by urging in anus. Strong pressure in hæmorrhoidal vessels in afternoon and discharge of water from r. nostril. Pressure and tenesmus at times, sometimes even sharp pain, in anus, so that during dinner I could hardly sit. Well p.m. 22nd.—Sacral pain on waking, followed by slight griping in bowels and scanty liquid evacuation with much gurgling and rumbling in bowels. Little appetite for breakfast, after which constant rumbling and slight pinching in bowels. Soon after second quite liquid evacuation, followed by retraction of anus and slight nausea. Water from r. nostril. Some drawing in r. zygoma and bones of limbs. Very repulsive astringent taste at root of tongue. After awhile painful drawing from perineum to urethra. Again urging to stool, but very slight evacuation of a spoonful of liquid; still discomfort in abdomen, relieved later in forenoon; burning of skin of face and scalp without redness. Strong pressure and burning in anus and again urging to stool. Water from l. nostril; while sitting at stool passed only flatus; suddenly perspiration of whole of skin, especially of face, from which it flows in streams, soon disappearing. Ate dinner with appetite; well all afternoon. Painful pressure at coccyx for 1 h. in e.; also burning of eyes and disagreeable sensation in nose. Though smoking, each breath through nose carries a disagreeable sensation of sulphuretted hydrogen. 23rd.—Could not get to sleep for some time to-night, but afterwards slept soundly. Pain in coccyx and tenderness of eyes in m.; otherwise well. Margins of eyelids reddened. In inner canthus a yellow purulent matter collected. Pain in coccyx, especially sitting, lasted whole forenoon. Quite well p.m. After exertion in e. while sitting some pressure in hæmorrhoidal vessels. 24th.—Slept very well, got up and felt well. Dull pain in nasal bones at noon. Flying painful stich in r. ear. Chest painful in e., especially towards walls. 25th.—Slept very well. Slight pressing pain in coccyx only in m. Slight agglutination of eyelids. Noon, much flickering, sparks and colours before eyes and muscæ volitantes; can hardly write ($\frac{1}{4}$ h.). After a b. strong pressure in vertex as from load (ceased after dinner). 26th.—Repeated dose. Immediately after rising pain in coccyx, soon ceasing. Dried mucus in eyelashes. Soon after medicine slight touch of nausea. Drawing at lower jaw from ear with salivation. Pressive pain in small spot in bowels, r. side near navel. After normal evacuation, burning in anus for some time. Strong pressure and burning over r. eyeball at 11 a.m. Pain as if beaten in bones of face, especially at facial surface of both superior maxillary bones. Dry feeling of nose. Pressure in small spot of superior lobe of r. lung; later, drawing pain in interior of whole length of r. breast ($\frac{1}{4}$ h.); then strong pressure in anus. Before dinner pressure in stomach and epigastrium, but none in anus. Nose seems larger, m.m. swollen and dry. Feet in general very uncomfortable. General lassitude and laziness. E., nose often wet. While working better. Itching at r. cheek. 27th.—Slept very well. On waking pain in coccyx ceased after rising. Burning of skin over forehead, especially of glabella. Margins of eyelids reddened at outer corners, and pretty strong burning and itching in forenoon; they seem rough, with feeling of rubbing on motion. Emission r. side of chest at noon, at insertion of pectoralis major. After dinner (sitting), pain in coccyx, no other symptoms; after 1 h. no pain. 28th.—Waking, coccygeal pain; eyelids agglutinated and burning.

Confused and drowsy. 29th.—Waking, pain in coccyx lasting short time only. Semi-liquid evacuation followed by slight griping in bowels. During breakfast slight drawing pain in sacrum and l. shoulder (soon ceased). Then drawing behind l. ear (soon ceased). Later, slight stitches in both sides of chest. Sometimes pain in coccyx during afternoon. Later in e. burning in skin outer side of l. leg. 30th.—Slept well; waking, for short time slight pain at coccyx; returned towards noon violently when going to pass water. It extended towards urethra, and I had to bend forwards during micturition. It ceased in ½ h. Some roughness of margin of eyelids. Frequent desire to blow nose since dinner, but nothing in nose. July 1st.—Slept well. Burning of eyelid-margins in m. Fluid discharge from r. nostril. Beaten pain in middle of r. thigh (all ceased in 1 h.). Dryness of lips and mouth later, and burning of eyes. After dinner much discharge of fluid from r. nostril, and.—Pain in sacrum and coccyx in m. (1 h.) and fluid from nose; soreness in m. of nose. Burning eyes Well p.m. Water from r. nostril in e., afterwards nose dry. 3rd.—Scarcely any pain in sacrum. Water from both nostrils. Pressure in r. ear in e. 4th.—No med. Slept well. Pain in sacrum during coitus; soon ceased. Twice dull stitch while walking through ext. meatus to interior of r. ear. Slight burning margins of eyelids and fluid from nose in e. 5th.—Intolerable disgust against med.; could not take any. Same sensation in r. ear as yesterday in forenoon. Some stitches through cranial bones like sudden thrust from sharp needle. 6th.—Same disgust even from thoughts of med. After eating much of sacral pain. Slight burning margins of eyelids, some mucous expectoration. System seems saturated with the med. Discomfort before and after breakfast. Restlessness with slight stitches at internal surface of osseum in forenoon. 7th.—Slept very well and felt well during d. Some short cough in e. Burning pain in lower margin of r. eyelid. Pressive sore pain in aperture of nose; feels swollen, but nothing to be seen. 8th.—Waking, touch of old sacral pain. Some hawking up of thick mucus with tenderness of larynx and trachea. Burning in both eyelid-margins. Slight injection of conjunctiva bulbi, both sides, especially r. Much perspiration in e. while resting. Unusual feeling in nostrils, soreness, and as if nose was like parchment and immoveable, quite dry. 9th.—Quite well; took without disgust usual dose. Well in forenoon; only upper lip slightly swollen and tender below nose, but not red. Burning of r. nostril after dinner, worse from touching. Later, three slight stitches in bowels below umbilicus. Much dryness of lips and mouth in e.; drinking water relieves only for minutes. 10th.—Slept well. On waking slight sacral pain, slight tenderness of eyes. Some expectoration of thick mucus. Slight drawing pain in r. temple; tenderness of gums. Some dry touch p.m. Great sleepiness in e., and sharp stitch in forehead over r. eye. Slight touch of sacral pain for short time. Nose very dry. Later, great drowsiness and fatigue, am scarcely able to write. 11th.—Slept well. Waking, sacral pain; burning of eyes; mucous expectoration. Bad taste. Burning of lips. Roughness of throat. Burning of feet, especially in soles. At noon, again pain in sacrum, as if I had got a blow there (½ h.); then tearing and drawing in muscles in front of r. leg. 12th.—No med. Slept well. Waking, only slight agglutination of lids. At 9 a touch of sacral pain; also in forenoon while walking, in spells, making walking difficult, coming and going suddenly, and felt at the moment of sitting down, less while sitting. Sacral pain ceased p.m. Drawing pain in leg ceased in e.; later in e. sacral pain lasting till supper. Disagreeable sense of dryness in nostrils. 13th.—Sacral pain during rising only, returning later while sitting. Copious evacuation relieved abdomen. Sacral pain ceased 1 h. after. After dinner return of these; otherwise very well. 14th.—Repeated dose. Slept well and felt well in m. Soon pressure in stomach as if spasm would supervene. Appetite for breakfast fair; after it disagreeable sensation in stomach; then oppression in chest, especially under sternum; disagreeable sensation in nose, feels as if swollen, m.m. dry; walls of nose feel stiff like velvet. Slight drawing in bones of forearm. A.M., great dryness of lips and mouth without thirst. Tenderness of eyes. Dryness of nose. Some painful restings in bones of r. forearm throughout its length. Walked much in afternoon. Felt some slight pain in foot. Mouth and nose less dry. Pain in forearm had ceased. 15th.—Slept well. Pressure and discomfort in stomach in m. Eyes agglutinated. Slight touch of the pain in r. forearm. 16th.—Two evacuations in m. followed by burning in anus. Some burning in eyes. 17th.—In m. slight burning of margins of eyelids. Itching in whiskers. Burning and pressure in anus at noon for 1 h.

Great sleepiness p.m. 13th.—Repeated dose. Soon after, slight pinching in bowels below navel. After breakfast slight inclination to vomit, nausea; slight cough, discomfort in whole body. Oppression of breathing. Peculiar tension in muscles of face, making features stiff. Looked very ill. Tension in skin of scalp; frequent spitting; burning of eyes and margins of eyelids; disagreeable dryness of nose; healthy vomiting, whole contents of stomach ejected, painful constriction of stomach with persistent itching even after emptying of stomach. Immediately after fell well again, all troubles disappeared. There was no bile in the vomit, nor any bitter taste, only taste of ingesta. Then burning of septum of nose at upper lip. Repeated pressure on chest in forenoon, especially under sternum; pinching at temporal bone; burning of eyes. Appetite for dinner. After dinner pains in various parts of head, but especially in temples, without sign of congestion, but of nervous character. Drawing in l. hand. Well in afternoon. Severe frontal headache with pressure on eyes in e., but after $\frac{1}{2}$ h. sleep headache ceased entirely and I felt well for rest of e. 19th.—Slept well at n. Well in m., only nose very dry and painful; tension in both ala and in septum. 20th.—Slight burning of eyes in m. L. eye somewhat reddened towards external angle. A few times mucous expectorations. Nose not dry, but ala margin sore feeling. Slight pain in sacrum. 21st and 22nd.—Quite well. 23rd.—Hawking up of thick mucus in m. and scratching pain in region of heart; burning of eyes. Since last afternoon remarkable dryness of nasal m.m.; nasal cavities as if distended, and easy passage of air through nose. Feeling region of heart I noticed a kind of fluttering or oscillation of heart, passed off after awhile. After dinner slight stitches in anus. Painful tearing in humerus in e., especially towards elbow-joint and wrist. Tenderness of eyes. 24th.—On waking some burning of eyes and slight sacral pain. After pappy evacuation burning in anus. 25th.—Burning of eyes in m. Drawing in various parts of long bones. 26th.—No symptoms. 27th.—Much burning of eyes in m. with pressure about orbit (1 h.). 28th.—Violent pain for more than 1 h. in bone of 1st phalanx of 3rd finger of l. hand, forcing me to rub and press the spot constantly, which gave some relief. Pain was seated in bone itself; was gnawing, boring; later moved more towards end of finger and disappeared after 1 h. 29th.—Hawking of thick gelatinous mucus. In forenoon several attacks of strong venous excitement with great restlessness. Much thirst, with great desire for beer in e. Slight sacral pain. No trace of yesterday's bone pain. 30th.—On awaking had hemi-crania l. side of forehead, violent, lasted 1 h. (quite unusual with me). Pressure in vertex and burning of eyes at noon. 31st.—Agglutination of eyelids in m. Accumulations of mucus in corners of eyes. Aug. 1st.—Much burning of l. eye in e. with lachrymation, and.—Burning of eyes in forenoon. Burning and pressure in nose. Slight pressure at vertex. 2d.—On waking burning of eyes, especially margins of lids. Slight pressure in nasal bone. Burning of nose and upper lip in forenoon, but no discharge. Slight herpetic eruption on upper lip, pressure pain at v. nasal bone. Burning of margins of eyelids and surface of ball. Towards noon more or less constant burning of eyes and pressure in both balls for rest of d. A burning vesicle at l. corner of mouth inside. 3d.—Vesicle formed a small painful ulcer, with indurated margin. Slight agglutination of eyes and sacral pain. Burning of mouth in afternoon and e., especially inner surface of lips. Burning of eyes. 5th.—Ulcer decreases and does not burn so much in m. 6th.—Ulcer nearly healed. Some sacral pain in m. like the old pain, soon ceased. 7th.—Several fits of sneezing after dinner without cause (unusual). Ulcer quite healed. Several times short-lasting pain in sacrum, 8th, 9th, and 10th.—Except some burning of eyes (temporary) and some slight sacral pain no symptoms. 12th and 13th.—Several times during d. tearing pain in long bones of upper and lower extremities. 14th.—Tearing and pressing in sacrum, especially troublesome when walking. During the following d. some medicinal symptoms sometimes appeared in slight degree. They finally totally disappeared, and my health (end of Aug.) was better than it had been for a long time. All functions of body and mind are regular and healthy. (*Ibid.*)

35. F. X. ZOTH took, April 13th, 1845, gr. iij of 2nd tris. with sugar of milk. After $\frac{1}{2}$ h. strong metallic taste and salivation, nausea, and eructations (3 h.). 15th.—Gr. ij again. Same symptoms, slighter and lasting shorter. 17th.—Gr. ij. Traces of above symptoms.

18th.—Gr. ij. No effect. 20th.—Gr. iv. All the above symptoms, only less salivation, but more disagreeable metallic taste. Disgust and great inclination to vomit (2 h.). 22nd.—Gr. iv. Disgust. Eructations. A swelling of inflammatory type appeared at external meatus of l. ear, more troublesome than painful. Disappeared gradually within 4 d. After 4 doses of gr. j, taken in 4 successive d., an eruptive (?) swelling of tongue, exuding blood during 3 d. No pain, but impediment of speech. Took again 4 gr. in 4 d. On May 14th, 7 h. after 4th dose, was seized with violent pain in bones of both little toes, accompanied with very troublesome tingling, as if both toes would be torn off, lasting (though less) through following n. and forenoon. Then slight pain in sacrum and thigh; ceased after few h. Pain in thorax (had taken gymnastic exercise). 18th.—Pale red spots and lines appeared in albuginea of l. eye, changing shape and position in course of time, and had nearly disappeared by 31st. 19th.—Pain in thorax so bad he could hardly turn in bed or get up and walk, which increased pain in muscles and bones, latter seeming broken. 20th.—Pain also in region of neck. Unable to turn his head or lift his arms without considerably aggravating the pains. Respiration greatly impeded. All symptoms decreased from d. to d. 27th.—Gr. x 1st trit., with sugar of milk. Tinnitus aurium (2 h.). After 2 second dose same symptoms. 29th.—A third dose. 30th.—Same tinnitus constantly throughout d., lasting also on 31st. Gr. iij 1st trit. for 5 d. Only tinnitus aurium, lasting after 5th dose for 3 d. After an interval, took gr. iij 1st trit. for 3 d. No symptoms. He then took 6 gr. of *pro dosi*. After 1st dose ($\frac{1}{4}$ h.) nausea, effort required to suppress vomiting. Within 1 h. after food all symptoms disappeared. 3rd dose acted like 1st. No med. for some d. Took 4th dose with great disgust; before dose pharynx contracted violently, water collected in mouth; he had great inclination to vomit, which increased at once after dose; took some bread to prevent vomiting, when all symptoms disappeared. No after-effects. (*Ibid.*)

II. *Poisonings*.—1. A workman, æt. 35, got by chance some solution of bichromate into mouth. He spat it all out, as he conceived; but scarcely had a few m. elapsed ere he felt great heat in throat and stomach and was seized with violent vomiting of blood and mucus, which continued till within a few moments of death, 5 h. after commencement of symptoms. On dissection, mucous membranes of stomach, duodenum, and $\frac{1}{2}$ th of jejunum, were found destroyed in patches, and remaining parts could be easily removed with handle of scalpel. Lower part of intestinal canal was healthy. (BARR, in Wibmer, *op. cit.*, iv, 344.)

2. A young man swallowed about \mathfrak{z} ij dissolved in warm water shortly before breakfast. In 5 m., vomiting most of the food, then of a thin glairy fluid of a pinkish hue. In $\frac{1}{4}$ h. face exceedingly pale, cadaverous, and covered with cold perspiration; pupils dilated and fixed; pulse exceedingly feeble; cramps in calves of legs and almost total insensibility; occasional vomiting attended with violent epigastric pain. [The stomach-pump, &c., were used till the washings of the stomach became colourless.] The patient now complained of burning pain at pit of stomach, and sense of dryness and heat in throat, accompanied

with excessive thirst. Vomiting and straining still occurred at intervals. In about 2½ h. vomiting had subsided, and he began to assume natural look. Temperature of skin rose; and with exception of slight epigastric pain and dryness in fauces, he became comparatively comfortable. Pulse was 100 and rather full; pupils responded to light. Mind calm and intelligence undisturbed. Twelve h. after taking poison, very severe gastro-intestinal inflammation had set in, accompanied with severe cramp in various parts of body, particularly calves of legs and inner parts of thighs. Skin was hot and dry; cheeks flushed; countenance anxious; pain in head; pulse 120, hard and full; respiration rapid; epigastrium and abdomen very painful, not bearing slightest pressure; constant straining and retching. Blood drawn was cupped and buffed. In 10 h. vomiting and cramps had ceased, and other symptoms less intense, though still persisting; tongue was also dry and covered with dark brown fur; pulse 100, hard and jerking; the bowels had not acted; great complaint of the taste of drug in fauces. In e. symptoms were all subsiding, and bowels had acted once. In 66 h. after taking poison, he was seized with violent purging, which continued almost incessantly; bowels were evacuated as he lay in bed, evacuations consisting of mucus and blood; when this had lasted 2 h. he was reported to be dying, and was found with skin cold and clammy, face pale, eyes sunk, feet and hands cold, pulse scarcely perceptible; abdomen sunken and tender. Reaction ensued in about 2 h., and symptoms gradually subsided towards e. During d. were observed: excessive thirst; pulse 120; frequent twitches in calves; straining and purging. Next d. purging returned, but not so violent as before, and stools contained feculent matter; tenesmus not severe; abdomen very tender in region of sigmoid flexure; distension slight; thirst and fever abated. Next d. symptoms had subsided, but convalescence was exceedingly slow, ulceration of bowels apparently having set in, and being with difficulty subdued. There was considerable emaciation with urgent dyspepsia; bowels habitually costive. (*Gay's Hosp. Reports*, 2nd series, vii, 217.)

3. Man, æt. 34, took by mistake three doses (about ʒ) of sol. of ʒ oz. to O). Felt immediately deadly sick; vomited for 6 h. first solution, then greenish bile, then watery mucus; prostration; purging; urine scanty. Seen 12 months after, complained of strong feeling of bearing down towards r. groin; a very tender point midway between umbilicus and spine of r. ilium, evidently in ascending colon, which frequently bulges out; tongue loaded; bad taste in mouth; stools and urine natural. Sleeps pretty well, but always awakes with the uneasy feeling in r. iliac region. (*Brit. Journ. of Hom.*, xi, 139.)

4. A man, in a fit of rage, swallowed a solution of a piece of bichromate. Nausea immediately came on, and after demulcent draughts violent vomiting was produced. After stomach was emptied, patient felt well and free from pain; ate supper, and passed quiet n. Next m. after getting up felt such weakness that he was obliged to lie down again; belly neither swollen nor painful; pulse quiet but small. Patient felt only some shooting pains in back and in renal region, and feeling of scraping in throat; could eat, and drank diluents freely; had

several natural stools, but did not pass a drop of urine. Second n. was somewhat restless, and next m. patient was very much weaker; had scarcely power to rise, and trembled greatly on making attempt, without, however, any increase of pain. Weakness increased, but spirits remained good; no urine passed, and he died, sleeping calmly, 54 h. after taking poison, as if from pure exhaustion, without any disturbance of mental faculties. Some h. before death white of eyes became yellow, and shortly before death spasmodic contraction of hands was observed. On dissection, stomach was found unchanged, liver coloured yellow, spleen gorged with blood; kidneys large, and when cut open deeply marbled red, filled with frothy blood; bladder empty. Fluid in stomach showed presence of chrome to chemical tests. (SCHINDLER, in *Wibmer*, loc. cit.)

5. Man swallowed "a lump" (about ʒij) of bichromate. In 15 m. came on lightness of head, then sensation of great heat in stomach with glow of heat all over body, followed by cold sweat. Next sickness and vomiting. Then agonising pain at epigastrium with giddiness, specks before eyes and loss of power of legs. Intense thirst; he said "he could drink the sea dry." Then rigors with coldness of whole body, especially extremities. After 2 h. pupils slightly dilated, face pale and cold, pulse feeble and fluttering, intense pain over stomach, and great depression. After stomach-pump, &c., complete recovery. (McNIVEN, *Lancet*, Sept. 22, 1883.)

6. Man swallowed ʒij. Excessive vomiting, purging, and violent abdominal pains with cramp in legs and coldness of surface. Hands shrivelled, wrinkled and dusky, like person in advanced stage of cholera; face and lips dusky, with yellowness of conjunctivæ; sore mouth, excessive thirst, feeble pulse, hurried respiration, and suppression of urine. Mental faculties unimpaired. (McLACHLAN, *Glasgow Med. Journ.*, July, 1881.)

7. Dr. C. A. GUERNSEY took inadvertently 1½ gr. of ʒi. trit. at midnight for slight sore-throat. He writes—"I had hardly time to reach my bed when vomiting began; my sensations were those of sea-sickness, as though stomach turned a complete summerset, and every muscle in body was at work to eject offending substance; blood-vessels of head seemed full to bursting, deathly sickness and straining were an agony. Sense of smell and taste seemed tenfold keen; some ipec., taken in water, seemed all alcohol, and so increased my nausea that I could take no more. Liquid vomited was pea-green, and intensely bitter. I felt chilly and shivering; mixed some camphor, and endeavoured to take it, but smell and taste made me so deathly sick I could take no more. Again vomiting commenced, as before and with same diarræa and shuddering, also cramps in stomach. Last vomiting gave sensation in throat and mouth resembling that caused by podophyllum, which I now took in 2nd dil. frequently, at same time applying sinapism to epigastrium, and drinking freely of hot black tea. After this (2 h.) I vomited no more. Next d. felt sore, with dull ache at pit of stomach, and slight occasional nausea." (*Am. Hom. Obs.*, 1868, p. 468.)

8. A lady, æt. 76, under treatment for flatulent dyspepsia and weak heart, took at 9.30 a.m. for hicough (which had been troublesome

during n.) 2 dr. of 1_x solution of K. bich. Almost immediately after dose nausea came on, she felt weak and was obliged to lie down. At 11 a.m. was found very prostrate; face drawn, pale, and covered with cold clammy sweat; pulse very weak; hands cold, and bathed in cold sweat; frequent vomiting of pure yellow bile, with a little mucus, preceded by much nausea and retching, and followed by sharp hiccough; involuntary liquid stools had also passed as she lay dressed on the bed. She complained of raw rasping sensation in throat, pains in stomach, and feeling of internal coldness in stomach and bowels, which was very distressing. She had no sensation of superficial coldness. Under ars. alb. ʒ. ¼ dr. every 15 minutes, symptoms had much improved in 1 h., but very decided rigors were then occurring every few m. These were checked by camphor, and under the ars. reaction was soon complete. (H. NANKIVELL, *M. Hom. Rev.*, xiv, 419.)

9. Given in small doses—0·1 to 0·5 gm.—in secondary syphilis it causes at times repeated retching and vomiting, moderate colic and a little diarrhoea, with expression of uneasiness in face; breathing may be somewhat difficult, pulse filiform, scarcely perceptible, and somewhat slow; sudden transient cramps in lower limbs and back of neck; surface generally cold, especially on limbs. (JAILLARD, *Gaz. Méd. de Strasb.*, 1861.)

10. Groups of symptoms observed in those employed in chrome works. They are exposed to its influence chiefly in the form of solution (of K. bich.), of vapour from solution, of dust of the salt and of the chrome ore.

a. Youth, æt. 16, was seized with violent pain in the parietal region above and behind temple in spot size of crown piece. Pain was felt chiefly at n. and subsided during d., coming on again violently at same h. in e. (about sunset). A swelling soon formed at seat of pain; grew more in n. and went down a little in d.; in a week got to its height, and was about size of egg. It was then quite hard and not tender. Pain was confined to lump, and was of stabbing character and as if head were opening. It lasted in all about 2 mo., and then pains and swelling went away without any suppuration or softening. (It was carefully ascertained that this lad never had syphilis or mercury.)

b. For first few d. there is discharge of clear water from nose, with sneezing, chiefly on going into open air; then soreness and redness of nose, with sensation of fetid smell. Then comes great pain and tenderness, most at junction of cartilages, and septum ulcerates quite through, while nose becomes obstructed by repeated formation of hard elastic plugs (called by workmen "clinkers"). Finally, membrane loses its sensibility and remains dry, with septum gone, and frequently loss of smell for years.

c. Man, æt. 30, had for 3 mo. ulceration of throat, tonsils and fauces covered with pulvaceous ash-coloured lining, surrounding m.m. brown, livid, and tumefied. Pulse 120, small and contracted; violent thirst; loss of sleep; tongue dry, clean, and red; deglutition difficult; anæmia, exhaustion, and emaciation. It was pronounced syphilitic in spite of patient's denial, until his occupation was found to be that of chrome-worker, and other workmen were found suffering in same way.

d. On rising in m. heaviness and giddiness, increased on stooping, relieved by walking about; relaxed uvula and injected fauces without any uneasy feeling; distension of stomach, sour eructations, flatulence; disposition to constipation, and when that exists general symptoms are aggravated; urine red, with pain across back; oppression at pit of stomach, with smarting burning pain, followed by expectoration of rough, light-coloured sputa; complexion pale and yellowish; feverishness in first part of n.

e. Man, æt. 36. For months following symptoms:—Frequent throbbing headache at angles of forehead, in small spot, with dimness of sight; tongue dry and thickly coated in m., with nauseous taste in mouth; eyes swelled up and heavy in m.; shortness of breath, as if something were tied round upper belly, so that he cannot take deep breath,—equal in all positions and circumstances, without cough or pain in chest. In beginning of summer, for several successive years since employed at works, has had dysenteric attacks lasting about 3 weeks; frequent bloody motions with gnawing pain at navel, followed by ineffectual straining; tongue smooth, red, cracked.

f. Man, æt. 21. After having worked for about a week was attacked with papular rash, chiefly affecting arms, which, however, lasted 2 or 3 d. only. Health gradually declined, nose ran much, and septum is destroyed. Continued to work (6 mo.) until 5 weeks ago, when he had to leave, with following symptoms:—pain in back from lumbar region to nape, through to sternum, with oppression at chest; dyspnoea and cough, at first dry, but speedily followed by expectoration of dark-coloured very tough mucus. General appearance anæmic; tongue covered at root with thick yellowish fur; tonsils and fauces erythematous.

g. Æt. 47. Health before working always good, but in a fortnight seized with tightness across chest, oppression and dyspnoea, attended with hard dry cough lasting 6 weeks, when expectoration of dark grey mucus of consistence of white of egg came on. Soreness of chest exists at present, and he still feels much oppressed on making any exertion. Has febrile paroxysms n. and m.; tongue thickly coated at root with yellowish-white fur, and he complains of indigestion, load at stomach, eructations of flatus and acid matter; bowels always costive, requiring frequent cathartics which produce temporary relief; has dull aching pains in loins, and urine is of brownish hue.

h. Soon after he came to works, and continuing for months, violent cough, proceeding as if from small spot in epigastrium, painful to touch; loud wheezing cough for 5 m. at time, with retching and expectoration of tough mucus, so viscid that it can be drawn in strings down to feet; immediately on waking, violent wheezing and panting, then violent cough, causing him to sit up and bend forward on lying down at n., and in sleep cough is absent, but he has then wheezing and rattling in chest, heard at a distance; after meals, swelling and heaving of stomach, and cough comes on. Cough is accompanied by pains in loins and sides, causing him to hold them; after it pain and swimming in forehead, almost causing him to fall. Also, weight in head; weak digestion, so that stomach is disordered by any but mildest

food; dislike to meat and indigestion after it, and habitual constipation; emaciation, aged look, and great weakness, so that he was obliged to give up work.

i. *Æt.* 19. Was seized with pain as from knife through loins, suddenly in afternoon, so that he could hardly walk. Was with difficulty helped home; had great pain all n., and could not sleep more than 1 h.; it continued even when still, but was greatly aggravated by moving or turning; frequent desire for micturition, urine scanty and reddish. From some nitre he was somewhat relieved, so that he could go back to work next d., but remained with pain in back and scanty urine for a fortnight.

i. In 7 d. vesicular eruption on red and elevated base (itching and burning much, especially when exposed to steam), in a few d. becoming pustular; invading hands, arms, face, and belly. Near umbilicus some spots evidently of abraded vesicles, presenting a deep hollowed appearance; which remains after they are healed.

k. In a few d. an eruption of red round spots broke out on back, arms, and belly; spots then formed pustules size of pea, covered with scab which came off in a few d. and left small dry ulcer, which mostly healed up in about a fortnight, leaving a colourless depressed cicatrix. After 3 mo. there still remained an irregular ulcer, twice size of bean, with scab, on l. scapula, quite out of reach of contact of solution. It is dry and superficial.

l. Itchiness of forearms and hands, then intolerable pain and formation of numerous ulcers, from which above a dozen nearly solid masses of matter fell on striking arm firmly. Ulcers were left clean dry cavities, which gradually filled up and healed in about a month, leaving white cicatrices. (Four d. after commencing use of solution.) (*Mat. Med., Phys. and Applied*, vol. i, art. Kali bichromicum.)

11. The same.

a. *Man*, *æt.* 20. For first few months had characteristic pustular eruption and rheumatic pains, or, as the workmen express it, "it got into the bones;" shooting and pricking in all limbs, worse in m., when he was quite stiff and could hardly rise. Inflammation of eyelids, with yellow discharge and agglutination in m. Bad appetite, coppery taste, great thirst, ulceration of inner surface of lips. Swelling and pain of nose, with discharge from it, ulceration of septum, frequent sneezing; ulcers on hands; sciatica.

b. *Man*, *æt.* 44. Many years ago, when first employed in chrome works, about 3 d. after being exposed to solution, small pustules made their appearance at roots of nails on both hands, but chiefly on l., extending soon over whole back of hand to wrist, and also, though to less extent, on palm; back of hand, he said, was one mass of suppuration. Arms at same time swelled, became painful, red and inflamed as far as shoulder; and glands of axilla suppurated, but did not break. Uvula and tonsils became red, swollen, and painful, and finally ulcerated. In all other respects he was quite well. He consulted a medical man, who accused him of having contracted a venereal affection. After recovery, he returned to works, and was affected again in a similar way, but not to such an extent. Since then he has been careful to avoid coughing

anything impregnated with the chrome; but more than once, after accidentally being in contact with it, he has had breaking out of pustules the following 6.

1. The general impression from an examination of men engaged in the manufacture of *K. bich.* is that they suffer from dyspepsia; and though appetite is generally good, yet many become anæmic, skin acquiring yellowish hue which affects also conjunctivæ. In three fourths of them fauces and soft palate were red and injected, although without pain or soreness; in two cases deep ulcers on palate, but painless. Pain mostly complained of was across loins. Chronic catarrh existed in about 25 per cent. of the cases, attended with expectoration of tough viscid tenacious mucus, generally white, but sometimes dark grey approaching to black. (*Brit. Journ. of Hom.*, ii, App.)

12. Individual symptoms occurring in workmen.

a. Head and Sensorium.—Giddiness, increased on stooping, with stabbing pains in l. hypochondrium. Giddiness in m., relieved by tea; on stooping, lightness across forehead, chiefly in m., also frontal headache as after a debauch; musty taste in m.; bad appetite and foul tongue; some vomiting, excited by stooping or moving, with pain at epigastrium. Vertigo on rising from seat, everything seemed turning round, with pain in epigastrium, also across loins so that he cannot straighten himself after stooping.

b. Eyes.—Redness of conjunctiva with lachrymation; heaviness and soreness of eyes; pain in eyes first fortnight; eyelids inflamed and much swollen; eyes tender; conjunctiva oculi injected, lids slightly granular; pustule on l. cornea, with surrounding indolent inflammation, attended with pricking pain; leucoma on l. cornea; heat in eyes, lachrymation in m. at home, appearance of small white pustules on conjunctiva of l. eye towards inner canthus, with red areolæ; in second week itching and pain in eyes as from sand in them, worse in e. and at n.; conjunctiva both of bulb and lids injected; ophthalmia, commencing with itching for several d., followed by pain and heat in eyes and agglutination of lids, conjunctiva red; tarsal edges rounded, irregular, and destitute of eyelashes.

c. Nose (see 10 b).—First week frequent epistaxis, which returned at intervals for a year, and since then (19 years) has been destitute of smell.

d. Mouth.—Heaviness across forehead, and in e. dimness of vision in walking; ulcerations with indurated edges, and smarting pain on mucous surface of both lips; dryness in mouth and throat; great thirst; bad appetite; coppery taste; disposition to constipation, and then symptoms aggravated. Painful ulcer on tongue, lasting for weeks. Excavated cicatrix on roof of mouth, from which a slough separated 7 mo. ago; no pain till separation of slough; sore took 6 mo. to heal; velum presents a rough, papular, elevated appearance.

e. Stomach.—Occasional dyspeptic attacks, loss of appetite, food lies like a load, with low spirits and much flatulence, muzziness of head in m., and nausea, with sometimes vomiting of clear fluid. Habitual attacks of sour vomiting, excited by stooping or moving, with pain at epigastrium; pressure in stomach after eating.

f. Abdomen.—Periodic attacks of constipation, with red urine (about every 3 mo.). Habitual constipation is common among the chrome workers. Dysenteric attacks, with pain at navel and bloody evacuations.

g. Kidneys.—At times, for about a week or fortnight, pain across loins and scanty high-coloured urine. Same,—pain extending to groins, with nausea and impaired appetite. Same,—pain running down on l. side into hip, with dryness in mouth and throat, sight confused and dim, ringing in ears.

h. Chest.—Chronic loud cough from stuffing at epigastrium, chiefly on waking in m.; he then has fit of coughing and expectoration of tough mucus, with tightness in head; dyspnoea; capricious appetite; in m. gnawing pain at epigastrium, with sensation of emptiness and faintness. Dyspnoea, especially in m., with cough and expectoration of white mucus "as tough as pitch" which could be drawn out into strings. Same, with yellowish green, yellowish or reddish mucus, with pain, or weight and soreness in chest. In 5 or 6 d. after beginning work with the neutral chromate, epistaxis, coryza, and violent headache, then suffocative attacks, with orthopnoea at n., which continued till he gave up the work. Intense dyspnoea and abundant sonorous râles in chest. Respiration impeded, with oppression and pain in sides, followed by cough and expectoration of indurated mucosities in large masses size of finger; in n. frequent attacks of suffocative dyspnoea with no relief till these masses are expectorated.

i. Back and Limbs.—Bitter taste in m., with aching at lower angle of scapula. Stabbing pain from 3rd cervical to 5th dorsal vertebra, striking forward through chest to sternum, increased on motion, with inability to straighten spine after stooping,—preventing him from working for six weeks; also constipation, with pains across loins, and heartburn in e. after tea. Violent tearing aching pains in one or both shoulders, worse at n. Rheumatic pains in hip, coming on at n. Same in r. thigh. Same, with stiffness but no swelling, in knees, felt only in walking and not at n. Aching and jerking pains in hip, felt only in d.; in m. shooting and pricking pains in all limbs, he is stiff all over and can hardly move.

j. Eruptions,—papular, like measles, vesicular, but chiefly pustular. (*Mat. Med., Phys. and Applied*, loc. cit.)

13. In March, 1857, I admitted into the Manchester Infirmary a man greatly emaciated, with hectic symptoms. Urine contained large quantity of pus; re-action was acid; contained no tube-casts or more albumen than pus accounted for. Patient stated that his water had been milky for more than a year, and that his health had been failing for same time; he attributed his complaint to the nature of his occupation, which was to manufacture bichromate of potash. He died 11 d. after admission. *P.M.*—Thoracic and digestive organs were found perfectly healthy. When bladder was opened some injection of mucous membrane was found, but it was not thickened and viscus was not contracted. Both ureters were dilated to about double their usual size and filled with pus. The renal pelvis and infundibula were enlarged and their lining membrane opaque and bathed in pus. Kidneys

themselves presented very slight signs of disease: papillæ were flattened and yellowish as if containing pus in their ducts, but rest of renal tissue appeared healthy. No foreign body was detected in either pelvis and path of urine was free throughout. (ROBERTS, *Urinary Diseases*, 2nd ed., p. 452.)

14. M. M. Delpuch and Hillariet report that the perforation of septum narium was found to be general among the workmen in France, though the men themselves were mostly unaware of it. The ulceration and loss of substance was preceded by headache, swelling of nose, sneezing, sharp pricking pains, copious discharge with frequent desire to blow the nose, expulsion of bloody membranous shreds, at times repeated epistaxis, at others thick greyish or black plugs (the "clinkers"). With all this there was often no sore-throat or cough or affection of the general health; with the loss of substance there was little pain, the external form of the nose was unaltered, and the voice was not nasal. The perforating ulcer is always almost exactly at the same point, viz. $1\frac{1}{2}$ to 2 centimetres above inferior border of sub-septum. It destroys upper septum as far as its articulation with vomer and ethmoid, while antero-inferior part is left quite intact. They think the action topical and caustic. (*Ann. d'Hygiène publique*, 1829.)

15. Round ulcers with raised borders form on fingers and elsewhere. They begin with a sharp persistent pain, increasing rapidly, worse in cold of winter, when it even extorts cries; a slight excoriation first appears at painful spot, and in next and following d. environment becomes red, thick, and swollen; then a central eschar forms which spreads in depth rather than circumference, and thus may penetrate to bone. Fully formed, they show at bottom and in middle a reddish, fleshy body, soft and spongy, isolated all round and attached to bottom by narrow base. They discharge a sero-purulent fluid like that of fistulous openings. The borders become fallen in and smooth and partially cicatrised. Finally, the ulcers cicatrise from circumference to centre, leaving a depressed, dead-white scar. (*Ibid.*)

III. *Experiments on animals.*—Our knowledge of the morbid effects of chrome in the lower animals is tolerably complete, being derived from 40 or 50 experiments with the chromate or bichromate of potash, chiefly on dogs and rabbits.* They may be divided into 3 classes: 1st, those that proved fatal within less than 10 or 12 h.; 2nd, those fatal between 12 h. and two or three weeks; and 3rd, those that lasted from 1 to 2 mo.

1. a. The first class furnishes few facts of practical interest. As regards quantity,—in different experiments 6, 12, 30 gr. produced no further effect than their ejection by vomiting; while in others, 30—60 gr. of chromate or 10 gr. of bichromate were fatal in dogs and rabbits in $\frac{1}{2}$ —3 h. A solution of 10 gr. injected into the jugular of a dog produced instant death. The appearances found in these rapid poisonings were:—mucous membrane of stomach was violently inflamed

* The experiments referred to are those of Gmelin (in Wöhler), Drysdale (*Brit. Journ. of Hsm.*, ii, App.), Schlesinger, Zlatnowich, and Norton (*Öst. Zeitschr.*, iv), Berrill (*Frank's Mag.*, i, 34), Vulpian (*Journ. de Pharm. et de Chim.*, Sept., Oct., 1883), and Priestley (*Journ. of Anat. and Phys.*, xv, 185).

in all its extent except pyloric portion, or there were brown, or brownish-red, or even blackish spots in several places, and membrane was partly destroyed. Itum injected; red spots in cæcum; trachea vascular; bronchia and lungs full of blood, and in one lower lobe said to be inflamed; heart containing dark coagulated blood; brain and spinal marrow full of blood, and soft.

b. In Priestley's experiments neutral chromate of sodium was employed. Six rabbits, two frogs and one guinea-pig were used. The drug was injected under the skin or into the veins, and caused death rapidly. "1—3 gr. is a powerful poison for rabbits and guinea-pigs, procuring death in 4—30 m. if injected into veins, and in 40—50 m. when introduced beneath skin." Death was preceded by spasms or convulsions and violent retching. Convulsions are varied with, or succeeded by, paralysis of motion in mammals, and in frogs, as is usual, of respiration also. In frogs power of reflex action is speedily abolished. "The blood-pressure generally rises at first, but in $\frac{1}{2}$ —3 m. begins to fall, and continues to fall till death. Meanwhile the pulse preserves a strict normality save that as the blood-pressure falls it becomes somewhat fuller, owing to the larger expansion of the laxer arterial walls." After a time, however, the pulse begins to slip a beat at intervals. These slips did not occur in one rabbit in which the vagi were divided, while they happened while these were intact. *P.M.*—Stomach exhibited much cherry-red congestion at back and cardiac end, ecchymosis externally and internally, arborescent injection of chocolate-coloured blood at pyloric end externally. Duodenum showed m.m. congested and chocolate-coloured congestion externally. Slight congestion all through small and large intestines. Liver cherry-coloured on surface and throughout substance. Kidneys congested with cherry-coloured blood. Heart stopped in diastole; blood of chocolate colour, coagulated normally, and showed absorption bands resembling those of methæmoglobin.

c. In Meyer's experiments, from 2·5 to 7 c.c. of solution of 1 of chromic acid to 2 of water were injected into two dogs subcutaneously. Death in 2 h. preceded by vomiting, retching, diarrhoea, restlessness, twitching of extremities, torpor, and convulsions. *P.M.*—Injection and swelling of m.m. of stomach and small intestines, latter filled with reddish, opaque, shiny masses, consisting of epithelium; ecchymoses near pylorus. Kidneys full of blood; ecchymosis of m.m. of bladder; urine albuminous and turbid.

d. In Gergen's experiments on dogs chromic acid was injected into cord. Result was parenchymatous inflammation of kidneys with albuminuria and epithelial casts. *P.M.*—Kidneys full of blood, ecchymoses on cortex, cortical substance yellow, medullary substance dark red, cloudiness and fatty degeneration of epithelium, no change in interstitial tissue. In some cases injection and ecchymoses of vesical m.m. In rabbits after subcutaneous injection of 4 gr. of chromate of potash, death in 24 h., with kidneys injected and many hæmorrhagic infarctus. Urine albuminous. (*Mat. Med., Phys. and Applied*, loc. cit.)

2. The second class furnishes the most important results. The

drug (chiefly as bichromate) was introduced endermically, hypodermically, or by mouth. With exception of ulcers in the primæ viæ effects were the same whether salt was given internally or inserted into a wound. In several cases poisoned in this last manner, Berndt analysed ejected matters, and also contents of stomach and bowels and the urine, without finding any trace of chrome in them. In those poisoned by the internal exhibition it was readily detected.

a. Symptoms usually manifested were—vomiting, violent and often incessant, renewed after drinking, first of ingesta then of frothy or bloody mucus; finally retching. Pains and tenderness at belly; frequent purging of mucus and blood; quick pulse; at first great thirst, then animals refused all food and drink; salivation; frequent micturition, nose stuffed; flow of mucus from mouth; cough and expectoration of thick ropy mucus; eyes covered with purulent secretion from conjunctiva which dimmed cornea, and when washed off was speedily renewed; rapid emaciation; great weakness, especially of hind legs, and finally loss of power of these. Dry, exanthematous eruption on back, with falling off of hair in several spots.

b. P.M.—In cases poisoned by internal administration, mouth and œsophagus were extensively ulcerated. In almost all cases, however drug was administered, stomach was acted on. There were red spots here and there; or (from endermic use) it was slightly inflamed, and had at bottom several extravasations between its coats, with similar patches in duodenum; or (do.) cardiac half was healthy, but pyloric half coloured dark violet-red, though pylorus itself was free from inflammation. Cardiac orifice in other cases partook of neighbouring inflammation. Ulceration, as in mouth, where drug was given internally. Duodenum was even more constantly acted on than stomach, reddened when drug was endermically, ulcerated when it was internally administered. In one case of internal use there were numerous injected patches throughout small intestines, and in this and another a recent intussusception of the ileum. Sometimes colour and injection gradually died away, and were entirely absent in colon and rectum; but of 3 endermic cases, in 2 m.m. of cæcal valve was reddened and had blackish spots on it, in one colon and rectum were deeply reddened and mesentery injected.

c. Liver in 2 cases dark brown, very friable, and full of blood. In most gall-bladder was full of bile. In one liver presented appearance of alternate very dark and pale patches; and section had mottled appearance. In 1 there were yellow patches like those after phosphoric poisoning, and here microscope showed fatty granulations in hepatic cells. Kidneys in one case had tubuli much injected, and whole substance congested. In another, bladder and its immediate neighbourhood were reddened.

d. In one case (endermic) nose full of purulent-looking mucus, which, however, did not reach into sinuses; conjunctiva was inflamed, and covered with same purulent-looking mucus; in upper larynx were found blood-stained coagulated masses, which could be separated from walls like a membrane; in bronchi also similar masses (which examination proved to be, not fibrin, but mucus coloured by blood). In

another (internal) epiglottis and rima glottidis congested and covered with thickropy mucus; inner surface of larynx highly injected and covered with muco-purulent matter; trachea throughout whole extent very much injected, and lined with dirty, whitish coating like false membrane, which could be easily detached with back of scalpel; it did not reach below bifurcation, though redness extended into ramifications of bronchi as far as they could be traced; lungs apparently healthy. In another (internal) same thick purulent matter lined larynx and trachea, but there was no false membrane or injection. In another (internal) larynx and trachea vascular, and in trachea irregular longitudinal streaks and patches deeply injected, covered with viscid mucus similar to that vomited; injection continued to where bronchia began to divide in parenchyma, but lungs themselves were pale and bloodless. In another (external) larynx and trachea contained about a tablespoonful of healthy-looking pus; there was pus also in bronchial tubes. In another (internal) lungs were mottled but quite crepitant; there was a yellowish spot on surface of one inferior lobe.

a. Heart generally distended with blood in both cavities. In one case pericardium slightly injected, but no effusion. Brain and cord were generally normal, but in one or two cases were fuller of blood than usual, and of softer consistence. There was great emaciation. Irritability of muscles, especially of heart, diminished; muscles reddened as after poisoning with carbonic oxide. (*Ibid.*)

3. a. The 5 subjects of experiments lasting 4—10 weeks were all rabbits, taking gradually increasing doses of 1st trit. In about 2 weeks a thin watery discharge from nose came on, and gradually increased in quantity and consistency, till nostrils were partially obstructed, and hair beside them matted together. Soon after commencement of coryza tur of coat began to stick out and lose its smoothness; three layers of white scales formed on skin at different parts, and gradually spread over whole surface, but were thicker at neck, back, and thighs. Animals lost flesh rapidly, even to emaciation, before appetite and excretions were perceptibly affected. They then got dull and weak, and trembled in moving about; refused food and drink, and finally died.

b. P.M.—Parts of skin corresponding to scurfy patches were thickened, and corium of cartilaginous consistence, when cut into white and shining like fibro-cartilage. Muscles of body thin and wasted. Mucous membrane of stomach thickened, pulpy, easily stripped off; outer surface of viscus red. In No. 1 small intestine reddened internally, in Nos. 3 and 4 outwardly only; but in all containing viscid gelatinous mucus. In No. 1 considerable injection of large intestine at point of junction with small, and coats of gut had lost their transparency; in No. 3 coats easily torn; in No. 5 between muscular and peritoneal coats of whole colon a gelatinous mass; in No. 2 rectum constricted in 3 places. Contents were pitchy, green and clayey fæces. Mesenteric vessels were gorged and glands enlarged. Liver in every case enlarged, in some even to twice its natural size; full of blood and friable, easily rubbed to pulp between fingers; colour dark reddish-brown or even blackish. Gall-bladder full of bile in all cases.

c. In No. 1 tubular substance of kidneys somewhat softer than natural, and reddened; bladder full of clear watery urine. In No. 2 kidneys dense and firm, cortical and tubular parts not to be distinguished by their colour, which was in both dark brownish red; bladder quite filled with thickish yellow purulent-looking urine, its coats soft but without trace of inflammation. In No. 3 kidneys outwardly dark coloured, and inwardly showed only slight traces of tubular substance. In Nos. 4 and 5, kidneys when cut into showed brownish-red colour, and no trace of tubular substance. In 3 last cases bladder was quite empty.

d. In No. 5 nasal passages were reddened. In No. 2 they contained cheesy white soft masses; m.m. was softened and discoloured, showing several spots like small ulcers. In Nos. 1, 2, and 4 lungs were collapsed, so as in 1 only to fill posterior cavity of chest; colour deep pink or cinnabar; unaltered in tissue, crepitating and swimming in water. In No. 3 dependent part of both lungs showed marks of inflammation, and sank somewhat in water.

e. In all cases auricles and ventricles filled with dark, clotted blood. In No. 3 heart was enlarged to nearly size of a lung; in No. 4 to that of both lungs together, pericardium reddened, and coronary arteries full of blood.

f. In No. 4 meningeal vessels and sinuses gorged with blood; surface of l. hemisphere very vascular. In No. 3 membranes were reddened; and posteriorly there was extravasation of dark blood on surface of brain. In No. 2 membranes somewhat reddened, and considerable vascular development in ventricles; brain very soft. In No. 1 vascular development in membranes, which were uniformly reddened; vessels of cerebellum and medulla oblongata as if injected; substance of brain very soft, and falling into pulp under pressure of finger. (*Ibid.*)

CICUTA.

Cicuta viridis, L. Water hemlock. Nat. Ord., *Umbelliferae*.

I. *Protrings*.—1. HAHNEMANN, *Mat. Med. Pura*, vol. vi of original, vol. i of translation. Contains 36 symptoms from self, 168 from 3 fellow-provers, and 37 from authors.

2. a. Dr. LEMBEKE took, Feb. 15th, 6.30 a.m., 10 dr. tinct. 6.45 a.m., when walking in room, tension in fascia of l. thigh, anteriorly, superiorly, and externally, and in r. thigh mostly towards its inner border; heat in lower part of occiput. Vision seems clearer, pupils contracted. 7.45 a.m., drawing under skin above l. tendo Achillis; the heat spreads from occiput to crown and the sides thereof, always deeply seated; rumbling of flatulence in bowels, much and long continued; flow of saliva; heat and weight in sinuiput; when sitting, feeling in knees as after a long walk; dull shooting pains in fossa navicularis penis. 8.15 a.m., after slight exertion great weariness in legs and arms; when bending painful stiffness in back; pupils small and eyes sensitive to daylight. 8.30, testicles drawn up tightly towards inguinal ring; stool, with urine, soon followed by urging to make

water, which could be kept back with difficulty. 11 a.m., bright red blood (about 3 teaspoonfuls) from r. nostril. After a walk of 1 h. very weary. 11.30, great pulsation of temporal arteries; disinclined for work; cross and given to disinal reflections; pressure in sinciput. 1 p.m., no appetite; urging to urinate; after dinner great thirst for cold water. No desire to make water till 5 p.m., when slight urging came on, also great hunger which, however, is soon satisfied. Great disposition to study in e.—16th, 12.45 a.m., 10 dr. During n. frequent waking with feeling of having slept enough and of strength. When he rose at 6 a.m. no feeling of having passed a disturbed night. Passed less urine than usual during n. 6.15 a.m., 15 dr. Immediately on touching nose some bleeding from r. nostril, soon followed by copious epistaxis. 7 a.m., temporal arteries throb strongly; sinciput hot and heavy; skin congested; feeling of hot water in stomach. 7.45 a.m., both nostrils dry, as if stopped up, but air passes freely; heat rises up into face, especially its upper part; tension in l. calf when walking; pupils small; pressure on eyes with sensitiveness to daylight, though weather is foggy; sometimes bright grey spots before eyes; pulse 75; heaviness in occiput; pain with fulness in forehead and r. temple, later in l.; tearing pain through l. side of brain towards the arch of skull, from before backwards; erection without lascivious thoughts. 8.45 a.m., pupils very dilated and for several hours after. Little urine passed to-day.—17th, 5.45 a.m., 30 dr. 6.30, dryness in throat; weakness in knees and dorsal muscles, after standing a short time; heaviness in sinciput with pressure deep in brain; stiffness in tendones Achilles and painful pressure in muscles at back of l. thigh, when walking slowly, pulse 60; tension in calves; pupils contracted. 7.45 a.m., pupils dilated; pressive pain under l. eyebrow on bone, extends to temple and l. zygoma; tearing in r. side of occipital bone; testicles drawn up to abdomen; shooting in l. eyelids; frequent urging to urinate; on back of l. hand between 1st and 2nd fingers, fine vesicles size of poppy seeds with narrow red areola, no pain or sensation in them, only now observed. 8.30 a.m., cheerful, disposed to work, when walking easy movements and elasticity of muscles all d. 9 a.m., compressive sensation in all muscles of l. leg, as if the leg were constricted, when walking. 6 p.m., stool consisting of single hard lumps of feces; swelling on r. side of anus as from a pile under skin, whereby the orifice of the anus is narrowed, with tiresome sensation during stool; very little urine all d. Frequent erections at n.—18th, 6.15 a.m., 60 dr. Eruption disappeared. 6.45 a.m., pain in l. calf; drawing on r. instep towards inner side; tearing in extensors of l. forearm, and at root of 3 last r. toes; pinching on inner side of r. big toe, for a long time, with very severe pain. 7.45 a.m., much inclined to stare; sometimes deeper breath than usual, more while sitting than walking; tearing in r. lids; drawing pain under bone in upper part of forehead extending to crown; drawing in muscles on inner aspect of r. thigh; great weakness of legs; pupils small; pressure on eyelids; tense feeling in lower part of calves; tearing in lower part of extensors of l. leg; pressure on chest, with occasional deeper breathing; abdomen distended with flatulence and emission of much flatus; nose stopped up; tickling in fossa navicularis

and frequent erections. 9.30 a.m., stool rather softer than usual; very much disposed for work and walking. 4 p.m., a large teaspoonful of tinct. 5 p.m., pupils very dilated; staring almost without winking and as if a grey fog were before eyes; shooting in fossa navicularis; heaviness in sinciput; sometimes bright spots before eyes; deeper breathing when sitting; cold feeling streams through legs with tearing in toes, the cold feeling lasts longest in the r. leg; oppressed feeling in chest and deep breathing; pulsation in sinciput and heat with strong beating of heart; pulsation in hand when holding on to chair; painful bruised feeling in knees; painful weakness in muscles of lower part of l. upper arm; tearing in r. peroneus muscle; drawing in back of l. hand at roots of fingers; stopped-up nose; tearing under skull on r. side; sinciput confused. 7 p.m. and later, much heat and weight in head; weakness and tearing in bones of skull on l. side and internal pulsation and dazedness deep in brain.—19th. At 2 and 5 a.m., stool of thin faeces with urgent irresistible call to urinate, which recurs as soon as the urine has passed. 8.30 a.m.; 3, 7 and 8 p.m., thin slimy stools with straining and much urine. 9 p.m. and 5.30 next morning, slimy stools. At n. lascivious dream and emission of semen with drawing pain in fossa navicularis. The stools had this peculiarity, that without premonitory symptoms they suddenly came on with urging so severe that they could hardly be kept back, at the same time bruised pain in sacrum and general weakness; the stool itself gushed suddenly forth, and was followed by tenesmus; the urging to urine was at the same time frequent.—20th., 8 a.m., thin slimy stool; frequent erections without lascivious thoughts. 9 a.m., 2 dr. of tinct. of *arnica*. 2 p.m., almost every h. a stool of black caecion-smelling mucus in large quantity, with straining. Appetite and sleep always good, very drowsy even during d., very weak, great thirst. E., 3 stools as above.—21st, m., stool of normal character. Yesterday he observed on the dorsal aspect of the 1st phalanx of the l. thumb small red spots without sensation which disappeared in the course of the d. To-day there appeared on back of l. hand a group of 16 to 18 small red spots, smooth and without sensation, which disappeared on pressure and reappeared quickly; this eruption disappeared in e. In e. and during n. several thin stools of normal colour, with much urine and prolapsus of rectum.—22nd. An eruption like the former one on a different part of back of l. hand, towards the metacarpus pollicis; on back of r. hand a small itching vesicle; in forenoon some thin stools.

6. Feb. 26th, 7 a.m., 100 dr. Immediately tearing on inner side of lower part of r. upper arm; jerking drawing in posterior lower part of r. leg to heel; suddenly great weakness in l. thigh on rising up; the snow dazzles him, and on looking on a dark wall there seems to be a grey screen towards the l.; flush of heat over back; pressure on l. side of head under bones, repeatedly; transient shooting in dorsal muscles in regions of 11th and 12th vertebræ increased by deep breathing; head heavy and full; when sitting and rising up great weariness in both legs, less in arms, diminished by walking about room; stitches in muscles of r. scapula; pressure under r. os bregmat.; when writing suddenly painful weary feeling in muscles of r. arm; pulse 60, large, full; tearing

in l. temple; breathing deep with effort; dull shooting in urethra; pupils sometimes contracted, sometimes dilated; sometimes in r. shoulder, in one or other knee, or in ankles great weak feeling; constant painful tearing in tendons of l. instep, when walking and standing; everything appears brighter, pupils contracted, vision clearer; prickling pulsation in r. calf for a moment; frequent discharge of flatus; tearing in muscles of r. shoulder. 8 a.m., lightness, firmness in movements, but this is only transient; frequent micturition; pressure in sinciput and in muscles of l. upper arm, stiffness in r. calf; more or less confusion in sinciput; tearing in tendons on l. instep; drawing in l. arm. 9 a.m., no more symptoms, only much urging to urinate. 4 p.m., 100 dr. Immediately tearing in r. nape muscles; drawing in tendons on l. instep. 5 p.m., painful feeling of exhaustion in both legs and knees when sitting; hot feeling in both legs; pressure on crown under skull; drawing in tendons of r. instep and l. sole; creeping feeling in soles with pressure on various parts of legs; when reading slight pressure in eyes; shooting in eyelids; appearance of bright points hovering before eyes, mixed with dark streaks and spots; increased feeling of warmth in whole body; bruised feeling in forearms and lower extremities; drawing in tendons on backs of l. fingers; pupils dilated; weight deep in occiput; veins very prominent; pulse slow, large, full; stitches in fossa navic.; pressive pain under l. frontal protuberance; drawing under skin on outer side of r. thigh; pressure in l. calf and tearing in l. toes; painful bruised feeling alternately in arms and legs, with hot feeling streaming into part, making movement difficult; frequent pain in loins and large dorsal muscles; pressure deep in brain in various parts. 6 p.m., sudden pinching in r. sole; pressive pain in muscles of r. arm; tearing on inner border of l. sole, deeply seated; creeping under skin of r. instep; severe pressive pain on ulnar side of l. wrist; sudden tearing in lower part of r. calf towards tendo Achillis. All the symptoms since 4 p.m. occurred while seated. 6.30 p.m., on walking slowly pressive pain in pectoralis major muscle, then in l. chest and intercostal muscles, not affecting breathing, then in l. knee, r. forearm, radial side of r. wrist, and dorsal aspect of roots of r. fingers. 7 p.m., frequent flushes of heat as from hot water over back extending to head and feet, and in upper arms; feeling as of hot water in chest, followed by pain in muscles on posterior aspect of r. thigh when seated; moisture on back and forehead; twitching in l. toes; pressure in various muscles of lower extremities; no more symptoms.—27th. After profound sleep, great weak feeling on rising; urine yesterday and last n. scanty and dark; towards m. erection and emission without voluptuous thoughts or dreams. Urine scanty and very dark, stools at usual time but soft.—28th. Many and firelike thoughts about human conditions; great appetite. Inclined for work, but weak in body.

c. Feb. 29th, 6.30 a.m. 200 dr. Soon pupils dilated. 6.45, weight and heat in sinciput; aching and weary in legs; ears very hot inwardly and outwardly, though the room is not heated; for 2 h. Pulse 60, small, soft. 7.45 a.m., burning and redness of face; black points before eyes interfere with reading; prickling in muscles of legs; discharge of flatus; great itching in fossa navic.; heaviness and pain in

forehead; painful pressing in calves; pain in lumbar muscles; frequent chill through back; peculiar sensation that goes from occiput through back into posterior part of lower extremity, like what one feels on lying down after a long tiresome walk, when seated; creeping under skin of l. upper arm; frequent urging to urinate; pupils contracted; frequent chills, cold extremities, bluish nails; pulse 60, tense, ears cold; fine shooting in throat; painful pressure in r. knee; shooting in urethra; tearing pain in sides of r. tendo Achillis; chill all through body lasts till 10 a.m. 12 noon, sudden tearing in gastric region, and feeling of a fluid stool in rectum (he had a soft stool at 9.30) which lasts long with urging to urinate, and dull painful undefined feeling in abdomen. 12.30 p.m., 200 dr. Sudden sharp stitch from navel to neck of bladder; feeling of coolness courses through legs and arms, with alternate light and heavy feeling in these parts, frequently. In 3 trials there is, while sitting, slight shooting pain in a small corn that never before gave pain; pressure in calves, pupils very contracted; great discharge of wind; black points and stripes before eyes; pricking as with needles in r. sole; bruised feeling and weight felt alternately in one or other leg and becoming fixed in knee; creeping in l. toes; pain in lumbar muscles frequently; pressing on r. trochanter; pressive pains in various parts of sinciput, beneath the skull; sudden pressing in skin over r. testicle; pain and weight in l. elbow; dryness and scraping in throat; slight chilliness through back from 2 to 3.30 p.m. 3 p.m., pricking in l. big toe; painful pressure in various muscles of the extremities, later chiefly in the legs, with pricking in the toes; all d. thoughts confused and springing unconnectedly from one subject to another, often of a torturing character and taking a dismal view of things; yesterday and to-day loves to be alone and to be silent, with want of resolution. 5 p.m., painful tearing in l. sole; soft stool, much urine; burning in anus; painful pressing in r. temple betwixt skin and bone; when walking suddenly a peculiar feeling as if the heart stopped; tearing pain deep in abdomen, continued and increased by pressure; great appetite at 2 and 6.30 p.m. which is soon satisfied; sleep sound; the following morning (1st March) weary feeling, no other symptoms. (*Alig. hom. Lig.*, li, 109, 114.)

11. *Poisonings*.—1. In May several persons ate of the root of C. at 5 p.m.

a. A healthy man, æt. 26, $\frac{1}{2}$ h. afterwards had vertigo, obscuration of sight, shooting headache, anxiety, oppressed breathing, vomited with difficulty but felt better after it; but soon all the symptoms returned with thirst and dryness of throat; he again vomited after drinking and again with relief to the symptoms. A third attack was also allayed by vomiting. Later he complained only of burning in stomach, thirst, heaviness of head and chest, which disappeared next d.

b. A healthy man of 20 who had eaten more, was soon ill; he went out and was soon afterwards found stretched on the ground and as if dying; his face was congested, the eyes protruded, he foamed at the mouth, he scarcely breathed; soon there occurred a violent epileptic attack, during which all the limbs in succession were horribly convulsed, and the breathing interrupted; he never recovered conscious-

ness and soon died. *P.M.*—*L.* lung spotted blue and yellow, the blood fluid, red, stomach reddened here and there.

c. A girl of 15 who had taken little, had some anxiety and stupefaction; fell down insensible and motionless and ground her teeth; soon epileptic fits came on, which recurred all night and caused horrible contortions. They continued till the e. of the following d., and she woke as from a deep sleep and slowly recovered.

d. Two boys and 3 girls, between 8 and 9 years of age, ate of the root in the afternoon; they soon became giddy, fell down and had the most violent convulsions. They all vomited more or less of the root, but the convulsions lasted long; all night they were weak and delirious; next day they were weak. (*WEBER, Ephem. Nat. Cur. Dec. ii, Ann. 6, p. 221.*)

2. Two boys and 6 girls ate shortly before noon a quantity of the root of *C.*

a. Jacob M—, æt. 6, soon complained of pain in præcordia; hardly had he told this, when he fell to the ground, and passed urine with great force. He looked fearfully ill, all his senses left him, shut his mouth so strongly that it could not be opened, ground his teeth, the eyes were much distorted, blood gushed from his ears, a large swelling was formed about the præcordial region. Frequent hiccup; he seemed to wish to vomit but nothing came up. He threw the limbs about and contorted them, the head was often thrown back, and the whole back bent in the form of a bow. The convulsions ceased, he cried to his mother for help, but they returned with renewed intensity, he could not be roused by calling to him, and in half an h. he died exhausted. The belly and face swelled after death, green slime often flowed out of the mouth.

b. Kath. M—, elder sister of the foregoing, began after her brother's death to complain. After $\frac{1}{2}$ h. she vomited some of the root; she was seized with convulsions, with loss of all the senses, and frightful distortion of the head, limbs, and whole body. Her mouth was forced open and some theriac poured in, whereupon she again vomited. After this she lay for 24 h. as if dead on her bed, without moving hand or foot; sometimes she ground her teeth and called to her mother to help her; but when her mother spoke to her she did not answer, as though she was deaf. For 9 h. she was thought to be dead, for the face was like that of a corpse, the breathing imperceptible, the extremities cold. After 24 h. she came to herself, complained of pain in præcordia, and was very weak for 4 d.

c. Maria M—, æt. 2 $\frac{1}{2}$, ate but little of the root, but was attacked by epilepsy; a swelling in the stomach shook the diaphragm violently; hiccup, cries, redness of face, trismus, loss of senses, and distortion of limbs ensued. She vomited after theriac, was well after 8 h.

d. Matthias G—, æt. 8, went home after the death of his friend Jacob; was attacked by vertigo in the street, fell forwards on his face, got up and hurried home as if intoxicated. Soon he had convulsions and fell to the ground. He got up again, staggered about, fell again, got frightful convulsions, trismus, opisthotonos, some of his teeth were removed but he could not swallow on account of constriction of throat,

A swelling in præcordia knocked violently against diaphragm with hiccup. This epileptic fit lasted uninterruptedly $\frac{1}{2}$ h., until his strength declined, and he died without having passed urine or stool and without vomiting. The whole abdomen and body swelled after death, the face was blue around eyes, green froth welled out of his mouth.

e. Christine G—, æt. 9, ate but little of the root, became sick towards e., complained of shooting and burning pains in præcordia, then had convulsions. After taking an infusion of tobacco she got well.

f. Three other girls, who had eaten little of the root, had slight epileptic fits. (*Linn., Hist. Cicutæ aquat.; Lugd. Bat., 1733, p. 6.*)

3. *Post-mortem* examination of 3 children who died with convulsions after taking C. The bodies were flecked with bluish-red patches, the abdomen moderately distended. The upper extremities of the body of a girl æt. 5 were flexible, the lower extremities stiff, the nails blue, the fingers covered with red spots, the eyes dim, sunken, pupils dilated, conjunctiva injected, lips blue. The lungs were reddish blue, with red spots here and there, contained much dark blood, their veins and blood-vessels generally very much distended. Heart not flaccid, the r. ventricle contained fluid and coagulated blood, the l. ventricle nearly empty. Stomach and bowels distended with gas; stomach empty, externally it showed injected vessels, its m.m. spotted with brown, cardia and pylorus red, bowels not inflamed, epiglottis and pharynx red, trachea full of mucus and somewhat inflamed, the sinuses and vessels of brain filled with dark blood. (*MERTZDORF, Horn's Archiv, 1825, ii, 44.*)

III. *Experiments on animals.*—1. The recorded experiments on animals show very various effects. On some animals—dogs and rabbits—the root and the juice seem to have had little or no effect. In others there occurred vomiting, restlessness, convulsions, mostly of the tetanus type, and death. The appearances after death were generally contracted stomach with dark red or brown patches; lungs sometimes normal, sometimes congested or inflamed; blood fluid, r. ventricle generally full of blood. (*WISMEN, op. cit.*)

2. *TROJANOWSKI* made experiments with aqueous and alcoholic extracts on cats and dogs. The characteristic feature of the poisoning is peculiar, decidedly clonic spasms, only interrupted by short free intervals, extending from muscles of head and neck to those of body generally, especially of respiratory apparatus. Spasms are nearly always introduced by loud screaming and slight convulsive trembling, and a kind of horripilation is observed before and after them. Consciousness remains perfectly intact. Before the convulsions break out, the animals become unsteady in gait and posture. Subsequently there is general paralysis, with loss of consciousness and death. Autopsy reveals stomach and intestinal canal perfectly intact; blood dark and perfectly fluid; brain and cord show considerable venous hyperæmia and œdematous infiltration; large veins of thorax and lungs also are full of blood. (*Dorpat Med. Zeitschr., 1874.*)

3. *BOEHM* has obtained a substance possessing the peculiar properties of the plant, which he names cicutoxin. Experimenting upon frogs, he ascertained that the hemispheres had nothing to do with the

development of the C. spasms, nor did the cerebellum share in them. If section is made through spinal cord below calamus scriptorius, parts supplied by spinal nerves given off below section are paralysed, while reflex irritability remains. In such cases it still produces the characteristic spasmodic movements of head, neck, and chest, and the peculiar cry. (Latter is explained by excess of inspiratory over expiratory action; when spasmodic seizure sets in, abdominal muscles, contracting, force air out through larynx, which is itself spasmodically narrowed.) In mammalia, after ingestion of poison, there is a period of repose lasting 15—30 m. Then animal grows uneasy, and is soon attacked by the characteristic violent tetanic spasms. Immediate cause of death is deficient respiration. When given by mouth, about $\frac{1}{2}$ gr. of cicutoxin to every pound in weight will be fatal to a cat; but more is needed for a dog. Action of drug is on medulla oblongata. (SCHMIDT'S *Jahrbücher*, 1876.)

CIMICIFUGA.

Cimicifuga racemosa, Torr.; *Actea racemosa*, L. Black snake root, Nar. Oed.,
Ranunculacea.

1. *Proving*s.—J. Dr. H. M. PAINE, æt. 25, nervous temp., in excellent health save for a chronic coryza.

æ. Proved tinct., made from root obtained in autumn. On Dec. 3rd and 4th, took 10 dr. m. and e., and on 5th same in m. only. In 4 h. after last dose sensation of swelling of r. eyelid, with heat, as if inflamed; during afternoon pain in lid when closing it; constant dull aching in ball and across forehead, with nausea. On 11th took 20 dr., without effect then, but next d. pain over l. eye, extending along base of brain to occiput; inflammation of both lids; pulse too slow, intermitting every 3rd or 4th beat. On Feb. 11th, 1852, took 10 dr., and repeated dose next d. at 6 a.m. and noon. In afternoon, dull pain in forehead. On 13th, at 10 a.m. and 7 p.m., same dose. Dull burning aching pain in 2nd joint of r. great toe, extending up limb, from 8—9 p.m. 14th.—In m. 10 dr. In e. same pain at same time, but without extension upwards. 15th.—Pain in e. as before, but less severe. 16th.—At 11 a.m., 20 dr. Slight dull pain in head. 17th.—At 11 a.m. and 3 p.m., 10 dr. In e., disposition to diarrhoea. On 18th and 20th one dose, on 19th two, of same; without effect save slight looseness on latter d. On 21st, 25 dr. in m., 30 in e.; on 23rd, 30 in e.; on 24th, 30 in m. Two h. after last dose aching pain in head, particularly in occiput, experienced only while indoors, relieved in open air. It increased during afternoon; was quite severe in e.; about 9 p.m. disappeared entirely after walk in open air. During e., itching on dorsal surface of l. hand and wrist, and especially of thumb; small red papules appeared there, becoming after slight irritation a diffused redness, which disappeared in a few h., but could for some d. be reproduced by slightly irritating surface. 25th.—30 dr. at 4 p.m.; in e. slight pain in head. On 27th, 30 dr. at 5 p.m. During forenoon and part

of afternoon of next d. constant dull pain in head, particularly in occiput and extending to vertex.

6. In May took 30 dr. once or twice daily from 21st to 27th, and on 28th four doses of 30 dr. each, without effect save on latter d. pain in vertex during afternoon and e., and after retiring at n. severe aching pain in r. eyeball. Next m. pimple on back of l. hand, similar to but larger than those of Feb.; a little pus at apex. It disappeared after 3 or 4 d. This d. took 2 doses of 40 dr. each, and experienced only slight pain in head.

7. In Nov. proved a fresh tinct. made from root gathered last July, while plant was in flower. On 25th, took 2 doses of 30 dr. each, and same on 26th at 10 a.m. In e. fulness in vertex, stiffness of neck, soreness of throat on swallowing, sense of fulness high up in throat; on inspection, palate and uvula appeared red and inflamed. 27th.—Immediately after rising aching pain in vertex and in occiput, in paroxysms at times quite severe. Pain in centre of eyeballs, and also sensation as of pain between eyeball and orbital plate of frontal bone; faintness in epigastrium, with repugnance to food, which nevertheless did not prevent his partaking of a moderate breakfast. Pain in head and eyes continued through d., but not as severe as in m. At 10 a.m. 30 dr. Occasionally through d. sensation as if temples were compressed; itching and redness of dorsal surface of r. hand, in afternoon and especially in e. On 29th and 30th, coryza profuse, with hoarseness, and aching in head and eyeballs. Same on Dec. 1st; at 4 p.m. took 30 dr. Soon after, dull pain deep in forehead. 2nd.—Repeated dose at 10 a.m. At 1 suffered from acute cutting pain in umbilical region, not, however, preventing attention to business, uninfluenced by eating; continued during afternoon. During d. acute pain through head generally, at times more severe on l. side; dull pain in both eyeballs. Coryza constant during d.; dryness and soreness of lips; small ulcer on inner surface of lower lip; sense of rawness in throat, slight dysphagia; hoarseness, increasing towards n.; constant unpleasant fulness in pharynx. At n., from 3—5 a.m., disturbed, restless, unrefreshing sleep; disposition to fold arms over head. Coryza as yesterday; unpleasant taste, accumulation of thick mucus on teeth. Took no more medicine, and by 7th all symptoms had disappeared save coryza, and this much less. At 9 p.m., 30 dr. 8th.—Before breakfast, slight pain in epigastrium extending to l. hypochondrium, with faintness and sense of emptiness; loss of appetite. Coryza worse again. Took no more till 13th; at 10 a.m., 40 dr. Soon after, slight pain in l. side of head; loss of appetite, in afternoon sensation as of overloaded stomach. After a light supper, acute darting pain in epigastrium. At 10 p.m., 40 dr. Slept well for 3—4 h.; then restless, unpleasant dreams of being in trouble, or in a sad plight. Awake about 3 a.m.; soon whole surface became cold; slight cold perspiration for 1 h., with lancinating pain along cartilages of l. false ribs, increased by deep breathing. After rising, hoarseness, and some disposition to diarrhoea. At 10 a.m., 40 dr. Chilliness during forenoon; in e., on going upstairs, aching in eyeballs. Immediately after retiring, between 10 and 11 p.m., for $\frac{1}{2}$ h. same piercing pain in l. side as in

m., very severe, so much so as almost to prevent breathing for a short time.

After discontinuing drug, restlessness in early m. continued for a week; disposition to perspire at same time for 3 weeks (at first cold, later warm); pain in eyeballs (centre) do.; anorexia for 2 weeks; and for a month alternate constipation and looseness.

4. Proved 3x dil. On March 16th, 1853, at 9.30 a.m., took 10 dr. In 10 m. vertigo, fulness, and dull aching in vertex. At 10, repeated sneezing. At 7 p.m. slight dry cough 4 or 5 times, from tickling in larynx; hoarseness. Without further medicine, symptoms increased to a complete laryngeal catarrh and angina faucium, culminating 19th—20th, and not disappearing till 23rd. (As these symptoms were more likely the result of a chill than of the single dose taken, we have not specified them in detail, but content ourselves with noting the observation.—Eds.) (*North Am. Journ. of Hom.*, iii, 207.)

2. Mr. S.—, æt. 39, lymphatic temp., large muscular frame, blond, Nov. 13th, 1852, in m. before breakfast took 5 dr. of tinct. Immediately, eructations and slight nausea; dull pain in r. arm, deep in muscles, from shoulder to wrist. During forenoon continual restlessness, desire to move about, not knowing where to go or what to do. Increased secretion of pale urine. A few minutes before retiring took 15 dr. 14th.—Before breakfast, dull pain in forehead; after it, sense of internal tremors in stomach; during forenoon, slight faintness in epigastrium; during afternoon, nervous uneasiness; not disposed to fix attention on any subject; dizziness; dulness in head; pain over eyes; pain in r. arm, like that of yesterday, continued throughout d. No appetite for supper, repugnance to food. Stinging sensation in nose in e. Before retiring, 20 dr. During n. very restless; pain extending from r. eyeball through to r. occiput, slightly affecting ear. 15th.—Great sensitiveness to cold air, which seemed to penetrate the system. (*Ibid.*)

3. Mrs. A.—, æt. 23, choleric temp., brunette, Oct. 18th, 1852, at 9 p.m., took 10 dr. of tinct., and next d. at same h. 20 dr. In ½ h. nausea for 15 m. 20th.—At 10 p.m., 10 dr., followed by faintness of stomach. 21st.—At 7 a.m., 10 dr. In 1 h. stinging in eyelids. At 10 p.m., 20 dr. 22nd.—At 7 a.m., 20 dr. During d., fulness and pressure in lower abdomen; faintness of stomach 2 or 3 times for short period. 23rd.—In m. abdominal pressure increased, with some pain; disposition to frequent urination. At 10 p.m., 10 dr. Faintness of stomach; pressure continues, but is not worse. 24th.—In forenoon, for a short time, eyeballs painful; soreness of chest. 25th.—In m. 10 dr., in e. 20 dr. 26th.—At 7 a.m., 20 dr. Heaviness and dulness of head; heaviness of eyes, as if caused by cold. In afternoon, stinging of l. great toe; soreness of chest continues. At 10 p.m., 20 dr. Abdominal fulness continues. 27th.—At 7 a.m., 20 dr. Stinging of eyelids; dulness and heaviness of head and eyes, as if produced by cold; cold chills and prickling sensation in mammæ; lips dry; offensive breath; unpleasant taste in mouth. 28th.—At 7 a.m., 20 dr. Eyeballs occasionally painful for short time; sneezing; headache; feels very tired; lips dry; occasionally a cold chill; sensation in breasts as yesterday. 29th.—Head and eyes dull; prickling again in mammæ.

Pain in eyeballs continued at intervals for two weeks after discontinuance of drug. (*Ibid.*)

4. Dr. L. B. WELLS, æt. 38, bilious temp., dark hair and complexion, Dec. 9th, 1852, took at 7 a.m. 3 dr. of 1st dil. At 10, dull boring pain in forehead over l. superciliary ridge, lasting 2 h.; later, occasional transient pain in corresponding spot on r. 10th.—At 9 a.m., a dull heavy headache, most in l. temple; increased flow of urine. 11th.—At 7 a.m., 3 dr. Soon after, nausea with loathing; in 1 h. pain in forehead and occiput with heaviness of head. Pain in head continued for 10 d., followed by coryza, with sore-throat and gradual involvement of bronchial m.m.; dry, short, hacking cough n. and d., for 2 weeks. This is uncommon, from not having had a catarrh for several years. (*Ibid.*)

5. Dr. LUTHER WELLS, æt. 60, sanguine temp., took, Aug. 13th, 3 dr. of tinct.; on 14th, same dose twice; on 15th, 4 drops 3 times; and thus, increasing 1 dr. each d., to 18th. On 19th, took 10 dr. 3 times. Only symptom experienced was pain from eyes to top of head, which seemed as if nerves were over-excited; lasting 3 h. On another occasion, commenced by taking 3 dr., and gradually increased to 40 dr. a d., in all 178 dr. Pain as before, more severe, lasting 6 h. In a third proving, began with 6 dr., and in 7 d. gradually increased to 60 dr. a d., in all 210 dr. After having taken medicine 4 d., experienced same pain as before in head. (*Ibid.*)

6. Dr. MEARS took ʒss of pulverised root with little or no effect. He then took a teaspoonful of a saturated tincture every 10 m. till he had consumed ʒj. In 1 h. from commencing to take it had severe pains in head, with much somnolency, and coldness. In 1 h. more he felt warm, and was so drowsy that he lay down and slept for another h. When he awoke, he had most distressing pain in head with vertigo, flushed face, dilated pupils, and pulse 12 beats above normal; also, soon, great uneasiness in stomach. All these symptoms soon subsided save pain in head, which continued about 9 h. (HEMPSEL, *Mat. Med.*, 2nd ed., ii, 506.)

7. Dr. C. H. BURR took, Aug. 25th, 1858, 10 dr. of fluid extr., pulse being 78, skin warm and moist. First symptom was sharp cutting pain in r. temple, immediately followed by dull heavy pain in back, in region of r. kidney. Pain was then felt in forehead, seeming to proceed from r. temple in burning lines. After 20 m. pulse was 86, full, hard, irregular; pain in back continuous, increased by motion; sharp wandering pains felt in l. ankle and scapula. At close of first h. pulse 72; pain in head continued, with sense of fulness and heat. Dose was now repeated every h. till 14 had been taken, and following symptoms were noted during the time:—Pain in region of heart followed by slight palpitation; constriction of pharynx, with much mucus in throat; pain and heat in stomach, relieved by eructation; pain, heat and fulness in head continuous, with sense of drowsiness; sharp cutting neuralgic pains in arms, r. wrist and fingers, with pain in legs, feet and nucha, where it seemed to produce stiffness. At 6th h. pain in region of heart was continuous, with frequent paroxysms of palpitation; pulse went down to 69; surface of body, together with that of face and hands,

became cool and dry. After taking a full inspiration, feeling as if there was a slight contraction in bronchial tubes which rendered expiration somewhat difficult. Sense of heat in stomach continued, with feeling of warmth and dryness in whole alimentary canal. Next d. no digestive disturbance, and eating seemed rather to relieve; heat, pain and weariness in region of kidneys was most marked symptom.

Urine was acid, of sp. gr. 1020, yielding abundant crystals (nitrate of urea) on addition of nitric acid. Clear on passing, after standing for 24 h. uric acid lay at bottom of vessel in form of yellow sand, while above it floated a cloud of mucus and urate of ammonia. Urine passed between 24th and 48th h. had same characters when passed, but no deposit occurred on standing.

b. After 24 h., 12 hourly doses of ʒj dr. each were taken. Action was more marked than in former proving, but no new symptoms were noticed, simply increased severity. Pain in head seemed to extend over and through whole brain, producing distinct sense of soreness in occipital region much increased by motion. There was also great heat and fulness in head, still more copious secretion of mucus in throat, and unpleasant taste in mouth. Skin was dry and hot; pulse about 80; pain in renal region much more marked and severe, and general uneasiness and disturbance in whole system was such that it was difficult to fix attention on any subject of business or study. Action on bowels was such as to produce constipation, but no unpleasant sensations were noticed, save some degree of heat in alimentary canal during first hours.

Effect on urine was at first to increase frequency and quantity, and reduce sp. gr. to 1005, from which it soon rose to 1020, where it remained. After 24 h. urine was strongly acid and had dull cloudy appearance. Examination showed thousands of fibrinous tube-casts, about $\frac{1}{8}$ in. in length, with minute lozenge-shaped crystals of uric acid adhering to their sides. On addition of a few drops of hydrochloric acid, quite an abundant deposit was thrown down, presenting variety of colours peculiar to these crystals. (*Ibid.*, p. 507.)

8. a. Dr. BACHMEISTER took $\frac{1}{2}$ teaspoonful of tinct. in e., Dec. 8th, 1870. Slept as usual. In early m. dull pain in small of back, both sides of spine; general internal nervous chilly feeling all over, but less over back; trembling of fingers when writing. At 10 a.m., feeling of lateral expansion and pressure outwards in both malar bones and forehead; much tremor; nervous shuddering through upper and back part of body; flushes of heat in cheeks; lancinating aching pain in l. elbow, anteriorly; all d. nervous, full of work and doing it fast.

b. Took same dose Jan. 7th, and repeated it next m. No symptoms 1st d.; on 2nd, during forenoon, sense of empty aching all along oesophagus; after hearty dinner, headache in l. frontal region, continuing at intervals during rest of d., worse out of doors; frequent eructations; drowsiness, finally sound sleep; after it headache as before, worse during walk out of doors, better after entering a room. While walking out sense of aching and shortening in l. tendo Achillis. Desire for tobacco decidedly weakened. No further symptoms. (*Trans. of Am. Inst. of Hom.*, 1871, p. 209.)

9. *a.* Mrs. B—, after taking same dose in *e.* of Dec. 9th, became unwell next m., with wandering pain in back and around through hips inside, lasting all forenoon; quite severe at 10, when she was obliged to lie down. Has never had so much pain during menses. Soreness in lower abdomen; all pains worse from movement, backache better from pressure. The usual headache has not appeared. In afternoon depression and dulness; chilliness; lameness in r. leg, worse when bending forward, soreness and stiffness moving to inner ankle; flow more profuse since 5 p.m.; bruised sore feeling in vagina.

10. Jan. 7th, at 8 a.m., repeated dose. At 10, nausea all through abdomen, followed by loose stool, accompanied by sharp pain in abdomen and considerable downward pressure in rectum. During afternoon, chilliness in back; peculiar uneasiness in teeth, wants to chew or pick at them. Next d. similar symptoms; towards *e.* soreness, aching and stiffness in region of tendo Achillis, aggravated by walking. No symptoms after this. (*Ibid.*)

11. Mr. W—, *æ.* 21, began April 6th, 1871, to take 10 dr. of tinct. every 4 h. In afternoon felt as if he could not keep awake, but must lie down and go to sleep. Peculiar tingling in muscles, followed by aching pain in limbs from above downward. 7th.—Terrible backache; pain in all limbs; fullness and pressure in brain; twitching of fingers and toes; pain in r. great toe; very sleepy. 8th.—Chilly in bed before rising; cold sweat on hands and feet; other symptoms about the same; feels bad generally; will take no more medicine. 9th.—Frontal headache; back and limbs ache less; feels very tired and worn out; shooting pain over l. eye; urine scanty and high-coloured; dull aching pain in eyes; cannot sleep at n. 10th.—Better. (*Ibid.*, 1872, p. 199.)

12. *a.* FRANKLIN BIGELOW, medical student, took, Sept. 29th, 1852, at 3 p.m. 25 dr. of tinct. (Prepared from dried root gathered in spring.) At 10 next m. dull oppressive headache came on; pain most severe in forehead, but extending over vertex down to occiput. On walking out into open air, pains in muscles of legs as from great fatigue, especially in anterior part of thighs. Great disposition to yawn and drowse. Sleep disturbed by dreams of accidents, seeing limbs broken, great suffering, &c. On following m. awoke at 3 with severe cutting pains and great uneasiness in hypogastric region, with urgent desire for stool, which was very thin and partly undigested. Great uneasiness in bowels all forenoon, without much desire for stool, but sensation as though it might soon come. Next m. again awoke at 3, with hypogastric pain and thin undigested diarrhoea; latter occurred every 4 or 5 h. during d. Next d. nothing but weakness and languor.

13. On Oct. 7th, at 11 a.m., took 100 dr. of an attenuation of 5 to 95. Great nausea and disposition to vomit for 2 h. after taking it. Very sleepy during forepart of *e.* Slept well till 3 a.m., thenceforward very restless; at 6, headache came on as after former dose, with great dizziness, constant yawning, occasional shooting pains in sides of head, pulse rather quick, appetite poor, feeling of fatigue of limbs and general prostration, forehead dry and hot. Pains in head were partially relieved by throwing head backward. At times very chilly over

entire body, continual stretching and yawning, great uneasiness and oppression in stomach and epigastrium; on attempting to read he immediately goes to sleep. Rather melancholy and disposed to get angry easily. These symptoms nearly all subsided by 2 p.m. In e. great pain in hypogastrium and fulness of abdomen, with sensation as though diarrhoea would come on; very bitter and disagreeable taste in mouth; very drowsy. Slept well till 3 a.m., after that hour very restless; this happened every m. for 2 weeks, and for 3 d. there was with it hypogastric pain and diarrhoea as before. Pain in head gradually subsided by 5th d. Upper lip much swollen and inflamed for 8 d.; skin cracked and came off. A small ulcer on each cheek, near centre, very much inflamed for several d., bleeding almost constantly. Eruptions, on hands and wrists principally, resembling mosquito-bites. (ALLEN'S *Encyclopædia*, x, 468.)

12. Mr. B—, æt. 24. On Sept. 29th, 1852, took 20 dr. of tinct. at 9 a.m. In 1 h. fluent coryza with violent tickling in nares, exciting sneezing; going off in about $\frac{1}{2}$ h. Great drowsiness after dinner. Unnatural heat in feet, followed by weakness of knees and whole lower limbs; when walking, has to proceed very cautiously for fear of falling. General feeling of intoxication. Dull, heavy, rheumatic pains in upper posterior region of neck. Tearing in centre of vertex, in spot about size of silver dollar. Jerking in muscles of l. thigh, more particularly at lower third. Cold feeling of l. thigh and knee, as though cold breeze were blowing on them. Stitching pain as from fine needles in region of heart, with slight twitching in external muscles of that region and slight palpitation. Sleep imperfect; waking at midnight. General burning and itching of skin after rising in m., continuing $\frac{1}{2}$ h. (*Ibid.*)

13. Mr. E. P. G—, æt. 18. Took 20 dr. of tinct. at 10 a.m. Soon after, burning in stomach and excessively bitter taste in mouth; in $\frac{1}{2}$ h. sense of rawness in throat; in 1 h. dull pain in forehead and ears. On 3rd d., early in m., pain in bowels, with thin light-brown diarrhoea, which came on in like manner for 3 or 4 d. Eruption on skin like mosquito-bites. (*Ibid.*)

14. Provings made by Prof. H. L. HILL and Prof. J. S. DOUGLASS, of the Western Hom. College, Cleveland, Ohio, upon some 40 male and 6 female medical students, who were entirely ignorant of what they were taking. In at least ten different instances, the provings were so nearly alike that one would have supposed that they were all copied from one but from the fact that the style of expression was different in all.

a. Mind and Sensorium.—Not disposed to fix attention. Vertigo, impaired vision, dizziness, dulness, with fulness and aching in vertex. A sort of delirium, with inclination to run over subject on which he was reading. Mind clear as a first effect. Miserable, dejected feeling; mind dull and heavy. Feels grieved and troubled, with sighing; next d., feeling of tremulous joy, with mischfulness, playfulness and clear intellect.

b. Head and Eyes.—Heaviness, dulness, fulness, slight dull pain. Acute pain over l. eye, in forehead, occiput, vertex, &c., in paroxysms.

Pain relieved by open air. Headache through temples; head aches as if it would burst. In $\frac{1}{2}$ h., half intoxicated feeling with swimming of head. Sense of fulness and heaviness of head; soon after, dull pain of forehead, heat of face and slight sweat; pain in l. temple. Awoke at 2 a.m. with excruciating though dull pain in forehead, extending to temples, with coldness of forehead and pain in eyeballs; after 1 h. aching pain and soreness of vertex, increasing to great severity, after 2 or 3 h. passing to front part of the head, continuing all n. and depriving him of sleep. Feeling of fulness with headache; fulness on l. side; full feeling in upper part of brain with dull feeling. Head feels too large. Dull pressive pain in l. side of head. Severe pain just over r. eye. Dull sensation throughout head as though he had been on a "spree" and was getting over effects. Dull headache on getting up in m. Heat in front part of head. Brain felt too large for cranium; brain feels compressed. After 1 h., feeling of pressure in head, and heat in the head and face. Pressure in front part of head and eyes. Pain in front and top of head. Redness of face and eyes; eyes feel as if swollen; black specks before eyes. Myopia increased. During headache eyes were so congested as to attract attention of everyone, although there was no disagreeable feeling in them. Dull pain in region of moral organs; a pressing outward and upward, as if there were not room enough for upper portion of cerebrum; pain was very oppressive and almost intolerable; it began about 5 p.m., after taking 2nd dose, and continued unabated till m., when it was relieved in 30 m. by a single dose of bryonia. Heaviness; pain in eyeballs; stinging and inflammation in lids.

c. *Nose.*—At first dry, stuffed condition of nostrils, which was soon followed by open, moist condition, with great sensitiveness to cold air, as if base of brain were laid bare, and every inhalation brought cold air in contact with it. This is exactly similar to that produced by a sudden change of weather in winter, from cold and dry to damp thawing. Sneezing; fluent coryza, copious, watery. Very profuse greenish and slightly sanguineous coryza.

d. *Face, jaws, and Teeth.*—Severe pain in l. jaw. Heat on l. side of face, with lassitude all over. Very severe pains in face, more in under jaw, lower teeth, and articulation of lower jaw. Pains in head and face constant and very severe. Pain in r. superior maxillary bone and teeth.

e. *Mouth, Throat, and Pharynx.*—Hoarseness, roughness and scraping in throat. Roughness and dryness of throat, with thirst. Hoarseness. Dry pharynx; fulness of pharynx and inclination to swallow. Sore-throat when swallowing. Fulness of throat and vertex, and stiffness of neck. Sensation of rawness of throat; hoarseness, more towards n. Palate and uvula red and inflamed. Dryness of lips and mouth. Sensation as if throat were partly filled, as low as top of sternum. Spitting of thick saliva, which seemed to stick to mouth and throat, and to be detached with difficulty. Mouth dry in m. Swelling of back part of tongue. Dryness and soreness of throat on swallowing and on pressure, worse on l. side. Increased flow of saliva, immediately. Roots of tongue and fauces swollen; throat dry,

Offensive breath. Dry, sore lips; ulcer on inner surface of lower lip. Unpleasant taste; thick mucus on teeth.

f. Taste, Appetite, Stomach, &c.—Eruptions, nausea, and loss of appetite; nausea and vomiting. Feeling as if too much food had been taken. Tremor in the stomach; faintness and emptiness of stomach. Slight nausea, with weak, trembling, exhausted feeling. Awful nausea, with tremors all over, perspiration, headache, similar to morning sickness during pregnancy, &c. Thirst, but no desire to drink. Distension of stomach and upper part of abdomen. Violent eructations, but no relief; violent retching. In 10 m. slight nausea, which increased with sickening pain in duodenum; $\frac{1}{2}$ h. afterwards, flatulence, eructations and more nausea; a 2nd dose increased symptoms, with general feeling of illness; supper abated bad feelings, but nausea returned soon after. Slight nausea, and burning of the stomach. All foregoing stomach symptoms were produced on women; the drug producing no disturbance in the stomachs of men.

g. Abdomen and Stools.—Flatus. Rumbling in lower abdomen; fulness, pressure. Acute cutting pains at umbilicus. Flatulence; dull heavy pains in abdomen. Constipation; feces hard and dry. Dull pain in the region of the liver. Periodic colic, with inclination to bend forward; relief after stool. Gripping pains in bowels, from umbilicus down. After second dose, large papæscient stool, with general indispotion; after fourth, scanty diarrhœa, with tenesmus. Evacuations natural during provings, but alternate constipation and tendency to diarrhœa for a month after. Disposition to diarrhœa. Wandering pains in bowels, slight pain in left iliac region; afterwards severe pains in bowels, mostly below umbilicus, with weight and pain in lumbar and sacral regions. Soreness of abdominal muscles, on taking full inspiration. Dull gripping twisting at umbilical region, more towards l. Urging to stool, inclined to diarrhœa. Pain in l. hypochondriac region, worse on motion, and on taking deep inspiration. One or two copious papæscient stools in m.

h. Urine.—Disposition to frequent urination; increased secretion. Retention of urine for 18 h., followed by frequent micturition. Profuse flow of clear, watery urine. Violent stitches in urethra in m.

i. Larynx, Bronchia, and Chest.—Hoarseness; constant inclination to cough, from tickling in the larynx, increased by speaking; short dry cough. Hoarseness, with roughness and scraping in throat. Slight pain in the chest. Decidedly quickened respiration on walking; difficult respiration after exertion, with general feeling of illness. Hoarseness and roughness of throat. Stitches in region of heart or in heart. Pain in l. side of chest. Acute pain in r. lung from apex to base, to r. of sternum, aggravated by inspiration. Lancinating pain along cartilages of false ribs, increased by inspiration. Soreness of chest. Cold chills and prickings in the female mammae.

j. Genital Organs.—Pain and retraction in r. spermatic cord. Drawing pain along same. Pain and tenderness in the testicles. Menorrhagia. Suppression of menses.

k. Neck, Back, &c.—Stiffness of the neck. In m., on bending neck forward, he experienced severe drawing tensive pain at points of

spinous processes of 3 upper dorsal vertebræ, which continued for several h. Trembling and weakness in back; weak trembling pain in small of back. Lame tired feeling in back, extending from region of kidneys to sacrum, relieved by rest, and increased by motion. Dull heavy aching in small of back, extending towards sacrum. Dull pain behind r. scapula. Stitches in back, a little below r. scapula, and spine. Dull pain in the region of lower dorsal and upper lumbar vertebræ. Pain below l. scapula. (Symptoms of back, &c., felt for several days.) Cramping of muscles of neck, on moving head, first in l., afterwards in r. side. Occasional slight pain in either scapula and r. shoulder. Weight and pain in lumbar and sacral regions, sometimes extending all around the body, somewhat below crest of ilium. Rheumatic pains in muscles of neck and back; feeling of stiffness and contraction. Feeling of weight in small of back. Drawing pain in a single muscle, between the r. scapula and spine, for some h.

l. Extremities.—Dull pain in r. arm, in muscles, from shoulder to wrist. Itching and redness of back of hand. Single pimples on back of hand with a little pus at apex. Small red papillæ first appeared, becoming a diffused redness. Trembling in limbs; scarcely able to walk. Hands and forearms weak and trembling; cannot grasp anything firmly; later, hands and feet cold as death, with general chilliness. Dull, aching burning pain in second joint of r. great toe. Constriction of l. sartorius muscle. Rheumatic pain in knee joint. Excruciating pain l. external malleolus and l. forearm. Lameness and inability to flex 2nd finger of l. hand. Lameness of l. wrist. (These rheumatic pains continued for several d.) Rheumatic pains in muscles of arms and legs of a drawing character. Pain in r. arm, elbow, and wrist, and in the knee, extending down to ankle. Feeling in foot as if it had been compressed. Pain in extremities and back as of boils, with fulness of head on l. side. Restless, drawing sensation in extremities. Rheumatic pain in l. leg. After going to bed, jerking commenced on side on which he was lying, obliging him to change position; it began by a perceptible twitching in l. foot. Severe pains in arms, with numbing sensation as if a nerve had been compressed; these pains were first felt in shoulder, and passed down arm and then forearm, producing a very peculiar lame, numb, and sometimes cramping sensation. Similar pains in legs, but more severe and constant in upper part of thigh, about hip-joint and inguinal region. Slight rheumatic pains all next d.

m. Sleep.—Very restless; restless latter part of n.; troublesome dreams. Frequent wakings during n.; and copious papaceous stool in m.

n. Febrile Symptoms.—Chilliness in forenoon. Coldness and chills, especially of arms and feet. Soom after waking in m., whole surface became cold. Slight cold perspiration, with lancinating pain along cartilages of false ribs, increased by inspiration. Disposition to perspire at n. for 3 weeks. Pulse too slow—every 3rd or 4th beat intermitting. In $\frac{3}{4}$ h., increased heat of face; slight inclination to sweat; pulse rather full, 90, it being nearly 80 before taking drug. In $\frac{1}{2}$ h. after taking second dose, pulse weaker, and very irregular, 80.

After third dose, pulse very weak, with general feeling of lassitude and weakness, and heat and smarting of face. At the end of an h. pulse 70—80, irregular. Pulse quick and weak. Chilliness, with cold hands and feet. In m., pulse feeble, with weakness and trembling. Pulse feeble and accelerated. Drowsiness, with creeping chills upon back, during e., followed by frequent wakings during m., and desire to throw off the bedclothes, although the thermometer was below zero.

2. General Symptoms.—Feeling tired. Nervous weakness in afternoon. Sensitiveness to cold air. Restlessness in afternoon—moving about not knowing what to do. General feeling of illness. Weak, trembling, exhausted feeling, with slight nausea. Easily fatigued, as after great exertion. Palpitation and faintness. After 3rd dose, tremors all over; after 4th dose, sick all over; so weak and trembling as not to be able to go out or study; believes the condition to be but one remove from mania à potu; next m. weak and trembling. Feeling of exhaustion, as from over-exercise. Desire to lie down and close eyes. General bruised feeling as if sore. Sensation as if from severe muscular exercise, especially in small of back. General feeling of weakness, weariness, and prostration, as if from over-exercise; it affects l. side most; feeling which only those know who “spree,” “court,” or watch all night with the sick. Soreness and stiffness of whole body, as after hard labour. Sensation in head as though he had been on a “spree” and was getting over it. Uneasy feeling, hardly amounting to pain, in all parts, principally in e. side. In m. his joints felt, on motion, as if he had laboured exceedingly hard previous d.; joints felt stiff for a d. after. In m. there was general feeling of lameness, and many unenviable feelings, which he thinks the feelings on getting over a “spree” would hardly express, unless it was a pretty hard case. (*N. Am. Journ. of Hom.*, vii, 450.)

11. *Poisonings*.—1. A lady, æt. 26, had had labour-pains off and on for a mo. after expected time. A drachm of Squibb's fluid exte. of C. was administered. In less than 2 h. patient began to complain of great pain in head, back, and limbs, with vertigo to such an extent that she could not sit up. Pupils were enormously dilated and vision much disordered. Labour-pains ceased entirely for 36 h., and pupils remained dilated all that time, though intense pains in head and limbs ceased in about 12 h., during which time there was also nausea and vomiting, with feeble pulse and prostration. (*GARRISON, Brit. and For. M. Ch. Review*, xlii, 547.)

2. When exhibited in a full dose, it prostrates in a distressing degree, producing nausea, vertigo, pains of extremities, anxiety, dilatation of pupils, quick small pulse, with universal restlessness and uneasiness. These effects are immediate and transitory. Its ultimate remote operation is the converse of the above. (*GARDEN, Amer. Med. Recorder*, vi, 611.)

3. A woman took teaspoonful doses of powdered root for chorea. The only sensation produced was an uneasy feeling, “almost an ache,” through all extremities, coming on every time she took it, and lasting from 1 to 3 or 4 h. (*YOUNG, Amer. Journ. of Med. Sc.*, ix, 313.)

4. In a woman of 35, in whom catamenia had not appeared since

she was 20, the $\frac{1}{2}$ dil. produced, after she had taken it about 10 d., "a catching pain at the l. side, just where the heart is," which comes on when she bends body forward, sometimes when sitting at dinner, and after dinner. Throat is rather sore also, and she has been passing a great quantity of clear urine, which makes her feel very weak. She never had symptoms like these before. (COOPER, *M. H. Rev.*, xv, 179.)

5. a. Dr. King found it in three cases, given for rheumatism, cause symptoms like those of delirium tremens. "In the cases referred to," he writes: "I gave 20—30 dr. every h., but on the occurrence of these symptoms omitted the medicine till they had disappeared, and again administered it, but in smaller doses, until I found that even 2 or 3 dr. would be followed by the same results, and was therefore compelled to cease its use altogether. In one I was near being dismissed for insisting that patient had taken liquor. There was nausea, retching, dilated pupils, tremor of limbs, incessant talking, and changing from one subject to another without any order, though patients were perfectly sensible when addressed; great wakefulness, imagining strange objects on the bed, and in the room, as rats, sheep, &c.; sometimes arousing from their incoherent talkativeness as if startled, and inquiring regarding persons present—'Who is that? what does he want here?' &c.; with quick full pulse, wild look of eyes, and the peculiar, indescribable expression of face commonly observed among those who labour under delirium tremens."

b. I myself once gave tinct. to a girl with dysmenorrhœa, a drop every h. at first, then every $\frac{1}{2}$ h. When I saw her she had no pains, but said her head felt strange and wild; her pupils were dilated, she talked incoherently, and exclaimed that she saw rats, mice, and insects on bed, floor, and ceiling. She also complained of a distressing roaring in head.

c. A lady who was taking 5 dr. of the $\frac{1}{2}$ for rheumatism, was annoyed with an illusion as of a mouse running from under her chair. This illusion disappeared upon suspending the medicine, and recurred when taking it in same doses. (HALL, *New Remedies*, 20d and 5th ed.)*

CINA.

Several species of *Artemisia*, L. Levant worm-seed, Semen contra. Nat. Ord., *Compositæ*.

I. *Proving*s.—1. HAHNEMANN, *Mat. Med. Pura*, vol. i of original and translation. Contains 290 symptoms from self and 5 others, and 11 from authors.

II.—*Poisonings*.—1. Theodor Georgi, æt. 2 $\frac{1}{2}$, of scrofulous constitution, but otherwise healthy, on account of thread-worms got from his mother, on Nov. 23rd, at 11 a.m., a heaped teaspoonful of powdered cina-seeds in syrup. In 10 m. violent and repeated vomiting of yellowish water and watery diarrhœa with general convulsions. After $\frac{1}{2}$ h. $\frac{1}{2}$ was

* For provings of *Macrotinum*, see Appendix to this volume.

called and found the child lying on its mother's lap, still in convulsions, which had not declined in violence. They consisted in distortion of the limbs in all directions, the fingers and toes only remaining free; head and body were drawn backwards, forwards and sideways, and he struck around him with his arms. Along with these there were violent shocks through the body with stamping of feet downwards and butting of head upwards and backwards; especially severe were the shocks in the lower part of chest and upper abdominal region, felt when the hand was applied. The face, which was at first pale, became gradually livid and was now quite blue, the eyeballs sometimes convulsively turned upwards so that only the whites were visible, sometimes they were staring straight in front, the pupils dilated and insensible to light. The tongue was sometimes cylindrically contracted and spasmodically extended between lips, even when there was no effort to vomit. Respiration normal, temperature of skin lowered, skin dry, pulse small, contracted, but regular, and not quick (spec. r, a drop on sugar every $\frac{1}{2}$ h.) Vomited yellowish water twice; the convulsions diminished, and gradually changed into jerkings, and in $\frac{1}{2}$ h. there occurred quiet sleep, the cutaneous turgor returned, there came on general sweat, and the pulse grew stronger. The patient woke lively and cheerful and remained so. (NOACK, *Hygiea*, xvi, 81.)

2. A boy, æt. 7, got in afternoon a teaspoonful of cina powder. That e. he refused to eat, but slept all night. M. on rising complained of being tired and sick and soon began to vomit mucus. He continued to complain and suddenly had an attack of convulsions in all his limbs with loss of consciousness and foaming at mouth. After 8 m. regained consciousness, but soon became delirious and often cried out aloud, with jerkings in limbs. Great heat, redness of face and thirst. No stool. After a few doses of bell. 24, had diarrhœa which was repeated after every dose. No more convulsions, heat and thirst little abated. Noisy delirium and lying quite still, alternately. At the commencement of the attack the child screamed out suddenly, then fought with his hands in the air and had no sleep. He got hyos. 3 every 4 h. and was soon well. (BETHMANN, *Archiv*, xvi, 2, 106.)

3. A shoemaker gave his child, æt. 5 years, cina for a long time in order, as he said, to prevent worms making themselves at home in his bowels. But the more cina the child got the worse he became. I found him extremely weak, pale, with no appetite, he lay all day and perspired incessantly. Every afternoon there came on an attack of heat followed by unusual sweat and deep sleep. China 1 soon cured him. (*Ibid.*, 107.)

4. A boy, æt. 5, took, on Jan. 25th (Conversion of St. Paul, on which day old and young in Posnik take worm-seed) several tablespoonfuls of the seed in the course of the forenoon. In afternoon he asked his father why the sky was green in place of blue. The father, who had taken some of the medicine, observed that a piece of flannel (he was a flannel printer), of a Berlin blue colour, had a greenish hue. Crimson looked tulvous madder-red or bronze coloured, white objects appeared yellow. Neither son nor father had other morbid symptoms except giddiness. A neighbour's child, who had taken the seeds, had the same

illusions as to colour. (SCHMID, *Deutsche Klinik*, Dec. 15th, 1852, p. 595.)

5. A girl, æt. 10, whom her father suspected of having worms, got from him 10 grammes of powder of cina flowers in syrup, on Feb. 16th, afternoon. E., she had vomiting with convulsions, cold skin which soon got warm. This state lasted all night, and continued till death. On 27th, passed 9 lumbrici by anus and one by mouth in vomiting.—28th. Doctor saw her at 11 a.m. Vomiting very violent, the ejected matters still containing the medicine, convulsions during which skin was cool, pupils dilated, and nearly insensible to light, somnolence, could only be aroused by shaking and calling to her, stomach apparently painful, asphyxia. She died on afternoon of 28th, in spite of wine and Seltzer water. The vomiting went on till the last though almost nothing came up. (VON LUNSTOW, *Vierteljahrsh. für gerichtl. Med.*, xxi, 80.)

III. *Experiments on animals*.—1. An oz. of essential oil was thrown into stomach of rabbit. Within 5 m. animal lay on its side in opisthotonic spasm. Breathing was short and laboured, and in 85 m. death took place. Doses of ʒj—ʒiij occasioned similar phenomena, but more slowly. (ROSE, *Virchow's Archiv*, xvi, 239.)

Santoninum.—A crystallised neutral principle ($C_{18}H_{26}O_2$) obtained from worm-seed.

1. *Proving*.—1. Dr. EDMUND ROSE one c. took 3 gr., and repeated dose in 3 h. At this time the blue halo of a wax taper appeared yellow. His sleep was disturbed by colic. On awaking his skin seemed to him to have a corpse-like hue, the white bedcover appeared yellow. The urine was of an orange colour. He then took 4 gr., and in course of forenoon 8 gr. more. His mind was somewhat confused, and there was some nausea, which disappeared after a hearty meal. In e., when taking a walk, everything appeared yellow, and men like wandering ghosts. He felt weary also, and vision was not perfectly distinct. Urine was more frequent but less abundant than usual; it grew red on addition of alkali, but this colour disappeared on addition of nitric acid. Sense of weariness continued more or less for 5 d.; red tint of urine was still apparent after 6 weeks. (*Virchow's Archiv*, xvi, 237. Apparently referring to same occasion, Dr. Rose writes (see i, 2), "I especially remember the unpleasant sensations which I had to endure, after a strong dose, in a perfectly quiet posture, on the covered portions of my extremities, sensations which I cannot describe or compare to anything else. I could not call it formication, for the sensation was a very gentle and continuous one; neither had it any resemblance to the pricking and numbness in the nerve after pressure on the elbow.")

2. *a*. One result of the series of experiments which I communicated some years ago* was the manifestation of a series of phenomena of visual illusion in persons poisoned by S. They are reducible to three perfectly distinct classes: 1st. Everyone, however small the quantity taken, was prevented by it from recognising violet light, the spectrum being seen as if curtailed at the violet end, and in mixtures containing violet and yellow the latter predominating (yellow-sight, *Gelbsicht*).

* See *Virchow's Archiv*, xvi, xxiii, viii, xx.

2nd. In a higher degree of intoxication there is impairment of the faculty of distinguishing colours; the infinite host of hues which a healthy person can appreciate being reduced to an extremely small number. The subject is no longer colour-blind (to violet); he sees every colour, but certain groups of them make an identical impression.* Both conditions are dependent on the external stimulus of the entrance of light; but there is a third class of phenomena independent of this, and almost exclusively—at least most clearly and beautifully—observed in perfect darkness. The others are illusions; these are hallucinations.

The following experiments were instituted especially to develop the last-named phenomena:

b. Dr. H.—took 10 gr., fasting, at 8.38 a.m. At 9.15 the dark field of vision appeared blue within and bordered with red circle. At 9.24 whole field passed from red through violet to blue. Then green balls made their appearance in it, and specks, partly red and partly yellow, moving very rapidly on the blue ground. This appearance continued of the same kind, and was very intense; it was not till 10.5 that movement of balls became slower. No large red spot ever appeared on field of vision. At 10.30, no change; at 11, a fainter impression. (There was no trace of "violet-sight;" "yellow-sight," however, did decidedly occur, but abated much at 11.)

c. Dr. M.—took 15 gr. of santionate of soda, fasting, at 10.29. At 10.36, dark field of vision appeared after some time lilac; but black objects looked at still appeared black. At 10.47, a dizzy sensation commenced. At 11, took colourless bright surfaces for green. Nausea came on, and after food with wine increased to retching (without vomiting), and to dull throbbing pains at chest, worse on stooping. A bitter taste of water, and an indescribable smell, were particularly noticed. (Prover had had a gastric catarrh for 6 months, showing itself by eructations and heartburn.)

d. In another, in 25 m. after \mathcal{D} , dark field after some time appeared blue, with dark blue trailing clouds, which soon disappeared. In another, 30 m. after 10 gr. of santionate of soda, dark field became pure violet, without any movement, disappearing after 3 m. Later, he could not see blue and violet in the spectrum; and called three discs, dark violet, dark green, and black respectively, all "dark blue."

e. Miss A.—took 10 gr. of santionate of soda at 12.10. Had breakfasted as usual, and $\frac{1}{2}$ h. before had eaten a pear. In about 40 m. yellow-sight commenced, with a slight alteration of taste and smell. After some time whole dark field appeared uniformly pale violet, then red, then bluish, and lastly, dark violet. This remained, and recurred on again closing eyes. On opening them, yellow-sight was strong, and on shaded spots violet-sight was equally marked.

f. Same took 6 gr. of santionate of soda, fasting, at 8.23 a.m. No effect for $\frac{1}{2}$ h. At 8.58, on covering eyes, saw bluish-grey streaks on dark field, later a lilac patch. All then vanished; but a dark yellow was at 9.5 pronounced to be white, and its complementary blue,—a blue gleam also was noticed on Dr. Rose's hand. As yellow-sight was

* This Dr. Rose calls, for reasons given, "violet-sight."

† *f. c.*, that obtained by closing the eyes.

found very strong at same time (9.8), field of vision was at once darkened; and after long closing of eyes it looked quite of a reddish violet, without movement, yet with varying intensity. At 9.11, colour of field became fainter, but variation more marked, till at 9.12 colour disappeared entirely, and never appeared any more, though eyes were kept blindfolded till 9.14½. At 9.49, yellow-sight and violet-sight were clearly present, but no hallucinations.* Mias A—was very nauseated, with retching; relieved by breakfast. At 10.47, flow of water into mouth and a single vomiting, after which a peculiar taste and smell existed, lasting till e., and increasing with return of nausea before supper. Yellow-sight and lilac patches on objects continued slightly till noon.

g. Out of 30 human subjects of experiment, there were reported—yellow-sight in all; violet-sight in 19; nausea and vomiting in 14; dizzy feelings, lassitude, prostration, in 9; hallucinations of vision in 8, of smell in 6, of taste in 5; abnormal feelings and pains in the head in 8; lowering of the pulse in 2. (*Ibid.*, xxvi.)

3. In 1870 I instituted a series of experiments on myself, and briefly append the result.

a. Effect on Vision.—20 m. after 5 gr. I observed flames to assume a decidedly yellow colour, as though spirits were being burnt. Ordinary white glass globes became deeply tinted with yellowish green, and writing-paper exhibited the same phenomenon in somewhat less marked degree. During 3 h. the tints gradually increased, after which they faded by slow stages, and vision was restored to its normal standard.

b. Urinary Organs.—5 gr. were taken at bedtime, and next m. an irresistible and almost uncontrollable desire to micturate was felt, the act being attended with some irritation and smarting. The urine was of a deep saffron yellow, staining the pot and linen precisely as bile. It was of sp. gr. 1028. The quantity was decidedly increased, and the urea somewhat in excess. The diuretic action continued during the d.; and it was not till 8 p.m. that the secretion was quite free from foreign pigment.

c. Digestive and General Symptoms.—Nausea and dryness of tongue were generally present; and on one occasion, after a 10 gr. dose, well-marked tenesmus was experienced both by myself and by a friend who had shared the experiment. After 5 gr., sleep was generally disturbed, and I usually woke unrefreshed, with sickness, frontal headache, and deficient appetite. But the best-marked symptom, and one which I have not hitherto seen described, was a feeling of profound and most unusual depression, accompanied by so much irresolution and want of confidence in my own powers as to render me quite unfit for work of any kind. This invariably followed even a single 5 gr. dose; and,

* Dr. Rose is satisfied that the cause of the yellow-sight is an affection of the retina. The diphtric media are not stained, nor is the optic papilla (ophthalmoscopically) yellow; on the other hand, in rabbits great hyperæmia of the retina under the influence of the drug was plainly made out. The violet-sight he thinks an affection of the conducting apparatus (optic nerves), and the hallucinations one of the centres of vision.

beginning with dulness and heaviness, ran on into very much that sort of melancholia which I imagine jaundice sometimes produces. (FARQUHARSON, *Brit. Med. Journ.*, 1871, ii, 466.)

4. *o.* Dr. TH. KRAUS took at 7 a.m. 2 gr. rubbed up with sugar. Taste slightly bitter. 9 a.m., urine brimstone coloured, acid, on adding Na_2CO_3 and heating it became light scarlet. 11 a.m., urine with same reaction. 11.30 a.m., suddenly yellow vision came on, objects appeared surrounded by a light yellow border. 3 p.m., yellow vision returned when he directed his attention to it, otherwise not. 3.30 p.m., yellow vision gone, urine no longer showed above reaction. He now took 2 gr. more. At 4.45 p.m. urine showed above reaction. At 5 p.m., yellow vision, confusion of head, glittering before eyes, frontal headache, pressure on eyes and supra-orbital region, nausea, eructation, rumbling in bowels. On taking a walk all these symptoms went off. Next m., confused head, vertigo, weakness, no yellow vision, urine still showed above reaction, which grew gradually less during d., and was quite gone in e. 7.43 a.m., 3 gr. At 8.15 a.m., intense yellow and green vision, but no other symptoms. It declined in $\frac{1}{2}$ h., and was quite gone in 1 h. Urine showed characteristic reaction. Next m. that had gone. In repeated experiments the yellow vision came 40 to 45 m. after 3 gr. taken, and was gone in 1 h.

6. 8 a.m., 6 gr. sant. of soda. Yellow vision came on in 20 m., was very intense, came quite suddenly, lasted hardly 1 h. Vertigo, slight headache. Urine reacted as above.

7. 8 a.m., 10 gr. sant. of soda. 8.30, intense yellow vision, urine reacted distinctly purple-red like raspberry juice. Urine passed with pain, burning in urethra, constant urging to urinate, but often only a few drops discharged; the linen was stained deep yellow. Then he had headache, vertigo, pressure in eyes, eructation, nausea, rumbling in bowels, copious discharge of flatus, for about 2 h.; confusion of head and weariness lasted longer. Yellow vision lasted $1\frac{1}{2}$ h.

d. In order to observe the yellow modification of vision caused by sant. he took 20 gr. sant. that had been exposed to light, rubbed in a mortar, and repeatedly exposed to sun-light. After 2 h. the yellow vision suddenly came on and disappeared in $\frac{1}{2}$ h. Reaction of urine evident, slight gastric symptoms. (*Ueber die Wirk. des Santonins*, 46.)

5. *o.* Mr. R— took at 7 a.m. 2 gr. rubbed up with sugar. The urine passed at 2.45 p.m. when mixed with carbonate of soda and warmed, or allowed to stand, showed a scarlet reaction. 7 p.m., it still reacted. No gastric symptoms and no yellow vision.

8. 7.30 a.m., he took 3 gr. sant. of soda. 8.15, yellow vision. Another time at 8 o'clock took 6 gr. of sant. in water. After $\frac{1}{2}$ h. yellow vision, which was gone by 10 a.m. Usual reaction of urine. (*Ibid.*, 48.)

9. A boy, æt. 6, who was in the hospital for a broken clavicle, got on Sept. 20th 4 gr. sant. After 1 h. he passed water like a saturated solution of saffron, the secretion of urine was increased, the colour continued unchanged till the 21st. He then got 6 gr. sant. The urine became still darker, and though he only took $2\frac{1}{2}$ pints of fluid he passed 4 pints of urine. The colour disappeared on Sept. 24th, and the

pale yellow urine had an alkaline reaction. (MAUTHNER, *Journ. f. Kinderkr.*, xxii, 1.)

6. On Aug. 30th, a bright clear d., I took 5 gr. $\frac{1}{2}$ h. after luncheon. While engaged in reading some 3 h. after, I became gradually conscious of a yellowish tint on the paper, and fancied there must be a yellow haze in the air. My own hands and the complexion of others appeared of a sallow unhealthy colour, and the evening sky, which was really of a pale lavender tint, seemed to be of a decided light green. Vision was not perfectly distinct for some h., and was accompanied by a certain vagueness of definition. This effect has followed each time a dose of 4 or 5 gr. I felt prostrated and nauseated in the e., was chilly and unable to sit up writing, but after the night's rest all unpleasantness had disappeared. (WALTER S. SMITH, M.B., *Dublin Quarterly Journ. of Med. Sc.*, 1. 266.)

II. *Poisonings*.—1. A little girl, æt. 3 $\frac{1}{2}$ years, was given by her mother, who suspected the presence of worms, some pastilles of santonine, each containing 0.025 milligramme of the drug. One n. and m. producing no effect, she was one e. given 3 at once. A few h. after she awoke complaining of feeling ill generally, and of pains in abdomen. Soon the malaise increased, and she tossed about in bed and complained of general feeling of illness; she vomited glairy matters. Her features became drawn, and she was so terror-stricken that with cries of alarm she nestled in her mother's arms. Frequent desire to urinate then came on, and with effort small quantities of high-coloured urine were passed. From time to time she had rigors, which made her relations think it was fever. These symptoms lasted 3 h., and then the child rapidly recovered. (E. LABBÉ, *Journ. de Thérapeutique*, 1878.)

2. A child, æt. 3 years, took in $\frac{1}{2}$ h. 125 milligrammes of santonine in pastilles. In $\frac{3}{4}$ h. he lost consciousness completely. His head was hot, face swollen and purple. The eyes rolled convulsively in their orbits, the pupils were enormously dilated and insensible to light. The lips were covered with froth and the jaws were tightly locked. Respiration snoring, and convulsive movements of upper extremities. (LOHRMAN, quoted in *Ibid.*)

3. A child, æt. 4 $\frac{1}{2}$ years, took 12 pastilles of chocolate, in which were 30 centigrammes of santonine. In 2 h. he was very drowsy, with eyes fixed, bloodshot, and insensible to light, lips red and swollen. Respiration jerky and stertorous, pulse 45, soft and small, skin cold and covered with viscid sweat. Incontinence of urine, which passed drop by drop, staining his clothes an orange yellow (turning blood red on addition of nitric acid). This condition lasted 24 h. in spite of treatment, and objects appeared yellow to him during the crisis. (DUCLAUX, in *Ibid.*)

4. A child, æt. 2 years, was given 2 tablets containing 25 milligrammes of santonine each. In 10 h. slight convulsions in l. side of face, beginning at angle of mouth and spreading to muscles of orbit, were noticed. Similar clonic convulsions appeared in l. upper limb. Voice became tremulous and aphonic. Soon these symptoms passed away and he appeared quite well. But in an h. a new crisis appeared,

and whole l. side was convulsed. Soon convulsions became general and invaded abdominal and respiratory muscles, so that artificial respiration became necessary. Pupils were very dilated, but pulse remained quiet. It took 5 d. for the child to get well, and during that time he had 2 or 3 convulsive attacks a d., less severe, however, than the first. (Banz, in *Ibid.*)

5. A child, æt. 4 years, was given 3 gr. of santonine with her tea. Very soon vomiting set in accompanied by a severe rash, described as urticaria, and covering greater part of body. These symptoms not being referred to the drug a similar dose was given the following n. Almost immediately a white wheal appeared on the nose surrounded by an erythematous blush, and a similar eruption rapidly covered the body. Violent vomiting, without abdominal pain or purging, set in, and the entire face became swollen. In a $\frac{1}{2}$ h. the swelling had increased so as to render the face almost irreognisable. The lips, from which some viscid saliva issued, were enormously swollen and glistened from oedematous distension, and the eyes were almost closed. The child was put into a hot bath and rapidly recovered. (Svevking, who reports this case, *Brit. Med. Journ.*, 166, i, 1871, says that he never saw so great an exudation of serum in so short a time.)

6. A girl of 5, in good health, took 6 gr. in divided doses. As soon as she went to bed she was restless, and coughed incessantly all n. At 11 p.m. vomiting of yellowish slimy mucus set in and continued till next forenoon; also purging of watery, flaky, foul-smelling stools every 10 or 15 m. Dr. Burdick found the child at this time collapsed, face pinched, extremities rather cold, great restlessness, drawing up of lips over teeth, with pinched expression of mouth and nose; continual thirst for iced water, which she swallowed greedily. Consciousness clear when awake, but delirium during (restless) sleep. Complaints of seeing things yellow; urine orange coloured. Very restless; throws her whole body about from one side to another. Abdomen very sensitive, child complaining of dull pain at pit of stomach. In e. abdomen was somewhat tumid, but soft; breathing quick and catching; tongue deep red, without coating; perspiration, hot on occiput, clammy on forehead, icy cold on feet, latter creeping steadily upwards. Slight twitchings of facial muscles now set in. At 9 p.m., l. pulse was gone, r. thready and soft; consciousness clear. After midnight convulsions like tetanus set in,—head thrown backwards, eyes rolling about, countenance distorted, body sometimes nearly curved, with legs turned back; in intervals grasping at everything, gnawing of fingers, forcing everything into mouth. After four convulsions she died about 2 a.m. (*N. Am. Journ. of Hom.*, xiv, 139.)

7. Two gr. were taken by a child, æt. 2. In $\frac{1}{2}$ h. it was seized with convulsions; and within 1 h. it lay unconscious, with hot head and congested face, eyes twitching convulsively, pupils largely dilated and insensible, mouth foaming, teeth clenched, breathing scortorous, and upper limbs occasionally jerking. On the morrow recovery was complete. (*Ann. de Therapeutique*, xxii, 180.)

8. A strong boy, æt. 4, had been troubled for some months with ascariæ, for which he had occasionally got 2 gr. of santonine. On

November 4th (on recovery from a severe catarrhal attack), the mother gave him for ascarides 2 gr. of sant. at noon, and the same in afternoon. After his dinner he complained of sickness and inclination to vomit, stomachache, pain in abdomen, and at length vomited his food and a quantity of viscid mucus. A stool he then had brought away a quantity of ascarides. After the vomiting the child was very ill, lazy, and sleepy, and complained constantly of bellyache. Thinking it was from ascarides remaining, another dose was given. After $\frac{1}{2}$ h. vomiting and faintness reappeared. The nausea continued, the complexion became pale, blue rings round eyes, he sought staggering a quiet corner on his mother's lap, complained of constant stomachache and griping in bowels. At 6 p.m., the skin of all the body became cold, lips and ears bluish, face snow white, eyes turned up so that only the whites were visible, twitching of hands and feet, breathing hurried, crowing; when seen by doctor he lay quite stupid on his mother's lap, the arms and legs hung loosely down; they were quite cold, eyes dull, expressionless, pupils not dilated, but did not react to light, nausea, pain in belly, which was not painful to pressure, but was drawn in, pulse small, 135, face and forehead cool, moist, with cold sweat. He was so apathetic he allowed anything to be done with him. He only desired to drink. He was put to bed with warm bottles in a darkened room, got warm milk to drink, and getting warm he went to sleep in an h. Sleep restless, he started up, tossed about, but in m. was pretty lively, was still pale and poorly, pulse 110, but soft and full. A dose of calomel was given, and next d. the child was well. (SPENGLER, *Deutsche Klinik*, November 16th, 1850, p. 507.)

9. A boy, æt. 8, took 1 gr. of sant. at intervals of 3 h. After the 2nd dose he had trembling of limbs, slight convulsive twitching of facial muscles and fingers, inclination to vomit, yellow vision, delirium, quick pulse, urine orange-coloured with a greenish hue. All symptoms gone after 8-10 h. (GAISM, *Schweizer Zeitsch. f. Med. Chir. u. Geburtsh.*, 1852, 493.)

10. A delicate but healthy child, æt. 5½, got six 3 gr. doses of sant. at intervals of 3 h. After the 2nd dose at 7 p.m. restlessness, violent convulsions, trembling of whole body. Convulsions with trismus, general sweat, pale face, dilated pupils, quickened pulse and respiration. Abdomen distended and tender to touch, inclination to vomit, loss of consciousness, orange urine discharged involuntarily. This state continued till 3 a.m.; exhausted, quiet. At 8 a.m. still unconscious, lying on back, will not answer. Face pale, eyes sunken, pupils dilated, pulse slow, weak. Two clysters were given, and he died. (*Ibid.*)

11. A child, æt. 3, healthy and strong, got from its mother in the course of $\frac{1}{2}$ h., 5 santonine lozenges. After $\frac{1}{2}$ h. unwell, vomiting, convulsions, face blue-red, head hot, eyes convulsively distorted, pupils dilated, insensible to light, frothing at mouth, rattling respirations. After 2 h. the symptoms declined. In another h. consciousness returned, the spasm in jaws gave way, the child drank water. Slept a little at n., next m. well. (LOHRMANN, *Med. Würtemb. Correspondenzb.*, xxx, 3, 20.)

III. *Experiments on animals*.—1. *a.* Frogs become so apathetic after large doses of santonine (over 10 centigrammes), that they remain on their backs when placed there, and after a time spasmodic movements of the trunk and limbs, spontaneous and from contact, occur.

b. In warm-blooded animals there is first a period of depression, but this is followed by excitement. The animal begins to tremble, it pricks up its ears and grinds its teeth. Spasms affect one side of its face, the eyes roll in their sockets, the head shakes, the neck stiffens, then the convulsions become general and invade the limbs and trunk. (BINZ, quoted by Labbé, *loc. cit.*)

2. Dr. Mann, under direction of Prof. Falk, made a series of experiments on dogs with sant. and natr. sant. His account chiefly refers to the chemical reactions of the medicine in the body. The only points interesting to us are these:—The effects of sant. on the brain and eye are the production of incoherency and chromatopsy. Convulsions usually precede death in poisoning by sant. (*Deutsche Klinik*, 1860, 27 and 28).

CLEMATIS.

Clematis recta (vel *recta*), L. Upright virgin's bower. Nat. Ord., *Ranunculaceæ*.

1. *Provinge*.—1. HAHNEMANN, *Chronic Diseases*, part iii of original, vol. of translation. Contains 283 symptoms from self and 5 others, with 6 from authors.

2. F. ALB, surgeon, æt. 53, when 33 had fluent hæmorrhoids; on their disappearance had for 7 months diabetes insipidus. Two years ago had several severe attacks of lumbago, which was cured in 3 months by sulphur internally, and in the form of sulphur baths; has had inguinal hernia from a child.—Aug. 13th, 5.30 a.m., took 10 dr. 1st dil (2 to 100). 4 p.m., full and tense feeling in abdomen as after a full meal, increasing till 9 p.m.—14th, 6 a.m., 15 dr. 7.30 a.m., impaired hearing for 6 m., confusion of head until 2 p.m., relieved by open air, as if coryza were coming on, dry feeling in nose, appetite increased, cross humour. 10 p.m., 15 dr.—15th. On waking, drowsiness and heaviness of limbs. On rising, intoxicated confusion of head, impaired hearing for $\frac{1}{2}$ h., accompanied by ringing in l. ear, dry nose, jerking pain in r. upper carious molar, that had never before given any pain, lasting 2 m., and recurring after 6 m., removed by rinsing mouth with cold water. After breakfast sneezed 8 times, followed in 5 m. by discharge of clear water from l. nostril and such sleepiness he must go to bed. After sleeping $2\frac{1}{2}$ h. giddiness and constant sleepiness, not removed by open air, lasting till 2 p.m.; weariness, especially in thighs and knee-joints, cross disposition, indisposed to think, at same time forcing towards r. inguinal canal with frequent protrusion of a hernia (which he had had since childhood) and pressive pain in r. spermatic cord. 5 p.m., more cheerful; e., very hungry.—16th. Same symptoms, but milder.—18th, 6 a.m., 8 dr. mother tinct. As no symptoms occurred, took at 10 a.m. 10 dr. of mother tinct., but as no effect was produced, at 10.30 p.m. took 10

dr.—19th, 6 a.m., 15 dr.; 10 a.m., unusual gaiety lasting till 4 p.m. then sudden disinclination for work, cross humour, weariness of limbs, increased feeling of warmth, especially in face, quickened pulse, 82, dull pain in frontal protuberances. After 5 p.m. irresistible sleep when reading. Woke up at 7.30 p.m.; return of heaviness and weariness in lower extremities, and after taking some soup the sleepiness returned, so that he had to go to bed at 9 p.m. Woke at 11 with jerking-tearing in the place where a l. upper wisdom tooth had been extracted 7 years previously; the pain spread to l. zygoma and temple, which lasted till 2 a.m. and returned after a sleep of 2 h. for a short time.—20th. Woke with weight in head, itching in anus, hæmorrhoids swollen and moist with mucus, hurried call to stool, evacuation pappy, accompanied by much flatus, burning while urinating behind fossa navicularis, urine dark yellow, weariness. Took 22 dr. Cross humour, pressure in both frontal protuberances, frequent violent sneezing, watery discharge from nose, itching on hairy scalp on l. side of crown, an itching papule above r. eyebrow. 11 a.m., feeling of weight in l. testicle, tensive sensation in r. spermatic cord, rumbling in abdomen, extending to hernia, and in $\frac{1}{2}$ h. another pappy stool. 20 p.m., in bed, violent itching in hæmorrhoids, and slight mucous discharge. After reading in bed for $\frac{1}{2}$ h. the above toothache on both sides; fell into a dreamful sleep at 1 a.m.—21st. On waking, both teeth felt too long, gums swollen, pale; the pain extended to canine teeth on both sides, making chewing impossible; Merc. sol. v. removed this. (*Zeitsch. d. Ver. d. hom. Aerzte Oesterr.*, ii, 278.)

3. ANALIA ALB, æt. 18, from 2 to 10 years had every autumn an attack of croup, and from birth had paralysis of r. side of jaw with occasional lachrymation of r. eye. Menses regular since 15.—July 13th, 6 a.m., 10 dr. 1st dil. 10.30 a.m., flatulent distension of abdomen with rumbling. Little appetite for dinner. 2 p.m., frequent yawning with drowsiness, which went off in open air. 7.30 p.m., transient chill over shoulders and back, full feeling in pit of stomach, drowsiness.—14th, 6.30 a.m., 15 dr. 11.30 a.m., digging and pressure in r. temple, forehead, and zygoma, anorexia. 2 p.m., irresistible sleepiness and sleep till 5 p.m. On waking cross, furious anger, weakness in legs, drawing in wrists and knees.—15th, 5 p.m., same headache as yesterday. 1 h. later consistent stool, frequent discharge of normal urine.—16th, 6 a.m., 20 dr. 10 a.m., desire to work and cheerful humour till 2 p.m., when she became sleepy and disinclined for work. 7 p.m., sudden drawing, jerking, tearing and shooting in l. lower sound canine tooth, which soon extended through whole row of teeth, and went to and fro, relieved by cold water in mouth.—17th. The menses, previously always regular, came on 10 d. too soon, but lasted only 2 d.—19th, at noon, violent griping in abdomen, especially below navel, lasted $\frac{1}{2}$ h. and then a pappy stool with much flatus.—20th., 6 a.m., 10 dr. mother tinct. Tearing-digging toothache in all r. upper teeth, semilateral frontal headache. 11 a.m., nausea, with inclination to vomit, no appetite for dinner. 6 p.m., while walking in open air chill over shoulders, followed by heat for $\frac{1}{2}$ h., slight drawing in both wrists and insteps. 9.45 p.m., violent itching on both forearms and upper part of abdomen, making her scratch, which caused burning, a red military rash on itchy parts. Restless sleep at n., with

occasional moaning.—21st. The eruption appeared as small papules, the itching changed to burning. The eruption was worse about navel, some vesicles among it; this lasted till the 23rd, when it desquamated with violent itching. 3 p.m., traces of menses appeared, which ceased by noon of following d. Since then well. (*Ibid.*, 280.)

4. J. CZARY, veterinary surgeon, æt. 40, in his childhood had catarrhal bowel complaint; 10 years ago pneumonia, otherwise always healthy.—June 7th. 1 h. after breakfast 5 dr. tinct. No symptoms.—8th. 10 dr. after breakfast. After $\frac{1}{2}$ h. gaiety, tongue dry, thirst. After dinner felt well. 4 p.m., firm stool.—9th. 15 dr. after breakfast. After 1 h. transient gaiety, followed in $\frac{1}{2}$ h. by persistent prostration of mental powers; slight drowsiness after dinner, no stool.—10th. 20 dr., same symptoms, no stool, formerly bowels regular.—11th. 25 dr., after 1 h. great excitement, disinclination to mental work, irritability; some drowsiness after dinner. 3 p.m., a firm stool.—12th. 30 dr.—13th. 35 dr., same symptoms.—14th. 40 dr., soon felt uncomfortable, irritable, unfit for mental work, dryness of mouth, increased thirst. After a plentiful dinner sleep for 2 h. 5 p.m., a firm stool with straining. Observed a small swelling of submaxillary gland which increased till 22nd, then went off gradually. Stools till 23rd every 3 d. After this the normal state was restored. (*Ibid.*)

5. Dr. M. ERMEREA, æt. 29, was never seriously ill.—July 8th, 5 dr. mother tinct. 1 h. after breakfast. After 1 h. felt excited, gay, stronger than usual, and with more inclination for reading and thinking. This lasted $\frac{1}{2}$ h., soon followed by weakness of mind, disinclination for reading and thinking, and a kind of intoxicated state, perspiration, pulse quickened by 12 beats, and thirst; in 3 h. these symptoms gradually went off.—9th, 8 a.m., 10 dr. After $\frac{1}{2}$ h. a semi-liquid stool. 9 a.m., increased cheerfulness and inclination for mental work, perspiration and itching of skin. 10 a.m., felt exhausted, anxious, sad, irritable, was vexed at trifles, and lost all desire for mental work. This lasted till noon, the itching till 4 p.m. Appetite for dinner increased. 2 p.m., drowsy.—10th, 8 a.m. 15 dr. Same symptoms as yesterday. 3 p.m., drowsy and fell asleep; no stool. Sleep at n. disturbed by confused dreams.—11th. Woke with confused head. 3 p.m., again drowsy. 9 p.m., hard stool, with straining.—12th. Well.—13th, 8 a.m., 20 dr. 9 a.m., great gaiety, felt very happy, mental power increased; 1 h. later sad and very cross, no inclination for mental work, itching all over body, felt quite weak. This state lasted till 10.30 a.m. At 1 p.m. had only slight confusion of head. Appetite increased. 7.30 p.m., very sleepy, slept for 2 h., sleep at n. very restless, full of confused tiresome dreams. Urine passed at n. scanty and dark red.—14th. Woke at 6 a.m. with confused head. 8 a.m., 25 dr., same symptoms as yesterday.—15th and 16th. Nothing but great drowsiness after dinner. Smoking, usually agreeable, caused nausea and vomiting. E. hard stool.—17th, 8 a.m., 30 dr. Same symptoms.—18th, 8 a.m., 35 dr. Low spirits, anxiety and general weakness after a few h. Sleep afternoon and n. not refreshing, constant disinclination to get up. No stool to-day or yesterday.—19th. 40 dr. same symptoms. The accustomed cigar again caused nausea and inclination to vomit.—Until 24th, though he took no medicine he

had continued disinclination for mental work, great drowsiness, long unrefreshing sleep, dislike to get up, increased appetite, constipation, and low spirits. The lymphatic glands in r. groin swelled to the size of hazel nuts; this swelling was gone by the 27th; the cigar still caused nausea. From the 24th the stools, which had been constipated, occurred several times a day, loose, without straining.—Aug. 31st, 8 a.m., 5 dr. 1st dil. 10 a.m., increased warmth of body, thinking power and inclination for mental work increased. This lasted $\frac{1}{2}$ h., then the same copious perspiration, prostration of mind and body, disinclination for mental work; feet heavy, walking soon tired him; head confused, pulse quicker by 10 beats, occasional lightning-like stiches in various parts of skin. 12.30 p.m., only confused head, which disappeared in open air.—14th, 8 a.m., 10 dr. 9 a.m., great cheerfulness, movements easy, skin perspired agreeably, increased thirst, flush, redness in face, pulse quickened by 12 beats. 9.45 a.m., hard stool, perspiration, vacancy of head, heaviness of limbs, a sort of intoxicated state. Pain in forehead lasting till e.—15th, 8 a.m. 15 dr. Same symptoms as yesterday. Towards e. slight drawing and transient stiches in r. ear, cheek, and side of neck; moving head increased pain.—16th, 8 a.m., 20 dr. Cheerfulness for a short time was followed by discomfort, crossness and anxiety up till 1 p.m. Frontal pain till 5 p.m. 3 p.m., drawing in r. ear, cheek, and neck, with occasional ringing in ear, pulse increased by 16 beats. E., a hard stool with great straining. At n. many confused dreams, waking with a start; the drawing pain still felt and accompanied by tenderness of parts to touch.—17th. Woke with dull headache and great desire to go to sleep again. On rising the drawing pain was increased, and turning the head extremely painful. 8 a.m., 22 dr., no ringing in ear, drawing pain gone out of cheek but worse in neck and under chin; it was aggravated by touch, turning, and especially bending back head, a slight swelling under r. lower jaw. Saliva increased, urging to stool without effect.—18th, 8 a.m., 24 dr. After $\frac{1}{2}$ h. hard stool with straining; depression of spirits, great sensitiveness to external impressions, slight irritability and anxiety. The pain in r. side of neck made movement of head in any direction painful, the r. submaxillary gland was swollen, the l. painful but not swollen. Saliva increased, r. inguinal glands bigger than l., painful after walking.—19th, 8 a.m. 26 dr. Same symptoms as yesterday.—20th, 8 a.m., 28 dr. R. submaxillary gland not so painful, surrounding swelling less, but gland itself enlarged, l. more painful, not swollen. No stool.—21st, 8 a.m., 30 dr. Pain in r. submaxillary gland gone, but gland still swollen; l. also less painful, very slightly swollen. Inguinal glands as before. Saliva increased.—22nd. 32 dr.—23rd. 34 dr.—26. 36 dr. No more new symptoms. The glandular swellings and salivation all gone by the 30th. (*Ibid.*, 283.)

6. Dr. J. R. GRÜNBERG, æt 40, subject to catarrhal affections in spring and autumn. When he began proving was still suffering from remains of one of his usual spring catarrhal attacks.—May 8th, 6 a.m., 5 dr. mother tinct. After 2½ h., confusion of head and dull feeling in it. $\frac{1}{2}$ h. later, feeling of pressing as from a hoop round head; later, increased confusion of head with staggering; flush of heat and pressive

pain all over head. 10 a.m., heaviness and heat of head, and warm feeling in rectum, followed by urging to stool. 10.15 a.m., head heavier and hotter, swayed from side to side, so that it could not be kept upright, vertigo on entering a room, must lean head against something, and support body, which trembled, relieved in open air, but staggered in walking as if intoxicated. 10.30 a.m., heat of face, circumscribed redness of cheeks, heat externally in sacrum spreading from centre to periphery as if a warm poultice were there. 11.30 a.m., profuse sweat of head and sacrum, both when walking and when seated, till 2 p.m. Appetite uncommonly good. 3 p.m., the heat of sacrum spread upwards on l. side to scapula. Urgent call to stool but without result. 5 p.m., confused head. At 7 a.m. call to stool, and insufficient evacuation. Sleep restless with many dreams.—9th, 6 a.m., difficulty of waking. After rising, distension and tense feeling of abdomen, increased by touching; walking caused painful tension and squeezing in every muscle of abdomen, cough caused great pain; head confused, heavy, and painful in occiput; warmth in sacrum and weariness. 9 a.m., while walking fatigue in muscles of both shoulders and upper arms, later of all muscles of chest; disagreeable bruised and tired feeling of body, as after prolonged gymnastic exercises. All these symptoms, together with repeated call to stool, only once with result, lasted till 1 p.m. While lying in bed pulsation in l. temple. Sleep restless, vivid dreams and sweat.—10th. Difficulty of waking at 8 a.m. Very lazy; head full, heavy, hanging down, weariness. 9.15 a.m., 5 dr. In 5 m. oppression of stomach, eructation, nausea. 9.30 a.m., confusion and vertigo. 9.45 a.m., sudden heat radiating from within outwards in head, face, and ears, the latter burning hot. 10 a.m., head very heavy, swaying, stupefied, hanging forwards; vision indistinct, gait staggering; burning in sacrum, spreading up to r. shoulder, violent call to stool. 11.30 a.m., sudden rush of blood to face, dark redness of cheeks with yellowish tinge, also seen in white of eyes; fatigued appearance, trembling weakness of body, speech very low, pulse soft, small, quick = 96. This lasted till 3.30, when profuse sweat broke out, with relief. Appetite much increased. After dinner, urgent call to stool, a copious liquid stool with burning in anus; this went off in ¼ h. 5 p.m., ran about the streets with great agility and speed, without being able to find a resting-place either there or at home. After this had lasted 2 h. he felt as though all feeling had left him, and his mental power was gone, and he could not think. 9 p.m., great prostration and painful fatigue; shooting, throbbing pain in head, from within outwards, as if it would burst; feet feel like lead, walking difficult, could not read or write on account of the noise and throbbing in head, especially forehead. Midnight, in bed the roaring and digging in head and vertigo were increased, so that he had to get out of bed and seek relief at the open window. 3 a.m., perspiration came on and relieved these symptoms. Sleep disturbed by anxious, frightful dreams and tossing about, so that his head came to be where his feet were; he woke often with difficulty of moving and dry heat. 12th, 6 a.m., prostration and laziness, sensitiveness of r. spermatic cord and retraction of r. testicle; yellow colour of face and sclerotic; great swelling of

thyroid gland; head heavy, stupefied, on raising or turning it vertigo. 9 a.m., when walking the former symptoms in sacrum, loins, shoulders, and upper arms, only worse, and persisting on l. side. This state, to which was added frequent urging to stool, was relieved at 3 p.m. by perspiration. Appetite very great. 6 p.m., all the former symptoms recurred with increased violence and lasted till 2 a.m. No stool in spite of frequent calls. Stupefied sleep disturbed by tossing about and dry heat.—12th, 7.30 a.m., very tired on rising. Testicles hanging down, heavy, painful. Yellow colour continues. Head as bad as before, but could get through his mental work; must hold head bent forwards and downwards. 9 a.m., on going out the pain in sacrum, loins, shoulders and upper arms became shooting, contractive, alternately with burning and drawing pain, referred to the bellies of the muscles; this, with frequent calls to stool and increased pain in testicles and spermatic cords, lasted till 4 p.m., and was relieved by profuse sweat. Gait unsteady; appetite uncommonly good. 7 p.m., to the muscular pains were added transient shooting in l. hypochondrium, and a dull tensive feeling over l. side of chest. 10 p.m., the last-named symptoms became aggravated to cramp pain; the shooting pain localised itself in spleen, with a dull, tensive feeling in fundus of stomach, increased by pressure. Soon after this the heart was affected by violent squeezing and shooting, sometimes in base, at other times in apex. These symptoms lasted till 2 a.m., when he fell asleep from exhaustion. Night's rest disturbed.—13th. Same symptoms as yesterday with marked weakness of memory.—14th, 8 a.m., laziness, heaviness of lower extremities, extreme pain in testicles and spermatic cords. Urine passed slowly and in thin stream. Same symptoms as yesterday till 5 p.m., and in addition great irascibility, crossness, dislike to everyone; he shuns all society, but dreads to be alone; dislike to speak, despondency, *œdium vitæ*, constant thoughts of death, fear of, and yet longing for the repose of death. Then anxiety, lachrymose humour, longing for home and his family, at length copious weeping and violent trembling of the body for 1 h., complete prostration. Sleep with the most horrible dreams, frequently disturbed in order to urinate, which left slight burning in urethra.—15th. Excessive weariness and prostration on rising, ill feeling and unhealthy yellow complexion. Urine passed with difficulty, return of the head symptoms and the pain in sacrum, loins, shoulders, upper arms, and chest. Appetite increased in proportion to the feeling of illness. 7 p.m., stinging, shooting, and jerking contractive cramp pain in l. intercostal muscles; recurrence of the symptoms in heart, spleen, and stomach in increased intensity, and also in l. kidney. Memory very weak. These symptoms lasted till 2 a.m. Sleep deep, undisturbed, full of dreams.—16th, 7 a.m., difficulty of waking, great heaviness of lower extremities, both legs felt larger. On inner side of r. leg near inner angle of tibia, three soft lumps the size of walnuts, dark red, painless, the upper one seemed to fluctuate in its centre. In other respects the same symptoms as yesterday, relieved by sweat, but after that coming on again.—17th. The same symptoms but slighter, transient stitches in urethra and dull, tensive pain in prostate, frequently recurring during d. Frequent urination that always

left a prickling burning in orifice of urethra. E., tired feeling and burning tensive pains in back of thigh; legs heavy and painful, gait staggering. Then the nape became affected, causing head to be held in opposite direction for some d. Frequent urination at n.—18th, 7 a.m., rose with difficulty, legs very heavy. L. leg visibly swollen with a painless swelling, the size of a pigeon's egg, like those on r. leg; visible swelling of the veins of both calves. Urine passed slowly and in thin stream, leaving a burning along urethra, and tickling pricking in its orifice. Urine turbid, milky, dark, with many mucous flakes, and thick frothy layer on top. Head must be held back; the slightest movement of it caused violent vertigo. Memory very feeble. All the former symptoms in back and arms. When walking the l. testicle became painful, enlarged, and hanging down. The r. intercostal muscles and those of the anterior surfaces of the thigh became affected.—19th. Extraordinary sopor in m. 10.30 a.m., dull pains in both knees, they felt heavy, as if gone to sleep, hindering walking for 2 h., ending with sweat in knees. 11 a.m., urgent call to stool, burning in front part of urethra for $\frac{1}{2}$ h., then urging to urinate with smarting tickling in orifice of urethra. After urinating, itching tickling for some m. for $\frac{1}{2}$ h. The headache which began in the m. increased by 2 p.m. to such a degree, especially in occiput, that it caused nausea and violent vertigo which ended in profuse sweat in head, with cold face and body. Appetite unnaturally great. 5 p.m., the head and muscle symptoms returned. 7.30 p.m., after a cup of coffee all the symptoms returned with violence and were relieved by profuse general sweat. 9.30 p.m., vertigo while walking in open air, gait staggering. Sleep disturbed by frightful dreams.—20th. No remission of the above symptoms. During d. long-continued erections with disinclination for coitus. To-day only the gluteal muscles were affected, and there was hardness of hearing.—21st. All the symptoms remained, and in addition a very tiresome cough; respiration sometimes much accelerated, sometimes very slow, chest tight, pains in both lungs; frequent, rough, barking cough causing continued burning in all inner surface of sternum and a painful shooting in both lungs. 9 p.m., slight shooting pain in r. arch of palate hindering movements of tongue; slight discharge of mucus from urethra. N. disturbed by urging to urinate, dryness and pain in mouth.—22nd. Same symptoms persisted; the painful spot in r. arch of palate had an ulcer on it; in r. border of tongue two deep transverse fissures very painful.—23rd. The fissures in tongue were changed into sores with hard borders of an elongated round shape, and in middle of tongue were more deep and superficial fissures which on the 24th were changed into gaping sores causing the most acute pain, preventing him taking anything cold or warm into the mouth or moving tongue. The other symptoms were moderated.—25th. The severe pains in the tongue abated; small vesicles appeared on its upper surface and borders, and small wart-like elevations on its under surface, and two similar large elevations on each side of frenulum linguæ, which was not painful. Still discharge from urethra, otherwise no troublesome symptom. After this the symptoms all declined and were all gone by the 28th. (*Ibid.*, 393.)

7. J. P. HUBER, surgeon, æt. 27, took various dilutions for 48 d. and mother tinct. up to 10 dr. daily for 20 d. without any effect.—Jan. 26th. 10 dr. 1 p.m., lost his breath 3 times when going up a little hill quite slowly, chest felt very hot, and he had some frothy expectoration. Each attack lasted a few m., and in $\frac{1}{2}$ h. felt all right.—27th. 10 dr., 11 a.m., 2 similar attacks of breathlessness when walking on a flat road. They lasted at most 3 or 4 m. Next n. very restless, he could not sleep though he felt very sleepy, tossed about till midnight. He took no more medicine, but the restlessness continued for several successive n. (*Ibid.*, 290.)

8. W. HUBER, surgeon, æt. 26, took various dilutions down to 1st without any remarkable effect.—March 2nd, 11 p.m., 20 dr. mother tinct. Sour taste on tip of tongue for 2 h.—3rd, 8 a.m., 30 dr. Twitching of muscles of r. upper arm lasting a few seconds and returning after 3 m. 11 p.m., 40 dr., restless and frequent sudden waking on account of frightful dreams, with the sensation as if the bed and floor swayed.—4th, 8 a.m., 50 dr.; 2 p.m., 70 dr.; 9 p.m., 80 dr.; forenoon, roughness in throat, deep voice, constant spitting of watery saliva; afternoon, for 2 h. rumbling in belly.—5th, m., 80 dr.; e., 90 dr., no effect.—6th, m., 100 dr.; noon 100 dr.; 11 p.m., 100 dr. M. roughness in throat as from catarrh. 4 p.m., while in warm bath burning shooting and sore feeling in frenum preputii and orifice of urethra lasting 3 h., also violent burning when urinating.—7th, m., 150 dr.; 4 p.m., jerking shooting pain in l. upper row of teeth, tobacco not relished; e., some pricking in belly.—8th, m., confused head as after a debauch, weakness, sleepiness, much yawning, bruised feeling of feet and legs as after great fatigue; some pinching in belly and rumbling for $\frac{1}{2}$ h.—9th, m., 300 dr. Eructation of air, frequent spitting, tongue furred, general weakness and relaxation. (*Ibid.*, 290.)

9. A woman, æt. 28, well with the exception that she has spasms of uterus and stomach before the menses. May 7th, m., 5 dr. of tinct. Repeated flushes of heat with red cheeks, and feeling as of a veil before eyes.—8th. 10 dr., burning in both eyes; pain in forehead which is hot, weight in occiput, weakness, prostration, increased temperature of the whole body, pulse 88, strong and full.—9th. 15 dr., great burning and itching in eyes, pupils contracted, feeling of fulness and weight in sinuiput, frontal headache, frequent rising up of heat, heat and fulness of whole body, pricking feeling under skin, which is quite dry, then towards noon moist; dryness of throat, appetite increased, thirst, troublesome weakness with knuckling of knees under her; pulse 96, full, tense.—10th. 15 dr., same symptoms.—11th. 20 dr.; to the above symptoms there were added heaviness in chest with feeling of tightness there and need to take frequent deep breaths; slight, deep, transient stitches in lungs, great sensitiveness of both mammæ, hot forehead, cool cheeks, increased flow of urine, pulse 100, strong, full, tense.—12th. 25 dr., continuance of above symptoms, burning in eyes less, sensitiveness of mammæ increased, occasionally flying stitches through them, they felt ulcerated when touched ever so gently, and they felt fuller and heavier. Urine copious, turbid, pulse 112.—13th. 25 dr., forehead felt full of lead, pulse 106. All other symptoms re-

mained the same, also a cutting contractive pain in abdomen.—14th, 30 dr., in $\frac{1}{2}$ h. constriction in stomach and soon afterwards in abdomen, which felt hot and tense; after great straining vomiting of a little watery fluid mingled with streaks of light blood. In forenoon three liquid stools, head very confused, heavy, hot, increased heat of body followed by general coldness of body with hot head. (JENCZEK, *Ibid.*, 365.)

10. Dr. VON KACZKOWSKY.—26th May, 1 dr. of mother tinct. No effect.—27th, 10 p.m., 3 dr. On waking cheerful, pricking as from needles on various parts of body, drawing and stretching in joints, tension in soft palate and secretion of compact mucus. 9 a.m., a glass of liqueur caused heat of whole body and confused head. Noon, great weakness and little appetite.—28th, 12 midnight, 7 dr. Sweat during sleep, quite unusual. On waking weakness, crossness, anxious restlessness as if something bad was about to happen to him, no desire for coffee or cigar. 7.30 a.m., a loose stool with burning in rectum, which recurred frequently during d.; pricking and itching in various parts of body; drawing and stretching in joints. Noon, no appetite, great shivering and weakness. E., weakness, thirst, scanty urine, turbid and smelling peculiarly, sleeplessness.—29th. At midnight 10 dr. M., head confused, inclination to sigh, tightness of chest, sensitiveness of ankles and wrists. 7.30 a.m., loose stool with burning in rectum; head confused, tension of cervical muscles and glands.—30th, midnight, 10 dr. M. tightness of chest as from mental emotion; pulse quick, head confused, sometimes vertigo. E., great heat of body, itching in rectum and genitals, urine scanty, turbid, with smell of Russia leather; no inclination to sleep.—31st, 11 p.m., 10 dr. M., weak, prostrated, heat in head and chest with deep sighing; pulse quick, appetite diminished, great drowsiness after eating; after 20 m. rest great weakness, drawing and stretching in limbs, heat in rectum and genitals, urine scanty with smell of Russia leather.—June 3rd, forenoon, 1 dr. Heat of head and chest, little appetite, unusual thirst; towards e. weakness, heat in rectum and genitals.—4th, forenoon, 2 dr. On rising stretching and straining of limbs, heat in head and chest, flickering before eyes, qualmishness in stomach with yawning, little appetite, much thirst, great drowsiness after eating; after 20 m. increased weakness and heat in rectum and genitals. Urine scanty, high coloured, no peculiar smell.—5th, forenoon, 5 dr. N. restless; single tearings dart through body like electric shocks, sometimes on r., sometimes on l. side. On rising heaviness of head and chest with deep breathing; no appetite for breakfast; easy stool with hot feeling, then burning in rectum. Pulse quick, qualmishness of stomach with yawning, little appetite for dinner, great thirst. Great drowsiness after dinner; after 15 m. rest, cross, giddy; e., tightness of chest.—6th, forenoon, 10 dr. Long of falling asleep, restless dreams, profuse sweat; on rising weakness, prostration of limbs, head heavy, tightness of chest, loss of appetite, sadness, ill humour, hot feeling in rectum and genitals, burning and itching in anus after an easy stool, qualmishness of stomach, great drowsiness after eating. After 20 m. rest, head heavy, giddy. E., increased heat with anxiety in chest, no desire to sleep.—9th, forenoon, 10 dr. N. disturbed by disagreeable dreams, sometimes with jerking like electric shocks, weakness, prostra-

tion of limbs, heaviness of head, tightness of chest, frequent deep breathing, stool easy, followed by burning and itching in anus, pulse quick, urine scanty, dark coloured, ill-smelling. These symptoms lasted till 12th; by 14th was well.—July 11th, 10 p.m., 1 dr., no effect.—12th, 11 p.m., 2 dr. On waking weakness, anorexia, flat taste, disinclination to work, on walking great weariness and slight oppression of chest; after eating, irresistible sleep for 20 m., thereafter increased laziness. In e. ebullition and sexual excitement.—13th, forenoon, a screwed-up feeling in head as from iron cap, prostration of limbs, tightness of chest with deep sighing. Great drowsiness after eating. Midnight, 3 dr. Towards m. copious sweat of peculiar smell, urine high coloured.—14th. Very weak on rising, could hardly get up. On walking or going upstairs heaviness of limbs, tightness of chest, pressure on cranial arch and optic nerves. Noon, no appetite; e., in society attack of weakness followed by perspiration. 9.30 p.m., 4 dr., sleep profound, full of dreams.—15th, m., the same weakness, heavy head, tight chest, deep-coloured urine, smelling of violets, hot; during a loose stool burning in anus. Feeling of prickling and itching in scrotum that had occasionally been felt increased to a great degree; heat when urinating, burning irritating feeling in scrotum; e., 7 dr.—16th. On waking tongue thickly furred, symptoms same as before. After dinner and siesta much heat of head and chest, frequent sneezing, roughness in throat. E., pain in the cervical glands (that had formerly been swollen). 9 p.m., 10 dr., sleep restless, full of dreams.—17th. Weaker on rising than when he went to bed, roughness of throat as usual, frequent sneezing, cervical glands (not swollen) more painful, other symptoms as before. E., transient feeling of cold. 9.30 p.m., 13 dr.—18th. To usual symptoms are added burning of eyelids, discharge of much flatus, burning in soles, 2 stools, with burning in anus and swelling of a pile, formation in genitals. 10.30 p.m., 15 dr.—19th. After a restless n. all the symptoms in aggravated degree. Somewhat relieved in open air. Some blood with stool. E., 18 dr.—20th. Same symptoms. 11.30 p.m., 20 dr.; after a very restless night, with dreams and sweat, head felt as if screwed in a vice; after stool great faintness; other symptoms as usual. No more medicine taken. The confusion of head lasted 3 d., the stomach symptoms 2 d., the sensitiveness of eyelids a fortnight; the loose daily stool gave place to a hard stool every other d.; the dark-coloured violet-smelling urine became for a few d. like whey, and smelt ferid; later the stools became again loose and every d. the feeling of weight in sacrum and swelling of pile returned. Some small itching scabs appeared on hairy scalp, a burning hot feeling in soles; transient stitches in joints; single itching pricks in forearms, thighs, and about genitals; when scratched an urticarious efflorescence appeared, which soon went off. (*ibid.*, 367.)

11. Dr. KLINOWSKI.—Sept. 6th, 6 a.m., 5 dr. tinct. Immediately warm feeling all over body.—7th. 10 dr., same warm feeling and increased activity of mental powers for $\frac{1}{2}$ h., giving place to sulky humour and disinclination to mental work. Increased urinary secretion.—8th, 15 dr., same symptoms. These 2 d. 2 loose stools; his habit was to have a stool only every 3rd d.—9th, at n. woke frequently with a

start, followed by anxiety and sweat, especially on forehead.—10th. 25 dr., immediately feebleness of thinking faculty with sulky, restless disposition. At same time transient burning stitches in l. groin; the glands there were swollen. E., besides the pain in groin, had pressive pain in l. shoulder-joint, especially on raising arm. N. passed in tossing about in bed, with anxiety and sweat on forehead.—17th. 25 dr., the stitches in l. groin more continuous, the glandular swelling increased. The pain in shoulder-joint at first drawing, then tearing, at last spreading all over l. side of chest as a prickling sensation, felt at all times. E., felt an annihilating sensation of moral weakness, so that for more than $\frac{1}{2}$ h. he wept, and then fell asleep for 3 h.—12th. As the inguinal gland was greatly swollen, and the pain in shoulder continued, he left off the medicine; these symptoms grew slighter and were gone in 3. d., but the loose stools still continued twice a d. for a considerable time. The urinary secretion, from being increased, became scanty. (*Ibid.*, 371.)

12. Dr. W. Löw, from Jan. 20th, took daily 2 to 3 dr. of tinct.—28th. There occurred a most unusual mental state; he felt as if oppressed by some secret grief or vexation about some disagreeable event, and the foreboding of some coming disaster.—27th. Woke tired, as if he had spent the night in dancing, with oppression of chest and precordium. E., restlessness and oppression; good appetite; drowsy.—28th. Woke uncomfortable after a restless n. E., very exhausted.—29th. Woke by a burning-itching pain in r. cheek and ala nasi. The painful part showed a circumscribed redness covered with small elevations. Towards e. numerous vesicles size of pins' heads appeared on spot and neighbourhood, with painful burning sensation. Little appetite and desire for repose.—30th. The vesicles grown the size of lentils.—31st. A similar eruption on thigh with heat and itching. In spite of his depressed spirits the sexual desire was increased. (*Ibid.*, 373.)

13. Dr. A. VON MARBENZELLER began his proving of the mother tinct. on June 17th, taking 4 dr. every other d. The symptoms observed were frequent sneezing with transient increase of nasal mucus, nocturnal headache, palpitation of heart, which occurred from June 17th to July 1st. He considered these symptoms as accidental.—From 1st to 5th July he took every d. 8 dr. As the above symptoms reappeared in still greater intensity, he was convinced that they were due to the drug. The most prominent of the symptoms was the headache, which came on invariably soon after midnight, and woke him up repeatedly. It was a pressive pain in occiput extending to nape, and towards the front of the head, like what occurs after taking too much alcohol; sometimes it was as if the head had been in a bad position, at the same time palpitation of heart which prevented lying on l. side. During the d. frequent sneezing as if coryza were about to come on, with transient increase of nasal mucus, sometimes cough with expectoration of mucus. These last symptoms lasted about $\frac{1}{2}$ h., then went off and recurred about 6 times during d. The last 2 d. there was unusual weakness, drawing tearing now in l. now in r. leg down tibia to ankle; single more violent tearings in r. finger-joints, especially when moved; frequently tickling in urethra, especially in fossa navicularis, also several pimples on the face, which he had formerly often suffered from, but not for a long time

previously. Appetite was rather increased than diminished. The head symptoms lasted, though in diminishing intensity, for about 6 d. after leaving off drug. (*Ibid.*, 374.)

14. N. N.—, medical student, æt. 25, had had in childhood measles, two attacks of scarlatina, the second time with general dropsy. From Oct., 1853, to beginning of 1856 had suffered from frequent attacks of indigestion accompanied by intolerable headache especially in l. temple, great irritability, tendency to melancholy, some feverishness, great weakness, and faint feeling.—August 10th. 4 dr. tinct., eructation for several minutes and tensive sensation in stomach.—11th. 6 dr., same symptoms but more severe.—12th. 8 dr., the eructation continued longer, with pressure in stomach and tension of whole abdomen, going off in forenoon; he was excited, cheerful; less sleep than usual, vivid dreams; stools hard, scanty.—13th. 10 dr., no eructation, slight tension of stomach, excitement continued. 10 p.m., disagreeable prickling sensation in r. inguinal glands for 10 m. Sleep uneasy. 14th, 12 dr.; except excitement, none of the other symptoms. E., great pain in r. inguinal glands and transient pain in r. axilla, restless sleep.—15th. No med. M., remarkable swelling of both inguinal glands, which are painful on walking, great headache, weakness, prostration, furred tongue; depressed spirits and drowsiness.—16th. No med. R. inguinal gland more swollen, pain in it prickling but not lasting long, increased when walking or when in bed, great prostration, diminished appetite; no stool; l. inguinal gland a little swollen.—17th. 14 dr., swelling of r. inguinal gland was in e. more conspicuous both to sight and touch; no pain, only tensive feeling when walking. The drowsiness and weakness continued, but appetite returned.—18th. No med. Same symptoms.—19th. 16 dr., during d. frequent eructation, distension of stomach and abdomen, swelling of r. inguinal gland very conspicuous, pain only when walking.—20th. R. gland still swollen, l. still a little; considerable headache, no stool, diminished appetite, weakness, drowsiness.—21st. Felt unwell. Same symptoms.—22nd. Gastric symptoms and headache better after stool; inguinal glands as before.—23rd. Inguinal glands unaltered, otherwise better.—24th. Inguinal glands the same, some tension in them when walking.—25th. 18 dr.—26th. 20 dr.; no increase of glandular swelling. The glandular swelling continued unaltered for 4 d. longer; it then began to decline and was gone on the 10th d., but the tensive feeling in that part lasted other 2 d. (*Ibid.*, 376.)

15. Dr. JOSEPH RAIDL, æt. 47, in good health, on May 7th, 5 a.m., took 5 dr. mother tinct; no effect. 8th, 5 a.m., 10 dr. No effect.—9th, 5 a.m., 20 dr. Afternoon, slight sensitiveness of hairy scalp, on a spot the size of half-a-crown on r. side, also slight itching in inner canthus of r. eye.—10th., 6 a.m., 30 dr. The sensitiveness of scalp extended over whole front of head, and was more intense, the itching and burning in r. canthus increased and extended to l. inner canthus.—11th. 30 dr., same symptoms, and in addition drawing pain on r. side of forearm from elbow downwards, combined with difficulty of moving it. Felt very sad, no inclination to speak; sleep restless at n.—12th, m., felt very exhausted, the sensitiveness of scalp continued;

there were yellow crusts in inner canthus. 5 a.m., 40 dr.; in addition to the former symptoms, violent itching in hairy scalp, the epidermis there came away in bran-like scabs; as if a veil before eyes; the letters disappeared on reading, sometimes quite dark before eyes; great prostration, little appetite, very sad. At n. little sleep, dreams of unfortunate occurrences.—13th, m., all the former symptoms, but spirits better. Afternoon, stitches at base of glans penis, itching in fossa navicularis, frequent call to urinate and erections of penis.—14th. Spirits good, still itching of scalp, in canthi, in glans penis, and fossa navicularis, scaling of epidermis continued.—15th, m., 30 dr. No new symptoms, nor yet on the 16th, when he took 30 dr., only the itching of scalp and scaling of epidermis were observed.—19th. Four inflamed cutaneous glands in l. thigh. During the next 14 d. several more such inflamed glands appeared in different parts. They appeared as deep-red pimples the size of millet seeds, with a red areola; many of them gradually disappeared, others became filled with thin pus. From 20th to 24th, every morning 20 dr. of 1st dil., which caused no symptoms.—24th. Felt in both groins a disagreeable tension, and the glands were swollen.—25th. 20 dr. 1st dil., during d. slight stitches in fossa navicularis, inguinal glands continued swollen, and also on 26th.—27th. Noticed on his shirt three small spots made by discharge from urethra. After standing for 2 h., chiefly on l. foot, felt more tension in l. inguinal region, and the following e. increased swelling of l. inguinal gland. During next 4 d. the swellings began to diminish so that on June and only the l. gland remained slightly swollen; after 2 d. no more urethral discharge, but the inflamed cutaneous glands were still there, and the cutaneous nerves were very sensitive to cold and the friction of the clothes. No more medicine was taken during June.—3rd. About 3 p.m. such exhaustion and weakness he had to go to bed. Then there came on heat, headache, great thirst, pulse 100, urinary secretion very scanty and dark coloured; n. very restless.—4th, m., felt better, and could get through his work, though with difficulty. After dinner great weakness, heat, &c., as before. So it went on till 8th, when after profuse sweat the previous n. and much chloride found in urine, he felt much relieved.—9th. Very weak. At n. very restless, recurrence of the heat, headache, thirst, and all the former symptoms with increased intensity, so that on 11th and 12th he was delirious during the e. exacerbations. From this time till 24th felt as if the skull were too small for the brain; the sensitiveness of scalp returned, and also the scaling of the epidermis. Inflamed cutaneous glands appeared on face, and upper and lower extremities, which often went on to suppuration. During these days he had great thirst, suppressed cutaneous secretion, rare stools, the sp. gr. of the urine ranged between 1024 and 1026, the pulse between 90 or 100. Great weakness, restless sleep, perceptible emaciation, especially of lower extremities. The n. of 24th, he had copious sour-smelling sweat, the urine was in greater quantity and contained much chloride. Began to mend on 25th, and by 28th was quite well. (*Ibid.*, 378.)

16. Dr. RYS. Is a very nervous man, subject to congestions of head, vertigo, permanent tinnitus of e. ear, slight illusions of vision, and

hæmorrhoids.—May 19th. 5 dr. 11 a.m., objects appeared to r. eye indistinct, enveloped in colourless mist, for $\frac{1}{4}$ h. (a not uncommon symptom). Noon, some frontal headache, relieved by pressure, aggravated by cold; empty eructation, inclination to vomit, much saliva, complete anorexia, feeling of discomfort, weakness of whole body, gloomy disposition, bitter taste, head confused.—20th. Woke with slight confusion of head, bitter taste, tinnitus of r. ear greater than usual.—21st. 5 dr., no effect.—23rd. 15 dr., only the above-mentioned eructation.—24th. 30 dr., slight burning in œsophagus, eructation. E., the same affection of the sight as that observed on the 19th, for $\frac{1}{4}$ h. in the l. eye. (*Ibid.*, 382.)

17. Dr. LOYAZ SCHÜCK, æt. 41.—July 9th, 6 a.m., 10 dr. tinct. No effect. 7 p.m., 20 dr. After 2 $\frac{1}{4}$ h. burning and itching on back and chest, especially sternal region, and transient flushes of heat along whole back and chest. After walking for $\frac{1}{4}$ h. in open air, extreme weariness and exhaustion, with dull frontal headache and itching of fore part of hairy scalp. Must go to bed earlier than usual, but did not fall asleep before tossing about restlessly for a long time, with increased heat and constant headache; sleep disturbed by confused dreams. Woke at 3 a.m. with a sudden start, and could not again fall asleep.—10th, m., felt quite dazed and bruised; temperature of body considerably higher, pulse 90, full and irregular, occasional shooting and drawing pain in r. hip-joint and whole hip extending forwards to groin, r. inguinal gland somewhat swollen and painful when touched, shooting tearing pains in inner side of r. ankle. No appetite for breakfast. By noon the swelling of inguinal gland was somewhat abated; troublesome disposition to erections. Urine dark-red, saturated, no sediment. Two diarrhœic stools in forenoon. 2 p.m., great appetite. After dinner uncomfortable preservative pain in forehead and temples, occasional stitch-pain in hepatic region, especially when moving. Sleep restless and dreamful.—11th, 6 a.m., 30 dr. The first h. had only slight frontal pain and occasional stitches in inguinal region. 10 a.m., the frontal headache increased to an intolerable degree, combined with tension and pressing in temples, and tearing and drawing in nape; the burning and itching on back and chest returned with greater intensity; pulse 95; mouth and tongue quite dry, thirst and longing for ice, which did not refresh, violent shooting and throbbing in two carious teeth, feeling as if uvula were too long, occasional dry cough, painfulness in hypogastrium extending to penis, increased sensitiveness of both inguinal regions, though the swelling of r. inguinal gland was almost gone; tearing-drawing pains in r. arm and knee, also in both ankle-joints and r. big toe; alternate pain in liver and spleen only coming on during certain movements, and soon going off; complete anorexia, general exhaustion and prostration, 3 diarrhœic stools, urine scanty, with burning pain in orifice of urethra as the last drops flowed. 9 p.m., irresistible desire to sleep, but on going to bed could not go to sleep till 11 p.m. Woke once at n. with a vivid dream.—12th. Continued frontal and temporal headache, dazed feeling as after a n. spent in dissipation, itching in fore part of hairy scalp, occasional tearing and drawing in nape, where there are some itching vesicles, disagreeable pesty taste not removed by breakfast, still some sensitiveness

of uvula, frequent irritation to cough with some mucous expectoration, itching on chest, back and outer side of thighs, slight swelling and painfulness of r. inguinal gland, tearing and shooting in r. hip-joint, knee- and ankle-joint, violent pain in r. heel which soon goes off, but returns for a short time in afternoon. The other pains much mitigated. No stool.—13th. Still some exhaustion and prostration in m.; otherwise well. (*Ibid.*, 383.)

18. Dr. C. WALTER.—May 8th, 6 a.m., 5 dr. tinct. Soon, cold feeling in mouth, increased by drawing in air, taste like decoction of salep.—9th, 6 a.m., 10 dr. earlier, before taking drug, a quantity of flatus discharged smelling of old cheese (he had eaten some previous e.). Cold feeling in mouth and salep taste continues. M. and afternoon, copious loose stool. Tension in l. inguinal region, extending down into thigh and increased by walking. Afternoon, increased thirst.—10th, 6 a.m., 15 dr. Cold feeling in mouth and salep taste less; tension in groin continues. During d. several stitches in hepatic and splenic regions. E., frequent shivering and fits of heat and cold, violent pain in head as if it would burst, forehead and cheeks hot, the latter red; burning in eyes as if fire screamed out of them, and dry feeling; appetite diminished, with thirst, tongue furred white, hands dry, hot, and felt swollen; arms, sacrum, and thighs felt bruised; pulse not accelerated, 73; scanty and lumpy stool in e.—11th, 7 a.m. 20 dr. Tension in groin diminished, burning and dry feeling in eyes, dry, rough, and astringent feeling in tongue, bruised feeling in both renal regions, glutæi muscles and thighs, when touched and on moving, especially stooping; two loose stools.—12th, 6 a.m., 10 dr. Soon, slight pressure in stomach, yesterday's symptoms continue; three loose stools.—13th. No med. Great prostration and weakness all over, head confused, forehead hot; burning heat and dryness of eyes, which are red and sparkling; nose hot, with thin discharge; frequent sneezing; tongue white, gums and teeth sensitive when chewing; thirst; transient stitches in both hypochondria, tension in glands of l. groin, pains in l. external and internal inguinal rings; bruised pain in sacrum, kidneys, and thighs; rheumatic pains on outer side of l. knee and hough for some h., interfering with walking; transient tense shooting pains in r. outer ankle; two loose stools.—14th. Woke up at 3 a.m. with burning heat in feet and hands. Rose at 4 a.m. on account of restlessness and dry heat, took 30 dr., and went out walking at 4.30 a.m. Head giddy and full as after a night of dissipation; eyes burning hot and dry, making him close lids; the nasal mucus streaked with blood; tongue white, taste pappy and astringent; pressure in stomach, tension and shooting in hypochondria, causing difficult breathing; tension and pain in inguinal glands and rings; feeling as if scrotum were retracted, as from cold, which was not the case; the above-described pains in sacrum, kidneys, and thighs, stiffness in l. knee-joint, tense shooting pain in both elbows and wrists, hands and feet dry, hot, and former as if swelled; urine hot; two loose stools.—15th. No med., former symptoms continue; m., cough with little expectoration, occasional cramp in calves. Afternoon, violent cutting in hypogastrium, followed by diarrhoea; e., violent pain in head, as though it would burst.—16th.

No med. Extraordinary bruised feeling and weakness, head confused, eyes burning and dry, astringent taste; feeling as if toothache would come in last *r.* upper molar, which is carious; under point of *r.* scapula for some h. flying stitches, making inspiration difficult; stitches in liver and spleen; less tension in inguinal region; rheumatic pains in knee-, ankle-, elbow-, and wrist-joints; hands feel swelled, dry, and hot; two stools, a quantity of urate of soda in urine.—17th, 6 a.m., 40 dr. Soon inclination to vomit, for 1 h. All yesterday's symptoms continue.—18th, 6 a.m., 50 dr. Inclination to vomit all forenoon; bruised feeling less, head freer, taste better; the rheumatic pains continue, and are also in metacarpus and fingers; three stools.—21st. Began a fresh proving with 50 dr., increased the dose at intervals of a few d. to 60, 70, and 90 dr. During this time he felt extraordinary tired feeling and bruised sensation in all limbs, especially on waking in m.; this went off by walking in open air. Itching in various parts of skin, especially the hairy parts, making him scratch; frequent yawning; shivering especially on back; very cross and unhappy, no inclination to speak; plunged in thought without knowing what he was thinking about; great confusion of head, with pressure and tension in forehead; burning and dryness of eyes; burning pain in both external ears, with heat perceptible to touch; some coryza and frequent sneezing, dull toothache in hollow tooth for a short time; some pain in gums, worse on chewing; tongue on waking dry and rough; no appetite, soon satiated; nausea when smoking; frequent flying stitches in liver and spleen; liver painful, increased by pressure; pressure and tension in sacrum and kidneys, increased by stooping, which was often impossible; feeling in inguinal ring and glands as if a swelling would come there; stools loose and more frequent; scrotum often retracted; occasional stitches in chest, worse during inspiration; on outer side of *l.* elbow pain as if he had got a blow there, increased by pressure and movement. (*Ibid.*, 386.)

19. A woman who took ʒss. of tinct. at once had very depressed spirits and thoughts of suicide, with feeling of illness, nausea, and violent shooting in palms and soles. (*Ibid.*, 391.)

20. Dr. K. WÜNTT, æt. 28, took on successive days 5, 10, and 20 dr. without any effect.—May 18th. 25 dr., after some h. disagreeable cold feeling in stomach, nausea, confused head, and vertigo.—19th. 25 dr., in addition to above symptoms he observed when writing that the letters appeared to run together; sometimes there was diplopia and flashing before eyes; confusion of head increased. During d. frequent sneezing, stuffed nose, tickling in larynx, and cough; eyes red, pulse 80. N. restless, tiresome dreams, frequent waking and starting out of sleep.—20th and 21st. 30 dr. each day; stools, hitherto always easy, became rarer and harder. The catarrhal symptoms continued these 2 d.; congestion of head; great prostration and drowsiness, aphthæ in mouth, swelling of submaxillary gland.—22nd and 23rd. Each d. 35 dr., same symptoms, headache limited to forehead, pressive.—25th. 40 dr., after 1 h. drawing downwards in lower extremities to soles, lasting ½ h.; disagreeable pressure in both testicles.—28th and 29th. Each d. 45 dr., no effect.—31st and June 1st. Daily, 50 dr., no effect.—7th and 8th.

Each d. 40 dr. 1st dil. Head somewhat confused, weakness and prostration, restless sleep.—11th and 12th. 60 dr., drawing in various parts of body, especially feet; no stool these 2 d.; on the last headache all over head, with noises in ears. (*Ibid.*, 391.)

27. a. LEMAKE.—Feb. 26th, 1853, 7 a.m., fasting, gtt. v. of tinct. Tearing in bones of head, 8 o'clock. Strong pressure and boring r. elbow-joint and above and below it, 8.45. No other symptoms. 28th, 7 a.m., gtt. v. Boring above r. elbow, 7.45. Wandering pain, like pressure, in legs, bones of head, r. shoulder-blade, in front r. shoulder-joint, toes, knees, l. maxillary bone, and tarsal bones. These pains last to 9.15 and appear stronger while sitting than walking. Several fugitive stitches in bladder, 8 o'clock. Frequent urging to urinate, 9 o'clock. March 3rd, at 6.45 a.m., gtt. xv. After $\frac{1}{2}$ h., tearings in l. forearm; disgust; tearing in frontal bone. Pressure in l. leg. Heavy feeling of exhaustion in legs and back even from moderate moving indoors. Tearing pain in abdomen, especially umbilical region; aggravated from pressure; lasting $\frac{1}{2}$ h. Urging to urinate, 7.30. Pressure in r. forearm, l. toes, here and there in bones of head. Stitches in urethra. Drawing in teeth, nasal bones, sacrum, toes, shins, fugitive and not always equally strong, 8 o'clock. Tearing pain from lumbar vertebrae going round lower part to front of chest. Heaviness r. arm with pressing through it. Pressure in ankle-joints and tarsal bones. After 9.15, no further symptoms. 8 p.m., while sitting, suddenly a sharp stitching pain below l. ribs during which breath involuntarily stopped, body inclined to the l. and hand pressed deeply into the spot, lasted 1 m. All d., especially first hours after medicine, very marked, unusual accumulation of flatus in abdomen. 8th, at 7 a.m., gtt. xv. Same symptoms as 3rd, ceased 9.15. Pain in l. side did not occur, but stitches in whole r. half of chest at 7, stronger from breathing, without any cough, lasting 1 m. 9th. —During stormy cold weather, tearing in r. arm and l. ankle-joint. At occiput below skin a painful nodule, size of peppercorn, never occurred before. Dispersed by 11th. 21st, 6.45 a.m., gtt. xxv. 7 a.m., beginning of pains in joints, boring and pressing, with feeling of exhaustion. Pressure in forehead and vertex. Tearing in bones of leg, l. elbow-joint. Lasting sharp stitches in r. thumb-joint (?). Strong boring in ankles. Tearing in bones of head, especially in frontal and parietal bones, 8 o'clock. Pain in limbs between 8—10 o'clock, but slight. Headache lasted through greater part of day. 9.30 p.m., strong lasting boring in l. ankle-joint while sitting. Sudden sharp stitch l. side under ribs, 10 p.m. April 17th, 7 o'clock, gtt. xl. Until 10.30, no symptoms. Then violent pain in l. half of chest above, worse at each inspiration; when breathing deeply pain penetrated through l. breast to shoulder-blade, deep respiration being impossible, and causing involuntary calling out. No cough; external pressure had no effect. Moving l. arm backwards or straight upwards aggravated pain to utmost and could not be borne. Pressing l. scapula against back of chair or inclining body to l. side considerably aggravated the pain. Only when sitting quietly and breathing superficially l. hardly noticed the pain. Walking in the open aggravated it much. Never had such thing before. Before taking medicine at 7 a.m., I had without cause attack of hiccup, which

I used to get formerly for a few minutes, but had not had it for some months. The med. had no influence on it, and it ceased only at 8.30, after food; but I had a hiccup every $\frac{1}{2}$ or $\frac{3}{4}$ h. during whole day. At 9 p.m. it began again with same violence as in m., much aggravating the pain in chest. Hiccup lasted for more than 1 h. and ceased only after forced in- and ex-piring in quick succession. At n., pain in chest woke me several times. Lying on r. side not tolerable. 18th.—Pain almost as violent as previous d. in m. Deep respiration remained impossible, violent boring pain in l. shin-bone before and after rising, and repeatedly returning. 20th.—Pain in chest not quite ceased. 25th, 7 a.m., gtt. l. Immediately after med., pain in calves, arms as if beaten. Heaviness of head. Pressure at different spots of cranial bones. Sickness. Pressive pain in different joints, making movements very difficult. Several times cutting belly-ache, 10 o'clock. 28th, 7 a.m., 100 dr. Pressive pain in wrists and ankles, 7.30. Head heavy. Pressing in different spots of it. Feeling of exhaustion in whole body as after great fatigue with stiffness of joints and frequent cracking during movements. Dull pressure in orbits when moving eyes, pressive pain between shoulder-blades and in lower part of thorax, 8 o'clock. Pain with inspiration in upper part of l. chest. Strong pressure in ankle-joints, toes, knees, shoulders, elbows, upper arms, feeling as if these parts were turned and pulled asunder. Dull pressure in bones of head. All these symptoms last till about 3 o'clock.

h. May 6th, at 6.45 a.m., 150 dr. Immediately after med. pains begin in joints and bones of head, frequently shifting. Strong drawing in bones of legs. Pressure in sacrum and higher up often repeated. Boring in bones of r. head, 9.30. Painful exhausted feeling in legs. About mid-day, no symptoms. In e., stitches orifice of urethra. 7th.—Violent boring in bones of r. head and pains in joints. (*Z. f. h. Kl.*, li, 14.)

22. HENCKE.—July 13th, 1844, at 9 a.m., took gtt. xx of tinct. within 1 h. in glass of water; on 14th, gr. xxx. 15th.—Awoke with fugitive tearing pains on r. patella, which remained fixed soon after rising in r. leg, especially shin-bone, for several h. During following day, frequent, sudden, but short-lasting, tearing pains now in l. now in r. half of head. Slight pressive pain in region of stomach after very moderate dinner. In e., urging pain in urethra, not urinating, when standing, decreasing when sitting, and disappearing lying in bed at n. 16th, 17th, and 18th.—Troublesome, pressive pains lasting in r. shin-bone, especially painful when walking; when driving, always pain in r. knee supervened. Several times, especially in e., tenesmus in urethra. During n. sleep restless, disturbed by voluptuous dreams. After 19th symptoms gradually disappeared. On 25th, gtt. xl; 26th, gtt. l. Soon after last dose, furious pressing pain in temples. During day similar pains on shins and troublesome pinching (urging pressing) pains in testicles, which pained after slight touch, but were not swollen. All these symptoms aggravated from walking. After dinner again pressive pain in stomach, later fulness and tension in abdomen, stool regular. On urinating, some burning in urethra, which was tender to touch. 26th.—Restless sleep at n. During d. heaviness in all limbs. Head

confused, sometimes painful, especially in temples. Digging pains in shins, also in ball of r. big toe. Pressure at stomach after dinner, fulness of abdomen afternoon. At times digging, pressing, urging pains first in r., later also in l. testicle, but lasting only for a m. each time. Burning in urethra during micturition. Unwonted sexual excitement. Symptoms disappeared by 30th. 31st.—Gtt. lx. Besides symptoms as above, which lasted for a few days, easy perspiration and copious thin stool on Aug. 5th. After this well. (*A. A. Z.*, lxvii, 201.)

23. Mrs. N—, no family, æt. 36, formerly cook, of violent temper, dark complexion, years ago suffering from rheumatism, since some years very well, took with me, in same way, July 13th, gtt. xx of tinct. ; on 14th, gtt. xxx ; on 15th, gtt. xl. Complained in e. of recurring tearing pain, but not lasting long, in l. upper arm. 16th.—Also tearing in l. hip, sacral pain; disappeared after 3 d. 25th.—Gtt. xl ; 26th, gtt. l ; 27th, gtt. lx ; 28th, gtt. lxx. 29th.—Sleep restless, dreams ; during d. digging, pressing pains in sides of head, extending to occiput, and similar pains in l. upper arm, worst in shoulder, much impeding movement of arm. In e. moderate pain in r. molars, which were sound, of similar character as the pain in head and arm. Biting, burning pains in eyes. Conjunctiva bulbi slightly reddened. 30th.—Sleep restless, disturbed by dreams. In m., r. cheek much swollen and tender, yet no more toothache, but pain in arm from shoulder extending to elbow. No other change. 31st.—Restless sleep, dreams, had to get up to void urine several times, which was quite unknown to her. R. cheek still much swollen, tip of nose red and swollen. At root of nose small, tender, red nodule. Pain in the upper arm and shoulder still continue. Frequent desire to urinate with scanty discharge. Urine clear, reddish ; during micturition disagreeable pressure in genitals, which often troubles without micturition. Aug. 2nd.—Swelling of cheek has subsided, other symptoms less or disappeared by Aug. 6th. Menses more profuse than usual. (*Ibid.*)

III. *Experiments on animals.*—1. An oz. of powdered leaves was given to a small dog. It slept for over an h. and then had diarrhetic stool and very abundant diuresis. (*STOERCK, Lib. de Flamm. Jovis, 1769.*)

COCA.

Erythroxylon Coca, Lam. Coca leaves. Nat. Ord., *Erythroxylaceæ*.

I. *Proving.*—1. Dr. RAUCH, æt. 45, tall, thin, strong, and healthy. Oct. 31st, 1855, at 7 a.m., took 3 dr. of 2x dil. In 20 m. borborygmus, flatulent discharge, and stool earlier and looser than usual ; at 8.45 passing stitches in l. side, increased by deep breathing ; at 9.30 constriction of chest, succeeded by fulness in and below epigastrium. All symptoms disappeared after dinner, but pulse was weak and quicker than usual until n. Nov. 2nd.—Took 5 dr. of 1, dil. at 7 a.m. In 5 m. borborygmus and flatulent discharge came on ; stool soft but at normal time ; borborygmus, &c., continued into afternoon ; since 9 a.m. pulse small, quick, and weak ; craving for food earlier than usual, though

epigastric region felt full. 4th.—5 dr. of 2x at 7 a.m. Frequent sneezing and urging to stool prematurely, but other symptoms did not appear. 7th.—10 dr. at 6 a.m. At 6.30 borborygmus; nothing else. 8th.—15 dr. at 9 a.m. Borborygmus; slight giddiness (objects revolving) on going into open air for an h. [On 9th and 10th, cough with thick, whitish-yellow expectoration, and on 11th and 12th severe attacks of flatulent colic, both dubious results of medicine, of which no more was taken.—Eds.] (Cl. MÜLLER'S provings, *Hom. Viertelj.*, vii, 4, 443.)

2. Dr. REICHENBACH, æt. 35, slender and delicate, liable to headache and feverish attacks after any exertion, which, however, soon pass off. July 1st, 1855.—At 6 a.m. took 10 dr. of 2x dit. At 8 giddiness on climbing steep staircase followed by one loose stool. On 2nd took 10 dr., and on 3rd 25 dr. without effect. 4th.—At 7 a.m., 25 dr. of 1x. At 7.30, giddiness for $\frac{1}{2}$ h., relieved by rest and a glass of wine. In e. felt sleepy very early, but could not sleep; was wakeful in bed, and felt heat with throbbing of temporal arteries till midnight. Next d. very irritable, chilly; in e. weak and tired. 6th.—At 6 a.m., 10 dr. of tinct. At 8, feeling in head of great exhaustion; flashing before eyes like distant lightning. 7th.—Sat up till 3 a.m. writing letters, then, after coffee, took 10 dr. Felt extraordinarily well, lively, and ready for work till noon; in e. same flashes as yesterday. 8th.—At 4 a.m., on returning from an accouchement took 25 dr. At 4.15, much exhausted and sleepy; at 5.30 could hardly keep eyes open; after coffee for $1\frac{1}{2}$ h. much brighter, but then great weariness so that he could hardly get through his work; beer had no influence; in e. flashes as before. Went early to bed, but was sleepless, and burdened by thoughts, also shivery. Rose at 11, and worked till 2 a.m. perfectly awake; then quiet sleep. 9th.—Abstained from coffee. Very great weariness; eyes painful; white specks before them, so that book he was reading appeared marked; little appetite, slimy taste. Quite overcome with sleep during dinner, and did not awake for an h., when specks had disappeared, but on attempting to read drawing in occiput was felt extending to temples, lasting all afternoon. At n. profound sleep. 10th.—Giddy and weary; involuntary quick stepping when walking, head inclined forward with fear of falling. Little appetite for meal. P.m., fever and great weakness, relieved by wine. Weary in e., but sleepless in bed. At 11 p.m. took 10 dr. After temporary sleepiness great wakefulness till 4 a.m., then quiet sleep till 7. 11th.—Lively and strong all d. Took 10 dr. in e. Sleepless n. Very poorly all next d., but slept soundly, and on 13th felt well. On 14th took, early, 25 dr. No effect save spoiled taste at breakfast. 23rd.—Took 65 dr. before dinner. Giddiness, whirling in head. On going out after dinner white specks and bright serpentine lines before eyes, with great weariness for an h.; then pressive headache on r. side and in occiput, with giddiness and chilliness. These symptoms disappeared towards e.; then indigestion with tasteless eructations, nausea, and great weariness. In $\frac{1}{2}$ h. after going to bed became wakeful and lively, with shivering, giddiness, and fever, crowding of thoughts and solicitude. Sleeplessness till 2 a.m., ending in sweating, rest, and sleep.

Awake early; liquid stool and indigestion. P.m., faintness, pain in occiput. 25th.—Diarrhoea and loss of appetite. P.m., same as yesterday, but with shivering and slight fever. 26th.—Poor appetite, soon satiated; coated tongue and slimy taste, with a little fever. Occipital headache p.m. with fever. 27th.—Two loose stools without other symptoms save weakness. On Oct. 11th took 25 dr. of a fresh tinct. Pressing pain in r. cheek-bone. 12th.—50 dr. Giddiness, pressure in occiput. P.m., headache, as if catarrhal, with cold feet and unusual urging to stool. 13th.—More headache with shivering. 14th.—60 dr. in m. P.m., weariness with giddiness and headache (forehead and occiput), and shivering. 15th.—Slight headache p.m., with some shivering. 16th.—Unusual urging to stool, but no diarrhoea; otherwise quite well. (*Ibid.*)

3. Dr. KALLENBACH, æt 27, in good health. Having taken on several occasions at intervals of some d. small doses of 5—10 dr. of tinct., he observed nothing more than humming of ears. On May 16th, at noon, took 50 dr. Feeling of deafness in both ears (as if something had happened there), but he still heard as clearly as before; audible pulsations in both ears, singing in l. 17th.—Still feeling of deafness. On reading aloud, feeling as if membrana tympani were pressed outward by the sounds, or as if they reached ear only through a thick medium. Pulsation and humming in both ears, in forenoon. By e. all symptoms had disappeared, but there was cracking in ears on empty deglutition. (*Ibid.*)

4. a. Dr. C. MÜLLER.—In good health, but has some emphysema, causing slight dyspnoea and palpitation at times. But slightly sensitive to medicinal action. Oct. 28th, 1853.—Masticated half a leaf. 29th.—In forenoon much oppression on chest and dyspnoea, especially on ascending. P.m., unusual sense of fullness in stomach, abdomen, and chest, with eructation, and no inclination or ability for work. 30th.—In m. 2 dr. of tinct. In forenoon same dyspnoea. Nov. 1st.—In m. 3 dr. Less dyspnoea than before, and on 2nd and 3rd, no med. being taken, less than usual. Felt very hungry at 11 a.m., and ate dinner with much appetite, of which I had not been conscious while taking drug.

b. June 30th, 1855.—Took 5 dr. of tinct. at 8 a.m. In 1 h. much eructation, lasting 2 h., but accompanied with unusual freedom in breathing, and inclination to walk fast and far; yawning and sleepiness when sitting. Great appetite from 11; after 12 singular feeling of emptiness of stomach and abdomen, and in walking painful contractive sensation in stomach, and near it on l. pain like a splenic stitch. Ate much more than usual at dinner and supper without subsequent fullness. Great sleepiness towards 5 p.m. for an hour. July 1st.—On waking after a comfortable n. sense of dryness in throat, which, on swallowing, felt as if swollen, disappearing in 10 m. At 8 a.m., 10 dr. Towards 9 same sensation in the throat for 2 h., recurring in e.; uvula actually swollen. After 10 borborygmus, emptiness, and hunger, stitches in spleen; these last also recurring in e. while walking, obliging him to stand still for 10 m. Appetite as before. 2nd.—After good n. throat as before, and same splenic pain for 5 m. Throughout d. pain-

ful lameness in 4th and 5th fingers of r. hand, especially on stretching them out or grasping anything, without external tenderness. Dysphagia, though less, continued all d. During next d. throat almost well, but fingers were same, and firmer pressure brought out some tenderness. On 4th, fingers right, throat nearly so. On 5th, well. On 6th, early, took 30 dr. In 10 m. slight eructations, followed by slight attack of giddiness when walking, with sensation as if body were drawn towards r. side, lasting some m. In $\frac{1}{2}$ h. slight dyspnoea and oppression on ascending stairs, recurring in e. whilst walking slowly, with former affectum of uvula. Later, whilst sitting, an almost painful weight on chest, with constant necessity to inspire very deeply; extraordinary weariness after a moderate walk. Dyspnoea even when in bed, and palpitation, with same weariness. 7th.—On waking early, same pain in throat, with dyspnoea and distension of stomach. At 8 a.m., 40 dr. In 10 m. frequent yawning, continuing all forenoon; in 25 m. vertigo on sitting down and again on rising; constant dyspnoea on exertion, with craving for deep inspiration, as if to breathe away something. Momentary darkness before eyes about 11; a hearty meal with good appetite at noon; woke from siesta with sudden jerk; pain in throat much less. Towards 4 p.m., black specks flying before eyes; two stools to-day (most unusual). 8th.—Scarcely any dyspnoea, but great weakness and weariness in forenoon. 9th.—Well. 10th.—At 8 a.m., 60 dr. Towards 9, yawning, but no sleepiness, in open (warm) air; between 11 and 12, in cool room, felt very sleepy and head ached, both, however, disappearing on again going into open air. 11th.—On awaking, pain in muscles of forearm, on edge of radius, on moving it or on pressure, as if from a violent blow; pain lasted throughout d., and was very violent, but there was nothing to be seen. 12th.—Still pain in arm on pressure, but none on motion; bad taste on waking, poor appetite; fulness of stomach with continual urging to eructate for 3 h., recurring after dinner, and lasting till e.

c. Sept 25th, 1856.—Masticated two leaves in m. On walking in forenoon had weight in chest with dyspnoea, and occasionally painful pressure in chest affecting breathing much less. 26th.—Recurrence of uneasiness in uvula, which next d. had become pain, rather severe when swallowing; sense of swelling increased towards e., when there was decided elongation and reddening of uvula and its vicinity. Pain in throat went off gradually during following d.

d. Oct. 16th.—Took early 10 dr. of tinct. In $\frac{1}{2}$ h. tasteless eructations, surprising inactivity all forenoon, heavy, even sleepy, with frequent yawning. 17th.—Lachrymation of r. eye on waking, slight reddening of conjunctiva and lids at inner angle; slight mucous discharge from both eyes all d. In forenoon surprisingly fresh, lively, and inclined to walk. (*Ibid.*)

5. R. H—, æt. 26, in good health save for occasional slight attacks of wandering rheumatism, and a papular eruption on back of hand. On Oct. 1st, 1856, at 6 a.m., masticated four or five leaves for 15 m. In 10 m. had scintillations before eyes; while writing, letters seemed to swim together on paper, and he seemed to be using two pens; feeling gradually came as of knocking above eyes; great tingling in ears. At

8, rather severe headache, sense of dryness in throat, great humming in ears; vision is now clear. At 10, headache better, still heaviness in head and ringing in ears; oppressed feeling in chest; great nausea after breakfast. Food not relished at dinner. At 6 p.m., severe vomiting, twice, of watery mucus, without bitter or acid taste; after that strong taste as of leaves; urine dark brown. No stool to-day, in spite of several attempts; was awake at 11 at n. with desire for one, which proved firm and abundant. 2nd.—At 7 a.m., masticated two leaves. In 10 m. symptoms as yesterday, but headache less violent; heart beats strongly with oppression of chest; no nausea. 3rd.—Same mastication, and same symptoms of eyes, ears, and head. Much constipated with abdominal uneasiness. Again palpitation for 6 or 10 m. 4th.—Masticated one leaf at 6.45 a.m. At 8, usual symptoms, but slighter. From noon toothache in hollow tooth. Bowels moved at 3 and 6. 5th.—On account of violent toothache masticated no more leaves. Bowels moved at 8 p.m. 6th.—Toothache gradually went away, and bowels moved at 10 p.m. 7th.—At 6.45 a.m., masticated five leaves. At 7.15, found it impossible to continue reading, letters running together; fiery points passed downwards before eyes; dulness of head. At 9, violent headache directly above eyes; great ringing in ears, with deafness; no appetite for breakfast. At 1 p.m., head still very heavy; very great palpitation. Dinner not relished; feeling as if he would vomit; great thirst; feet as if filled with lead. At 6.30, violent vomiting of a watery mucous substance followed by taste of leaves; great anxiety; all d. roaring in ears and sparks before eyes. At 9.30, great weariness; bowels unrelieved to-day; urine small in quantity and of dark-brown colour. 8th.—Did not sleep much; bad taste in mouth, with great thirst; head still dull and confused. At 5 p.m., first motion for 39 h., hard and knotty. At midnight awoke with urgent desire for evacuation, but without result. 9th.—From 9 p.m. masticated four leaves, and while doing so went to bed. In 10 m. pressure in eyes; coloured vision; sparks pass downwards before eyes; great anxiety and palpitation; broke out into copious perspiration; violent headache over eyes; great nausea. At 11.30, vomited twice, with after-taste of leaves. Fell asleep towards 1, but was extremely restless, waking at least six times before 3; also bad dreams and constant perspiration. Tolerable sleep 3—7. 10th.—Rose with great dulness in head, as after a debauch; no appetite; coated tongue, and bad taste. No stool to-day. 11th.—Masticated two leaves, with same effect on eyes, ears, head, heart, and abdomen; also great thirst. In e. bowels moved, first time for 41 h. On undressing next e. discovered on inner thigh a number of small red pimples; they itched dreadfully during n., so that he scratched till blood came. At 7 a.m., two more leaves, with usual results. Costive stool at 8 p.m.; continued itching and fresh pimples. 14th.—Same; abdomen greatly distended. 15th and 16th.—No med. Feels well; bowels regular; no fresh pimples, and old ones do not itch so much. 17th.—Two more leaves with usual results; fresh pimples behind knees and horrible itching. [Writing Nov. 1st, prover states that he has since been uncommonly free from rheumatism, and that the old eruption on hand is greatly improved.] (*Ibid.*)

6. H. PEKAREK, æt. 9, a healthy, lively, and clever child. Proved a tinct. prepared from leaves dried 17 years ago. On Dec. 3rd took 10 and on 4th 15 dr. without effect. On 5th, 15 dr. In e. groaned (unconsciously) whilst writing. Drank lager beer without subsequent nocturnal enuresis which ordinarily occurs. 6th.—15 dr. In e., while writing, some irregular or heavy breathing. At 10.30, uneasy turning in bed, and repeated raising of arm under head; indistinct talking during sleep; on a light being brought in, woke and stared with dilated pupils, and was a long time before she came to herself (all this abnormal). In m. confusion of head, disappearing after toilet and breakfast. Took 15 dr. At 10, headache, going off after dinner, somewhat listless and tired in e. (*Ibid.*)

7. *o.* I made experiments with the infusion, which was of an insipid, grassy taste. When taken in e. it caused great uneasiness, discomfort, and sleeplessness; but in m. its action was much milder, causing loss of appetite.

8. Dr. Archibald Smith once used infusion in place of tea, but felt in such a state of nervous excitement that he did not repeat the experiment. (PÖPPIC, quoted in *Ibid.*)

10. Dr. STOKES, Dec. 9th, 1857, took at 6 p.m. 10 dr. of tinct. in water. During e., hearing became painfully acute, brain excited, and there was somewhat painful pressure on sides of head. In bed, pillows felt hard to neck and head; and, though very sleepy, he turned and twisted about all n., and woke tired and heavy next d., with aching shoulders. Dreams were of great activity. In n. and next m. mouth and palate felt as if burned with pepper. 10th.—In e. took same dose, and had same painful constriction round head and dreamy excited state in n. 11th.—Repeated dose m., noon, and e. In e. buoyant and elated. Indisposed for food all d.; n. again dreamy and restless. 12th.—Same dose at 10.30 a.m. Stool 3 h. late, and less easy than usual, as if from dryness of rectum. Appetite still diminished and n. dreamy. 13th.—10 dr. again. Stool as yesterday. After this digestion, aptitude for work and power of muscles became extraordinarily good, and continued so. He took no more med.; but sleep continued full of active troubled dreams, notwithstanding which he awoke lively and vigorous every m., for about 10 d. afterwards, when effects of proving faded away. (*Monthly Hom. Rev.*, iii, 163.)

11. The warm infusion in small doses produces effects very much like those of ordinary tea, and, taken in larger quantities, agitation and inability to sleep. In cold infusion, it heightens arterial tension. (MÓRENO Y MAIZ, *Pract.*, i, 234.)

12. Dr. LILIENTHAL, æt. 54, took 4 dr. of tinct. at 2 p.m., and half a teaspoonful at 4 p.m. and at midnight. At 4, fulness of head, as after wine, and dull pain over l. temple; at 7, vertigo, with dulness in forehead, after a relished dinner; at 9, lazy and sleepy, indisposed to read; soon after midnight dose, sense of compression in region of short ribs; restless sleep, awake off and on the whole n. For next d. or two fulness in forehead, as if it were heavier than rest of brain. On 4th d. took half a teaspoonful at 7 and 9 a.m., whole at 2 p.m. Brain so muddled that he cannot read intelligently; slight prising pain in l.

temple, with dulness of head; palpitation; stitches running towards bowels, and in afternoon 4 mushy stools, without pain. On 5th and 6th d. stools natural. On 6th d., at 5 p.m., a teaspoonful. Fulness and pressive pain in forehead, though near open window, worse towards 9 p.m. On 7th d. took teaspoonful of tinct. at 5, and of 3rd dil. at 7 p.m. Plagued all d. with desire for stool, and sulphuretted hydrogen flatulence; fulness and tension in forehead with slight shooting in r. temple, and dull feeling over whole brain, headache increased (especially over r. eye) in e., with burning of eyes; slight stitches in r. chest, near sternum, about 4th rib; general restlessness; feels tired and weary, though not sleepy, must exert himself not to shut eyes; every symptom passed off at 9 p.m., on being called into open air. On 9th d. took teaspoonful of 3rd, and had recurrence of frontal tension, with disposition to close eyes as before. On 10th and 11th d. took frequent drop doses of 30th without effect. (HERING'S *Mat. Medica*, i.)

13. ADELAIDE WILLIAMS, M.D., took small doses of tinct. for 2 d. without effect. On 3rd d., 20 dr. Felt stimulated after increased dose; constipation; fine stitches in urethra before micturition. On 4th d. took teaspoonful doses of tinct., and from 6th to 11th d. drank freely of strong infusion. On 8th, recurrence of stitches, and on 9th, of constipation. On 10th, hoarseness, with tickling in upper trachea, and some cough; menses, 2 d. late, came on at noon, very profuse during n., not in steady flow as usual, but in gushes, waking her from sound sleep. On this d. and next, r. temporal headache in m., sharp on first rising, and all d. on looking up; pain darts from temple in straight line to vertex, leaving sore feeling behind; same part hurts on coughing. Without date,—slept all n., but very restless and dreaming, and in all her dreams much hurried. (*Ibid.*)

14. SARAH A. FERGUSON, M.D., took a strong infusion in tea- or tablespoonful dose one or more times a d. for 8 d. (none on 5th d.). On 1st d., after 1 b. dull frontal headache, relieved somewhat on walking a mile, returning on coming indoors, with heavy feeling of eyelids, and lasted (from 9 a.m.) till setting of sun, when it was followed by a state of mental exhilaration. On 2nd d., from 7 to 10 a.m., "felt like work;" after that dull frontal headache for rest of d. On 3rd and 4th d., same headache, relieved after eating, and leaving at sunset. On 5th d., same headache, relieved by open air; heavy eyelids; burning redness of cheeks, first l. then r., with white spot in centre of latter; weary, no inclination to work. On 8th d., mental depression. (*Ibid.*)

15. DR. G. W. POPE on several occasions took strong decoction, or chewed and swallowed a handful of leaves. Either was followed by a total disinclination to eat or sleep for 12—24 h. according to quantity taken. If taken in afternoon, he would pass n. in reading or writing, and felt no fatigue in m. (*Ibid.*)

16. It has long since been remarked by the oldest observers that by the regular employment of the coca the Indians (of Peru) require very little nourishment, and with a double quantity scarcely need anything at all in order to execute with ease the most laborious undertakings. (VON TSCHUDI, quoted in *Ibid.*)

17. After chewing a drachm of the leaves: increased saliva; bitter, afterwards aromatic taste; feeling of comfort in stomach as after a good dinner. After the 2nd or 3rd dose, slight burning in mouth and fauces with increased thirst; the digestion seemed to take place quickly, the faeces gradually lose their stercoraceous smell. After employing it on self and others for several d. there occurred circumscribed erythema, an exanthem like pityriasis round eyelids; next disagreeable prickling and itching here and there on skin. Under the use of an infusion of the leaves, the pulse gradually grew quicker, the heart's activity was increased fourfold. After taking an infusion of ʒij of the leaves there occurred a febrile state with elevated temperature of skin, palpitation of heart, vision of sparks, headache and vertigo. Pulse rose from 70 to 134, peculiar rushing noise in ears, desire for open air, expansion of sphere of vision, a peculiar indescribable feeling of increased strength, agility and desire for work, which soon gave place to an exaltation like that caused by alcohol. But though thus mentally excited he could write with fluency and regularity. When he had taken 4 drachms there came on a peculiar feeling of isolation from the outer world, and great inclination to do feats of strength, so that though in his normal state he carefully avoided anything like gymnastic exercises, he now leaped up on his desk with cat-like agility without upsetting anything on the desk. There then came on a kind of rigidity, but with a feeling of blissful comfort, the consciousness remaining perfect, and he felt a great wish to pass the whole d. without moving so much as a finger. Then he slept and had a succession of grotesque dreams lasting all d. without leaving any feeling of weakness or dysphoria. He increased the dose to 18 drachms in a d., when his pulse was up to 134, and in his delirium he wrote down: "God is unjust because He has made man incapable of living always under the influence of coca. I would prefer to live ten years with coca than 10,000 centuries without it." A sleep of 3 h. restored him completely, and he could immediately pursue his daily duties without the slightest feeling of illness, but, on the contrary, with unusual ease. He passed 40 h. without taking the slightest nourishment, and then he ate his dinner, and digested it perfectly. In 2 cases he observed a marked increase of the sexual powers. (MONTAGAZZA, *On the Hygienic and Medicinal Value of Coca in South America*, *Hom. Vierteljahrsh.*, xi, 203.)

18. F— took from Feb. 24th to March 8th daily 1 or 2 small cups of infusion of leaves, 1 or 2 h. before or soon after a meal. After the dose felt peculiarly comfortable, and slight warmth all over body which came from stomach. Pulse slightly quickened from 1 to 3 h. Urine acid, smelt of sweat; faeces not fetid. (He suffers habitually from slow digestion, megrim, distension of abdomen, pressure and tension in hypochondrium after eating, loss of appetite, thickly furred tongue, and bad taste in m. All these symptoms disappeared while taking the med.). He was cheerful and disposed for mental work, sleep undisturbed, felt refreshed in m., which is not usually the case. Excesses in diet were not followed by any discomfort when he took a cup of the infusion before or after. (JOS. FRANKL, *Zeitsch. d. Ges. d. Arzte in Wien*, 1860, 13, 14).

19. Dr. ISAAC OTT observed his urine on a regular diet for 5 d., during which his health was excellent, and then took on 1 d. 3j, on 4 following 3ij of coca leaves at each of his three meals. "On comparison of the averages of each 5 d., we find that the addition of the coca decreased the quantity of urine 47.60 centimetres; of the urea, 2.0101 grm.; of chloride of sodium, 3.4167 grm.; of sulphuric acid, .2948 grm.; of free acid, .6945 grm.; and increased our weight $\frac{1}{2}$ lb., and the phosphoric acid in the urine .0090 grm. During the period of these last experiments our sleep was somewhat disturbed, with frequent headache, and slightly diminished appetite. Microscopically, we found in the urine an abundance of octohedral crystals of oxalate of lime of all sizes, which were got rid of by filtration; but on micro-chemical examination of the leaves, we found quadratic crystals, soluble in hydrochloric acid, but not in acetic, which we believe to be oxalate of lime crystals, and the source of those in the urine." (*Phil. Med. Times*, i, 56.)

II. *Poisonings.*—All who habitually chew the coca have an extremely disagreeable perspiration, an offensive breath, pale lips and gums, blunt teeth, and a disgusting blackish corner of the mouth. The inveterate chewers, the so-called *Coqueros*, are recognised at the first glance by their tottering gait; flaccid greyish-yellow skin; hollow, dull eyes, surrounded by bluish-brown circles; quivering lips; incoherent discourse and dull apathetic manner. Their character is mistrustful, irresolute, malicious; they become aged when scarcely entered upon maturity; and should they attain old age there is imbecility. Timidity causes them to flee the society of their fellow-men, and seek concealment in gloomy woods or lonely dwellings, where they give themselves up for days together to the passionate enjoyment of the leaves. Then their excited imaginations conjure up the most wonderful visions, at one time consisting of incredibly beautiful and delightful forms, at another, however, of the most horrid figures. They crouch in a corner, with eyes staring and fixed on the ground, the automaton-like movement of the hand as it places the coca in the mouth, followed by the mechanical mastication, alone indicating that consciousness exists. Sometimes a hollow groan is forced from the breast, probably when the excited imagination conjures up its scenes of horror, which can as little be scared away as the pleasant dreams at other times.

b. The Indians, by the continued use of coca, suffer from intolerance of light, attended with a surprising dilatation of the pupils. This is markedly seen among the *Coqueros* on returning from their solitary indulgence. I have produced the same symptoms by dropping into the eye a strong decoction of the leaves. (VON TSCHUDI, *loc. cit.*)

2. Debility of the digestive organs is the first symptom which attacks the *Coqueros*; at first it seems to be slight uneasiness, and may then be confounded with indigestion, but it soon reaches a frightful intensity. Bilious affections now make their appearance, with their numerous tormenting sufferings common under a tropical sky; of these constipation is of so frequent occurrence that from its prominence in the disorder this has been called "epilation." When jaundice occurs, indications gradually follow which show more clearly the shattered condition of

the nervous system; the patient complains of headache and similar sufferings, gets weaker, can scarcely take any food, and quickly becomes emaciated. This state is often succeeded by a kind of anæmia; the bilious tint gives way to a leaden colour (in whites). An insufferable sleeplessness sets in, which in fact affects even those who do not take the coca in excess. The appetite is extremely irregular, for the aversion to all food is often suddenly followed by an insatiable craving, especially for animal food. Partial œdematous swellings arise, and subsequently terminate in ascites; while the aching of the limbs is for a short time relieved by the appearance of furunculi. The disposition of the patient is very changeable; he is usually very wayward, and often yields to an unbridled passion for brandy. The effect of his excesses on the mind, independent of this, is great; the passion for solitude is injurious; and though the mental faculties may not suffer so much as from alcohol, the moral consequences are very similar. (Pöppig, *loc. cit.*)

Cocainum.—An alkaloid obtained from coca.

1. *Proving.*—1. External Application.—a. Conjunctiva.—When 1 dr. of a 4 per cent. solution (and the same is true of much weaker solutions) is introduced into the eye, a slight burning sensation is felt. A m. or two later, the cornea and conjunctiva become anæsthetic, and lose all reflex excitability; the finger can be placed over them, and the conjunctiva taken up with the forceps, without causing any unpleasant sensations. At the same time there is a feeling of tension in the lids, and the eye seems protruded, as in a case of Graves' disease. The conjunctiva becomes exceedingly pale. These phenomena last for about 10 m., and gradually disappear. In from 10 to 15 m. the pupil begins to dilate, and there is slight paresis of accommodation. Mydriasis is never present to any great extent, but it lasts for some h. after the anæsthesia has disappeared.

b. Nasal Mucous Membrane.—When applied to the mucous membrane of the nose, a 4 per cent. solution produces, in a few seconds, a sense of numbness which grows more marked as the applications are repeated. If they are renewed at intervals of 5 m. for 15 or 20 m., at the expiration of that time the mucous tissue may be cut or cauterized without any well-defined sensations, unless the instruments enter very deeply into the submucous tissue. Very soon after cocain has been applied, the membrane looks pale and turns almost white, so anæmic does it become. It retracts in a marked manner even if it were swelled before the application. But although its primary action produces anæsthesia and anæmia of the membrane, there occur secondary effects of great swelling and hyperæsthesia of the parts treated, and these symptoms are even more prominent than they were before the drug was applied. (*Journ. of Am. Med. Assoc.*, Feb., 1886.)

2. Inasmuch as the writer—whose nervous system is of an almost unfortunate degree of sensitiveness—has taken doses of the hydrochlorate, equivalent in the aggregate to no less than 32 gr. of cocain itself, within the space of 3 h. without (as the present lines sufficiently prove) a fatal result following, this remarkable body cannot fairly be classed among the poisonous alkaloids. Among the chief symptoms induced

were increased cerebral activity, mounting at intervals into the region of delirium, the latter tendency always subservient to a powerful effort of the will. This continued for 5 h., the heart action and breathing being meanwhile slightly increased, but not to any painful extent. At first the muscular powers seemed to be enhanced, heavier weights being lifted without undue stress than is ordinarily the case, while the reflective faculties—as instanced by ability to read and form conclusions upon novel scientific matter—seemed stimulated. An h. after the entire quantity named had been taken, the sensibility of the limbs to external influences—which had gradually diminished from the first—became materially lowered, and neither pinches, pricks, nor slight burns with a heated wire could be felt upon the fleshy portions of the arms or legs. The trunk, however, never lost its sensibility to pain in any marked degree. Slight convulsive movements and a sensation of bodily torpor succeeded, giving way about the 8th h. to increased somnolency. No special desire or distaste for food was noticeable, but sleep overcame all other symptoms between 10 and 11 h. from the commencement, and continued for 13 h. afterwards; a slight feeling of dizziness was experienced on waking, but this gradually went off, and had entirely disappeared 24 h. later. (*Brit. and Colonial Druggist*, 1885, p. 36.)

3. M. D. HAGE, jun., M.D., of Richmond, Va., reports the following proving upon himself. At 4.45 p.m. pulse 88, before beginning experiment. At 5, gr. $\frac{1}{4}$ in 6 minims of water injected in l. forearm on radial side, just about where external cutaneous nerve from brachial pierces through ante-brachial fascia. At 5.14, some slight tingling in little finger, which may have been caused by resting arm heavily upon knee. At 5.15, gr. $\frac{1}{4}$ was injected about $\frac{1}{2}$ in. apart from the first. At 5.30, gr. $\frac{1}{4}$ more. No pain on insertion of hypodermic needle. At 5.40, pulse 110, slight perspiration on forehead, and a little nervousness. At 5.45, gr. $\frac{1}{2}$. No special symptoms except slight restlessness. At 6.5, gr. $\frac{1}{2}$ was injected without once feeling needle. Whole l. arm feels numb and heavy; hands moist and cool; pupils dilated immediately after injection. At 6.10, pulse 114, slight ringing in ears, and vacant feeling in stomach. At 6.30, gr. $\frac{1}{2}$ was injected; needle not felt. Pulse 120. Very dry feeling in mouth and throat. At 6.40, pulse 114. I have a drowsy, sleepy feeling, and head feels heavy. Respiration 25; temperature 100°. Pupils well dilated, r. more so than l. Face is slightly flushed, and skin moist and clammy. At 6.50, a large sewing-needle was slowly introduced $\frac{1}{2}$ in. straight through skin, fascia, and supinator longus muscle without least pain and only slight feeling of pressure, but when it reached periosteum it caused intense pain, as if something was gnawing at it. At 7, gr. $\frac{1}{4}$ more was administered. Pulse 120. Hands cold. At 7.35, took hypodermically another $\frac{1}{4}$ gr. Pulse 120. Great ease in breathing. Marked perspiration on forehead. At 7.45, pulse 120; temperature 100°; respiration 28. Hands still cold, and slight headache. Area of complete insensibility is well defined, and measures 2 by 4 inches, having elliptical form. All of above injections were put in a space about size of a ten-cent piece, needle directed towards elbow, and skin held

between fingers in usual way. Sensibility is perfect for $\frac{1}{2}$ in. above the point of insertion, but here the line is very sharply drawn, which might point to the fact that the cocain was carried to the extremities by the arterioles. Moderate degrees of heat and cold were not noticed in the slightest. A lump of ice placed on arm was not felt until some of it had melted and trickled down on ulnar side. A piece of metal heated almost to redness—in fact, so hot as to scorch the hairs and raise blisters—could only be felt after contact of 2 to 3 seconds, when pain, although not intense, was dull and perceptible. At 8.5, gr. $\frac{1}{2}$ was injected, with needle pointing towards fingers. At 8.12, pulse 120; temp. 100° ; and resp. 28. Area of insensibility has a pear shape, and measures 4 by 6 in. At 8.30, another $\frac{1}{2}$ gr. injection. Pulse 116. Continued dryness about throat, and extreme ease in breathing, with inclination to sigh frequently. At 9, still another $\frac{1}{2}$ gr. injection. Pulse 116; temp. $99\frac{1}{2}^{\circ}$. A needle introduced down to bone in several places caused not a particle of pain. Pupils equally dilated and responsive to light. Slight twitching of muscles in various parts of body. Headache is quite severe. At 9.25, pulse 120. Head full and heavy. Respiration principally thoracic, very superficial, and delightfully easy. Anæsthetic area undiminished. No feeling of nausea or dizziness at any time. Hands still cold and clammy. Sensibility of mucous membrane of eye, mouth, and nose not perceptibly diminished. There is continued dryness of throat. There is feeling of great wakefulness, accompanied by weakness in the legs when walking. At 11, general symptoms are much less marked. Area of insensibility greatly decreased. Headache much better; only superficial breathing continues.

Résumé.—In 4 h., gr. $4\frac{1}{2}$ in ssj of water were injected into l. forearm, resulting in a complete anæsthetic area measuring 4 to 6 in., and extending $\frac{1}{2}$ to $\frac{3}{4}$ in. in depth; headache, clammy perspiration on forehead and hands, the latter cold; dilatation of pupils, weakness of legs, accelerated pulse, rise of temperature, very superficial breathing, and dryness in mouth and throat. (*Virginia Med. Monthly*, Aug., 1886.)

4. Dr. EDWARD MCCARTHY proved drug under Dr. Hage's supervision. Before beginning experiment, pulse was 68, and temperature $99\frac{1}{2}^{\circ}$ F. At 2.40 p.m., gr. $\frac{1}{2}$ dissolved in 2 teaspoonfuls of water was taken by mouth. It has a very bitter taste, similar to quinine but without the rough feeling. At 2.45, slight nervous feeling, with some little warmth in stomach. At 2.50, gr. $\frac{1}{2}$ more was taken. Pulse 64. At 2.55, warmth in stomach more marked. At 3, another gr. $\frac{1}{2}$ was taken. Pulse 64; temp. 99° ; tongue feels a little numb on end; pupils slightly dilated; some warmth in pharynx. At 3.10, yet another gr. $\frac{1}{2}$ was taken. Pulse 60, and weaker; respiration 24. At 3.15, feels in very good spirits, and rested. At 3.20, another gr. $\frac{1}{2}$ was taken. Pulse 56; temp. 99° ; resp. 24. Warmth in stomach decidedly more marked. Describes his feelings as "very good; similar to that after a big drink of whisky." On walking about room, feels light; face flushed. Up to now $2\frac{1}{2}$ gr. in all have been taken. At 3.25, after walking, feeling of exhilaration passes off. At 3.30, gr. $\frac{1}{2}$ more is taken. Pulse 60. Describes his feelings as "glorious all over the body, with stimulating waves rushing through the limbs." Says he is

intoxicated. A drowsy feeling 5 m. before has given way to one of great energy. The flushed face and dilatation of pupils come and go. At 3.40, took still another $\frac{1}{2}$ gr. Pulse 64; temp. $98\frac{1}{2}^{\circ}$. At 3.45, every breath feels stimulating. At 3.50, another $\frac{1}{2}$ gr. is taken. Pulse 65. Taste of drug not so bitter as at first. Mouth and tongue are very dry. At 4, some slight tremor in all fingers when outstretched. Pulse 76; temp. $98\frac{1}{2}^{\circ}$. No headache or dizziness, but continued happy exhilarated feeling; and as no grave symptoms were present, it was decided to give 3 gr. more, in 1 gr. doses every 15 m. At 4.10, 1 gr. in 2 teaspoonfuls of water was swallowed. Pulse 76; temp. $98\frac{1}{2}^{\circ}$. All superfluous movements with arms and legs, such as gesticulations and strides around room, are very pleasant, in fact irresistible. Has a constant desire to undertake vast feats of strength, and feels like haranguing. At 4.15, pulse 88; tongue anæmic and dry. Same delightful sensations have full sway; feels as if nothing he could see or hear would depress him. At 4.20 1 gr. more is taken. Pulse 66; resp. 28. Pleasant tremors shooting through whole body. At 4.25, with closed eyes, and toes together, body has a pendulum-like motion laterally. Marked tremor of outstretched fingers, and disposition to sigh; and he is unable to draw deep breath. At 4.35, final dose is taken. Pulse 88; temp. 99° . He is very talkative; talk is not disconnected, but repetition of same idea over and over, because words fail to express delightful sensations. At 5.20, feeling of exhilaration fast wearing off; is sober but feels foolish. At 7.30, has had no hunger although last meal was at 8.30 a.m. Seven grains were taken in the course of 5 h. After 2 gr. first effects were felt, and after $2\frac{1}{2}$ gr. intoxication was produced. (*Ibid.*)

5. M. LANDESBURG, M.D., of New York, reports following observations made upon himself:—He administered to himself, being in good health and of usual normal spirits and disposition, a subcutaneous injection of gr. $\frac{1}{4}$ of muriate of C. (Merck), repeating dose after 5 m., as no effect whatever had taken place in interval. About 5 m. after last injection he felt slight dizziness, pricking sensation in the tips of fingers, and slight pressure in the epigastrium—all of which symptoms passed off within 10 m. He was able to continue the literary work in which he was engaged, but with some effort. He laboured under slight drowsiness and limbs became heavy. Action of heart was rather retarded. Face was pale, sensibility of cornea normal, that of mucous membrane of globe slightly reduced. Pupils regular. Normal condition was re-established after $\frac{1}{2}$ h. of rest, during which time he had full control of mental faculties. After 4 d. experiment was repeated, using at once 2 gr. for hypodermatic injection. Hardly had 2 m. elapsed after administration when heart was felt beating and blood rushing to head, which was quickly followed by sensation of fulness and roaring in latter and by noises in the ears. There was confusion of thought and impairment of faculty of volition. A feeling of great uneasiness invaded whole body, and slight twitching movements were felt in toes and fingers, with sensation of numbness. Feeling of nausea and pressure in epigastrium was very marked. Acme of paroxysm lasted for over 5 m., after which face was very pale and covered with cold perspiration. Eyeballs were somewhat sunken into orbit; pupils enlarged, but of normal reflex

action and accommodative power. Objects appeared slightly dim, but of normal proportions. Retraction and co-ordination of muscles were not changed. Sensibility of cornea and conjunctiva was greatly diminished. Pulse was feeble, arterial tension and action of the heart slightly reduced. Felt tired and worn out, unable to concentrate his thoughts, or to struggle against the creeping drowsiness. Half an h. after injection went to bed, labouring under nausea, general prostration and slight attack of hemicrania. Sound sleep during whole n. brought about perfect recovery.

6. In order to find out whether there is any similarity between the appearance of an eye under the influence of cocain and that noted in Graves' disease, I have made several observations. In a paper before the Ophthalmological Society in January, 1885, I called attention to the fact that cocain produced an enlargement of the palpebral fissure by acting on both upper and lower lids. Also in the *Centralblatt für Med. Wissenschaft*, for March 14th, 1885, I recorded the fact that distinct proptosis occurred often on using cocain, especially when the eye was deeply under its influence; this I noted first in experiments on rabbits. The staring look of the eye in Graves' disease, and the increased amount of sclerotic shown, is well seen in the cocainised eye. The absence of the normal involuntary winking of the lids is to be noted in both Graves' disease and the cocainised eye. If care is taken that the drug reaches the upper lid, Graefe's symptom is often well marked, the lid halting on looking down; sometimes the difference appears as much as $\frac{1}{2}$ in. (JESSOP, *Trans. of Ophthalmological Soc.*, vi, 123.)

II. *Poisonings*.—1. An apothecary intending to commit suicide extracted 24 gr. of a crystallized substance from 2 lb. of coca leaves, and took it in beer, followed by 2 small glasses of brandy. For a time he felt well and soon went to sleep, but woke with gripings of the stomach, burning pains in the palate, dryness of the mouth and throat, dizziness, great weakness of the whole body, perfect consciousness, pulse and temperature normal. After taking $1\frac{1}{2}$ gr. of morphia he fell asleep and awoke well, though no urine passed for 24 h. (PLOSS, *Vierteljahrsschrift*, 1863, p. 222.)

2. A woman æt. 25, of good constitution, had been using a 2 per cent. solution of cocain for hay-fever. Her vial being exhausted, her husband, without a prescription, procured from a druggist two 5 gr. vials of the muriate of cocain, full strength, of which Mrs. S—, about 5 p.m., applied two thirds of the contents of one bottle to both nostrils with a small glass insufflator. In 15 or 20 m. she became dizzy, her vision became dark, a sinking sensation occurred, with great weakness. When Dr. Kennicott was called, $\frac{1}{4}$ h. later, he found patient in a semi-comatose condition, from which she was easily aroused, but answered questions with difficulty. When so aroused, her mind was clear. Her temperature was above normal; skin was hot and dry. Radial pulse was very rapid, and so weak as to be scarcely discernible. Pupils widely dilated. Deglutition and articulation difficult. There was some dyspnoea. She complained of dryness of fauces, and bitter taste in mouth; also of cold shivers, and teeth chattered, although temperature was still above normal. Later she became drowsy; eyes were closed, and muscles of

face affected. There was great weakness; she could not support head. There was dyspnoea, but it was not severe. There was some nausea, but she did not vomit. Extremities were cool, and head clear when aroused. She recovered in about 3 h. under stimulants (brandy and ammonia) and digitalis. Heat and friction were applied to extremities and heat over epigastrium. (KENNICOTT, *Chicago Med. Journ. and Exam.*, Oct., 1885.)

3. SCHILLING records a case of severe cocaine poisoning in which after the intragingival injection of 2 dr. of a 20 per cent. solution of this drug motion and sensation entirely disappeared; complete amaurosis and deafness were present. The patient could swallow well, and called to her husband, who was absent, complaining of cold and darkness. Schilling attributed the condition to contraction of the cerebral vessels. (*N. Y. Med. News*, March, 1886.)

4. JOHN B.—took, Nov. 9th, 1886, at 12.10 p.m., 4½ths gr. C. hydrochl. At 12.30, severe cramps of stomach, nausea, throbbing and bursting feeling in head, failure of sight, loss of use of legs, incoherent speech, confusion of ideas, drowsiness, could always answer questions when roused; appeared drunk and became quite helpless. Brandy given but vomited. At 12.50 commenced to sweat profusely, clothes soaked through, sweat streamed down face and body; head steaming. Pupils normal. Sweating was followed by severe prostration, shivering, feeling of impending death. At intervals cramps in stomach, retching and vomiting of clear mucus, with relief. At 1.15, pulse intermittent every fifth beat; cyanosis of face, intense feeling of suffocation over cardiac region. Pulse from 80 to 86. At 1.45 p.m., cramps in legs and feet, especially dorsal aspect of r. foot, tingling and numbness of hands. Later, pupils dilated. The vomiting and cramps ceased at 4 p.m. (unless food was taken), the drowsiness, prostration, throbbing headache lasted till 6 p.m., when he got warm and was relieved. Great weakness and swimming of head all n. Next d. still weak, continual vomiting, dry, leathery feeling in mouth, loss of taste, partial loss of power in legs, tingling and numbness of fingers, especially r. hand. The symptoms commenced 36 h. after taking the C., and most of them disappeared in 24 h. The weakness of legs lasted 3 d., the tingling of fingers longer. Could not write till 6th d., as he could not feel pain in his fingers. (KELHAM, *Lancet*, Jan. 1st, 1887.)

5. There are also recorded a large number of cases in which toxic effects have followed the use of muriate of C. in ophthalmic surgery. In some cases the symptoms have been transient, consisting of pallor of face, giddiness, and sweating of face or neck; in others there has been dyspnoea, feeling of great prostration, malaise and apathy, lasting sometimes for several d. Vomiting and headache have been rarely present. In one case the application of 15 dr. of a 2 per cent. solution to the conjunctiva was followed by tottering gait, difficulty of speech, confusion of mind and extraordinary restlessness; and in another, the subconjunctival injection of about 8 dr. of a 3½ per cent. solution produced convulsions and loss of consciousness. In this class of cases the strength of the solutions used varied from 2 to 4 per cent. The quantity generally varied from 2 to 4 drops. The subjects were

in some cases feeble, aged women; in others they were strong and healthy individuals, both male and female. (Communicated by the Hughes Medical Club of Massachusetts, to which the Eds. are indebted for most of the material relating to cocain.)

6. Six cases have occurred to Dr. Keyser, in which the development of panophthalmitis was directly traceable to the use of cocain locally during operation. The strength of the solutions used varied from 2 to 4 per cent; those used in at least 3 of the cases were known to be fresh, and microscopic examination showed no micrococci or deleterious substance to cause the inflammation. In reviewing his cases, Dr. K.— notices that the inflammation arose just or much like that after the use of the jequirity in trachoma, except that there was more swelling of the ocular conjunctiva, and even more than and somewhat different from that in panophthalmitis traumatica. In the latter the inferior part of the bulbar conjunctiva is much more swollen than the superior part, which really has very little swelling at first, being only well and fully injected, while in the cases after the use of cocain, the superior part of the conjunctiva was as much swollen as the inferior. The whole œdematous condition of the bulbar conjunctiva was especially marked. Dr. K.— suggests that this condition may be pathognomonic of the action of the cocain in the inflammation which may occur in the reaction that takes place from the blanched condition of the vessels and tissues caused by its use. (*Therapeutic Gazette*, Jan., 1885.)

III. *Experiments on animals*.—1. When a frog has been poisoned with cocain by hypodermic injection (about $\frac{1}{10}$ gr. being used) the almost immediate result is to lessen the heart-beats to 10 or 12 per m., its action at the same time becoming irregular and intermittent. If this dose be not exceeded, the animal may recover in a few h., but if it be increased to $\frac{1}{2}$ gr., the beats are lowered to 6 or 8 per m., the heart becomes engorged with blood, and its action laboured and irregular; the rhythmical action of the auricles and ventricles is disturbed, and long pauses occur between the contractions of the ventricles. It is curious to observe that the ventricles are earlier and more severely affected than the auricles, and ultimately (if the dose be lethal) cease to pulsate before a similar effect has been produced on the latter. If applied locally to the heart carefully exposed, a drop or two of the 4 per cent. solution rapidly produces a cessation of the heart's action, a similar application of salt water having no such effect, showing the result to be due to the drug and not to shock. Injected into a ventricle the same result is achieved even more rapidly and certainly. The heart is arrested in *diastole*. Its influence on the respiratory system is rather less marked, but there is a decided stimulus at first with increased rapidity of respiratory movements, followed by slowing and ultimate arrest of function. If large doses be used, the period of increased action may be absent, and immediate slowing take place, resulting in arrest after a full inspiration. With reference to the nervous system, it appears in small doses to act as a stimulant to the spinal cord, increasing its reflex irritability. When larger doses are given this irritation may be absent, or at any rate much shortened, and there is almost immediate lessening of the irritability of the reflexes,

and finally loss of response to electrical stimulation. Small doses heighten the irritability of the sensory fibres of nerves without having any effect on the motor filaments. Large doses completely paralyse the sensory, and much diminish the sensitiveness of the motor filaments. Tactile reflexes are much diminished. The pneumogastrics are completely paralysed after even moderate doses, but their inhibitory fibres are not perceptibly affected by small doses. Applied locally to the nerve-trunks, after a transient period of increased irritability, the nerve becomes depressed and finally paralysed, and if the solution be strong this effect may be almost instantaneous. If the exposure of the nerve to the solution be not too protracted, its irritability will return after the lapse of a few h. If a nerve-muscle preparation be made from a frog poisoned by cocain, the irritability of the nerve is found to be much diminished (this is also true of the muscle), and a stronger current is required to produce a contraction than in the normal frog. The muscular pulsations are shorter and less powerful, and it is impossible to produce tetanic contractions if the amount of the drug given be at all large. If the interrupted current be passed through the nerve for some time, there are caused several short, feeble, quick contractions and then nothing further. If the nerve from a nerve-muscle preparation be immersed for a few seconds in a solution of cocain and then be removed, it is found that the irritability is very much increased. The slightest touch of a steel instrument throws the muscle into violent tetanic contractions. If the nerve be now again immersed, the irritability becomes very much diminished, and is finally lost to all forms of stimulation. The drug has, moreover, a marked action on the power of co-ordination, which is particularly noticeable after moderate doses. Small doses of cocain have but little effect when injected into voluntary (striated) muscles, but large doses diminish their excitability very decidedly, and the character of the muscular contraction called forth is greatly altered. The contractions are shorter, slower, and more feeble, and the muscular excitability is soon exhausted. The local action of cocain on muscular tissue is very similar to that found in general poisoning. The general effect of cocain would appear from the above observations to be twofold (apart from its local anæsthetic action on the skin, mucous membrane, and eye): in small doses it seems to act as a stimulant, but in larger doses the depressant effect which may follow even small doses is immediate and marked in its outset, and culminating in cessation of function. This remark applies to its action on most of the organs. It also paralyses the vagi, and applied locally to any of the more highly constituted organs or tissues, causes a temporary cessation of their functional activity. (*Gunn, Medical Press and Circular, March 11th, 1885.*)

2. Dr. HERMANN M. BIGGE, of New York, has just completed an inquiry into the physiological action of cocain on the common frog, and has arrived at conclusions which may be summed up as follows:

a. It has a powerful local anæsthetic action on the skin, mucous membrane, and the eye. It usually produces mydriasis.

b. It has a depressant action on the heart, reduces the force and

frequency of its pulsations, and finally paralyzes it (first the ventricle and then the auricle) in diastole.

c. In small doses it at first slightly increases the number of the respirations, then decreases them, and in large doses diminishes them rapidly from the first, finally causing death from a paralysis of respiration.

d. It at first slightly heightens and then greatly depresses the reflex action of the spinal cord in small doses. Large doses depress from the first.

e. Both large and small (not very small) doses have a depressant action on the motor nerves.

f. It paralyzes the pneumogastric nerve.

g. Doses of moderate size diminish the excitability of the striated muscles.

h. The local application of cocain to any of the more highly constituted organs or tissues causes a temporary cessation of their functional activity.

i. From the local and constitutional action on the different organs and tissues, it is rendered probable that its general action is wholly a local one, exercised on all parts for which it has a chemical affinity, through its presence in the blood. (*Journal of the New York Pathological Society*, 1885)

3. Dr. BOYD, before the New York Pathological Society, reported that after the injection of 21 minims of a 33 per cent. solution into a cat weighing 7½ lb., death took place in 12 m. First effect, leaping gait with dragging of extremities, followed by convulsions; between convulsions animal lay with limbs straightened, head turned up and backward. Cheyne-Stokes respiration; temperature in rectum after death 104°. Autopsy showed vessels of the pia mater of both brain and cord intensely congested, extravasation of blood into fourth ventricle and anterior part of medulla, and very minute extravasations all through substance of brain. Lungs collapsed. R. ventricle of heart over-distended. Grey substance of cord over-filled with blood, resembling a bloody sponge. Death seemed to have taken place through the respiratory centre. These experiments were made in the presence of Drs. Spitzka, Waldstein, and Brill. (*N. Y. Med. Record*, Dec. 24th, 1885.)

COCCULUS.

Cocculus indicus, *Boonmirta cocculus*, Wight and Arnott (*Menispermum cocculus*, L.), Indian rockle. Nat. Ord., *Menispermaceæ*.

I. *Proving*s.—1. HANDEMANN, *Fragmenta de Viribus*. Contains 156 symptoms from self and 6 from authors.

2. *IBID.*, *Mat. Med. Pura*, vol. 1 of original and translation. Contains 333 symptoms from self, 218 from 8 fellow-provers, and 6 from authors.

II. *Poisonings*.—1. A druggist, of fine sensibility, and healthy, though but recently convalescent from an acute disease, some years ago wished to ascertain the taste of the *C. ind.*, and, taking about half a

grain, rolled it with tongue over palate, finally swallowing it. He was immediately seized with dreadful anxiety, which increased every moment; he became cold all over; limbs were stiff, as if paralysed, with drawing pains in their bones and in back. Symptoms increased from h. to h. (aggravated from time to time with tobacco and coffee), till after 6 h. anxiety, stupefaction, and immobility had risen to greatest height, with fixed, sullen look, ice-cold sweat on forehead and hands, and great repugnance to all food and drink. At slightest increase or decrease of temperature of room (75° F.) he expressed displeasure; every loud word put him into passion. All he could say was that brain felt constricted as by a ligature, and that he expected speedy dissolution. He wished to sleep, but when he closed eyes immediately started up again, so frightful (he asserted) was sensation he felt on going off, like a hideous dream. Pulse was very small, but its frequency was unaltered. Camphor effected speedy reaction and relief, but next d. he was still uncommonly weak, and ail parts which during the direct action of the C. were painful internally, were now tender to slightest touch. Bowels remained constipated for several d. (HANKEMANN, *Letter Writings*, tr. Dudgeon, p. 377.)

2. A boy, æt. 12, weakly, cachectic looking, suffering from ague and worms, ate on April 3rd a cake made of two scruples of cocculus seeds and cheese. After a few m. disgusting taste, burning in fauces and stomach, then vomiting 10 times without relief. The pain spread to umbilical region and over abdomen. Got *mistura oleosa* and purgative clysters. On April 6th he came into the hospital; confusion and stupefaction of head, vertigo, anxiety, with great restlessness; forehead hot, covered with clammy sweat; eyes turned upwards, face earthy looking, physiognomy expressing great pain; tongue furred white, dry on borders, bitter taste, unquenchable thirst; frequent vomiting of a thin green fluid; cervical vessels pulsating strongly; breathing quick; no pain in chest; stomach very painful; complained of heat, constant burning in stomach and bowels, especially about navel; whole abdomen distended, hot, and very painful; frequent yellowish-white, fluid stools; urine red without sediment; dry skin, with general intense heat; pulse 120; 15 leeches to abdomen, 2 drachms castor-oil, enemata, emulsion of rice mucilage to drink. This treatment was continued, and from 10th he got calomel, aq. amygd., laudanum. The symptoms continued, especially the diarrhoea, vomiting, sopor, and delirium.—20th. The whole mouth was studded with aphthæ, which sloughed so rapidly that on 21st all the soft parts of the mouth were destroyed and the teeth fell out. Abdomen meteoric; diarrhoea of putrid-smelling stools; death ensued on 22nd, with signs of abdominal gangrene. *P.M.* on 24th.—Dirty red blood exuded from mouth, which was swollen, especially on r. side; face livid; a bed sore on back and sacrum; prepuce grey; dura mater bloodless, vessels of arachnoid filled with dark fluid blood; between the membranes dark serum, in both side chambers light-coloured serum, and in base of skull 2 oz. of reddish serum. Convolutions of cerebrum softer than normal; in r. pleural sac some light-coloured serum, in l. pleural sac ash-grey serum; r. lung nearly hepatised; pericardium full of light-

enloured serum. On opening abdomen a strong cadaverous smell. Bowels filled with gas, discoloured on outside, their convolutions stuck together and to the abdominal wall with false membranes, the omentum displaced. The abdominal cavity contained two pints of serum like that in l. pleura; on the liver an exudation of cheesy character. Stomach moderately distended, outwardly discoloured, its walls thin and brittle, its inner surface towards fundus deep red, at oesophageal and pyloric orifices a cheesy substance. The small intestines had thin, easily-torn walls, the last third ash coloured and their inner surface covered with a slimy, dark, cadaverous-smelling fluid; colon much distended with gas, containing whitish-yellow faeces, the whole mesentery covered with the above-described false membrane so as to form sacs filled with the same sort of serum as in the l. pleura. Pancreas, liver, and gall-bladder, which contained dark blood, normal; spleen smaller than normal, and hard; r. kidney small, l. unusually large, its structure normal. (SCHILLER, *Est. med. Wschensch.*, No. 37, p. 1011, 1843. Quoted in *Frank's Mag.*, i, 717.)

2. A woman, æt. 60, swallowed a handful of powdered cocculus beans. After $\frac{1}{2}$ h. she fell to the ground, began to tremble, vomited, and was carried to her bed unconscious. After 1 h. she was found to be profusely perspiring, her temperature elevated, unconscious and insensible, but the motility not extinct, pupils normally dilated but insensible, pulse full and strong, 80, respiration accelerated and laboured. During the examination there came on clonic spasms in upper extremities, followed 5 m. later by general tonic spasms, with cyanosis of face and frothing at mouth. After venesection to 8 oz. the spasms ceased, pulse 110, still unconscious. After 2 spoonfuls of infus. ipecac. she vomited twice copiously. After $\frac{1}{2}$ h. consciousness and sensibility were partially restored; after 5 h. the temperature was normal, perspiration gone, consciousness perfectly restored, pulse 100. Next d. pulse and temperature normal, complains of weakness, pressure in chest and stomach, head confused, complete loss of appetite. The following d. these symptoms were better, but appetite still bad; it did not return till the 5th d., and then was not very good. (DUTZMANN, *Wiener med. Presse*, No. 21, 1869.)

3. A young man in a fit of insanity took the poison (quantity not stated) with suicidal intent. After 2 h. violent tonic and clonic convulsions and danger of suffocation, with violent distortion and jerks in the limbs; the teeth, which were pressed together, bit the protruding tongue; bloody froth was on the mouth and nose and was ejected at every expiration. The body was in a state of tetanic stiffness, which only gave place to the jerkings for instants, and he was covered with cold sweat. Pupils dilated, eyes staring, consciousness apparently lost; pinching the body immediately caused convulsive jerks; pulse normal, neither quick nor irregular, cardiac beats quiet. No diarrhoea nor vomiting. In a short time death occurred from suffocation. (POMA, *Gaz. Lomb.*, xxi, 1870; quoted in *N. Z. J. hom. Kl.*, xvi, 119.)

Pterotoxinum, an alkaloid obtained from fruit of *Cocculus*, $C_7H_7O_2$.

1. *Proving*.—Dr. J. H. HENRY reports the following symptoms as mainly produced on himself by taking P. (manner not stated) for five days. Sad thoughts; desire to sleep; pressive pain in epigastrium with coated tongue, frequent eructations and dyspepsia; nausea, with tendency to faint; inclination to vomit, with headache; flatulence, with foetid diarrhœa, followed by tenesmus, painful and continued, seeming to extend all over bowels; violent sore pain in bowels, with diarrhœa and dysentery, and large and frequent discharges of urine, so that he became alarmed and took antidotes; soreness in l. inguinal ring, as if intestines would protrude; feeling as if one wanted to get more breath, impeding respiration; back feels bruised, also drawing pain there; dragging sensation in r. arm; pain in l. forearm, running up into shoulder; lower extremities feel bruised and paralysed, it relieves to bend them backwards, which they have a tendency to; constrictive painless sensation or cramp pain in lower extremities; pains in l. outer ankle. (*Amer. Obr.*, xv, 16.)

III. *Experiments on animals*.—1. a. Falck's researches show that fish become very restless, weak, and die from asphyxia;* frogs exhibit extensor convulsions and disturbed respiration, with diminution of cardiac pulsations; in doves there is in addition trembling of limbs and circular movement, with convulsions and salivation; in cats, also, there is ptalism and convulsions, and they ultimately become paralysed; similar symptoms occur in dogs, with loud whining and scratching with feet.

b. According to Roeber the convulsions of P. in contrast with those of strychnine are not of a reflex nature. They assume the most various forms, and resemble compulsory movements. Pulmonary vagus is excited, hence accelerated respiration and strong inspiratory dilatation of thorax—cause of latter symptom being that expulsion of inspired air is hindered by spasm of glottis. If vagus is divided beforehand this symptom is absent. During attacks reflex excitability is suspended, but it returns afterwards. Cardiac contractions are greatly retarded; heart is very much relaxed and dilated. After destruction of cerebrum symptoms are essentially the same; after that of optic lobes convulsions are less violent; after that of medulla oblongata tetanus ceases, and we get only a comatose condition. Hence Roeber concludes that P. irritates ganglia and medulla oblongata; and that the motor centres, the vagus centres and Setchenow's reflex inhibitory centres are chiefly affected. Its influence on the heart depends partly on central irritation of vagus, but partly also on excitement of cardiac centres themselves. (ROEBER, *Zimmer's Cyclopædia*, xvii, 811.)

* "When picrotoxin is added to the water in which they live, they make winding and boring movements of the body, alternating with quiet swimming, open their mouths and gill-covers frequently, fall on their side, and die rapidly of asphyxia."

COCCUS CACTI.

Cochineal. (The entire insect so named.)

1. *Proving*.—1. Dr. CASPAR, æt. 30, in good health, took the 3rd dil. on 2 d. without result.—May 3rd, m., 10 dr. 1st dil. No effect.—4th, e., 10 dr. 1st dil. Woke early, then fell into a half sleep which was disturbed by frequent painful tearings in a r. carious molar.—5th to 8th., took m. and e. 10 dr. of 1st dil.—5th. Slight indescribable pain in pit of stomach and l. hypochondrium. Frequent cold feeling in shin or r. shoulder and r. side of back. Sleep disturbed by tearing in tooth.—6th. Toothache returned. Pressive pain in stomach. Pressive pain in r. temple. On turning head shooting pain in muscles of l. side of nape. Sleep with unremembered dreams.—7th. Pain about navel, occasionally extending to ossa ilii. Shooting pain in nape. Sleep disturbed by toothache and by great dryness and scraping in fauces and especially in soft palate.—8th. Frequent dry hawking and short cough with increased thirst. Shuddering along spine. Pain in both thighs along the course of the large vessels and nerves. Drawing spasmodic pain in r. calf. These pains and similar pains in shoulder, foot, &c., frequently occur. Scraping and dry feeling in throat increased towards e., hence frequent hawking and cough. On lying down violent cramp of 3 last toes of r. foot. Woke early.—9th. Itching of skin on extensor surface of limbs, on belly and back, sensitiveness of tubera ischii when sitting, small red spots and itching papules in various parts of skin; dry cough.—10th. 10 dr., same symptoms as yesterday, but the cough was loose, expectoration of small quantity of mucus; a small vesicle on tongue; here and there shooting-tearing pains in muscles, especially in r. hip-joint, very severe when rising up and moving quickly.—11th, m., 10 dr. Easy expectoration of considerable quantity of mucus; pressing pain in occiput with swollen feeling of scalp extending to l. cheek and side of nose; frequent cramp-like drawing in r. calf. E., 10 dr. Early waking and half sleep, cramp in r. toes.—12th and 13th. 10 dr., slight drawing and pressing in occiput, temples, and r. eye; nose dry, stopped up; very frequent cough with moderate expectoration; occasional hoarseness. Though no more medicine was taken the disturbed sleep and pain in muscles lasted several d., also the pain in hip-joint and tubera ischii. Throughout the proving stool irregular; thirst increased, especially m., appetite variable. The symptoms were worst in afternoon. (*Ost. Zeitich. f. Hom.*, iv, 509.)

2. Dr. E. H. FRÖHLICH, April 29th, 8 a.m., 3 dr. 6th dil.—30th. Shooting pain in a small spot of l. side of chest aggravated by walking but not by deep inspiration.—Jan. 12th, m., 5 gr. 3rd trit. No symptoms.—25th. 10 gr., feeling of roughness in throat with hawking of mucus. E., difficulty of swallowing, swollen feeling of larynx with difficult speech; sweet taste; feeling of commencing sore-throat.—26th. Pressure, weakness and bruised feeling in chest, frequent hawking of mucus, slight difficulty of swallowing; soft palate and pharynx slightly reddened; in r. arch of palate a pustule the size

of a hemp-seed; after talking pain and rough feeling in larynx. These symptoms lasted 5 d. The 3 first d. copious loose stool.—Sept. 17th. 10 gr. 1st trit., frequent, not copious, micturition; squeezing, pressive pain in middle of chest.—22nd. Same dose. Soon l. lung affected with fine pricks behind middle of sternum, going off after breakfast, all d. frequent and copious discharge of water-clear urine.—24th. Same dose. Immediately deeper tone of voice. Urine as before.—25th. 20 gr. 1st trit., feeling of pressure and fatigue of chest; next d. pricking in larynx, hot breath, expectoration of large masses of whitish grey mucus; pressure and fatigue of chest, increased by walking in open air; rough feeling during and after speaking; frequent discharge of watery urine; pricking in thoracic integuments and region of stomach on exposing the abdomen.—Dec. 10th, m., 10 dr. tinct. Immediately pricking pressure in stomach lasting all d.—11th, m., hoarseness, copious discharge of urine as clear as water, which seemed to have the consistence of oil. At n. amorous dreams. (*Ibid.*, 512.)

3. THERESA KUMMER, æt. 33.—April 30th. 2 dr. 6th dil., no symptoms till next d.—May 1st. Shooting pain in l. side and l. scapula extending to l. elbow, increased by moving arm.—2nd. Pain continues and spreads to sternum with pressive pain in chest, anorexia, and white furred tongue. These symptoms lasted with diminished severity till 4th.—26th. 10 gr. 3rd dec. trit. In e. chill all over body.—27th. Chill continues all d.; sore pain in throat, hoarseness.—28th. Chill continues. In e. slight cough with shooting pain in temples, roughness and soreness in throat. Menses came on at proper time.—29th. Sleep broken; after rising exhausted feeling in limbs, shooting pain in temples, with painful fulness of head; nose felt stopped, with watery discharge from it; redness of nostrils and sore feeling there; soreness of throat, hoarseness, short dry cough; slight redness of throat, no pain on swallowing; pressive feeling in middle of sternum, spreading to both scapulae. No thirst, anorexia, pulse accelerated, 76. Headache and fatigue so great he had to sit down several times during a moderate walk. These symptoms relieved by drinking tea.—30th. Woke at 4 a.m. with same symptoms as yesterday; soon afterwards cutting about navel, every movement aggravates her sufferings. The symptoms gradually decreased. (*Ibid.*, 516.)

4. G. F. GOTTWALD, surgeon, æt. 33, took from Jan. 27th to Feb. 6th, every other day, ʒj of 3rd dec. trit.—Jan. 27th. Bitter taste, hardness of hearing as though ears were stopped with cotton; cold feeling in occiput as though blown on. E. sacral pains, increased at n.—28th. Slight vertigo; pressure in both temples; feeling of fulness and tension in bladder, without inclination to urinate; the tension remained after emptying bladder; after dinner griping in bowels and fluid stools. E. and n., irritation to cough in larynx, disturbing sleep.—29th. Bitter taste; dry throat as if full of dust; after dinner heartburn for 2 h. E., increased dryness of throat, accompanied by slight burning in soft palate.—30th. Catarrhal symptoms of pharynx and trachea continue slightly; cross without occasion; after eating heartburn. E., uncommonly cheerful.—31st, m., great weakness and drowsiness; during d. bitter taste.—Feb. 1st. Very restless n., no sleep; the whole body felt swollen;

in semi-somnolent state, imagined his body had turned into a bagful of wool; everything he touched seemed thicker; all d. dazed head.—2nd. Bitter taste, good appetite for breakfast; afterwards confused head. Later, restlessness drove him out of house in very bad weather.—3rd, m., violent griping in bowels, then liquid stools, 3 during d. Frequent sneezing, hoarseness, dryness of throat, thirst. E., slight fever.—4th. Restless sleep disturbed by dry cough; bitter taste; transient vertigo; scraping in throat, relieved by eating; pain in sacrum; irritation to cough; cutting pains in abdomen. E., feeling of swelling of head, anxiety. Later, dry throat, tension in soft palate.—5th, m., constant dry cough; increased sensitiveness of fauces and gullet, so that rinsing mouth made him cough, and brought on vomiting of thick masses of mucus. After dinner smoking caused cough. E., anxiety. N., heartburn.—6th. Roughness in mouth, tension, and great sensitiveness of soft palate. Brushing teeth caused violent cough followed by vomiting of mucus. Noon, griping of bowels and pappy stools. Good appetite; after eating, heartburn; confused head, coughing and sneezing; great drowsiness e.—7th. Increased sensitiveness of fauces; tearing pain in r. shoulder and sacrum; griping in belly. In e. the shoulder pain extended to forearm, and was sometimes very violent.

6. On Feb. 18th, 21st, 24th, and 27th, and March 5th and 9th took ʒj 1st dec. trit.—Feb. 18th. Soon, bitter taste, dryness of throat. Noon, loss of appetite, increased thirst; slight inclination to vomit, relieved by drinking diluted wine.—19th. Slept well. M., great lasciviousness with slight erections. All d. prostration of limbs. After dinner great thirst, drinking cold water to allay it caused unusual chilliness. Must drink cooling liquids to refresh throat. Smoking caused cough.—20th. Restless sleep at n. In m. confused head with slight vertigo. During d. frequent dry cough and sneezing; dryness of m.m. of nose and fauces, relieved by drinking water. Smoking caused burning in fauces.—21st. A sickening irritation in fauces as if tickled with a feather, bitter taste, dryness of m.m. of nose and fauces. Afternoon, when smoking, burning in throat and lips. E., confusion of head.—22nd. Woke with dryness of throat, relieved by drinking cold water. M., great urging to urinate, which was performed with erection of penis and lasciviousness. During d. fatigue of limbs, dazed head, stuffed nose. Afternoon, sneezing, coughing, sensitiveness of organs of deglutition.—23rd. On waking dryness of m.m. of mouth and fauces, tongue stiff and hot; desire to drink water to keep the organs of deglutition moist; skin dry, hot, cold water moderated the heat. During d. frequent discharge of thin nasal mucus; roughness of throat, frequent sneezing, dry cough.—24th. Frequent waking from dryness of throat; tongue so dry and rough that it makes a noise against the palate; tense pain on swallowing, relieved by drinking water. In m. tickling in throat causing inclination to vomit; bitter taste. During d. dazed head, frequent chilliness; sneezing and cough with yellow expectorations. Thinking of cochineal causes loathing and nausea.—25th. Slept restlessly on account of sexual excitement. During d. very sleepy. E., chills, cough and sneezing.—26th. Frequent waking on account of dry throat and tense pain in soft palate; scabs form on outside of

nostrils; sensitiveness of throat, restlessness, chills.—27th. On waking dry, brown furred tongue, cough with expectoration of globular mucus; sore-throat, bitter disgusting taste, confusion of head, anxiety, and restlessness.—28th. Lascivious dreams. Sleepy in m.; the roughness in throat, frequent cough, and sneezing all d.—March 1st. The dryness of m.m. continues, yawning and stretching of limbs, tensive pain in sacrum.—2nd, 3rd, and 4th. Same symptoms continue.—5th. Bitter taste, scraping feeling in throat, causing inclination to vomit; catarrh of larynx and trachea increased; smoking causes cough. Afternoon, heartburn, and tensive pain in throat.—6th. On rising in m. tickling in palate causing inclination to vomit; vomiting of mucus from rinsing mouth. No appetite for breakfast; later, ravenous hunger. Catarrh continues.—7th. On waking long-continued coughing without expectoration; no appetite; confused head. Afternoon, dry throat; tensive pain in soft palate, must drink often; violent stitches in l. ear. E., griping in bowels, followed by pappy stools with chilliness.—8th, m., dry cough for some minutes with expectoration of mucus. No appetite; continued inclination to vomit. E., very drowsy.—9th. Soft palate very irritable, speaking and brushing teeth cause vomiting. During d. great restlessness.—10th. Wakes early; yawning and stretching limbs; lasciviousness without erections; irritation of throat, brushing teeth and rinsing mouth cause cough and inclination to vomit. Coughing and sneezing with mucous expectoration continue. These symptoms continued several d., and only ceased on the 16th. (*Ibid.*, 518.)

5. *Dr. HUBER* took, Feb. 5th, 25 dr. 6th dit. Frequent quivering twitching of l. lower eyelid; repeated pricking smarting in various parts of skin.—6th, 8 a.m., 40 dr. After 2 h., voluptuous tickling in both ears extending from external meatus through inner ear to buccal cavity for 15 seconds, with flow of tasteless saliva and smarting-pricking in skin over r. clavicle. During d., frequent quivering twitching in l. lower eyelid. E., in bed, smarting pricking in r. pectoralis muscle and r. groin.—7th, 7 a.m., 15 dr. After $\frac{1}{2}$ h., short, smarting pricking in back of r. hand; violent stitch on inner border of l. patella, like electric sparks; great itching in r. concha and external meatus. About noon, smarting pricking in l. side of tip of tongue and much tasteless saliva. E., violent stitch in r. patella like electric spark.—8th, m., 25 dr. After 1 h., while still in bed, dull, digging, intermitting, undulating pain in posterior part of r. parietal bone, followed by short shooting-tearing pains in fleshy part of anterior internal aspect of l. upper arm. Afternoon, frequent smarting sensation on small parts of hairy scalp, and twitching pricks on l. sole near toes; continued rumbling in abdomen under r. short ribs. E., dull digging pain in l. occiput towards ear.—9th, 6 a.m., 35 dr. After $\frac{1}{2}$ h. in bed had first short tearing pain along anterior internal part of r. thigh, then a similar pain on outer side of r. upper arm, and later painful drawing in metacarpal bone of r. thumb and pricking in r. internal malleolus; frequent smarting pricking in gums of the r. incisors, great dryness of mouth and frequent itching in l. meatus auditorius. Noon, violent pressive pain near l. elbow-joint; intolerable itching in the furrow on under surface of l. big toe. After dinner frequent tearing pain from r. scapula

over anterior outer surface of r. upper arm. 3 p.m., 50 dr. 7 p.m., on several points of abdominal integument short prolonged pricking smarting as if leeches were sucking there; 1 b. later some smarting near r. nipple and in foreskin. 10 p.m., in bed drawing-tearing pain above and behind l. ear followed by continued noise in it. At n. vivid, remembered dream about syphilitic sores.—10th. Woke in m. with slight dull digging in r. upper molars and dull headache above r. eye. 15 dr. 4th dit., no effect; 3 p.m., 30 dr. E., in bed, smarting pricking here and there in skin even in scalp; then intolerable itching in l. meatus externus, relieved by boring in finger; great roaring in l. ear, like a storm in an exposed forest. Woke at 4 a.m. with bruised pain in l. clavicle and shooting pain in pit of stomach, on every inspiration, goes off during expiration; this lasted 5 m., followed by shooting pain in r. flank, spreading from border of false ribs to r. side of back, aggravated by pressure and relieved by discharge of flatus. This pain lasted 10 seconds and was followed by drawing pain in muscles of r. forearm, itching and roaring in l. ear and pricking as from splinters of glass in under surface and tip of l. big toe.—11th, 8 a.m., 40 dr. After 3 h., violent stitch in interior of r. ear followed by slight aching in r. upper molar. Bruised pain in l. clavicle continues, increased by moving l. arm; when lying changes to dislocation pain in l. shoulder. After dinner, pain in r. parotid, followed by a similar pain in r. salivary gland under tongue, much tasteless saliva; painful drawing in interior of r. ear. 3 p.m., continued pressive-tensive pain in l. mastoid process; simmering noise in l. ear, sore pain between l. eye and lid as though a hair had got in eye. Afternoon, 50 dr. 7 p.m., several violent stitches in l. inner malleolus and smarting stitch in r. external meatus and r. temple. E., in bed, pricking as from glass splinters at one time under nail of l. big toe, at another in finger-tips and under nails of r. thumb and index.—12th, 7 a.m., 60 dr. After ½ h., griping in bowels above pubes as from incarcerated flatulence lasting 15 m., relieved by discharge of flatus; bruised pain in l. lumbar region and slight pain in l. lower molar. After ¼ h., drawing-shooting pain from l. flank along l. hip for some seconds. After rising, diarrhetic stool followed by puppy stool with prolonged discharge of flatus. 9 a.m., short shooting pain on ribs of cardiac region in a place the size of half-a-crown, with raw pain on pressure. 11 a.m., violent smarting shooting on l. antitragus, bruised pain in l. clavicle with dislocation pain on moving head or l. arm or when lying on l. shoulder. After dinner, some anxious, rapidly repeated irregular heart's beats. 4 p.m., 70 dr. After ½ h., when walking in open air intolerable itching smarting, now in r., now in l. antitragus, followed by painful cramp-like drawing in interior of r. ear. E., in bed for some seconds digging-shooting pain deep in r. lumbar region, apparently in kidney; soon afterwards extremely violent stitch, making him start; shrill ringing in interior of l. ear with bruised pain round l. external ear, especially in mastoid process; this pain extended along l. side of neck to clavicle and thorax; woke at midnight, felt a prick in occipital scalp like a leech-bite. Disquieting dreams, well remembered. On waking m., feeling of a hair in eyes causing smarting, then a short drawing-pinching pain in interior of l. ear, dryness of

mouth and smarting on tip of tongue as from pepper. After some m. drawing pain in l. clavicle worse when lying on l. shoulder; drawing-tearing pain along front aspect of muscles of r. upper arm, when at rest; pressive pain at side of l. patella; frequent sore stitches on various parts of skin and scalp, conchæ, r. side of nape of neck, border of both lower jaws, near nipples, on back, on scrobiculus cordis, axillæ, groins. All these symptoms went off when he got up.

6. Feb. 13th, 6 a.m., 10 gr. 3rd trit. After 2 h. several sore stitches on border of l. false ribs between stomach and l. flank, deeply seated. All d., pressure in stomach as from indigestible food. Frequent itching in interior of l. ear, especially when coming from cold air into warm room; painful pressive tensive feeling in bones close above and behind l. ear, especially in mastoid process, at same time much tasteless saliva. Afternoon, tearing shooting along r. calf-muscles and shooting pain in muscles in bend of r. elbow when at rest. 4 p.m., 20 gr. In bed in e. the pressive-shooting pain in bones about l. ear, increased to painful digging undulation involving the l. side of neck and clavicle, the l. molars and l. occipital region; frequent sore stitches in l. antitragus and constant tiresome roaring in l. ear. Many dreams at n.—14th, m., 30 gr. In ¼ h. violent prick like a leech-bite in bend of l. elbow; short, drawing pain in upper and outer side of l. thigh. 11 a.m., first short drawing pain on upper and outer side of l. thigh when at rest, then a stronger and deeper prick close in front of l. ear between antitragus and zygoma; drawing pain in l. concha worse when touched; when chewing pain of l. maxillary joint close to ear, with cracking in it on swallowing. After dinner recurrence of the pain in mastoid process and clavicle, with constant roaring in l. ear. 4 p.m., 10 gr. 2nd trit. Immediately a violent prick in front of l. elbow and in r. patella. 10 p.m., in bed, tearing shooting along anterior inner muscles of thigh. Midnight, when half asleep, sudden, very violent palpitation of heart lasting 25 seconds, as after severe fright, shaking whole body in repeated fits.—15th. On waking, m., bruised pain in l. sacro-iliac region. 7 a.m., 20 gr. Throbbing pain, synchronous with pricks in interior of l. ear; cracking in it when swallowing; feeling as if ear were stopped, without affecting hearing, accompanied by pressive tensive pain in l. mastoid process, which on one side spread over l. side of neck in region of clavicle, on the other side to l. molars, after ¼ h., aggravated by lying on l. ear and lasting all d.; feeling as if liquid wax escaped. 4 p.m., 30 gr. After 1 h., great dryness of tongue and whole mouth with great thirst for cold water. 4 a.m., woke without cause and then there occurred slight pricking as from a glass splinter under nail of l. big toe.—16th, 15 gr. After 1 h., disgusting, sickening taste; itching in r. external meatus and drawing, sometimes shooting pain in interior of r. ear; great roaring in l. ear and sore pricks in various parts of skin, even in prepuce, as from leeches. 11 a.m., tearing-shooting pain along l. sciatic nerve from l. glutæus max. to posterior and outer side of thigh. 3 p.m., 30 gr. 1st trit. After 2 h., slight confusion of head and prostration of whole body; pressure in stomach as from indigestible food. E., frequent itching and roaring in l. ear. In bed before midnight violent pressive throbbing pain in l. mastoid process,

increasing sometimes to digging-outwards, and spreading to interior of l. ear, l. occipital-nuchal region, l. molars, and along sterno-cleido-mastoideus muscle to l. clavicle and sternum; these parts when touched are painful as if ulcerated; when swallowing saliva cracking and feeling in l. ear as if wax would flow out; at same time tiresome heat and tinnitus of l. ear. Sleep restless and not sound, frequently awakened by slightest noise with a start, with palpitation.—17th. Woke with bruised pain in l. lumbar, sacral, and hip regions; l. ear felt stopped, hearing impaired. From 17th to 23rd the symptoms of ear and hearing continued in slight degree. From 23rd to 28th no trace of ear affection except occasional roaring; for a long time momentary drawing or tearing in various muscular parts like splinters stuck in; this pain occurred in the upper arm in bed at n., when he exerted the muscles slightly. During proving the urine generally deposited a red sand, and the sexual desire was somewhat increased. (*Ibid.*, 523.)

6. *Dr. W. HUBER*, surgeon.—March 13th. 30 gr., 6th trit., fulness in stomach with retching all d.—14th. Same dose, same effect.—15th. 100 gr., immediately, weight and pressure in stomach. Frequent retching. Feeling as if a crumb were sticking behind larynx. Dislike to food and drink. After taking soup pain in forehead, aggravated by shaking and turning head and even by moving hands; at same time nausea with inclination to vomit. E., in bed, feeling of heat, and like a throbbing all through body.—16th m. 100 gr. 5th trit. All d. as if a stone the size of a fist lay in stomach, and as if a crumb stuck in throat; 3 soft stools mixed with hard lumps. Afternoon, when walking, prickling feeling in anterior surface of thighs, as if heat streamed through skin, lasting 10 m.—17th m., 100 gr. same trit. In $\frac{1}{4}$ h. same feeling in stomach and throat as yesterday. The crumb in throat seems often to move up and down. This feeling lasts all d.; two soft stools. Bad appetite.—18th, m., 100 gr. 4th trit. Soon same feeling in stomach and throat, at same time sensation as if the overloaded stomach (he had eaten nothing) must relieve itself by vomiting. On swallowing fluids felt as if they were jerked down spasmodically. Afterwards burning in œsophagus. Little appetite, food blows stomach out, stomach sensitive to touch. E., heartburn with eructation of acrid fluid. On rising at 5 a.m. the stomach and throat felt all right, but the feeling recurred whilst walking. After smoking, while walking, heartburn and transient jerking pain in l. lower canine tooth.—19th. The symptoms disappeared.

6. 25th. 100 gr. 3rd trit., soon pressure in stomach and retching. After 2 h. pressure in stomach increased, the retching was more frequent and a feeling as of a lump the size of a walnut sticking behind larynx caused constant swallowing. Afternoon, heartburn, very troublesome retching, and great pressure behind larynx. 4 p.m., burning feeling behind larynx as from acrid fluid. After a mouthful of wine great heartburn and pressure in stomach till 8 p.m.—26th. 100 gr. Forenoon, only roughness of throat. Afternoon, whilst walking last fore part of l. foot painful when treading, the articular surfaces of tarsus felt swollen, thereby impairing the mobility; two soft stools.—27th. 100 gr. 2nd trit., during d. transient tearing pains in r. little finger

and l. big toe when moving. E., after lying down, transient tearing pains from l. eye spreading up into forehead.—28th. 100 gr., only slight heartburn.—29th. 100 gr. 1st trit., after 1 h. roughness in mouth and throat, feeling of a crumb in throat with retching; pressure in stomach. Whilst walking the retching and pressure behind larynx increased; heartburn and great exhaustion. Afternoon, while walking internal hot feeling in chest, especially severe in cardiac region and in lower half of r. chest; then sensation as if an artery beat on the surface of the heart, several times (for several m.) while walking. Head, especially in e., confused as if intoxicated. N., restless, could not go to sleep on account of internal heat.—30th. On waking m. intoxicated confusion of head. Same dose repeated. Same hot feeling in crown and deep in chest, sometimes amounting to burning, especially in cardiac region. 9 a.m., when walking, warm feeling in whole belly. On anterior surface of thighs prickling as though electric sparks were drawn from it. When this ceased, heat in chest, especially in cardiac region, and occasional pulsating beating in heart. This feeling attended with a sensation as if lower lip were drawn from both sides to the middle. Afternoon, frequent undefinable pain in heart often interrupted by a pulse-like throb; feeling as if everything were forced to the heart. E., throbbing pain in heart with occasional pulsations on surface of heart. Sore feeling at apex of l. lung with occasional pulsating sensation, alternating with contractions of lower lip.

c. May 31st. 40 dr. tinct., immediately, buccal cavity and fauces rough, as if covered with velvet, for some h. 11 a.m., when walking sore feeling in apices of both lungs with transient chilliness, soon afterwards slight pressive headache, increased by treading roughly. Lower lip feels contracted.—June 1st. 50 dr.; soon, uncommon feeling of coldness. After 1 h. throbbing like strong pulsations in heart, middle of chest, and apices of lungs. This throbbing consisted of several beats in rapid succession, ceased for 5 or 10 m., and then recurred in another place. Forenoon, when making a journey of several miles felt when walking hot feeling in chest, belly, and thighs, with the prickling feeling already described. After the hot feeling had ceased for $\frac{1}{2}$ h., he had a severe sore feeling, pressure and tension in chest, and the pulsating throbbing in apices of lungs. Involuntary deep breathing while walking, yawning with relief. The sore pain was sometimes dull shooting, often slightly boring, the seat was often only in pleura and pericardium; sometimes it was felt deeper in lungs and heart with several stronger heart's beats. Tensive pressive pain now in the l. shoulder, now in finger-joints of l. hand and in r. hip, lasting intermittingly till e., when it disappeared. Almost ravenous hunger. The chest symptoms became gradually worse, the sore pain became burning and frequently changed its seat, but was chiefly in heart and lung apices, with desire to draw a deep breath and cough. Cough bad e.; roughness of trachea causing frequent cough. 8 p.m., cold feeling without shivering. Headache after drinking beer. 1 a.m., woke up by cough, could not get to sleep again till 6 a.m. on account of the sore feeling in lungs and cough and the pressive headache; slept restlessly till 7.—2nd. The sore pain, especially in the apices of the lungs, continues, with dry cough and

hoarse voice; occasional obtuse stitches with throbbing in heart which he thinks he hears but could not feel with his hand. 10 a.m., when writing, severe chill soon followed by hawking and short cough kept up by cough feeling in trachea; head confused and much mucus in nose. 11 a.m., soft stool preceded by griping about navel; this occurred twice in afternoon. All afternoon chilliness along with above symptoms. 8 p.m., when he went to bed chilliness, especially along back, with thirst. After $\frac{1}{2}$ h. dry heat of head and red face while the rest of body was cold, afterwards heat became general and lasted till midnight, when sweat of upper part of body came on and lasted till 5 a.m. Sleep often disturbed by cough, pressive throbbing headache, and pulsating throbbing of heart.—3rd. Headache continued, tongue furred white, dry, and sore. Some mucus brought up by coughing, it was greenish yellow and sweet like liquorice. After each fit of coughing a burning sensation for some time. The cough was kept up by persistent irritation in bronchial tubes and larynx and made the soft palate painful so that swallowing was difficult; beer aggravated the symptoms. In e. more of above expectoration with the cough.—4th. On waking head confused, voice hoarse, throat rough. Speaking and swallowing increased pain in soft palate. Expectoration as yesterday. Noon, little appetite, white tongue. Afternoon, constant chilliness and thirst. E., increased chilliness with dull throbbing stitches in heart and soreness in middle of chest; hard stool. Before going to sleep rigor with heat of head for $\frac{1}{2}$ h., followed by dry heat and sweat lasting all night with relief of symptoms. Urine red and scanty.—5th. Hoarseness all day, expectoration increased, viscid, and moist. From m. till noon persistent pain in heart. N., frequent cough with expectoration. M., profuse sweat.—6th. Hoarseness continues; cough with expectoration, the latter increased, is in lumps and has a grey colour. The expectoration comes away more easily and the chest symptoms are slighter. The pulsating throbbing is seldomer, but suffocative feeling, and as if thorax were too narrow, continues till e.; then chilliness, and at n. sweat with relief.—7th. Hoarseness less; chest tight like suffocation. Cough continues, but less fatiguing; expectoration easier. E., aggravation after beer, consisting mainly of tightness of chest and more frequent cough.—From 8th to 16th all the symptoms, except cough and expectoration, gone. The fits of coughing mostly m. and e. with expectoration of lumps of tough mucus.—18th. Pressive pain, swelling and redness of big toe like gout, not very violent, and lasting 4 d.—22nd, n., 60 dr. caused roughness in mouth and shooting and feeling of a crumb behind larynx.—23rd. 80 dr., white furred tongue; smell from mouth as from disordered stomach; roughness in mouth and fauces, with retching and feeling of a crumb behind larynx; frequent dry cough, rarely bringing up yellow, disgusting sweet mucus. On going uphill dyspnoea and sore feeling in apices of lungs. On waking in m. white tongue and sour smell from mouth.—24th and 25th, 100 dr., 26th, 120 dr., caused the same symptoms in aggravated intensity, which continued to be felt till 6th July. (*Ibid.*, 534.)

7. Dr. LACH, *et.* 36.—Feb. 18th, 10 p.m., 5 gr. cocc. cac. in 3ss hot water. Immediately dryness in pharynx, making him swallow

constantly, with slight scraping.—19th, m., slight pressive pain from temple to crown, which went off after walking. 8 p.m., slight burning in throat. Took 5 gr.—20th. Woke at 6 a.m. with severe burning along urethra and intolerable tickling in its orifice. After passing clear, straw-coloured urine, the burning and tickling went off, but the latter returned during d. before each micturition. More frequent urination. All d. disagreeable rough feeling in throat, feels furry; voice hoarse when he had not spoken for a long time, at first always hoarse, but soon became clear. On attempting to hawk, burning in throat.—21st. Woke twice at n. from dry cough; great burning in throat relieved by drinking cold water. 6 a.m., woke with cough, which intermitted for minutes, was at first barking, clear and dry; later some viscid mucus was expectorated with so much difficulty that it brought on vomiting several times; at same time sore feeling in throat and pressive frontal headache. The cough was relieved by rinsing mouth with cold water and drinking a few mouthfuls, which mitigated the heat in throat, but this returned immediately on drinking a little warm milk. Tickling in orifice of urethra like yesterday; micturition rarer, urine turbid and yellow. No stool yesterday or to-day.—22nd, 6 a.m., cough like yesterday; it troubled him all d. 3 p.m., 1 h. after dinner vomited in consequence of the continued cough; after this cough ceased; expectoration moderate and viscid. Twice before urinating tickling in urethra anteriorly, as if pricked repeatedly with a needle. Fulness of abdomen, as though he had eaten too much. Afternoon, a firm, dry stool; great laziness, ill-humour and irritability.—23rd. Dry cough.—24th. Cough rarer, expectoration easier, vomiting of whitish-yellow mucus; little appetite for 3 d. No stool since 22nd. E., 5 gr.—25th, m., cough with easy expectoration of mucus mixed with viscid strings; pressure in throat; no appetite for breakfast; great sexual desire on waking.—26th, m., hoarseness, with much mucus in throat compelling hawking, which brought away thick, viscid mucus. Forenoon, some fits of coughing. Afternoon, disinclined for anything, lazy, prostrated and weary. E., pain in thighs, as after a long walk.—27th and 28th. Cough as before until 11 a.m. Voracious appetite for dinner that was soon satisfied; hoarseness. E., 5 gr.—March 1st. Could hardly speak for coughing in warm room. In bed the cough lasted from 2 to 3.30 a.m. It was dry and left a sore feeling in throat, with heat and some burning. On waking in m. creeping in crown, making him scratch. Itching in orifice of urethra. Forenoon, firm, unsatisfactory stool. 1 h. after dinner a copious pappy stool with much flatus. E., 5 gr.—2nd. Hoarseness with hawking up of mucus. E., 5 gr.—3rd. Pressive frontal headache at breakfast. Violent cough with frequent expectoration of mucus and constant tickling along to bifurcation of bronchi; feeling as if mucus moved in trachea, causing tickling. During d. frequent cough with expectoration; metallic and pappy taste. E., great thirst and desire for beer; after drinking a glassful went to bed with headache all over head, great exhaustion, no sleep before midnight.—4th. Woke at 6 a.m., very irritable; frequent cough during d. The next 3 d. the cough continued with varying degrees of intensity. Expectoration increased, causing much hawking

of mucus.—8th, e., 10 gr.—9th. Anorexia. Afternoon, slight drawing pressive pain in tendo Achillis of l. leg. only felt when walking or stretching foot; no pain when touched; the tendon could be pressed and moved from side to side without increasing pain. 6 p.m., toothache in hollow root whose crown had been broken off a year before; tooth very sensitive to touch.—10th. At n. dry cough for $\frac{1}{2}$ hour, excited by tickle in trachea. M., loose cough with easy expectoration of mucus by hawking. The pain in tendo Achillis makes him limp when walking; must put down the foot turned outwards and must often stop to ease the pain. Cough as before; much thirst.—11th, m., renewal of toothache, which lasted till 10 a.m. The pain in tendo Achillis so severe he could not walk; it is tender to touch; going upstairs is very painful.—12th. Toothache all d. Pain in tendon rather less; loose cough, hoarseness.—13th. Toothache so bad; had the tooth drawn, felt pain in the hole left by tooth all d.; the bleeding lasted long; pain ceased in e. Cough slight and loose; hawking of mucus, m.—14th, 15th, and 16th.—The pain in tendo Achillis gradually abated, but still has some pain when walking; when he moves the foot up and down and puts finger on tendon feels a creaking, as if the tendon were too dry; periodical recurrence of cough and hawking of mucus upwards, m. (*Ibid.*, 54D.)

8. Dr. J. O. MÜLLER.—March 22nd, 10 a.m., 30 dr. 3rd dil. $\frac{1}{2}$ h. after dinner. On lying down flatulent disturbance in abdomen, loud rumbling in bowels, compelling him to change his position frequently. This was relieved by discharge of flatus but never quite left him all the time the proving lasted. The stool occurred every day at the same hour (4 p.m.) with tenesmus, slight burning, and protrusion of piles, the grumous feces were enveloped in mucus and were evacuated slowly. The urine, as a rule, was passed copiously every $\frac{1}{2}$ h., was very pale, and had an alkaline odour. In e., in stomach and small intestines feeling of heat; they seemed to be surrounded with warm water, and at same time shortness of breath and oppression of lower part of chest. N. restless, had to get up to urinate after midnight and again about 4 a.m. After the first waking felt a kind of burning drawing in condyle and joint of l. elbow that kept him long awake. In m. perspiration in legs and feet.—23rd. Disagreeable feeling of hunger, must eat much and often, and the unusual quantity of food did not oppress him. Increased urinary secretion; flatulent symptoms and grumous stools as before. Unusual cheerfulness and freedom of mind even during the fulness and pain of head with increased heat and stupefied sensation. N. restless and many dreams, could not sleep after 4 a.m.—24th. Urine not so copious but still more than normal, but without increased thirst. Dull pain in r. renal region to the end of the proving. Forenoon, burning drawing in spleen spreading up to l. side of chest, frequently occurring with jerking stitches; along with this a peculiar tense heaviness across shoulders and lower part of nape. Afternoon, violent fits of sneezing with burning as from pepper in nostrils. Three fits of sneezing came next day at the same hour, the burning in nose remained the same. At n. woke with burning drawing in l. hypochondrium relieved by application of warm hand.—25th. Only the gnawing hunger, the

rumbling in bowels and irritation of anus during stool. E., the stupefying fullness and pain in head. Sleep at n. full of dreams and restless. The next 4 d. had the symptoms of stomach, bowels and urinary organs as before, after that was in his usual health. (*Ibid.*, 559.)

9. a. T. A. SCHWEIKOFFER, surgeon, æt. 40.—May 18th. 10 dr. tinct., flat, disgusting taste, increased secretion of saliva, tasteless eructation. After 1 h. 2 dull stitches in rapid succession in stomach and caecal region. After dinner uncomfortable humour lasting till e. The disagreeable taste, metallic in character, lasted all d.—19th. 20 dr.; immediately, slight burning and hot feeling in mouth and throat; increased saliva with constant desire to spit along with the metallic taste. Hunger soon after eating. Afternoon, slight griping in belly with frequent ineffectual urging to stool.—20th. On waking m. some griping in belly, going off after stool. 9 a.m., 40 dr.; immediately, metallic taste, salivation, hunger, pain in stomach, griping in belly, diarrhetic stool; confusion of head in crown.—21st. 80 dr., immediately burning and heat in oesophagus and mouth, metallic taste, salivation, hunger, and stomach-ache, sensitiveness of pit of stomach and pressure there; tasteless eructation; itching, smarting, drawing in groin and pubes, in prepuce and glans, instep and toes.—22nd. 100 dr., on waking, m., slight bellyache, thereafter retching with nausea and salivation; metallic taste, stomach-ache and flatulence. Coldness in stomach as if a cold wind blew in it. Afternoon, constant slight griping in belly beginning in stomach and spreading to caecal region, coming and going in fits; hunger, urging to stool, pains in loins and sacrum.—23rd. 320 dr., great flow of saliva, nausea, retching, metallic taste, hawking of mucus; expectoration of yellow sour mucus; tasteless eructations, feeling as if uvula were too long, causing constant hawking; itching, smarting, and drawing on and betwixt toes; griping in belly; drawing and forcing pain in hip, back, loins and sacrum. Emission at n.—24th. 640 dr., great retching, salivation and metallic taste; burning and hot feeling in gullet and mouth; later, confusion of head, especially on top. Betwixt 6th and 7th ribs first r. then l. transient stitches; increased secretion of urine; tension, drawing and tearing in r. shoulder. When walking, e., great confusion of head, especially on top; hunger; several copious loose stools. In 3 d. all these symptoms went off.

b. 27th. 45 gr. 6th trit., after $\frac{1}{2}$ h. metallic taste, great flow of saliva; 2 obtuse stitches in rapid succession, beginning in lumbar and ending in caecal region; confusion of head at top; distension of abdomen and sensitiveness of scrob. cordis, especially when touched; spirits depressed. E., metallic taste when drinking beer and smoking.—25th. Woke with griping in bowels, relieved by diarrhetic stool. During d. out of spirits, constant metallic taste; hunger soon after eating; 3 loose stools; palpitation causing anxiety for some m.; expectoration of yellow, sometimes reddish, mucus of sour taste.—29th. 50 gr. 5th trit., metallic taste limited to tip of tongue; slight burning in mouth and throat; hawking of mucus and tickling in larynx, followed by 3 short fits of coughing. Frequent fine stitches between l. 5th and 7th ribs, going off on inspiring deeply, returning during expiration. Pains in loins and sacrum.—30th, m., emission. After

waking, 2 copious stools. All d. drawing and tearing in r. shoulder and axilla extending to forearm and index. Rumbling in belly with lumbar and sacral pain. Betwixt 5th and 7th ribs slight burning and shooting, first l. then r.; hunger. Afternoon, frequent hawking of mucus. Full feeling in abdomen, chiefly in region of bladder; tension and drawing from lumbar region to rectum; on flexing both feet, on ankle and inner surface of calcaneum pain as after a sprain. Frequent urging to stool without evacuation.—31st. Slight metallic taste and distension of abdomen, with repeated urging to stool without evacuation.—June 1st. 50 gr. 4th trit., immediately the well-known symptoms, salivation, metallic taste, burning in throat, hawking of mucus, afterwards pain in loins and sacrum, tickling in larynx followed by short cough. E., urging to stool and copious evacuation.—2nd. 50 gr. 3rd trit., immediately disgusting bitter taste, tickling in larynx with short cough. In l. temporal region obtuse shooting pain for some m., relieved by pressure, but when that is removed returning instantly. E., lumbar and sacral pain.—3rd. 50 gr. 2nd trit., immediately salivation and bitter taste, griping in bowels, sensitiveness to pressure of scrob. cordis and all abdomen, cross humour; itching and smarting on prepuce and glans; dislocative pain on bending fore part of foot.—4th. 200 gr. 1st trit., immediately great flow of saliva, followed by forcing pain in loins and sacrum; transient oppression of chest, followed by uncommonly cheerful disposition. All d. frequent ineffectual urging to stool, followed by 3 stools, with relief to backache. Frequent tickling in larynx and short cough; itching in nose with repeated attacks of violent sneezing.—5th. All symptoms gone except itching and burning of prepuce and glans and pain in foot. (*Ibid.*, 562.)

10. a. Mrs. SCHWEIKERER, æt. 42.—April 29th. 100 dr. 6th dil., soon nausea with spasm in stomach and hunger, which recurred the next d.—May 1st. 100 dr. 3rd dil., disgusting flat taste, nausea, sensitiveness to pressure of gastric region, especially scrob. cordis. Joyous disposition; feeling of emptiness of stomach; urging to stool with hard evacuation. These symptoms lasted next d.—4th. 100 dr. 1st dil., nausea, retching, hawking of mucus, metallic taste, flow of saliva, retching and constriction in throat proceeding from stomach up œsophagus, mucous discharge from vagina preceded by tearing-forcing pains in groins, bladder, pudenda.—5th. Same symptoms. Menses 3 d. too soon, more copious, blood black and thick.

b. May 13th. 40 gr. 6th trit., immediately nausea, disgusting flat taste, salivation, empty feeling in stomach. E., lumbar and sacral pains.—14th. 40 gr. 5th trit., same symptoms.—17th. 40 gr. 4th trit., same symptoms, and besides forcing in bladder and pudenda with mucous discharge from vagina.—18th. All symptoms gone.—19th. 40 gr. 3rd trit., nausea, retching, salivation, empty feeling of stomach, hunger; great sensitiveness to pressure of scrob. cordis; later spreading all over abdomen with shooting drawing pains in groins, bladder, and pudenda, compelling her to go to bed.—20th, 21st, and 22nd. These symptoms gradually went off; the stools were uncommonly firm.—23rd. 40 gr. 1st trit., nausea, salivation, retching, burning in fauces, empty feeling in stomach, discharge of inodorous

flatus, sensitiveness of scrob. cordis, irritability, digging, tension, forcing and drawing in bladder, pudenda and groins.—24th. Menses came on 7 d. too soon, blood copious, black, and thick. The menses lasted a week, and all the symptoms disappeared. (*Ibid.*, 566.)

11. A. RUDIGER, a boy, æt. 15.—May 22nd. 1 gr. C., only disgusting taste.—23rd. 10 gr.—24th. 15 gr., metallic disgusting taste, retching, salivation, nausea and stomach-ache.—25th. 20 gr., confusion of head, 2 loose stools.—26th. 30 gr., continued retching; feeling as if a thread hung down œsophagus, with constant hawking of mucus; metallic taste; stomach-ache, with sensation as if a large ball were there. Later, violent griping in bowels and headache. For some d. afterwards had confusion of head, tiresome metallic taste, stomach-ache, griping in bowels, diarrhoea and faintness, so that he had often to go to bed. (*Ibid.*, 571.)

12. a. Dr. C. WACHTEL.—March 30th. 1 h. after breakfast, *ziii* 6th dil. 1 h. after dinner, forcing in sacrum spreading forwards and downwards to bladder, and lasting $\frac{1}{2}$ h. E., sensation as if a side incisor was seized by cold fingers and forcibly drawn up.—31st, forenoon, some transient stitches in l. clavicle. Afternoon, acute penetrating stitches near l. nipple, and dull stitches between shoulders, which spread forwards in a radiating manner. Later, sensitiveness of lower row of teeth as though they were longer. E., pressure on chest, followed by ulcerative pain in cardiac region; slight hoarseness, scraping in throat.—April 1st, forenoon, frequently recurring throbbing shooting in both legs; this pain often ceased suddenly and reappeared in l. upper half of chest. Afternoon, tickling and itching in l. meatus auditorius, frequently recurring till e. along with pressure in cochlea.—2nd. Itching in prepuce and l. meatus auditorius.—3rd, afternoon, when sitting, violent twitching and boring stitches in rectum, which suddenly passed to neck of bladder, then in the course of the ureters to kidneys. E., for $\frac{1}{2}$ h., continued stopped feeling of both ears, with pressing forcing in meatus auditorius. Some of the symptoms lasted till 8th, especially the stitches in l. half of chest, which were always excited or aggravated by quick walking. The cough was inconsiderable, came in short fits with slight expectoration of grey globular mucus. The quantity of urine was not increased, but the urine for some d. was darker, more tinted, and smelt like *assafoetida*.

b. May 19th. 10 gr. 3rd dec. trit., soon ebullition of blood to head, with pressive pain in orbital regions, with feeling of flatulent distension of stomach. No appetite for dinner. Afternoon, when sitting, five stitches in r. half of chest along sternum, soon followed by fits of coughing, with expectoration of easily detached grey, gelatinous, globular masses of mucus.—20th. Towards e., hoarseness, with scraping in soft palate.—21st and 22nd. Stitches in chest, and early waking m.—24th. Pressure betwixt scapulae, which gradually extended to sacrum and fixed itself in renal region, and frequently recurring tightness of chest, lasting till June 1st.

c. June 8th, forenoon, 10 gr. 2nd trit. Soon, feeling of distension of stomach. Later, several violent fits of sneezing, leaving roughness and scraping in fauces as from highly spiced food. Afternoon, dyspnoea,

increasing towards e., with occasional stitches in l. upper half of chest—9th. Woke early with oppression of chest, going off after breakfast, but soon returning and occasionally troubling him for several d.

a. June 15th. 10 gr. 1st trit., after a few m. inclination to vomit; fit of coughing lasting $\frac{1}{2}$ h.; expectoration of much mucus. Afternoon, frequent urging to urinate. (*Ibid.*, 572.)

13. a. Dr. F. WURMB.—Feb. 17th and 18th, then from 21st to 28th, and from March 6th to 11th, always at 5 p.m. a teaspoonful of tinct.—Feb. 18th. Almost all d. drawing in teeth on l. side. E., frequent sneezing.—20th, 7 p.m., attack of tickling cough, lasting 5 m., and ending with expectoration of mucus.—21st and 22nd. Frequent cough with mucous expectoration.—23rd. Immediately after rising m. feeling of roughness in the throat, with fit of coughing lasting nearly $\frac{1}{2}$ h., sometimes so violent as almost to cause vomiting; expectoration of a large quantity of viscid, sticky, white-of-egg-like mucus. Cough aggravated by heat of stove, relieved by stopping in cool room. During d. frequent coughing up of mucus. Diminished excretion of urine. E., feeling of a foreign body betwixt eyes and lids.—24th. Coughing up of easily detached mucus.—25th, noon, drawing in r. molars; feeling as if tarsal edges were swollen; very importunate sexual desire; frequent cough with mucous expectoration.—26th. Chilliness more or less all d.; moderately increased quickness of pulse; itching in legs, compelling scratching.—27th. Frequent micturition, almost every h. in afternoon; itching in legs.—28th and March 1st. Frequent and copious discharge of pale yellow urine.—2nd, m., great sensitiveness of teeth on rinsing mouth with cold water. Forenoon, drawing in l. molars. Disagreeable warmth in glans penis and l. testicle. Discharge of pale urine in larger stream. 1 p.m., very violent twisting pain in neck of bladder lasting $\frac{1}{2}$ h., not relieved by micturition or discharge of flatus; disgust at food. 9 p.m., rigor all over body for $\frac{1}{2}$ h.; pulse 100. Sleep disturbed by many vivid dreams; woke at 3 a.m. with dry heat and restlessness; alternation of sleep and waking. Towards m. general profuse sweat. 5 a.m., seminal emission.—3rd. Soon after rising pressive pain in l. temple, sometimes extending to l. eye, and lasting about 2 d. M., pappy taste. Noon, soon satiated. E., tiresome drawing in r. deltoid muscle, rendering it difficult to raise arm.—4th, 5th, and 6th. Sometimes itching on legs.—7th, forenoon, sudden drawing in r. lower incisors; pressure in l. eyeball. After dinner extreme weariness is felt lasting 2 h. in the room, going off at once when he went out; sleep disturbed by frequent waking owing to vivid disagreeable dreams.—8th, m., great sensitiveness of teeth to cold water. Forenoon, same pain in r. wrist. Afternoon, itching in legs and in fingers of l. hand. Betwixt 5 and 7 p.m. 3 discharges of urine in thick stream.—9th. Slight itching in legs and fingers of l. hand.—10th. Frequent expectoration of easily detached mucus. 5 p.m., painful stitch from anus through urethra.—11th, 12th, and 13th. Gradual disappearance of all the medicinal symptoms, except the cough with easily detached mucus and sensitiveness of teeth to cold water and cold air.

b. From March 23rd to April 1st (with exception of 2 d.) he took

every day at 5 p.m. 2 teaspoonfuls of undiluted tinct.—March 23rd. Immediately urging to urinate. 11.30 p.m., woke from tickling in larynx, which caused very violent cough, lasting 10 m., with copious expectoration of viscid mucus.—24th. Woke with feeling of coldness of feet and sweat on the upper half of body. On rising, pressive shooting pain in lower lobe of r. lung. This pain was very violent, especially when breathing deeply; not affected by movement. Sneezing, which it provoked, was impossible on account of the violent pain; it lasted till noon, and then suddenly departed. Afternoon, frequently coughs up easily detached mucus.—25th. Immediately after dose, dry feeling in throat lasting 2 h. Frequent coughing up of mucus.—27th. Immediately after dose drawing in r. meatus auditorius, lasting all e.—29th. Drawing in r. ear, lasting 2 h.; sometimes drawing in l. ear. Sudden drawing in teeth and itching in l. upper arm.—30th. Forenoon, sudden drawing in incisor teeth and r. meatus auditorius. Between 3 and 5 p.m., chilliness, cutting in hypogastrium, and discharge of much inodorous flatus; the chilliness went off immediately in open air. 6 p.m., feeling of roughness in throat and frequent coughing up of easily detached mucus. 7.30 p.m., sudden drawing in anterior aspect of r. thigh above knee, in r. big toe and l. thumb.—31st. After dinner, chilliness lasting 2 h. 4 p.m., obtuse stitch in lower lobe of r. lung on breathing deeply. E., scraping in throat and frequent coughing up of easily detached mucus.—From April 1st no more symptoms, except sudden drawing in teeth, which occurred occasionally for several weeks. (*Ibid.*, 579.)

14. Professor von ZLATAROVICH took from Feb. 18th to July 7th, with the exception of a few days, every m. 10 gr. of 1st dec. trit.—Feb. 18th. Slight scraping in throat.—19th. After the dose and for some time after breakfast disagreeable sweetish metallic taste; repeated sneezing; frequent discharge of flatus. Noon, pretty severe, shooting, tearing pain on inner side of shaft of r. tibia; slight burning in anus.—20th. In m. after dose disagreeable taste; repeated sneezing; discharge of much flatus; sensitiveness of crown. Forenoon, transient burning under sternum.—21st, 22nd, and 23rd. Frequent coughing up of mucus.—24th, e., severe pressive and drawing pain in lumbar and sacral regions.—25th, m., pain in sacrum, lasting all forenoon, ceasing for a short time, and then recurring. Between-whiles scraping pain in shafts of tibiae and in elbows.—26th. Woke at 5 a.m., wide awake for 1 h., then slept till 7. Rumbling in bowels, discharge of much flatus. From 27th to March 6th frequent coughing up of mucus, alternating with dry, short cough; occasional burning in legs.—7th, forenoon, occasional transient tearing in tendinous expansion of both forearms; when that went off similar pain in both legs. Much flatus discharged. Noon, when urinating slight burning in urethra.—8th. Slight crawling in anus.—9th. Immediately after dose, slight moving of flatulence, which was then discharged. $\frac{1}{2}$ h. after breakfast sudden acrid-bitter taste about root of tongue, causing vomiting. For some d. past much mucus from nose. E., great confusion of head, with pressive aching pain in crown; burning in skin of forehead, lasting till n.—10th, m., slight coughing up of mucus. Bad

taste after breakfast. All d. slight burning in eyelids; much mucus from nose.—11th. Sweat on r. leg; occasional coughing up of thick mucus; very severe burning and itching on r. leg.—12th. Woke early with severe pressive and burning pain in crown for 1 h., went off after a short sleep; severe burning and itching on r. leg. Soon after dose disagreeable taste; discharge of flatus; blowing of much mucus from nose; rumbling in bowels; groaning in sleep.—13th, m., violent itching in legs; coughing up of mucus. After dose, excessively disgusting taste that remained for some time after breakfast.—14th, m., coughing up of mucus; much discharge from nose. Forenoon, very severe pains in corn on r. little toe, making him limp.—15th, m., after dose, nausea sometimes amounting to inclination to vomit, with eructation of wind. Groaning at n.—16th. Discomfort in abdomen after breakfast, disagreeable bitter taste, eructation of wind. Noon, after exercise tenesmus in anus.—18th, m., short cough with expectoration of thick mucus. After dinner rumbling in bowels. E., pressure in fauces when swallowing saliva.—19th and 20th. Frequent coughing up of disgusting thick mucus.—21st, m., great sexual excitement. Immediately after dose transient nausea. Noon and afternoon, repeated attacks of soreness and pressure under sternum.—22nd, m., coughing up of thick viscid mucus; burning in r. leg; bitter taste. E., after walking, feet very tired; burning in soles.—23rd to 27th. Same symptoms.—28th, m., dry cough. For several d. past painless pimple on back, which now discharges a quantity of thick pus.—29th, m., coughing up mucus; rumbling in bowels; disagreeable taste. After rising, short oppressed breathing. For some d. past the front of soles is painful after moderate walking, pain is burning; when seated changes into hot feeling and gradually goes off.—30th to April 4th. Coughing up of mucus, bitter taste, rumbling in bowels.—5th, m., roughness in throat, sticking together of eyelids. After breakfast, nausea; inclination to vomit, especially after coughing, which forces water from eyes.—6th. After dose and breakfast discomfort in stomach, and flatulent distension of abdomen.—7th. Soon after dose pressure in stomach, nasty sweet metallic taste, and slight nausea; coughing up mucus; much mucus blown from nose; slight burning of tarsal edges; dyspnoea; oppression of chest; moist secretion between nates and at anus.—8th. Yellow secretion from anus; coughing of mucus; discharge of flatus; much nasal mucus.—9th. After dinner rumbling in bowels; discharge of wind upwards and downwards; cough dry or with expectoration of thick mucus. These symptoms lasted the next 4 d.—14th, m., coughing of mucus; slight burning pain in r. leg. After breakfast very disgusting, bitter, astringent taste, mostly in root of tongue and fauces, all forenoon; nasal mucus; frequent short, dry cough; fatigue of vocal organs from speaking; hoarseness.—15th and 16th. Same symptoms, and yellow discharge from anus.—18th. Immediately after dose, pressure and burning under sternum near stomach, lasting $\frac{1}{2}$ h.—19th and 20th. Coughing of mucus, slight pressure in stomach.—21st, m., flatulence in abdomen; sore feeling in shaft of r. tibia; frequent short dry cough. After dinner pinching in abdomen; discharge of flatus;

much mucus from nose.—22nd, m., not refreshed by sleep. Immediately after dose cold feeling and discomfort in stomach; rumbling in bowels. Forenoon, short dry cough. Noon, after a glass of water sickly, sweet resinous taste, especially at root of tongue; little appetite. After dinner, flatulent distension and discomfort in stomach; tearing here and there in long bones.—23rd. Fatigue of vocal organs; voice rough and hoarse after a little talking; breathing laboured.—24th, m., cough with mucous expectoration. After dinner, rumbling in bowels.—25th to 28th. Same symptoms.—29th. A painful lump on crown the size of a large lentil; in e. still painful but not elevated.—30th. After dose flatulence in abdomen, discharge of flatus, burning in r. leg. After breakfast pressure in stomach, eructation of air; much mucus from nose; a yellow powdery substance on inner border of nostrils. Forenoon, often short, dry cough from irritation in trachea.—From May 1st to 5th. Coughing up of lumpy mucus; roughness and hoarseness of voice; slight burning of eyelids and skin of r. leg; discharge of flatus.—6th. After waking great tension in l. cervical muscles, going off on rising. During d. dry, sometimes loose, cough.—7th. On waking fatiguing, painful cough from irritation in larynx and trachea.—8th to 12th. Coughing up of mucus; bad taste; fatigue when walking.—15th. After dinner some shooting in head on r. of coronal suture; painful stitches through brain with impaired hearing.—16th to 27th. Frequent coughing up of mucus; discharge from nose; discomfort in stomach.—28th. Drawing and tearing here and there, especially in neck, betwixt shoulders, and in forearms. After dose, rumbling in bowels, discharge of flatus. Forenoon, when speaking tightness of chest. After dinner often transient stitches in r. leg near ankle.—30th, m., roughness in throat, mucous cough. On penis a pustule. Forenoon, several attacks of pressive stomach-ache with nausea.—31st, m., mucous cough; the pustule on penis discharges fluid on pressure. Soon after dose pressive gnawing in stomach; sickly taste.—June 1st. Increase of sexual desire; small sore places on crown; pustule on penis nearly gone.—2nd to 5th. Expectoration of lumpy mucus; great discharge of mucus from nose. (*Ibid.*, 582.)

15. R. SCH., medical student, æt. 21.—April 2nd. 10 gr. 1st trit.—4th. Scraping in organs of deglutition, slight constriction in throat. After two similar doses, same symptoms.—23rd. In addition to these symptoms, irritation to cough, eructation and nausea.—25th to 28th. Cough continued, with relief in e. (*Ibid.*, 588.)

16. H—, medical student, took every morning for 8 d., at 6 o'clock, 10 gr. 1st trit. Disagreeable, bitter, nauseous taste; increased appetite; transient, very painful stitches in both sides of chest; dyspnoea; dryness of fauces. (*Ibid.*, 589.)

17. ADOLPH S—, æt. 25.—Jan. 20th. 10 gr. 1st trit. In 1 h. slight irritating scraping in larynx, causing hawking and coughing.—21st. Same dose, same symptoms.—22nd. Scraping in larynx and trachea all d.; slight hoarseness e.—23rd. Hoarseness continues; 10 gr.; all d. scraping in air passages and irritation to cough.—24th, m., urine with brick-red sediment. Repeated dose. After 1 h. return of

scraping in larynx, slight hoarseness.—25th. The urine passed in afternoon deposits in a red sediment; this symptom and the hoarseness and dry cough continue till end of month. (*Ibid.*, 589.)

28. W. Rast, æt. 29, in good health.—April 18th, 11 a.m., 5 dr. tinct. in water. 4 p.m., 5 dr. 9.30 p.m., 5 dr.—19th, 10.30 a.m., 10 dr. Sweetish taste. 12 noon, 10 dr. Sweetish bitter taste, slightly aromatic. 3 p.m., 10 dr. 10.30 p.m., 10 dr. Urine at 8 a.m., ℥iv, straw coloured. 12 noon, ℥v, straw coloured. 3 p.m., ℥v, lemon coloured. 4.45 p.m., ℥ij, preceded by urging to urinate. 8.30 p.m., ℥v. 11 p.m., ℥iiss, preceded by great urging.—20th. Last n. frequent urging, but could not urinate; frequent erections. 9.30 a.m., 20 dr. Taste bitter, causing nausea. 11.30 a.m., 20 dr. 1.30 p.m., 20 dr. A costive stool. 4.30 p.m., 20 dr. Only frequent urging to urinate. Urine, 3.30 a.m., ℥iiss, with great urging; urine clear, straw coloured. 7 a.m., urine turbid with much mucous sediment. 9 a.m., ℥v, lemon coloured and clear. 11 a.m., turbid, cloudy with mucous sediment. 12.15 a.m., ℥iv, clear, very acid. 1.30 p.m., ℥iv, the urine remained clear for 3 h. 4.15 p.m., ℥vss, as above. 5.30 p.m., do. 10 p.m., ℥iiss, do., next morning turbid.—21st, 9 a.m., 30 dr. A soft stool. 11 a.m., 30 dr. 1.45 p.m., 30 dr. 9.30 p.m., 30 dr., frequent urging to urinate sometimes without result. Urine, 7 a.m., ℥viij. 11 a.m., ℥vss. 3 p.m., ℥vss. 5 p.m., ℥x. 8 p.m., ℥xj. 10 p.m., ℥ij, urine clear.—22nd, 9 a.m., 50 dr. Ordinary stool. 11 a.m., 50 dr., no urging to urinate since 8 a.m. 1.30 p.m., 50 dr., a loose stool. 4 p.m., 50 dr. 8 p.m., great itching at orifice of urethra. 9.15 p.m., 50 dr. Urine, 2 a.m., ℥iiss. 8 a.m., ℥iij. 12 noon, ℥iv. 3.30 p.m., ℥vss. 6 p.m., ℥viij. 9.45 p.m., ℥iij. Urine clear, acid, after some h. turbid with mucous sediment.—23rd, 8 a.m., 50 dr. 9 a.m., pains in l. hypochondrium as from flatulence. 9.30 a.m., 50 dr., pains continue, extend to l. side of back and lumbar vertebræ; no flatus, no stool. 1 p.m., 50 dr. 2.30 p.m., twisting pain deep in belly on l. side of spine. 4.15 p.m., 50 dr. From 5 to 8 p.m., repeated attacks of great pressure on bladder and redness of face. 4.30 p.m., hard stool. E., great weariness and yawning. 11.30 p.m., 50 dr. Urine, 4 a.m., ℥v. 12 noon, ℥vss, clear brown colour, after ¼ h. showing a cloud, after 2 h. red, jumentous. 2.30 p.m., ℥v, rather clearer than the last. 4.30 p.m., ℥iiss. 7.30 p.m., ℥viij. 11 p.m., ℥iv. After a short time the clear brown urine was turbid and reddish, with sediment; slightly acid.—24th. Last n. restless from pains in urinary region and ineffectual straining to urinate. 8 a.m., 60 dr. 9.30 a.m., 60 dr., much painful drawing in region of l. ureter. 11 a.m., 60 dr. 2 p.m., 60 dr. 3.30 p.m., a hard stool. 4 p.m., 60 dr. The violent pressure in bladder with constant urging to urinate remained after urinating at 7 p.m. 9 p.m., 60 dr. 10 p.m., 60 dr. All afternoon great weariness. Urine, 8 a.m., ℥vss with many mucous flakes; still acid after 3 h. 12.30 p.m., ℥vss. 3 p.m., ℥v. 4 p.m., ℥ij. 7 p.m., ℥ix. 9.45 p.m., ℥ij. Urine same as yesterday.—25th, 8 a.m., 80 dr. Soon several coughing fits as from tickling in larynx and throat. 9.30 p.m., 80 dr. 10.30 p.m., 80 dr. About noon very great urging to urinate, but has to wait long until urine comes, and its passage was attended

with burning in urethra. 5.30 p.m., 80 dr. 7 p.m., 100 dr. 9.30 p.m., 100 dr. All day painful sensations in kidneys and bladder. Much flatus but no stool. Urging to urinate and has to wait long for first drop. Urine, 8 a.m., $\mathfrak{z}ivss.$ 12 noon, $\mathfrak{z}iv.$ 5.15 p.m., $\mathfrak{z}viij.$ 9.30 p.m., $\mathfrak{z}v.$ Urine acid, reddish brown, soon gets turbid and jumentous. Mucous sediment and mucus suspended in urine.—26th, 8 a.m., 100 dr. 9 a.m., very copious pappy stool. Soon, but not immediately after each dose, dryness in throat, making him cough. 11 a.m., 100 dr. 1.30 p.m., 100 dr. 5 p.m., 100 dr. 9 p.m., 150 dr. All symptoms as before but more severe. Urine, 8 a.m., $\mathfrak{z}viij.$ 12.15 noon, $\mathfrak{z}ivss.$ 2.15 p.m., $\mathfrak{z}iv.$ 4.30 p.m., $\mathfrak{z}v.$ 9 p.m., $\mathfrak{z}viij.$ urine as before.—27th. Took no med. Pain in sacrum and renal region, pressing on bladder, much itching on glans, long waiting for urine to come. Small hard stool at 3 p.m. Urine, 6 a.m., $\mathfrak{z}vss.$ 10 a.m., $\mathfrak{z}viij.$ 12.30 p.m., $\mathfrak{z}ivss.$ 3 p.m., $\mathfrak{z}viij.$ 8 p.m., $\mathfrak{z}j.$ 11 p.m., $\mathfrak{z}viij.$ Urine as before.—28th. Took nothing. Urging to urinate slight, as also pains in kidneys and bladder. Much flatus, no stool. Urine, 8 a.m., $\mathfrak{z}vss.$ 11 a.m., $\mathfrak{z}ivss.$ 2.30 p.m., $\mathfrak{z}iijss.$ 5 p.m., $\mathfrak{z}iv.$ 8 p.m., $\mathfrak{z}vss.$ 10.30 p.m., $\mathfrak{z}viij.$ The urine first discharged was still reddish and turbid; the subsequent discharges clearer. E., lemon-coloured, with threads of mucus and a little sediment. (*Hom. Vierteljahrscrh.*, i, 209.)

19. Two knife-pointful of cococ. cac. and trit. caused: Urging to urinate, pricking and tickling in orifice of urethra, pain in umbilical and deep in coccal region, rumbling-shooting in rectum, urging to stool, often in vain, tearing in frontal bone. Urine altered neither in quantity nor quality. (*LAMURA, A. d. Z.*, xlix, 185.)

COFFEA.

Coffea arabica, L. Mocha coffee. Nat. Ord., Rubiaceae.

I. *Proving*s.—1. [For the following provings from the *Beiträge* the crude bean was employed; but no information is given as to doses or subjects, save that the latter were healthy.]

HANNEMANN.—Oppression in fore part of head, at times changing into stitching-drawing pains in r. temple, worse when walking in open air; gloomy feeling in head (3 h.); hemicrania, as if nail had been driven into parietal bone, renewed and aggravated after a meal, disappearing in open air, returning after short time in room; headache, as if brains were torn or dashed in pieces, coming on during walk in open air, and soon subsiding again in room; headache (after some reading) as if brain at frontal eminence, then behind frontal bone, were bruised, torn, or smashed (2 h.); cracking in brain in region of ear synchronous with pulse; weight in head and heat of face; rush of blood to head, especially when talking; headache on waking in m., like a general tension of brain; he dislikes opening eyes, when stooping he feels as if brain fell forward, so great is pressure on temples and forehead; headache as if brain were too full and broken, especially in occiput, on

waking from siesta, unaffected by motion, mental exertion, or open air (4 h.); an almost burning sore pain in l. nostril; sudden, copious, watery discharge from nose; epistaxis; on rising in m. and at 6 p.m. bleeding from nose with weight in head and morose laziness, recurring for some d. at same time; toothache, in shooting spasms from above down into nerve of snag; pain in a molar tooth, only when biting on it; in border of velum a simple pain when not swallowing, increasing during acts of deglutition (4 h.); a kind of sore-throat, swelling of velum, which feel's like an accumulation of tenacious mucus; taste in mouth as of hazel-nuts; bitterness in mouth all d.,—food, however, had no bitter taste; bitter things had unusually bitter taste; food has good but too strong taste, so that he cannot eat much,—so also with tobacco (3 h.); diminished appetite (8 h.); very great and continued anorexia and aversion to food, drink, and tobacco, with nausea and disposition to vomit and salt taste in mouth, taste of food natural (2 h.); aversion to coffee; eructations tasting of ingesta, from noon to e.; great hunger before a meal, greedy, hurried eating; constant inclination to vomit, having sea in upper part of throat; about 5 p.m. nausea, he becomes faint, must sit down, then inclination to vomit; after eating agreeable food felt qualms and nauseated; stitches in pit of stomach with pressure, after a few h. painless distension of epigastrium; in m. in bed continuous pinching pressure in both sides of abdomen, also towards inguinal rings as if hernia would protrude, without distension, only momentarily relieved by emission of flatulence; after walking in open air, fulness in abdomen; at different times of d. feeling of pressure at pit of stomach, her clothes felt too tight, and she had to loosen them; some fermentation in belly and emission of much flatus, the whole d. (4 h.); forcible emission of much but almost inodorous flatus; after 12 or more h. difficult emission of flatus in small quantity, which is constantly seeking escape, with uneasiness in abdomen; fermentation in abdomen and then vomiting, soon repeated, and on third occasion bringing up worms; stitching from out of inguinal rings, as in hernia; jerking stitches on side of abdomen, at every expiration; colic, as if belly would burst; desire for stool, but insufficient relief, though stool is soft; burning tearing in fore part of urethra; pressure on bladder, obliging him to micturate; increased secretion of urine (14 h.); emission of much urine at midnight (5 h.); primary excitement, secondary depression, of sexual desire. In m. on waking larynx is raw and hoarse; constriction of chest (immediately); fits of short cough in quick succession, with frequent abrupt scrapings (1 h.); he must stop coughing, all became dim before his eyes, and he felt as if reeling; violent irritative cough for an h. about midnight; sudden attacks of dry hacking cough, as if from a spasmodic constriction of larynx, which seems lined with dry mucus; when coughing it hurts side of chest, almost like a stitch; pain in sacrum while walking; lame pain in sacrum while sitting or standing; great weakness in arms and lassitude in whole body; tearing in l. arm, so that she could not move it freely; flexor cramp in one or other finger; painful drawing or tearing downwards in flesh of fingers (2 h.); pain as if bruised in nates under hip-joints, from ischia to femora, while sitting and walking, making him limp; least

rubbing with woollen rakes inner thighs sore, or at least causes very painful sense of soreness there; on l. tibia a jerking, gnawing and smarting, both at rest and in motion, and a sensation as if marrow were bruised, with feeling of heat there; tremulous feeling in knee when going downstairs; crampy sensation in calf when flexing knees, and in soles when flexing ankles; below inner r. malleolus a jerking stitching while extending foot, treading on heel, or touching spot; bruised feeling in all joints, especially of those that have been bent, in m. in bed, disappearing on rising; shooting jerking through one or other limb; after every walk her legs feel so painful that she must lie down; great weakness on going upstairs, soon passing off; pain in whole body, so that she has little rest; eruption and itching over whole body; little sleep; overwhelmed with sleep, he dreads apoplexy; at n. in sleep he tosses about unconsciously, so that in m. he finds himself feet uppermost; sleeplessness from 2—7 a.m., with colicky incarceration of flatulence under ribs, causing anxiety, and with feeling of (dry) heat over whole body, without thirst, and desire to uncover himself; very long vivid dreams at n.; slight dreaming; aversion to open air, in which all symptoms increase; constant weariness of feet, extending half way up thighs, after walk in open air; during walk in open air becomes sad, lachrymose and disinclined for business; violent thirst without heat of body or dryness of tongue; thirst at n., frequent waking to drink; dryness in mouth in m., without thirst; feeling of warmth with somewhat red face, but without thirst; at 5 a.m. and 1 p.m. violent chill in bed, without thirst; at 4 p.m., limbs feel relaxed, heavy, and strengthless, knees give way, with febrile heat and chilliness externally and internally; at 4 p.m., cold feet, and immediately thereupon headache and congestion to head, going off on walking in open air (24 h.); cold hands, then cold feet (2—3 h.); internal shuddering, even in chest, chill and immediately afterwards heat in head and sweat on face,—all without thirst; free transpiration towards m.; general feeling of heat in e. after lying down, he felt altogether oppressed, at n. general sweat, especially on back; at 8 p.m., heat, perceptible externally, all over body, with sense of great dryness in mouth and at same time shuddering in back and down posterior aspect of body, then hands and feet became icy-cold, on which followed when in bed alternate heat and great coldness till after midnight, in m. bruised headache, which made every step he took hurt him; some chilliness and therewith heat in both cheeks; from 8—9 p.m., nausea as in stomach, a sort of faintness and giddiness, he must sit and lie down, and all his limbs felt heavy, with some chilliness; at 3 p.m., without preceding chill his face was hot and red, with much thirst, after this sweat all over, with thirst for first few h.; for two m. running she wakes at times, feels great dry heat all over, and must turn round, breath was hot, but no thirst or dryness of mouth; heat and redness in one cheek, with almost constant shuddering; feeling of heat in m. in bed, nevertheless dread of being uncovered; a little out of humour; indifferent to business, loses interest while engaged in it; very cross; crossness, he is inclined to throw everything out of his hands; she has nothing but vexed, sad ideas, cries aloud, and can be

appeased by nothing, but the ill-humour abates in the open air; great anguish, she knows not how to find ease, she trembles and cannot hold her pen; calm, composed, unperturbed mood (secondary). (STAPP'S *Beiträge*.)

2. FRANZ.—Meditation causes drawing pressive headache in upper forehead; he sometimes feels and hears a cracking in vertex while sitting still; in open air his sight is much more acute than before; taste in mouth as after sweet almonds; while yet eating some bread after a moderate meal, he felt an extremely painful pressure on l. side of region of stomach, continuing after he had left off; painful soreness on scrotum at least rubbing of trousers; obstructed nostrils, as in dry coryza; when keeping arms bent, a cramp-like and contractive sensation in them, almost a jerking; rheumatic bruised pains in l. upper arm; his hands tremble when he tries to hold anything; feeling of numbness in fingers ($\frac{1}{2}$ h.); a finger which had been slightly burnt before taking drug, and almost painless, now it is in violent pain; sleeps restlessly all n., and must turn from side to side; frequent deep yawning; the air, to which he was accustomed, and which was agreeable to him, seemed quite cutting, water flowed from eyes, and he soon became tired ($6\frac{1}{2}$ h.); repeated chills and shuddering in back, body having natural warmth; cold feeling over whole body, she has a chilly creeping on back as in a cold room, then sudden redness and heat in face, with cold hands, whose palms then become hot, dorsa remaining cold; lively fancy, many plans for future; contrary to habit he was in continual sentimental ecstasy about beautiful scenery, or which he was reading a description (3 h.); dose taken in e. was followed by great excitement and quickness of motion, all movement being performed with uncommon ease (12 h.); the utmost relaxation of mind and body; when reading he loses sight of his subject, and neither recollects nor follows, without, however, being conscious of other ideas; when not reading, a thousand ideas come into his head, and he thinks of things long past; want of memory and attention (48 h.). (*Ibid.*)

3. STAPP.—Pressive headache in temples, drawing towards occiput, while walking in cold air, decreasing while sitting in room, again violently renewed in open air, but finally disappearing there ($\frac{3}{4}$ h.); heat in face and redness of cheeks ($\frac{1}{2}$ h.); feeling of dryness and slight burning on tongue, without thirst (1 h.); copious urination; oppression of chest, she must take short breaths, breathing visibly heaves chest (after subsidence of heat in face); short, momentary, hacking cough, as from tickling in throat, often recurring (1 h.); trembling of legs ($1\frac{1}{2}$ h.); sleeplessness from excessive erethism of mind and body; attacks of chilliness, increased by motion; chilliness through whole body (with warm skin), stronger and more perceptible while moving body, when rising from chair a cold chill escapes over her, and face is pale, for 10 m. ($\frac{1}{2}$ h.); after the chilliness slight heat in throat and thirst ($\frac{1}{4}$ h.); chilliness in back, mixed with feeling of heat, especially from middle of back over hypogastrium he experiences warmth as if sweat would break out. (*Ibid.*)

4. THORER.—Vertiginous oppression of head (4 h.); vertigo and blackness before eyes while stooping (1 d.); inability to think acutely

(6 h.); head is heavy and giddy, with general anxietas, she thinks she must fall (2 d.); contractive frontal headache (and e.); slight rheumatic drawing in l. occiput; heat in face with red cheeks, after a meal (6 h.); momentary drawing in 2 hollow l. upper molar, as after a slight chill; drawing in l. malar bone (1st d.) alternating with tearing in tooth; in m. bitter taste in mouth (2nd d.) and bitter taste of drinking water during d. (*Ibid.*).

5. The following are fragmentary* or anonymous:—She feels as if she momentarily lost thoughts (and d.); prurive pain on vertex; rubbings of blood towards head, anxious heat and redness in face; itching of hairy scalp; boring in r. eye, with diminished power of vision; music sounds over-loud to him, so that he must touch his instrument lightly; painfulness of fore-teeth on touching and while chewing, as if they were loose; hiccup; nausea in m.; tension over stomach and hypochondria; disagreeable sensation below stomach, with subsequent distension and dull pain; after supper fullness in abdomen, as from incarcerated flatus (Hsch.); passage of much flatus; on 1st d., unusually, two stools, first hard, second fluid (Br.); on 2nd d. three hard stools; itching at fore part of penis and glans for some h. (47 h.); frequent desire to pass urine, which comes only gularim (4 h.); urine blood-red, but not turbid; itching on r. side of scrotum; strangulating cracking pain in one testicle for first 3 d. want of sexual excitability, physical and psychical; for several e. fluent coryza with anceras; in e. in bed, and on going to sleep and waking, coughing; prurive pain in scrotum; feeling of tightness in limbs; sweat of hands while writing; drawing pain under r. knee; slight stitches in balls of great toes, 4 p.m.; much yawning and drowsiness, 1st d.; sweat of feet with sore feeling in toes; great mobility of muscles, every movement is performed with ease and rapidity, and with steady force (A.); lightness of head and in all bodily adjustments, a great and unmounted sense of well-being and liveliness (A.); great wakefulness in e.; desire to lie down and close eyes, but without either ability or willingness to sleep (Br.); wakeful at first, soon after sleepy (Hsch.); after 4 h. great drowsiness with weariness (A.); sound sleep; he slept till 3 a.m., after this he slumbered only in dim consciousness (Br.); waking, with yawning; frequent waking towards m. in affright (Lgh.); during n. his fancies turn uninterruptedly upon one thought, of which he cannot free himself, and which robs him of all sound sleep; great sensitiveness to cold; tremulous movement in back and between shoulders, with warmth (Hsch.); dry heat in face (Hsch.); warmth in chest and abdomen (Hsch.); unusually warm feet (Hsch.); anxiety and inability; very discontented, indisposed to speak, and answers curtly (immediately) (Br.); great cheerfulness, acuteness of thought, vividness of ideas (A.); vexed, anxious, lachrymose mood. (*Ibid.*)

6. *a.* Jan. 18th, infusion of 1 oz. coffee, p.m.—19th, 2 a.m., same dose; p.m., same quantity; urine acid, a.m., less so, p.m.—20th, 2 a.m., urine highly acid; p.m., same quantity of coffee. Felt well but excited, appetite diminished.—Feb. 1st, 2 a.m., infusion of $\frac{3}{4}$ oz. coffee; p.m., same quantity; appetite moderate, felt well.—2nd. Same quantity of coffee as on 19th; felt well but excited.—10th, 2 a.m., 1 oz. coffee; p.m., same quantity. Felt pretty well, little appetite, none in e. Very excited, could not sleep till 4 a.m., then very restlessly. Got up next m. not feeling sleepy. Urinated frequently at n.

b. Aug. 20th, 1.50 p.m., 3 cups of coffee made from $\frac{3}{4}$ oz. beans. Two stools, unsteadiness of hand.—21st, 7.30 a.m., 3 cups; 10.15, feeling of emptiness of stomach without hunger, unsteadiness of head gone; 2.25 p.m., 3 cups; 8 p.m., 3 cups, 2 stools.—24th, 2.40 p.m., 3 cups.—25th, 2 to 3.45 p.m., 5 cups; 3.30 p.m., great ebullition of blood, slight unsteadiness of hand.—27th, 10.25 a.m., 3 cups; 2.20

* No information given as to provers here designated.

p.m., 3 cups; 4.45 p.m., 2 cups; eructations tasting of coffee, rumbling in bowels, no appetite for supper.—28th, 7.45 a.m., 4 cups; 10 a.m., 1 cup; rumbling in bowels.—29th, 8.30 a.m., 3 cups; 2 p.m., 3½ cups; disagreeable ebullitions of blood, trembling of limbs and faint feeling, no appetite.

6. Böcker found that taking coffee as above, while it increased the quantity of urine passed, diminished all the solid constituents of the urine to a remarkable degree. It diminishes the amount of feces, and also the amount of carbonic acid exhaled from the lungs, and correspondingly makes the inspirations more superficial. This last property of coffee was well shown in an experiment. He drank a quantity of coffee made from 1 oz. of the beans and sat down to his desk to write. After ¼ h. he had a true fit of asthma, oppression of the chest, trembling of limbs, great ebullition of blood and vertigo. He went into the open air and walked quickly without much relief, his knees tottered, he became deadly pale, and felt quite faint. He was too weak to sit up and had to lie down. He felt very uncomfortable, the dyspnoea increased and lasted some h., when he noticed that he had to breathe more deeply. He had no appetite for supper, could not sleep, and had no stool for 2 d. His conclusion is that coffee hinders the waste of the tissues. It increases the serum, albumen, and corpuscles of the blood. (Böcker, *Brit. z. Heilk.*, i, 188, et seq.)

7. Colz gives the result of his observations on the immoderate use of tea and coffee, the effects of which he says are practically identical. There is first considerable excitement, the face becomes flushed, the eyes sparkle, the pulse is full, throbbing and quick. By-and-by the hands and feet become as cold as marble and covered with clammy sweat; there is also coldness and numbness of back of head. To this is sometimes added formication of scalp, intense headache, dimness of sight, unsteadiness in walking, vertigo with feeble, fluttering pulse. After a few m. to 2 or 3 h. craving emptiness in stomach, not relieved by eating. Fluttering as of a bird in l. side, fulness of chest about clavicle and root of neck, breathlessness and frequent deep sighing. Sometimes this goes on to threatening of suffocation, insensibility, and convulsions. The sufferings in stomach are often aggravated to violent spasm. Violent palpitation or enfeebled action of heart, bringing on syncope. Temper peevish and irritable. A man, æt. 40, had been in the habit of taking 2 or 3 cups of coffee in m. and again in afternoon. He was troubled with constant headache, aggravated noon and e. Numbness of back of head with aching and throbbing, unsteadiness of gait, sinking and emptiness of stomach, fluttering of heart, cold hands and feet. Got well in 10 d. after leaving off coffee. (*Lancet*, 1832-3, ii, 274.)

8. In 1859 I proved on myself, while in full health, the action of coffee, taken cold, in bed, fasting. I did not push effects so far as Cole, but I went far enough to feel the præcordial symptoms, pale face, coldness of skin and extremities, weakening and gradual retardation of beats of heart. Before commencing experiments pulse was 69; after fifth cup it had fallen to 64. (LAMARÉ-PICQUOT, *Etudes Experimentales*, Paris, 1864.)

9. Dr. LINDSLEY took for a proving 3 cups of strong coffee 3 m. in succession. Dreamt throughout following nights vivid and brilliant visions of magnificence; on 3rd n. dreamt that dome of sky was spanned by rainbows from horizon to zenith. These delightful visions were followed by dreams of death of dear friends, which did not abate his cheerfulness and mental exhilaration, he looking on all with supernatural indifference. (*Allen's Encyclopædia*, iii, 446.)

10. Two men got every morning and afternoon a decoction of 2½ oz. coffee beans (roasted), which was double the strength of their ordinary drink. The effect was, urea diminished, quantity of urine passed increased, increase of heart's action, quick pulse, excitement, perspirations, anxiety, vertigo, faintness, and sleep disturbed by disagreeable confused dreams. (Dr. J. LEHMANN in BRILL, *Das Koffein*, 82.)

11. It will perhaps be remembered that several years ago I published some accounts of a peculiar characteristic symptom of coffee which had not been recorded as pathogenetic, namely: "*Terrible tooth-ache, relieved only by cold water held in the mouth—aggravated by everything else.*" I have frequently verified this symptom in practice, and so have many of my colleagues. I now have the pleasure of recording a case of poisoning by coffee, where this symptom was the most severe and persistent of all its effects. Mr. W—, a young lawyer, wishing to perform an important mental labour in writing, drank 1 cup of intensely strong coffee without milk or sugar about 8 p.m. After writing several hours he was seized with such an intense pain in the teeth of the right lower jaw (not decayed) that it drove him nearly crazy. He came to my office after midnight to get some relief. He had already observed that no application relieved the pain but *cold water*. So soon as the water became warmed in the mouth the pain returned. Not knowing that he had taken a poisonous quantity of coffee I gave him coffee 3, but to my surprise he came back in the morning reporting no relief. I then gave coffee 200, but no relief came in six hours. Then he told me about his coffee poisoning. Electricity was tried, and gave relief for several hours after the first application, but subsequent applications were of no benefit. He then tried a variety of nostrums for several d., but none gave more than temporary alleviation. I gave him nux vom. and cham. to antidote the coffee, and pulsat. for "*relieved by cold drinks*" (see *Bluff's Jahr*), but no benefit accrued. The odontalgia gradually wore away in a week, leaving him so nervous and shattered that he was fully convinced that coffee was really a potent poison. We have now the necessary evidence corroborative of the power of coffee to cause and cure this kind of odontalgia. (E. M. HALB, *Hahn. Monthly*, ix, 465.)

12. Drinking coffee to excess each time produces more or less of the following primary symptoms:—Great loquacity; his brain feels clear and is active; he feels strong enough to do anything; feels impelled to push things; wants to keep going ahead and doing something; veneration for the Supreme Being and love for family; desire to perform good deeds intensified (benevolence excited); stinging pain in locality of amativeness on left side; pulse full and frequent. These the following secondary symptoms:—Sensation of heaviness in the

forehead over the eyes, and cold clammy perspirations all over the body, but chiefly in the palms of the hands; feet and hands cold; on account of easy perspiration chilliness and shivering from the least exposure to cold air; chilliness, with general shaking and chattering of the teeth; cannot get warm; the chills ascend from the fingers and toes to the nape of the neck, and thence to the vertex; when chilly, cayenne pepper taken internally produces general warmth and makes him feel fearless and courageous; vertigo with whirling sensation in the head, occasioning a general faint feeling, with aggravation when thinking—has to banish reflection; with vertigo burning in the stomach; vertigo partially relieved by a change of position, and general amelioration of symptoms from moderate out-door exercise; on going to sleep starts up suddenly in affright with groans and fear of falling, or of some impending danger; great sleeplessness from mental and nervous excitability; timidity and fear of sudden death, this fear sometimes occasions trembling from head to foot; muscular jerking; jerking of limbs; great lassitude and general debility; pulse variable, often weak and almost imperceptible, sometimes intermitting; sensation of heaviness in cardiac region; frequent micturition; profuse and colourless urine; at close of micturition a slight milky discharge (probably prostatic), attended with a smarting or burning sensation at orifice of urethra; afterwards cutting pains below the bladder, in sphincter vesicæ or region of prostate gland; great fulness in epigastrium and partial loss of appetite; cold water and cold food aggravate the distress in the epigastrium and l. chest; l. side generally affected; constipation only when drinking coffee. (H. V. MILLER, *N. A. J. of H.*, N. S., iv, 87.)

13. When I drink 2 cups more than usual I feel weakened, ebullition in the hypochondria, trembling in limbs, vertigo, and a kind of intolerable fearfulness. (ZIMMERMANN, *Von der Erfahrung*, p. 577, quoted by Wibmer.)

14. After drinking several cups of strong coffee in afternoon I had restlessness, heat, tendency to tremble, palpitation of heart and sleeplessness lasting till midnight. (HOFFMANN, *Med. rat. syst.*, iv, pt. i, p. 209, quoted by Wibmer.)

II. *Poisonings*.—1. A man æt. 66, who never took wine but consumed coffee in large quantities, latterly to the extent of 30 cups per diem, had, after some gouty symptoms with great prostration and weakness, a fully-developed attack of delirium tremens, which was cured by laudanum ʒ dr. every 2 h. (HÖRING, *Med. Correspondenzbl. d. würtemb. ärztl. Ver.*, i, 204, quoted in *Frank's Mag.*, ii, 68.)

2. An unmarried woman, æt. 27, whose menses had not appeared for 2 months, boiled 14 oz. of green coffee beans in 14 pints of water for 3 h. This she drank on going to bed at n. She repeated this for 3 successive n. After the 3rd dose she was forced to call in the doctor at midnight. He found the following state:—She has an expression of the greatest anxiety, walks up and down room without resting, though her arms and legs tremble and feel as though they would break at every step; still she walks easily though unsteadily. She has a waxy pale complexion. She sometimes feels flushes of heat, at others like a cool air blowing on back; this is followed by hot rushes of blood to head,

though cheeks are not much reddened. She feels terribly tired and prostrated. She did not sleep on either of the 2 previous n. after taking the decoction, nor can she sleep to-day though feeling great need for sleep, on account of all sorts of thoughts chasing one another through her brain. Bits of poetry and verses from the Prayer-book occur to her. In her head she feels as if its contents went slowly round, first in one direction and then in another, and along with this there is a continual ringing in ears. A lump of lead appears to her to be nailed on to the parietal bones. Every movement of the head aggravates its symptoms. There is a mistiness before the eyes. She cannot bear candle light, its flame seems surrounded by a broad dim halo, and it causes her a painful pressure between eyebrows. The conjunctiva palpebrarum is slightly reddened, especially at edges of lids, the conj. bulbi slightly injected in canthi and around cornea. Cornea dull, iris contracted but movable, blue rings round eyes. Ringing in ears. She is painfully affected by every step and every word spoken by others. She feels best when there is absolute quiet. The face is much swollen, of a waxy-yellowish hue, like that of a dropsical person. Lips and tongue pale as in anemia, at same time dry. Taste in mouth and throat like that of some soporific powder she once took (opium?), disgusting, making her feel faint. Loathing of every sort of food; the only thing she likes is water in small quantities. Nausea and inclination to vomit. Distension which compels her to open her dress. The gastric region is much distended and projecting, filled with flatulence, extremely tender to touch, less so to pressure. Painfulness of hypochondria, belly feels alternately warm and cold, rumbling that causes heat and compels her to bend forward and lay her hand on it. The abdomen is tympanitic, the hepatic region very tender. After the 1st dose she had a copious motion, nothing since then. Frequent urging to urinate with discharge of scanty pale urine, accompanied by disagreeable tickling. Spasmodic feeling deep in uterine region which she cannot further describe. She feels as if something would force its way outwards but cannot on account of its always causing spasm. Palpitation of heart, a trembling vibration is perceptible to others. Fresh air relieved her a little. The doctor treated her with cold water outside and inside, and gave her $\frac{1}{2}$ a gr. of opium in 6 doses, and she soon recovered. (KAPPAN, *Zeitsch. f. hom. Kl.*, iv, 194.)

3. A female servant, æt. 27, drank on Sunday in t h. 32 cups of coffee made out of 4 oz. of coffee beans. When she had drunk the greater part she felt ill, went out, vomited a little with difficulty, then she swallowed a glass of brandy with caraway seeds, and then drank the remaining cups. She now felt intolerable heat, the blood rushed to her head, and she broke out in general perspiration. She threw off her upper garments and stood for some time in a draught of air. She became very giddy and was put to bed. At 10 p.m. she had intense fever, great heat, violent headache, spasmodic contraction in throat, rattling respiration, and could not speak. She was somewhat relieved by a few spoonfuls of vinegar and cold water, but passed a restless and sleepless n. Next m. great vertigo, shooting pains in abdomen, great urging to urinate with inability to pass a drop. Blood-letting and calomel. The

headache and pain in belly lessened, the urinary difficulty remained the same, the hypogastrium was swollen, tense, and painful. On the 3rd d. she went to a midwife and had the urine drawn off. Seen by the doctor on the 5th d. Abdomen swollen and hard, especially in vesical region, where it was very sensitive. A pain, which was quite independent of external pressure, in the l. upper part of abdomen, close below the spleen; no appetite, stomach painful to pressure, food caused nausea. She was weak and disinclined for work, but there was no fever. There was great ischuria, she could hardly pass any urine, only a few drops after repeated attempts, accompanied by burning and pressure in bladder, urethra, and genitals. Well in a week. (PROSCHER, *Med. Zeit. u. Verin f. Heilk. in Preussen*, 1843, No. 21, p. 92, from *Frank's Mag.*, i, 41.)

4. A woman, æt. 27, whose catamenia, expected in the beginning of the month, had not appeared, imagined she must be pregnant, and with the view of producing miscarriage took on Aug. 10th at one draught a decoction of 250 grms. of fresh-burnt coffee in 500 grms. water, which had been boiled for about 10 m. As within a $\frac{1}{2}$ h. she got very ill the doctor was called in. He found her seated on the sofa, she would not lie down; face pale, with expression of extreme anxiety. She wept and moaned that she must die, all hope was gone, she could not breathe, her chest felt tightly constricted. She clutched hold of the furniture and the bystanders convulsively, changed her place constantly, tried to rise up, but fell back helplessly. A peculiar trembling in limbs, especially hands, that sometimes amounted to twitchings, as in chorea, so that she could not hold a spoon or a glass. She knew the doctor and also the cause of her sufferings, but was not quite right in her intellect. The following d. she had but an imperfect recollection of what happened the previous d. She could not give intelligent answers. Pupils moderately dilated, sensible to light. Forehead felt cold. Respiration laboured, short and quick, 24 to 30 per m. Complained of violent palpitation of heart. The heart's impulse shook the thoracic wall over a large space, the sounds were loud and sharp; pulse 112, hard, tense. After 1 h. violent diarrhoea set in, which lasted till n. Almost every $\frac{1}{2}$ h. there was a thin watery stool with extreme tenesmus. Frequent urging to urinate, about every $\frac{1}{2}$ h. Quantity of urine only slightly increased, sp. gr. 1014, colour bright yellow. Morphia was given, and late in e. she got some rest and a short sleep, but the rest of the n. she was very restless, generally awake, but she had short spells of half-sleep which were disturbed by vivid dreams or visions. Next d. she was very exhausted and unsteady on her limbs; she had besides vertigo, frontal headache, and inclination to vomit. The diarrhoea and urging to urinate were gone. The pulse had its usual character, only it intermitted every 6—10 beats. Next d. quite well. The menses came on without suffering only a few d. later than expected. (SUSCHMANN, *Deutsche Klinik*, 1873, 377.)

5. The daily use of coffee for breakfast produced within a few weeks in a man of sixty-five, somewhat predisposed to piles and of late unused to coffee, a discharge of exceedingly bright blood every m., with the regular stool. It also increased very perceptibly his myopia, and

caused the same affection in his daughter of thirteen years. All symptoms disappeared in a few days, after leaving off this stimulant. (F. G. OENMA, *N. A. J. of H.*, N.S., iii, 418.)

6. Dr. WOOD states that he was for years troubled with frequently recurring nervous headache, which at times incapacitated him for the performance of any active duty. "Scarcely a day passed without some uneasiness or deranged sensations in the head, such as roaring, buzzing and singing in the ears, sounds as of pounding, or bell-ringing in the distance, swimming or vertiginous feeling, muscæ volitantes, &c.; and I never walked in the street without the fear of a sudden attack of these symptoms, which, when they came, took away all mental energy. It occurred to me that a single cup of coffee which I took daily in the m., and to which I had reduced myself from the necessity of escaping dyspeptic sufferings, which a free use of it had occasioned, might be the cause of these distressing phenomena; I abandoned the habitual use of it, substituting black tea for coffee; and from two weeks after that time up to the present, a period of many years, I have been almost entirely free from the symptoms referred to." (*Pharm. and Therap.*, sub vocc.)

7. Dr. LEGRAND DE SAULLE, in a series of articles on "agoraphobia," assigns the immoderate use of coffee as one of the causes of this neuropathic condition. We have had to attend a literary man affected with the symptoms of this malady, as described by the above-named author; the general health was otherwise perfect, and there was no other psychical disturbance. We attributed the trouble to excessive use of café noir, and also of venery, and—a similar effect having been observed from too great devotion to tobacco—we prescribed tabacum 6, with complete success. (*L'Hom. Milit.*, 1879, p. 34.)

8. *a.* When a person unaccustomed to the use of coffee drinks a moderate quantity, or one accustomed to its use an immoderate one, for the first hours the consciousness of existence becomes more lively. He gets a circumscribed redness of the cheeks; the forehead and palms become warm and moist; there is a general agreeable yet uneasy sense of warmth; there occurs a kind of voluptuous palpitation, somewhat resembling that occurring from great joy; the veins of the hands swell. Externally also he is warmer to the feel than natural, but this warmth never comes to the length of heat, even after a large quantity (it sooner turns into general perspiration); none ever become burning hot. Presence of mind, attention, sympathy, become more active than in the healthy natural state. All external objects appear to excite a feeling of pleasure; they take on, if I may be allowed the expression, a joyous varnish; and if the quantity of coffee taken was very great, they assume an almost over-pleasing lustre.

b. If the quantity taken be immoderately great, and the frame very excitable and quite unused to coffee, there occurs a semilateral headache, from the upper part of the parietal bone to the base of the brain. The cerebral membranes also of this side seem to be painfully sensitive. The hands and feet become cold; on brow and palms cold sweat appears. The disposition becomes irritable and intolerant; no one can do anything to please. The patient is anxious and trembling, restless, weeps almost without cause, or smiles almost involuntarily. After a

few h., sleep comes on, out of which he occasionally starts up in affright. I have seen this rare state two or three times.

c. In an individual of very irritable temperament, or who has already been enervated by the copious use of coffee and a sedentary life, the effects I have mentioned appear in a still more prominent form. An excessive sensitiveness, or a gaiety greatly disproportioned to the object of it; tenderness almost partaking of a convulsive character; an inordinate sorrowfulness; a wit that is not altogether under the restraints of reason; an excessive distortion of the features approaching to caricature,—under circumstances where a mere smile, a little joke, a slight perplexity, a moderate expression of grief or sympathy, would have sufficed. Even the muscles of the rest of the body exhibit an unnatural excessive activity; and the ideas and the pictures of the fancy flow in rapid succession and in a continuous stream before the seat of imagination and sensation in the brain—an artificially accelerated, artificially exalted life.

d. When the first transient effect of coffee has after a few h. departed there follows gradually the opposite state—the secondary action. There gradually creeps on a yawning drowsiness and greater inactivity than in the ordinary state; the movements of the body become more difficult than formerly; all the excessive gaiety of the previous hours changes into obtuseness of the senses. If, during the first hours after drinking the coffee, digestion and defæcation were hastened, now the flatus becomes painfully incarcerated in the intestines, and the expulsion of the fæces slower and more difficult than before. If in the first hours an agreeable warmth pervaded the frame, this factitious vital spark now gradually becomes extinguished, a shivering sensation is felt, the hands and feet become cold. All external agents appear less agreeable than before. More ill-humoured than ordinarily, they are more given to peevishness. The sexual passion, which was excited by the coffee in the first hours, becomes all the colder and more obtuse. A kind of speedily satiated bulimia takes the place of the healthy appetite, and yet eating and drinking oppress the stomach more than previously. They have greater difficulty in getting to sleep than formerly, the sleep is heavier than it used to be, and on awaking they are more sleepy, more discouraged, more melancholy than usual. All these evils are rapidly driven away by a renewed application to this hurtful palliative; a new artificial life commences, only it has a somewhat shorter duration than the first time, and then the repetition of the beverage becomes ever the more frequently necessary, or it must always be made stronger in order to enable it again to excite life for a few hours.

e. It would be no easy task for me to indicate all the maladies that under the names of debility, nervous affections, and chronic diseases prevail among coffee-drinkers, enervating humanity and causing degeneration of mind and body.* The palliative agreeable sensation which it diffuses for some hours through the finest fibres leaves behind it, as a secondary action, an extraordinary susceptibility to painful sensations, which always becomes greater and greater the longer, the oftener, the

* We have not, save for what follows, cited those which Hahnemann does indicate, as the connexion between them and coffee-drinking is dubious.—Eds.

stronger, and the larger quantity in which the coffee is drunk. Very slight things (that would make scarcely any impression on a healthy person unaccustomed to the beverage) cause in the coffee-drinking lady *mégrim*; a frequent, often intolerable toothache, which comes on chiefly at n. with redness of face and at length swelling of the cheek; also a painful drawing and tearing in different parts of the body, especially the limbs—not in the joints, but between them, and more in the flesh or cellular tissue than in the bones, unattended by swelling or other abnormal appearance, and with scarcely any tenderness to touch. Apprehensiveness and flying heat are her daily complaints, and nervous semilateral headache her property. This last occurs in the morning, immediately or soon after waking, and increases gradually. The pain is almost intolerable, often of a burning character; the scalp is also intolerably sensitive, and painful on the least touch. Body and mind seem both to be insufferably sensitive. Apparently destitute of all strength, the sufferers seek a solitary and if possible dark spot, where, in order to avoid the daylight, they pass the time with closed eyes in a kind of waking slumber, usually on a couch raised at the back or in an arm-chair, quite motionless. Every movement, every noise, increases their pains. They avoid speaking themselves and listening to the conversation of others. Their body is colder than usual, though without rigor; the hands and feet in particular are very cold. Everything is distasteful to them, but chiefly eating and drinking, for an incessant nausea hinders them from taking anything. In bad cases the nausea amounts to vomiting of mucus, but the headache is seldom alleviated thereby. The bowels are constipated. This headache almost never goes off until evening; in very bad cases I have seen it last 36 h., so that it only disappeared the following evening. It recurs at undetermined times, every two, three, four weeks, &c. It comes on without any exciting cause, quite unexpectedly; even the n. previous the patient seldom feels any premonitory signs of the headache that is to come on the next m. I have never met with it excepting among regular coffee-drinkers. (HÄHNEMANN, *Letter Writings*, p. 453, *et seq.*)

Caffeinum, an alkaloid obtained from coffee, $C_8H_{10}N_4O_2$.

1. *Proving*s.—1. C. G. LEHMANN took 10 gr. and felt nothing. The urine only contained more urea. He gave it to many of his pupils in doses of from 2 to 10 gr. The urine contained more urea. There occurred the most violent excitation of vascular and nervous systems, palpitation, very rapid, irregular, often intermittent pulse, oppression of chest, headache, obscuration of senses, tinnitus aurium, vision of sparks, sleeplessness, erections, and even delirium. Five who had taken from 5 to 10 gr. were unfit for work next d. (BRILL, *Das Kaffin*, 79.)

2. FRIEDRICHS took 25 gr. at once. After $\frac{1}{2}$ h. pulse was full and hard, rose from 70 to 80, head heavy and confused, roaring in ears, and slight vertigo, pulsation of temporal arteries very visible.* Great restlessness and excitement, unable to continue one train of thoughts.

* Husemann, after 0.24 grm., experienced intense congestion of head and difficulty of breathing (LEWIS, *op. cit.*).

After 1 h. vomiting with cessation of symptoms. (*Höndwörterb. der Physiologie*, iii, 721.)

3. In J. LEHMANN'S experiments with coffee and caffeine the urea was occasionally diminished in quantity; 8 gr. caused rapid pulse, strong heart's action, trembling, constant urging to urinate with scanty discharge, excitement of imagination, confusion of thoughts, visions, a sort of intoxication, and, lastly, profound sleep. (RALL, *op. cit.*, 83.)

4. Dr. LUSTRATIADIS found that caffeine diminished the quantity of urea in the doses of 15 centigr. daily by 11 per cent.; in doses of 30 centigr. daily, by 28 per cent. He found that strong coffee (roasted) in infusion had the same effect. He also notes that caffeine is not diuretic, though it causes more frequent desire to micturate; that his pulse, ordinarily 70—75, fell (while taking 30 centigr. daily) to 58—65, and was more regular and tranquil; that little effect was produced on sleep, save for a n. or two after commencing larger dose. The effects of coffee were very similar. (*Étude sur les propriétés phys. de la Caffeine et du Café*, Paris, 1870.)

II. *Poisonings*.—1. A woman took two powders of the citrate, each containing 0.24 gm. She was seized with remarkable restlessness and dizziness, and could not keep erect; violent præcordial anxiety with palpitation; abdominal pulsation; violent trembling of all extremities; grating of teeth; features expressive of utmost anxiety; feeling of constriction of neck and throat, recurring every 15 m.; pulse very rapid. This condition lasted 3 h., and gradually disappeared. (KEIP, in *Schmidt's Jahrb.*, vol. 176, p. 220.)

2. Man, æt. 63, in good health, took by mistake on Feb. 20th, 1883, 3j of citrate. There followed immediately burning in throat and gullet, followed by giddiness, faintness, nausea, numbness, and tremors of extremities; pain and tenderness of bowels and stomach; great thirst; dry tongue. At 4.45 he was violently sick and purged. Much urine was also passed. Sickness and vomiting recurred at 5.45. On leaving closet he could hardly walk and had to be assisted. At 6 he was collapsed; pulse hardly perceptible, irregular, 120; skin cold and clammy, but all senses perfectly intact, not even headache; sensibility of skin nowhere impaired, a symptom not presented throughout. [Antidotes were now given, including nitrite of amyl and nitroglycerine, and collapse gradually passed off. As it did so, lumbar pain and tenderness came on, and continued in some degree till 24th.] (ROUTH, *Lancet*, April 21st, 1883.)

III. *Experiments on animals*.—1. AUBERT experimented principally on frogs and dogs. His experiments were made with the alkaloid obtained from yellow Java coffee.

a. *Nervous System*.—The prominent effect of C. is an increased irritability of reflex nervous action and tetanus. The symptoms are somewhat similar to those of strychnia, i.e. sudden starting upon touching the animal, or after exposing it to the slightest concussion, increased irritation producing tetanic spasms. The larger the dose of C. the longer do the latter last. That these reflex motions are produced through the excito-motor nerves (spinal cord) and not by acting directly on the contractility of the muscular fibres, was proven by

artificial isolation of the nerves from the muscles of one leg (dividing the sciatic nerve), when no contractions took place in that limb; while, when said nerve was left intact, but dissected out from between the muscles and the latter constricted by tying a string around them (not including the nerve) even to the extent of compressing the blood-vessels, reflex contractions occurred. Besides the increased irritability of spinal nerves, it was found that the sympathetic nerve lost, to some extent, its activity, for all the smaller blood-vessels became relaxed, and passive congestion occurred, which produced upon muscles separated from spinal nerve influence at first slight contractions and subsequent relaxations.

b. Respiration.—The only but very interesting result of experiments in this direction was the elicitation of the fact that respiration was more or less suppressed during the tetanic spasms, but also that the spasms ceased when artificial respiration was resorted to.

c. Heart and Circulation.—In this direction the following results were obtained: (*a*) Increase of frequency of the beat of the heart, and therefore of the pulse; (*b*) the sphygmograph showed that the pulse-wave was lower; (*c*) the pressure of the column of blood was diminished; (*d*) the cavities of the heart emptied themselves only partly; (*e*) chloral antidotes the symptoms of the heart. (*Pflüger's Archiv*, v, 589.)

2. From 4 to 7 gr. acted on rabbits. In the first h. the irritability was increased and went on increasing—shown by greater attention to trivial irritations, timidity, starting at sounds, and great motility. Heart's beats increased in frequency (from 160 to 240); this remained for hours or even days; respirations not increased by small doses, sank from 60 to 40—32 from large doses. Temperature slightly increased, pupils unaltered. Involuntary muscles increased in activity, passed dung and urine oftener, urine increased in quantity. The increased motility of voluntary muscles after large doses decreased. Death was preceded by tetanic convulsions. (*KURZAK, Zeitsch. d. Ges. d. Aerzt., xx Wien, 1860, No. 40.*)

3. The following is a summary of results obtained by hypodermic injection of caffeine.

a. In frogs, after gr. $\frac{1}{4}$, very slight weakness of posterior extremities; after gr. $\frac{1}{2}$, considerable weakness of limbs, respiration impaired, reflex action diminished; after gr. $\frac{1}{2}$, almost complete paralysis and loss of reflex action, respiration stopped, prostration, cutaneous surface congested; after gr. $\frac{1}{2}$, complete prostration, reflex action lost, respiration stopped, under surface of skin, tongue and mouth congested, stasis of blood in capillaries. From gr. $\frac{1}{2}$ and $\frac{1}{2}$ symptoms still more intense. Death followed doses from $\frac{1}{2}$ upwards; *post mortem*, heart beat feebly, great congestion of viscera, when brain, cord, nerves or muscles were irritated muscular contractions followed. In frogs which had $\frac{1}{2}$, on touching all columns of exposed cord during life muscular contractions; but after injection touching posterior columns had no such effect. In two frogs which had gr. $\frac{1}{2}$ to 1 femoral artery was ligatured; but no difference was perceived between two limbs.

b. A rabbit had 4 doses of gr. j each. After 1st and 2nd, no effects;

after 3rd, congestion of ears, cerebral excitement, contraction of pupil, staggering gait; from 4th, partial paralysis of limbs and diminished reflex action.

c. Another had 4 gr. at once. Respirations and pulsations, at first increased, then diminished; ears at first anæmic and cold, then congested and hot; breathing laboured; pupils contracted; paralysis of limbs; loss of reflex action; tetanic (opisthotonic) spasms. *P.M.*—Membranes of brain and internal viscera congested; substance of brain and cord healthy; galvanism of brain, cord, nerves or muscles produced muscular contractions.

d. Three cats had doses of 6—8 gr. Former produced irritation and cerebral excitement; congestion of tongue and mouth; staggering gait; tenesmus and mucous discharge from bowel; excessive salivation; subsequent depression. In 2nd (8 gr.) same, with prostration, loss of reflex action, tetanic spasms, and death. In 3rd no marked effect for about ½ h., then death from sudden tetanic spasm. Same *p.m.* appearances as before.

e. A rabbit had 12 gr. Spinal cord being exposed during life, and posterior columns touched with needle, animal struggled and cried out; anterior columns touched, it struggled only. After injection, when posterior columns were touched, animal did not cry out, but struggled slightly; anterior columns touched, strong muscular contractions ensued. Symptoms as before. (HUGHES BENNETT, *Antagonism of Medicines*, 1873, p. 73.)

COLCHICUM.

Colchicum autumnale, L. Meadow-saffron. Nat. Ord., *Melanthaceæ*.

I. *Proving*s.—1. [The following provings were made with the tincture prepared by mixing equal parts of the expressed juice of the root obtained in spring and alcohol, all except the proving by Bethmann, which was made with the tincture of the seeds. No information is given as to the doses taken or the persons who proved under the inspection of the reporters, and but little as to the period after ingestion when the symptoms appeared.—Eps.]

HÄHNEMANN.—Tearing and tension in l. side of face to ear and head; menses 7 d. too soon; shooting-tensive pain between scapulæ, chiefly when moving, so that he must walk crooked for some time. (*Archiv*, vi, 1, 147.)

2. STAFF.—Immediately, nausea and no appetite. After 3 h., great distension of abdomen as though he had eaten too much, though he has eaten nothing; after partaking moderately of light food this feeling becomes much stronger and more tiresome. *No time mentioned*: obnubilation of head; a sort of headache; formication under forehead; heat of mouth, thirst; disagreeable feeling in stomach as if raw; pain in abdomen as from incarcerated flatulence; pressure in abdomen; tendency to diarrhoea; urging to urinate, urine darker than

usual; exhausted as after exertion; restless sleep; heat of body, n.; sweat; out of humour, mistrustful, fears everything that occurs. (*Ibid.*)

3. SCHWABERT.—After $\frac{1}{2}$ h., increased saliva, accumulation of water in mouth. After $\frac{1}{2}$ h., violent pressure in r. occiput; in interior of nose warm feeling as in epistaxis; tensive pain in r. cervical muscles externally and felt when swallowing; occasional oppression of chest; sleepiness, dislike for work, and confusion of head. After 1 h., forcing feeling from abdomen to chest with anxiety and heat, especially of head, lasting 2 h. After $1\frac{1}{2}$ h., feeling in nasal bones as from pressure of a weight. After $2\frac{1}{2}$ h., drawing pain in teeth, like what occurs on drinking something cold after something hot. After 3 h., drawing pain in front teeth lasting 10 h.; anxious oppression of chest all d. After 9 h., some transient stitches in middle of tongue. The first 12 h., urine somewhat increased, with some urging. *No time given*: crawling in tip of nose; tearing in r. upper and lower jaw, with feeling as if teeth there were too long; great flow of saliva all d.; several times nausea during dinner; urging to stool, with small hard stool or none at all, with pain in anus frequently during d.; pressive pain in chest all d.; pain in lumbar region; tingling and formication in single toes, in r. ball, in fingers, ears, and some places on skin of face, as after being frozen, in r. (*Ibid.*)

4. VON GERSDORF.—Soon after taking med., sneezing. *No time given*: pressive pain on a small spot on r. side of top of head, transient; here and there in head short squeezing pains in circumscribed spots; tearing in l. half of head up to crown; pressive-tearing pain in a small spot on r. of occiput; transient squeezing headache close above eyes; tearing in a small spot of l. occiput; formicating boring tearing on a small spot on r. side of top of head, later the same pain came on corresponding spot on l. side; tearing in r. temple, tearing tension on a small spot on l. half of forehead as if an ulcer would come there; drawing on l. side of top of head going down to nose; eyes painful; pressive pain in r. eye; quivering in r. upper eyelid; slow visible drawing (like quivering) in l. lower lid towards inner canthus; short violent sharp tearing in and around r. eye; smarting in r. eye, especially its outer canthus, with some lachrymation and feeling as if lids stuck together; suppuration of a Meibomian gland on l. lower lid with swelling of lid; the nerves are much irritated; tearing behind r. ear near maxillary joint, when touched it pains for some time; earache, then pricking in interior of ear as with fine needles; pricking shooting in l. ear; creeping in nose; sore pain in septum of r. nostril, very bad on touching part and moving nose; squeezing sensation in upper part of nose; sharp cutting tearing in l. side of vermillion of upper lip; squeezing pain in r. maxillary joint; boring on r. side of nape, externally; pressive pain on r. upper part of neck under ear, opposite maxillary joint, painful when touched; pressive pain in muscles on l. side above larynx, on throat and in larynx; sore pain in teeth; painful prickling in upper molars; tearing in roots of l. lower teeth; pressive pain in l. lower molars; tearing high up in gums on r. side above a place where a tooth had been lost; tearing in gums of l. lower front teeth; tearing in l. side of back of tongue; smarting creeping at back

of fauces; great formation in throat exciting coughing and hawking of mucus; tearing on l. side of back of fauces, constant creeping formicating sensation at back of palate as in catarrh; much mucus collects in throat of a greenish colour; during the formation in throat this mucus is detached, which must often be spat out; in m. rough in throat with hoarseness; on sneezing greenish mucus is often involuntarily ejected by mouth; much empty eructation in forenoon; slight feeling of oppression in scrob. cordis; burning externally to r. of scrob. cordis; during supper out-pressing bellyache, close under scrob. cordis, relieved by eructation; tearing in cardiac region; when walking, m., severe pressure in upper part of abdomen; just under r. short ribs in front pain as from incarcerated flatus; some cutting tearing on r. side of upper abdomen; squeezing pressive sensation in l. side of upper abdomen, extending to hip, transiently relieved by eructation; pain, as if raw internally, also when touched, between l. hip and ribs; before and at commencement of dinner pressive pain about umbilical region with flatulent distension; violent sharp stitches in umbilical region; sharp out-pressing on l. above navel; squeezing and tearing pain in abdomen near r. hip; shooting here and there under umbilical region; pricking tearing in anus; creeping and violent itching in anus; intermittent burning in anus; tearing deep in nates, towards anus; burning in anus; stool not hard but scanty, pressed out with much effort; constipation for several d., and when he has a stool it is very small; first turbid, then bright yellow urine; more micturition than usual; in bed, m., after passing urine, intolerable creeping burning in urethra, with feeling as if more were to come, and when a few drops were passed burning as if they were red hot; at same time burning in anus; drawing sensation in most posterior part of urethra, cutting in anterior part of urethra; tearing in glans penis; formation in nose with sneezing; long-continued coryza, which is never very fluent, and in which much nasal mucus is expectorated; formation in trachea and in chest with cough; frequent tensive feeling in chest; squeezing pressive feeling in chest; obtuse tearing pain in r. side of chest near axilla, which is followed by a sore feeling when touched or moved; burning stitches as if externally on r. side of chest; obtuse stitches in r. side of chest; in bed, m., and later during exercise several violent stitches in l. side of chest; during inspiration and coughing stitches on l. side of chest; violent stitches from within outwards in r. side of chest; on forcible expiration an obtuse stitch in l. side of chest, not when inspiring, but afterwards only when inspiring; sharp stitches in r. side of chest; violent stitches on top of l. side of chest; obtuse shooting pressure in top of r. side of chest near arm; intermittent pressure, sometimes above, sometimes below, on small spots of r. side of chest; obtuse shooting tearing deep in interior of r. thorax, it is hard to tell whether it is more in the chest than the back, to which it seems to extend; tearing in back to l. of spine; burning stitches in sacrum; severe pressive, obtuse enduring stitch in back under and between both scapulae; violent throbbing in l. axilla that can be felt with hand; squeezing pain on l. shoulder; pain in a small spot under and almost in r. axilla as after a blow; frequent tearing; pressive pain in r. then in l. axilla; cou-

tinued obtuse stitch on upper inner angle of r. scapula; throbbing on external aspect of left upper arm; dull tearing pressure behind r. axilla; burning-pressive pain on inside of l. upper arm near axilla; tearing on inner side of r. and l. elbows up arm; tearing in forearm near wrist; tearing in r. wrist; tearing in back of r. hand; tearing in and below distal phalanx of r. little finger, sometimes very violent; r. hand trembles so much he can scarcely write; tearing in middle phalanges of r. middle and ring fingers; shooting tearing in lower part of r. hand; rheumatic drawing in distal joint of l. thumb; pain in distal knuckle of r. thumb, as if a splinter was sticking in there; tearing under nail of l. index; tearing in proximal joints of r. little and ring fingers; pressive drawing in under part and ball of r. thumb; tearing in hip; squeezing pressure on and above r. hip; jerking tearing in upper part of r. thigh; tearing in r. thigh about hip; tearing in upper part of l. thigh; tearing on inner side of top of r. thigh; tearing in middle of l. thigh in e. in bed; violent paralytic drawing in whole of r. thigh in e. in bed; cramp in l. thigh as though it were asleep; tearing pain just above l. knee in e. in bed; pressive pain in inner side of r. knee; tensive tearing on lower half of l. tibia; transient tearing from l. hip down to leg; tearing in outer side of l. calf; tearing in lower part of r. calf; drawing tearing on r. instep; tearing in a small spot on r. foot 3 fingers' breadth below ankle near sole; tearing in inner bend of r. foot betwixt ball of big toe and heel; tearing in l. ankle-joint; tearing in l. sole near toes; tearing in r. heel near sole; pressive-drawing pain in l. big toe, then in r. big toe, then in middle l. toes, the pain seems to be mostly in lower aspect of toes; the l. big toe is painful as though the nail would grow into the flesh; shooting tearing in lower side of ball of r. big toe; formication in inner surface of r. big, 2nd, or 3rd toes as if asleep; a painful sharp boring stitch over nail at tip of r. big toe; cold feet and hands; here and there on body, e. g. below scrob. cordis on r., in side of l. ribs, below axilla, in r. thigh, tearing tension in small spots; trembling empty feeling of whole body in afternoon immediately after dinner; frequent starting in affright out of sleep, with an idea that there are mice in the bed (on 2 successive n.). (*Ibid.*)

5. BETHMANN made his provings with zinc. sem. colch. in pretty large doses. After 4 h., great flow of watery saliva with nausea, fulness and distension of abdomen. After 5 h., the features are completely altered, like those of a person who has long been ill; very sick, with salivation and dryness of throat, he turns hither and thither in a disconsolate manner, with very distracted mind and prostration. After 6 h., violent vomiting of food taken 3 h. previously. After 4 d., the smell of a newly beaten-up egg almost made him faint. After 8 d., very copious salivation. After 13—15 d., weakness of memory; he forgets the words he was just going to say, and can only with difficulty recover the former train of thought and go on talking. *No time mentioned:* very forgetful and distracted; pressive weight in occiput, especially when moving or stooping forwards; a very fatiguing though not violent pressure deep in cerebellum from the slightest mental work. Sharp, very painful, drawing tearing in l. half of head, generally commencing in l. eyeball and extending to occiput, for several d.; fine tearing in

scalp; hair falls out very much; drawing digging deep in eyeball; melancholy expression; jerking-drawing pain in facial muscles, deep in bones; in facial bones very disagreeable feeling, as if they were driven asunder laterally, with single drawing jerks; squeezing pain in ears; on making a few steps in the room, ears felt stopped up and tinnitus; tearing in orifice of r. ear; the smell is so morbidly exalted that something quite indifferent, e.g. soup, makes him almost sick; epistaxis in e.; the masseter muscles felt as if drawn in their breadth, allowing the mouth to be opened only a little and with pain; the teeth so sensitive he cannot bite; at entrance of oesophagus sensation as if there were there a high, round swelling when drinking; inflammation of all the fauces; much spitting of watery saliva; watery salivation with dryness of mouth for several d.; on swallowing saliva there occurs nausea and inclination to vomit; loss of appetite; appetite for various things, but on seeing or smelling them he has loathing and cannot relish anything; any strongly tasting things feel as if he were chewing linen; hiccup for hours; constant eructation of air; nausea when in erect position; when she stands up a creeping in stomach as if about to vomit; relief after vomiting; before vomiting abdomen painfully contracted; violent retching, after retching for a long time a large quantity of yellow bitter mucus is ejected, which leaves a bitter taste in fauces; after violent griping she vomits bile several times, afterwards bitter taste in mouth and throat; he must lie quite doubled up without the slightest motion all d., otherwise the vomiting which continues becomes still more violent, every movement increases and renews it; he can only lie on r. side, at every movement and change of position the vomiting returns with frightful violence; cannot bear the slightest touch in gastric region; crawling in stomach; stomach feels icy cold; in abdomen, especially in stomach, a slight chilly feeling with pain and weakness; pain and discomfort in whole abdomen; thin stool preceded by griping; rumbling in bowels as if diarrhoea would come on; watery diarrhoea; often thin watery stool passed without sensation; spasm in sphincter followed by chill in back and then urging to stool without being able to get rid of all the excrement; often obliged to go to stool without result, preceded by griping; increased secretion of urine; on passing urine burning in urethra as though it were raw; drawing and tearing pains in urethra; tearing in l. spermatic cord; the menses, which had just come on, stop; single stitches in dorsal muscles; stitches in sacrum; drawing in sacrum, increased by movement; on the middle of sacrum there is a spot the size of the hand, with pain like an ulcer, extremely painful at the slightest touch; violent paralytic pain in arms, so that he cannot hold even light objects; third and fourth fingers of r. hand drawn inwards; tearing in joints of r. fingers; shooting tearing in ligaments of joints of r. little finger; drawing tearing deep in l. hip-joint, apparently in its ligaments, worst at n.; drawing deep in muscles of thighs; drawing tearing in l. sole; sudden tearing jerks through half of body, like electric shocks; sometimes shooting, sometimes jerking drawing at one time in muscles of shoulder, at another in r. hip; slight drawing and twitching, also tearing in incisors, eyelids, facial and other muscles; the pains seem to be quite intolerable in e., he feels disposed to be angry with himself;

all kinds of pains are worst from commencement of n. until dawn of d. ; his gait is uncertain and staggering, partly from weakness and partly on account of the drawing-shooting jerks darting suddenly through pericostum, which are always attended with a paralysed feeling and an actual though transient paralysis ; sleepless almost all n. on account of shooting jerking ; the pains are much aggravated by mental exertion ; she has often single tearing jerks, chiefly on l. side ; the smell of pork (which he formerly liked), a bright light, a touch, the naughtiness of a child, put him almost beside himself ; such extreme depression of spirits, weakness, pain, and sensitiveness of the whole body that he can hardly move without moaning ; rapid sinking of strength, so that in 10 h. he is hardly able to speak so as to be understood, or to walk in room ; she feels such weakness in muscles of extremities that she thinks they will fall off ; all muscles, especially of lower extremities, as if paralysed ; quite powerless and as if paralysed in all the body, especially the arms ; the painful muscular paralysis, especially in knees, causes them to knuckle under him often, especially when he lifts his legs to step over an elevated object, e.g. the doorstep ; itching of skin in several places ; pricking on skin, causing twitching through whole body ; sleepiness by d. ; much yawn often ; rigor through all the limbs ; dry heat of skin ; violent palpitation of heart ; pulse large, full, hard, from 90 to 100 ; suppressed perspiration ; cross, ill-tempered, nothing pleases him ; his sufferings seem to him intolerable. (*Ibid.*)

6. Dr. LINDEMANN, æt. 39, liable only to slight rheumatism, catarrh, and sluggishness of stool, took, Jan. 16th, 17th and 20th, a dose of 15th dil. Noticed unusual appetite, and on 18th, unpleasant epigastric sensation, almost amounting to pain, on pressure, coughing, and deep breathing. On 24th, took 3 dr. of same. In afternoon, un-called-for shivering ; appetite same ; disturbing flow of thought after midnight ; dulness about forehead, which is cold ; on surface generally slightly sour-smelling perspiration. In m., forehead warm and heavy, head dull ; fingers cold, palms hot ; shivering again in e. On 26th, took 4 dr. On 27th, towards and after mid-day, oppression in cardiac region, with fluttering pulsation. Took 6 drops at 4 p.m. Next d., at noon slight cardiac uneasiness. On Feb. 21st and 3rd, took globules of 3rd dil. without effect save a not unusual bruised pain in loins. On 4th, took 3 dr. of same, with no symptoms save such as a slight catarrh would occasion. Same result from 4 dr. on 7th. Appetite remained unusually keen. From 4 dr. on 14th and 16th, and 6 dr. on 18th, no further effects. Same to be said of doses of 2—8 dr. of tinct. taken March 9th—16th, save that frequent micturition was noted, and some itching at anus. On 28th, took 2 dr. at 4, and 3 dr. without water at 7 p.m. At 6, slight itching at anus, shivering, knees feel tired in ascending. At 7, urgency to micturition ; uvula somewhat painful and congested. After 2nd dose, warmth and fulness at epigastrium, with cardiac uneasiness and oppressive swimming in head, going off in ½ h. L. arm feels cramped and weak. At 7.30, passed unusual quantity of scalding urine. Great drowsiness after supper ; frequent micturition and much dreaming at n. 29th.—By 9 a.m., all symptoms gone. Took 3 dr. without water. Same immediate effects, with darting pains

in hips. Repeated dose at 11.30; sensations at epigastrium alone perceived. P.m., while sitting, warmth and beating in loins; forehead feels distended; inability to fix attention. In e. and n. vesical and rectal tenesmus, urine scalding. 30th.—8.45 p.m., 6 dr. In addition to epigastric sensations, aching just above anus, where there is a sensation of creeping, with warmth, itching, and slight burning, as if from a mustard plaster. At 9.45, pulse 87, cardiac oppression and frequent micturition. At 10.15, repeated dose. After 10 m., feeling of exhaustion in going upstairs; cardiac oppression, with slight momentary fluttering and darting pains, and feeling of anxiety, with sighing; decided twitching in back (which had been slightly felt before), and sense of heat in spine. These symptoms, with previous ones of anus and urethra, continued more or less all d. He ate with great appetite; sensations in back extended to l. hip; cheeks at 4.30 red and hot. 31st.—Four dr. at 6.30 a.m. brought back symptoms of back and l. hip, relieved by stool and walking. Another dose at 9.15 recalled them, with weariness of knees and the cardiac and rectal uneasiness. Another, at 11, resulted only in much flatulence and belching. Similar doses next d. brought on similar symptoms. (HARTHAUS'S *proving*, *Hom. Vierteljahrsh.*, viii, 208.)

7. W. S.—, woman of 24, single, in good health save for rather frequent headache and costiveness. After 2 doses of 20 gl. of 15 dil. nothing but increased appetite. After 2 dr. of same in water very restless n., with nightmare, and next m. weakness of limbs. Feb. 2nd, at 9 a.m., 20 gl. of 3rd dil.; immediately, chilliness in room, giddiness and palpitation all d. Last symptoms recurred after 40 gl. on 5th. After 2 dr. on 7th deep sleep, weakness in limbs. After same on 10th, at 9 p.m., burning heat and giddiness. On 17th, at 9 a.m. same; pulse before taking it 70, 2 h. later 60, in e. 65. March 6th.—Four drops; palpitation. On 10th, took 2 dr. of tinct.; pulse before taking it 70, 2 h. later 65 and very weak, in e. 57, an h. later 70. On 14th, 4 dr.; chilliness in thorax; eructations with water. On 17th, 4 dr. in e.; pulse after taking it 50, after an h. 60, next m. 60, towards noon 75; heat in forehead; giddiness. (*Ibid.*)

8. C. Sch.—, woman of 30 and single, strong save nervous system. Doses of 15th dil. taken while a catarrh was passing off, seemed each time to renew it; she had also after one dose itching over whole body, and a slight eruption. From 3rd dil. later, she had pain in stomach, giddiness, and sense of great weakness on getting up in m. With next catamenia (unwonted), heaviness and aching in feet. From tinct. some palpitation and giddiness with, on one occasion, singing in ears and debility, also great appetite. (*Ibid.*)

9. Dr. Gschladt, æt. 35, thin and weakly, venous constitution, bilious temperament, great irritability, pale face, dark complexion. Dec. 30th, 1853, took 20 gl. of 15 dil., at 4 p.m. Soon after, frequent flatulent eructation; repeated yawning; dizziness after walking, so as to cause fall from chair. In e., unusual drowsiness. Deep sleep till midnight; then woke with heavy pressure on stomach, and lay awake for 2 h., with audible palpitation, dry heat of surface, dry mouth, slight darting pains in wrists and elbows, dragging pain in sacrum. Woke

tired in m.; boring pain over eyes; sacral pain better on moving; face paler; eyes dim; copious stool. Appetite great. P.M., persistent chilliness and unusual drowsiness. Irritability greatly increased all d. Good n., and next m. quite well. On Jan. 4th, at 4 p.m., took 100 gr. of same, with similar results, including also palpitation on 1st d., and nausea to vomiting on 2nd. Sacral pain extended to hip. On 10th, 25 gr. of 3rd dil., with similar results, heart being also oppressed. On 14th, 50 gr. produced same effects, with giddiness. (He woke each n. after dose at midnight, and lay awake 2 h. as at first.) Same also from 2 dr. of 3rd on 19th, and 4 dr. on 24th. About this time he became aware of existence of two dry wart-like growths on neck, which had arisen during praying, and after 6 weeks disappeared by scaling off. On Feb. 4th, took 2 dr. of tinct. at 10 a.m. Same general effects, but colicky pains, weakness of limbs, and general weariness and restlessness were added, and there was more decided pain in joints (shoulders and knees). On 12th, 4 dr. Same symptoms; joint pains relieved by motion (as before). On 13th and 14th urine copious, golden yellow; clear at first, but afterwards showing a suspended white cloud. March 15th.—Six dr. at 9 a.m. Same symptoms, but more marked; in afternoon drowsiness, shivering, pallor, anxiety about heart, hunger, variable pulse. Next d. with other symptoms, tongue white; and on 17th, urine slightly scalding. On 31st took 6 dr. at 9 a.m., 8 at 3 p.m., 10 at 8 p.m. with renewal of all old symptoms, also ringing in r. ear and deep hollow voice. The action of the several doses taken throughout seemed to extend from 24—72 h. (*Ibid.*)

10. *a.* Dr. BRUNO LIECK, bilious temperament, strong and healthy, but with tendency to catarrh and colic. Jan. 19th, 1853.—Shortly before going to bed, took 4 dr. of tinct. After lying awhile in bed blood began as it were to boil, sweat on chest and head, peculiar feeling at heart with some irregularity of beat, and pricking and itching in several parts. Sleep afterwards sound. Repeated dose next e., with similar results; itching was burning, and scratching sent it elsewhere; also some cutting in abdomen. After same dose next e. on blowing nose same cutting pain, but in lower anterior thorax; nothing else noted. On Feb. 5th took 5 dr. gradually during m., and p.m. 4 dr. at once. In $\frac{1}{2}$ h. after last same cutting pain on l. side, uninfluenced by breathing; dulness in head. In e. remittent dragging pains in thigh-bone, and headache about l. temple, relieved and finally disappearing in bed. Sleep good. 6th.—Quite well on waking; but after rising headache gradually returned, and by e. was severe, pain heavy and dull, in upper and back part of head; with it great tension of jaws; relief after supper and gradual decline in bed. On waking after a good n. pain only on small spot of r. forehead, pretty severe for 10 m., but remaining in less degree all d.; also pain in l. thorax as before. On 8th and 9th feeling all d. as if headache would return; on latter thoracic pain, shifting from r. to l. and appearing lower, at last settling into persistent pain over spleen; in e. colic and threatened diarrhoea. On 10th splenic pain had disappeared, but he had pinching and cutting here and there on chest, and, for a short time, in l. arm; also wandering pains of burning itching character, after scratching skin becomes red, and pains

shift. On 11th and 12th free from all complaint, but at n. could not lie comfortably on l. side from splenic tenderness.

b. After repeated experiments with a tinct. from an old school pharmacy, very feeble indications of action were manifested, although he took ʒss and even ʒo dr. at once. The only marked and recurring symptoms were oppression in head, tearing pain from r. patella backwards; cutting-tearing pain in hepatic region; burning itching in various places almost simultaneously; dragging in l. hypochondrium.

c. Again proved homoeopathic tinct. (equal parts of juice and spirit). On March 13th took ʒo dr. with water. Slight pain in l. testis, very sensitive, as if squeezed, on putting down l. foot in walking, evidently from jar (nothing felt on pressure); nausea; cutting-tearing pains on chest. In e. pain in testis again for some time, tearing pains on outer side of l. forearm, as if in fascia, sudden shooting-tearing pains in lumbar region on both sides. 13th.—Oppression in upper and back parts of head; tearing pains about l. foot; severe pain in leg, as if from cold, especially on tibia, with coldness of leg and of whole body, even in bed; a.m., pain in testis as before.—14th. Same feeling in leg; cutting and tearing pains in chest. 15th.—Pinchings on tibiæ, with coldness in bones (as yesterday); while writing such violent pains over r. thorax that he was compelled to desist, unaffected by movement or deep breathing, then suddenly such a severe crampy pain there that he started up in alight. 16th.—Tearing under patella; pain at end of one finger on palmar surface as from a splinter, recurring at intervals. 17th.—Took ʒo dr. of officinal *sinec. seminum*. Slight occasional pain in extensor surface of l. forearm, extending to some fingers; pinching-tearing pain in r. tendo Achillis; lachrymation in open air, so as almost to impair vision (noticed slightly for several d.); smell as of smoked ham under nose; pressive pain on l. eyeball; very sensitive pain in front of shins; dull pain as from cold, or like "growing pains" in bones; very sensitive drawing in l. forearm on extensor side, as if some nerves were being stretched, at intervals; remarkable chilliness of skin on hands and feet even in bed; coldness of whole body even in a room; small round pimple on m.m. of lip. 18th.—In e. ʒo dr. Long stitches in l. elbow, spot remaining tender for some time; tearings, very fine but penetrating, on extensor surface of l. forearm to fingers, like electric shocks; severe twitching pains like fleabites in several parts, requiring scratching, then disappearing; about 3 h. after dose rough dryness in throat; coldness on knee.

d. On March 13th, 1854, commenced proving of dilutions by taking ʒ dr. of 15th. No symptoms. On 14th, 6 dr. in m. Hiccup, not specially painful, disagreeable jerks; nausea in throat, as if on point to vomit,—for 2—3 h. On 18th, same. P.m., headache, pain quite internal, across base of brain between ears, not very severe, rather unpleasant. 23rd.—In e., same. In m., throat at back quite dry, with painfulness on swallowing, as in commencing catarrhal angina. This symptom was the more noticeable because it had been felt on former occasions when this dil. was taken in m., but then ascribed to a cold. Each time it disappeared in an h., after washing out mouth. In neighbourhood of l. nipple, on spot about ½ in. in diameter, deep in

chest a raw pain, very keenly felt, increased by respiration and in proportion to depth of each inspiratory act, better soon after rising, and then wholly disappearing. P.m., urging to stool; passage of formed but not hard feces was exceedingly painful, and must be effected with great caution, feeling being as if sphincter would be torn. On retiring to bed, still painfulness in anus. 25th.—In bed again pain in chest, disappearing after rising. Itching deep in ears (also felt on former days), ears inside quite dry, desire to bore into them, but it does not seem to reach itching spot or relieve. To-day, as yesterday, frequent slight expectoration of glutinous or starchy mucous lumps from chest, without irritation to cough. On 27th, e., 5 dr. of 3rd dil. On 28th, p.m., fine sensitive tearing in l. shoulder-joint anteriorly. On June 15th, same dose. During whole d. periodically uncommonly large emissions of excessively offensive wind (most uncommon); copious evacuations, not thin, followed by feeling in rectum as of diarrhoea, and gnawing in anus. Sleep quiet, many dreams, always of same objects, confused and indistinct. 16th.—Same dose in m. fasting. After dinner, pain in hypogastrium and anus as of threatening diarrhoea, urging to stool, aching in abdomen, then everything disappeared again. About 3 p.m., unconquerable drowsiness (unusual). 17th.—Same. In course of d. severe rheumatic pain in l. shoulder and neck, mostly pressive and tense, hindering free movement, especially bending to l. and backwards. P.m., again at same time drowsiness. During a hard stool pain as from tearing of sphincter. Fruitless urging to stool, though feces are still felt in rectum, which seems inactive. Stitches under r. mammae, as if in lungs. (*Ibid.*)

11. LOUISE LINK, æt. 35, strong, but emotional and liable therefore to nervous derangements. Feb. 5th, 1853.—Took 5 dr. of tinct. in water. Soon after, feeling of giddiness and reeling in head; pain in bone over l. eye, returning with increased severity at each movement, but from noon to 6 p.m. increasing to such a height that any slight noise became unbearable. Pain continued all next d., increased by any movement of head; and on 7th shifted seat to r. vertex at back, aggravated by bending head back or raising eyes, with great longing for repose. On 8th, this was hardly noticeable; but she had suddenly a very severe cutting pain, as from sharp knives, in l. chest, almost suspending respiration and compelling her to moan; the severity lasted $\frac{1}{2}$ h., but some degree of pain persisted. From 6—8 p.m., return of pain over l. eye, extending over whole l. head, passing off after supper with cuttings in abdomen (which had also been noticed on previous days). Head and chest symptoms recurred also on 9th, with also pain in region of stomach, which feels swollen (though it is not) and is intolerant of pressure; cutting in abdomen is continual, with much urging to stool, which—when it comes—is difficult though soft, and followed by pain in sacrum. At 11, headache was accompanied with great restlessness in all limbs, which a dose of pulsatilla quieted. Same symptoms next d., but free from them afterwards. (*Ibid.*)

12. Dr. SCHLOSSER, æt. 30, in perfect health, save for liability to a r. supra-orbital neuralgia on provocation (especially psychical). On March 5th, 1854, at 8 a.m., took 5 dr. of tinct. without water. Some

local irritation followed, and at 3 p.m. troublesome pressure deep in sacrum. In e. continuous aching at junction of sacrum with last lumbar vertebra (a sensation he had occasionally before); at 8, painful pressure in r. outer ankle, as from fatigue. In n. frequently awakened by persistent pain in sacrum. 6th.—At 8 a.m., 6 dr. in $\mathcal{O}j$ of water. At 9 saliva was sour and saltish, but not unpleasant in taste, secretion increased. Between 9.15 and 10.45, some colicky pain. P.m., sacral pain returned, better in active than in passive motion (driving), and better while up than when reclining, only that warmth of bed comforted it. Quiet sleep. 7th.—At 9.30 a.m. causeless depression; sacral pain has extended into r. lumbar region. At 10.30 spirits revived. Two soft stools (unwonted; in d., as also on morrow. A catarrh now came on, interrupting provings. On 24th, at 9 p.m., took 3 dr. of 15th dil. in $\mathcal{O}j$ of water. Sleep often broken during n.; towards m. slight perspiration. Next m., increased secretion of pleasant-tasting saliva. At 8.15 repeated dose, and took 4 dr. on 26th, at same hour. Similar effect on saliva; gum inflamed around r. incisors. On 30th 3 dr. No effect. On April 1st, 5 dr., and on 2nd, same. Persistent mental excitement (which has existed more or less for some d. past), with indisposition to mental exertion. Slight heartburn. On 5th, at 4 p.m., 4 dr. of 3rd dil. in water. From 6—8 p.m. dryness in throat. 6th.—At 3 p.m., same. At 3.15, momentary aitches in r. thoracic walls, and at 4.15 in chest and sacrum, especially on deep breathing. In n., while lying on l. side, fulness and oppression, as from stasis of blood in heart, necessitating turning to r. side. 7th.—At 2.30 p.m., 6 dr. In 5 m. stitches with heat first in l. then in r. wrist. At 3.30 p.m., 3 dr. undiluted. At 4, slight pressure in r. frontal eminence. 13th.—At 2 p.m., 6 dr. of tinct. At 2.30, increased secretion of tasteless saliva. At 4.15, pressure in abdomen, l. of navel; compression at vertex; cheerful temper. Next m. great weariness, but still unwonted cheerfulness. 24th.—In m. 5 dr. undiluted, without noteworthy effect. 29th.—At 3 p.m., 14 dr. in water. Restless sleep during following n. 30th.—At 3 p.m., 16 dr. Disturbed sleep again at n., with grave distressing dreams. May 1st.—At 6.15 a.m., 20 dr. in water. At 10, stitching pressure (momentary) in r. temple; rumbling and colic in stomach; urging to (copious) micturition.

On May 26th there came all at once, with burning pain, a small ulcer at commissure of gum and upper lip, threatening to increase, but healing after a dose of *K. bich.* 3. Ten d. later pityriasis appeared on inner surface of l. thigh, opposite scrotum. (*Ibid.*)

13. Dr. KELL, æt. 35, of phlegmatic-choleric temp., healthy, but liable to catarrh. (Took drops always in $\frac{1}{4}$ wineglassful of water.)

a. Took 15th and 3rd dils. without effect. On Jan. 9th, 1854, a.m., 3 dr. of tinct. without symptoms. At 9.30 p.m., 6 dr.; unwontedly sound and deep sleep. 10th.—At 7 a.m., 9 dr. Soon after, passing sensations of pressure in stomach. At 11, slight dull headache anteriorly, which towards e. passes to back of head, and becomes drawing. During n. restless sleep with many dreams. Next m. some remaining dulness in head, which soon passed off. On 13th, at 9 a.m., 9 dr. At 2 p.m., urging to stool, with flying stitches across abdomen;

pappy stool. 17th.—At 8.30 a.m., 30 dr. without effect, save feeling of heat in stomach for $\frac{1}{2}$ h. at n. 31st.—At 9.30 a.m., 40 dr. In $\frac{1}{2}$ h. slight pressure in stomach, passing into l. side of belly; after 1 h. repeated tasteless eructations. After $1\frac{1}{2}$ h. fulness in abdomen, feeling as if colic would come on, with slight rumbling, which soon passes into feeling of craving. On March 16th, at 3.30 a.m., 4 dr. Slight stitches in r. hypochondrium, 1 m. long; soon after, pricking-drawing feeling in r. great toe (momentary). 18th.—At 5 p.m., 6 dr. Some flatulence. At 10 p.m., same. 19th.—At 4 a.m., same. In forenoon faintness, feebleness, weakness in abdomen, towards noon passing into feeling of hunger. After 8 h. sudden stitching-drawing pain from r. buttock to perinæum for $\frac{1}{2}$ m. 20th.—At 8.15 a.m., 12 dr.; at 4.45 p.m., same. Towards 5, slight throbbing sensation in rectum. At 6, same dose. Tongue feels spongy, and begins to coat over; constant slight dragging in abdomen, as if colic would come on; an insufficient evacuation in e., though much desire. At 10, same dose. Anxious dreams. 21st.—At 5.30 a.m., 12 dr. At 7, slight pinching in epigastrium. At 4 p.m., slight burning in abdomen below umbilicus and slight straining towards æcum; calls to stool, but stool is insufficient; eructations and frequent expectoration of small quantities of mucus. In e. same dose. Stitches in l. lower jaw, sudden and transient; pressure in l. side of abdomen, as if from incarcerated flatus, part being slightly sensitive to pressure. At 10 p.m., 20 dr. 22nd.—Was awakened at 2 p.m. by painful tympanites; congestion to head without headache; heat followed by sweat; frequent pulse. Soon fell asleep again; frequent passing of dark yellow urine, somewhat more copious than usual. At 6, some confusion in head; heart's impulse almost imperceptible, but marked abdominal pulsation; white coated tongue, spongy and pappy taste; strong sense of hunger; heavy feeling in sacrum, with one of obstruction in rectum. At times slow stitches in brain; heaviness about eyes, as if hardly waked from sleep, with injected conjunctiva; yawning, weariness, indisposition to work, stretching. At 9 a.m., 20 dr. At 4 p.m., feeling of heat in rectum; insufficient stool. 23rd.—No med. In m. moderate stool, nevertheless continued weight and fulness in abdomen; pulse accelerated; ebullition of blood; in e. urine cloudy and mucous. 24th.—At 8.30 a.m., 20 dr., and same at 11. At 2.30 p.m., flying stitches in l. great toe. At 5.30, 20 dr. Towards 6, fulness in chest, and again pulsation in abdomen, also perceptibly in vessels of neck; pulse moderately quick. These sensations are specially marked when sitting still. A little later slight burning and drawing in epigastrium. Towards 10 p.m., tickling in *fossa navicularis* after micturition. 25th.—In m. bruised feeling in sacrum; in n. broken and confused dreams.

b. On April 14th, at 7 a.m., I took at one dose all that remained of my tinct., about 78 dr. In 1 h. flying stitches in brain, mostly under coronal suture; perceptible pulsations in head; pulse abnormally frequent; rumbling in abdomen; in $1\frac{1}{2}$ h. stitches in l. thumb; heat and dryness in mouth; frequent yawning; in 5 h. flying stitches in r. shoulder; stitching pain below l. jaw, recurring; sensitive feeling across over hypochondria. After dinner a somewhat soft stool, with

wind; in 7 h. flying stitches in l. ear, lasting a few m.; p.m., rapid and sensible pulsation in carotids, also in head; some tightness across chest, with desire for deep breathing; dryness in mouth with thirst; after 11 h. heat in sacrum extending to rectum; flying stitches under l. clavicle. (*Ibid.*)

14. Dr. RICKERT, æt. 51, in good health save for remains of (second attack of) whooping-cough from previous summer. On Dec. 1st, 1852, in m., fasting, took 8 dr. of 1 $\frac{1}{2}$ dil. in water, and at n. a similar dose. 2nd.—In m. feeling of pulsation in belly and chest, as of strong determination of blood from former to latter. Several times during d., but especially in e., after eating, feeling of ebullition in chest, and of working there as if something were alive in it. P.m., cold feet, shivering. 3rd.—This m. boiling feeling in chest returns. 4th.—Chest easy; after food pressive pain in head, dissipated by a nap. (*Ibid.*)

15. *a. E. R.*—a girl of 20, brunette, health good save for some chronic conjunctival irritation. On Nov. 11th, 1853, took 4 dr. of 1 $\frac{1}{2}$ dil. in water in m. No change. 27th.—Same dose. At 11 a.m., pain in r. teeth, and at 3 p.m. same in l. ear, both transitory. 28th.—In m., 8 dr. Towards noon great heat of face, and soon after eating headache over l. eye, better in open air, but persistently troublesome in room; towards e. very violent pressure over eye, with desire to shut it and to press on forehead; it lasts throughout e., and increases at bedtime, with nausea. 29th.—In m. in bed violent colic immediately on waking, with digging in bowels, thereupon a single diarrhoeic stool. 30th.—In m., 8 dr. Well through d.; in e., violent stitches in ears, and after (cold) supper intense heat in r. cheek and eye with cold feet. In e. same dose. Sleep good. Dec. 1st.—On awaking some abdominal pain and great heat of face. Took 8 dr.; digging in abdomen and some diarrhoea; p.m., great heat of face, but with warm feet. In e., 8 dr. 2nd.—In m., same dose. On 29th lips had cracked, unusual in such weather as then existed; on 1st they were much fissured, and to-day can hardly be moved; lower lip, from which hardened skin had peeled off, very painful. 3rd.—In m. same abdominal pain and (4 times) diarrhoea. Colic lasted all d. On forenoon and e., pain behind l. ear, as if glands were swollen. 4th.—Colic and diarrhoea as before; lips still painful and readily cracking. 5th.—Colic and diarrhoea only immediately after rising; so also on 6th, 7th, and 8th; pain only gradually disappearing after this.

6. On Nov. 3rd and 4th, 1853, took 2—3 dr. of 12th dil. without effect. On 6th, 8 dr. On going to bed considerable palpitation, such as she has never experienced before. (*Ibid.*)

16. Dr. TRICHMANN, æt. 36, in good health, save for some hæmorrhoidal troubles. Feb. 28th, 1857, at 7.30 a.m., 3 dr. of 15th dil. in water. March 2nd.—7 dr. at 7.30 a.m. 3rd.—Towards noon feeling of pressure in l. upper arm near elbow, which in course of afternoon became severe on moving shoulder, and especially on raising arm, so that he could not get on his coat. When quiet he felt nothing, and n. was painless and restful. During 4th and 5th this pain gradually subsided. On 7th, 5 dr. of 3rd, and on 8th, 5 dr. of tinct. without result.

On 15th, at 7 a.m., 7 drops of tinct. On 16th, awoke at 5.30 a.m. with pressure and discomfort over transverse colon; fell asleep again in $\frac{1}{2}$ h.; on rising feeling had not quite gone, but was slighter. (*Ibid.*)

17. Dr. BÖNCKE found, both in himself and in several members of his family, though all little sensitive to medicine, that after almost every dose (3 dr.) of 15th dil., as also afterwards of 3rd, there occurred one or two loose, almost diarrhoeic stools, to which they were not at all subject. (The doses were taken in e., 1 h. before bedtime.) After 3 dr. of 3rd in e. there came in $\frac{1}{2}$ h. scraping dryness in throat, and tickling cough; also slight drawings in upper jaw and orbital margin, soon passing off and alternating with irritation in throat. After 6 dr. immediately tingling sensation in tongue and throat. (*Ibid.*)

18. Dr. SYZAK took repeated doses of 15th, of 1₂, and of tinct. up to 20 dr. 3 times a day, but without effect. (*Ibid.*)

18. a. I held for 2 m. on the tip of my tongue a slice of the fresh juicy root, slightly bruised. Tongue became heavy, later stiff, last numbed, so that for 6 h. it was almost entirely insensible. Without any remedial means tongue then regained first its mobility and then its sensibility.

b. Three gr. of same were infused for 1 h. in S—'s accustomed wine (4 oz.), and the whole (filtered) drunk by mouthfuls. It seemed slightly harsh and astringent, and produced tickling in larynx, and a little short dry cough, without any gastric disturbance. But a few m. later I felt burning in the urinary passages, followed soon by abundant flow of pale urine.

c. Two h. after mid-day meal I swallowed nearly 1 gr. of same in breadcrumb. After $\frac{1}{2}$ h. there ensued burning in stomach at a fixed point, flying pains in head, and chill coursing along spine. Burning lasted 1 h., and spread all up sternum, then into abdomen, shifting from place to place, getting more acute, and assuming character of colic. After 2 h. more I felt in lumbar region and along urinary passages a considerable irritation, accompanied with continual desire to micturate; there passed, however, only a very small quantity of burning urine, with strangury. Soon after followed very painful rectal tenesmus, with a small stool, after which came a quantity of transparent, yellowish, skinny mucus, with some slight tormina. Urinary irritation persisted; there was also great epigastric tension, violent pains in head, some attempts at hiccup. Pulse was very excited, appetite nil, thirst lively. A drink containing lemon-juice was now taken frequently; some stools followed, and after a few h. great relief to all save urinary symptoms, which last continued even through n. Next m. I felt weak, free from gastro-enteric pain, but micturition continued difficult and excited frequent and painful urgings to defæcate. Head was heavy, but without pain; slight burning remained behind sternum. A demulcent drink was now taken, after which urine flowed freely, changing from fiery-red to brown, then green, lastly pale. Appetite did not return this d. On 3rd d. only some debility and short lancinating pains in joints. Next d. quite well. (STRÖCK, *Lib. de Stramonio, &c.*, 1762.)

19. a. March 19th, 15 dr. tinct. 6 times a d. Transient headache in e.—20th, 15 dr. 7 times a day. All d. weak and weary, all right in e.

h. After taking for several d. from 15 to 30 dr. several times a d., took on April 2nd, at 7 a.m., 45 dr. all at once. No relish for breakfast; some rumbling in bowels and urging to stool, which was watery, slimy, of blackish-brown serpentine colour and feculent, smelling like fresh bile or blood after standing for a few m. in the water-bath. After 1 h., and at 1 p.m., stools of same character, after the last quite exhausted, lazy, sleepy, limbs prostrated, no inclination for work. Sense of smell very much exalted, strong-smelling things extremely repugnant. Tongue rather furred, appetite diminished, thirst increased. After dinner slight nausea, was very cross, and slept very restlessly for near 20 m., but unrefreshed by the siesta. Chilliness all d. till 7 p.m. At 7.30 p.m., ate pretty much as usual. After supper much more lively. Urging to stool still but slighter, and some rumbling in bowels. Another stool at 11 p.m., and next d. 2 loose stools. (BÜCKER, *Beitr.*, ii, 204.)

20. The following additional symptoms were observed whilst and after taking tinct. May 3rd, 11.50 a.m., gnawing in belly that soon went off. After supper walked slowly for ¼ h. and perspired considerably. Lay awake for 2½ h. in bed. All n. slight perspiration.—4th. No symptoms except a loose stool in e.—5th. Slept well, perspired moderately. When visiting patients perspired, was rather tired, and on coming home perspired profusely. After dinner at 1 p.m. felt cold; 2.45 p.m., a copious loose yellow stool, thereafter some pain with rumbling and feeling of movement in abdomen; this went off, but recurred later with urging to stool without result; stool at 11 p.m., watery and frothy, without pain. Appetite good.—6th, 10 a.m., painless movement in bowels for some seconds; then it went off and returned every ¼ h. Perspiration in m., not in afternoon. 4 p.m., rumbling and discharge of flatus. After supper full feeling in abdomen, relieved by a copious pappy stool at 10 p.m. Afterwards movements in bowels. Perspired at n.—7th, 8.30, thin stool. 4 p.m., rumbling in bowels, and thin yellow stool ejected with violence; during and after it a transient uncomfortable almost painful feeling in abdomen. Both a.m. and p.m. moderate perspiration. While walking, 5 p.m., perspired considerably. 11 p.m., 2 copious loose stool.—8th, m., rather tired; this went off after getting up. Slight pain in abdomen. After siesta more tired and lazy than usual. 4.30 p.m., urging to stool, slight discomfort in bowels. 5 p.m., thin loose stool.—9th, 10 m. before taking med., feeling of movement in abdomen followed by stool, at first normally consistent, later loose. 2 p.m., movement in bowels recurred and lasted till e.; at 11 a loose stool.—10th. Soon after taking med. slight rumbling and movement in bowels lasting all m. (*Ibid.*, p. 220.)

21. A man, æt. 26, blond, sanguine temp., took 20 dr. tinct. of seeds. Immediately, numbness of whole buccal cavity, especially tip of tongue, with loathing and nausea. Increased flow of saliva, burning in mouth and all down œsophagus. Teeth felt on edge, with drawing pain from apices of upper teeth to maxillary bones. In stomach feeling of increased warmth and fullness. After ¼ h. slight irritation to sneeze through whole nasal cavity. Salivation continues. Confusion of head

with slight vertigo. Eructation, slight constriction of œsophagus. Feeling in both cheeks as if they were torn asunder. Pain at top of crown, like boring into head, the painful spot changes to different parts of sagittal suture. From nape up over occiput and in ears a dull drawing pain. After $\frac{1}{2}$ h., pressure and discomfort in stomach, contraction in stomach. After 1 h., salivation still continued, the tooth- and headache, the pressure and warm feeling in stomach increased, especially towards r. side. In abdomen some rumbling, retching, and eructation. A disagreeable feeling in stomach which goes back to spine. Pressure and tearing in nasal cavity, pressure in nasal bones, feeling of commencing coryza in nose. After 2 h., tearing in flexor aspect of all l. forearm into elbow-joint. Paralyzed feeling in all l. arm, drawing from l. thumb along radial aspect of forearm. Cold and furry feeling in fingers; tearing in r. shoulder and forearm. On both forearms on their ulnar side itching of skin, with redness of skin there. After 5 h., feeling of weariness of whole body, feet tired and weak. After 7 h., slight tearing in r. hip-joint through thigh into knee, drawing on both calves and front part of r. foot. After 8 h., ordinary stool followed by rumbling in bowels and pressure in stomach. After 1 h. more, a soft stool with slight tenesmus. On urinating burning all through urethra and slight contraction of neck of bladder. Dull pressure on both sides of lumbar vertebræ. In l. side of chest spasmodic compression and dyspnoea for a few seconds.

6. A few d. afterwards he took at 10 a.m. 15 dr. Immediately, copious flow of saliva, burning in œsophagus and stomach. After 20 m., eructation, teeth on edge as if from eating much fruit, teeth seem too long, pain in them from apices of upper teeth into upper maxilla. After $\frac{1}{2}$ h., constriction of œsophagus, pressure and discomfort in stomach, gums painful, dull pressure in occiput, feeling as if scalp from behind and before were drawn up in the middle of vertex, where there is a small painful spot as if the vertex were bored into. After 2 h., creeping in nose, pressure in nasal and facial bones, jerking tearing in temples. After 24 h., twitching in all limbs as from electric shocks, especially in joints of l. metatarsus, great prostration and weakness, disinclination for mental work. In n. between 2nd and 3rd d. very restless and fatiguing sleep. On waking in m. great nausea and rumbling in bowels with painful contraction and pinching. Stool and urging with feeling of diarrhœa. On rising up in bed the symptoms always increased; after rising the nausea increases to vomiting of a little bilious bitter fluid, followed by soft stool with much urging and little evacuation. Better in open air, but the nausea and rumbling continue. Towards e. of 3rd d. nausea and rumbling return for about 2 h. In e. fine but tiresome pain in whole frontal region, especially above eyebrows, extending to dorsum of nose. Soon afterwards feeling as if r. eye were compressed, for a few seconds only, but frequently recurring. 4th d., in m., frequent transient anxiety in chest, pressure on parts, especially in l. side of chest, short stitches which begin in anterior thoracic wall and seem to go out at posterior wall; feeling as if sternum and spine were screwed together; from apex of l. scapula to spine a tense pain increased by moving arm. At noon stiffness in l.

thigh, making walking difficult; in bed, n., r. knee painful for a short time with feeling of lameness. 6th d., though he had never before had rheumatism, he got rheumatism in nape, the r. ciliaris in its whole extent so painful that he must cry out when he moves the neck; the worst pains went off after 2 d., but the movements of the neck were not quite free for 4 weeks. (*URBAN, A. d. Z., lii, 82.*)

21. A man, æt. 25, strong and stout, took Nov. 25th, at 8.45, 10 dr. tinct. of seeds. No effect.—26th, 8 a.m., 16 dr. The only effect till the 29th was 2 stools instead of the usual 1 daily.—29th, 8 a.m., 24 dr. No effect.—30th, 2 p.m., transient drawing-boring pains in middle of sternum towards l. nipple, also here and there in r. side of chest, but chiefly in l. side; the pains relieved during deep inspiration. Later, feeling of tightness all over chest, as if a heavy weight lay in it. 5 p.m., discharge of very fetid flatus, urging to stool, followed in $\frac{1}{2}$ h. by loose stool, with cessation of chest pains but persistence of tightness.—Dec. 2nd, 6.30 a.m., 30 dr. 8 a.m., great uneasiness in abdomen, considerable rumbling and urging to stool. 9 a.m., easy liquid stool without pain, and with relief of uneasiness in bowels. Feeling of emptiness and sinking in stomach, also after breakfast. 10 a.m., jerking tearing from r. elbow to wrist, often repeated, but only momentary; later, the same pain from wrist to finger-joints. Noon, no appetite. The above pains in chest recur, are more severe, and last longer.—3rd. Tearing returns, chest tight, sometimes boring pains in l. side of chest.—4th, 10 p.m., in bed, pains became so violent, and tightness so great, that he had difficulty of breathing and anxiety. Frequent constriction of chest, shooting and boring pains in whole chest, worst below l. nipple.—5th. Appetite returned; chest better but not quite free; pinching pains in abdomen. The chest symptoms lasted a long time, sometimes better, sometimes more severe; they only finally ceased at the end of a fortnight. (*Ibid., 89.*)

23. A strong girl, æt. 20, phlegmatic, took 5 dr. tinct. After 5 m., cruciations and feeling of flying heat in hands and feet with tearing through whole l. foot; toothache, teeth seem too long; pres- sive pain in frontal region; stitches in l. side of chest about 8th rib; feeling of weakness and prostration in limbs; deep shooting above l. eyebrow, it seems to be drawn up; arms heavy; constant drawing in hands to fingers; her hands seem so powerless that she thinks she must let even light things which she lifts fall out of them; stomach full as though she had eaten too much; great roaring in r. ear; tearing in head, especially forehead; tearing in arms with very paralytic feeling; tearing in legs as though they were lame; stitches in l. cheek; pressure in frontal region as though all would come out there; pinching in belly; after 1 h. a normal stool. In e. epistaxis, next d. several loose stools without pain. (*Ibid., 90.*)

24. B— took on April 15th, 10 a.m., 1 dr. tinct., which caused heaviness of tongue, increased flow of saliva, feeling of enlargement of tongue, he would like to extrude it over the teeth; p.m., great thirst.—16th, 7 a.m., 2 dr. Bitter taste, drawing and cold feeling in lower incisors. 1 p.m., stool followed by tenesmus.—18th. 2 dr., coffee aggravates; p.m., slimy stool with fatiguing pressure and straining; sleep

restless, unrefreshing, limbs in m. as if fatigued; later, pressive pain in r. then in l. frontal region; dryness of eyes.—20th, 7 a.m., 5 dr. After $\frac{1}{2}$ h. eructation with burning in stomach. (*Ibid.*, 90.)

25. After taking the extract and tinct. of colch. the following symptoms were observed:—Immediately after each dose the mouth became filled with saliva of a flat taste that provoked nausea, the mucous membranes secreted a viscid substance, and there occurred eructations seldom accompanied by vomiting and diarrhoea; there was a general feeling of malaise, slight attacks of colic and flatulence. After this state had lasted 2 h. there was sleep for 1 or 2 h. After 5 to 6 h. this sickness ceased, but instead there was great feeling of emptiness in head, with confused ideas, difficulty of thinking, and intoxicated feeling; objects appear to whirl round and to have an altered colour; roaring in ears, every noise causes disagreeable sensations with involuntary starting; all parts of the body experience a prickling discomfort; the breathing is difficult, often some palpitation of heart, pulse sometimes slow, sometimes quick, but always small and weak; colic, the attacks of which are very severe but generally without stool. After 12 to 15 h. the cerebral symptoms decline, but the eructation recommences, vomiting often ensues, chiefly of mucus, seldom of bile; the abdomen is sometimes distended, the attacks of colic increase; anxiety and dyspnoea continue, there is sometimes general dry heat, sometimes more or less profuse sweat; urging to urinate more frequent. The colic is chiefly in colon and is accompanied by pains in lumbar region and a feeling of pressure about pelvis. Then stools commence, at first of usual appearance, then soft, yellowish, of pitch-like stickiness, with a peculiar fetid odour; they cause heat of anus, then pain, and then the most tiresome tenesmus; later they diminish in frequency, become watery and colourless. If the dose was rather large the bladder becomes involved, the urging to urinate increases, symptoms resembling those caused by cantharides come on, the urine has often a muddy sediment consisting of the epithelium of the vesical m-m. All the pelvic organs are in an irritated state, especially the genitals; erections and even very exhausting seminal emissions occur. The last symptoms observed are general intolerable itching, especially around large joints, great prominence of the cutaneous papillæ, easy detachment of epidermis which makes the whole integument dry and rough, and disappearance of these symptoms after profuse fetid perspiration. (These last symptoms Goupil does not consider as the effect of the colch.; why, he does not say.) After large doses, e.g. 9 grammes of the tinct. in 6 doses at 2 h. interval, the symptoms do not occur so regularly. About 1 h. after the ingestion there occurs vomiting of mucus, seldom of bile, every $\frac{1}{2}$ h. for 24 to 48 h. The cerebral functions are quite disturbed, there is extreme empty feeling in head, confused ideas, difficulty of thinking, and painful intoxicated feeling; an object cannot be looked at fixedly without causing vertigo, all objects seem to whirl round and change colour, they generally appear yellow and sometimes with iridescent borders. The hearing is affected, sometimes there is roaring in ears, sometimes the hearing is extremely acute; every movement of the head causes inclination to vomit and faintness. General malaise, accompanied by

formication all over the body, breathing short and difficult, often palpitation of heart and intermitting pulse. After 12 to 15 h. the mouth is filled with bad-tasting saliva, the eructations increase and are often followed by vomiting of a viscid, tasteless fluid. Dry heat of skin, after more or less profuse sweat. The most dangerous symptoms are:—The patient cannot think connectedly, he has confused sensations, all objects whirl round him in a chaotic manner, he does not move his head for fear of vomiting or fainting; hallucinations of the strangest sort fatigue his sight; the most extraordinary noises distress his ears. At the same time the attacks of colic are often but slight, sometimes severe, attended with spasms; the perspiration is clammy and cold. These symptoms cease after stools, but then the pains in the pelvic organs become most severe. (GOUPIE, *Fraxip's Not.*, 1861, iv, 18.)

26. *a.* A man, æt. 30, with a slight chronic eczematous eruption, was placed on a regulated diet and the urine carefully collected.

Before taking colchicum :

Oct. 30th ...	Urine 56 fl. oz. ;	sp. gr. 1016.	Uric acid in 24 h.	8.73 gr.
" 31st ...	" 64 "	" 1014	" "	7.9 "
Nov. 1st ...	" 84 "	" 1013	" "	8.09 "
" 3rd ...	" 66 "	" 1016	" "	8.16 "

Average = 68.5 8.24

When taking colchicum :

Nov. 4th ...	Urine 56 fl. oz. ;	sp. gr. 1015.	Uric acid in 24 h.	6.05 gr.
" 5th ...	" 56 "	" 1016	" "	8.51 "
" 6th ...	" 46 "	" 1020	" "	8.00 "
" 7th ...	" 56 "	" 1016	" "	6.61 "
" 9th ...	" 54 "	" 1021	" "	9.78 "

Average = 55.6 7.67

b. Another man, æt. 19, with chronic elephantiasis of upper lip and pretty good general health, was treated in same manner.

Before taking colchicum :

Jan. 13th, 1854, urine	55 fl. oz. ;	sp. gr. 1017.	Uric acid in 24 h.	7.91 gr.
" 14th "	" 28 "	" 1027	" "	4.48 "
" 15th "	" 30 "	" 1027	" "	3.00 "

Average = 37.7 5.03

When taking colchicum (3ss ter die.) :

Jan. 16th ...	Urine 47 fl. oz. ;	sp. gr. 1015.	Uric acid in 24 h.	1.34 gr.
" 18th ...	" 23 "	" 1024	" "	7.55 "
" 19th ...	" 24 "	" 1025	" "	7.24 "
" 20th ...	" 13 "	" 1031	" "	5.00 "
" 22nd ...	" 19 "	" 1027	" "	5.34 "

Average = 25.2 5.29

C. was taken ter die for 2 d. ; on occurrence of purging 1 dose omitted, 2 doses kept up free action of bowels. General results: (1) There is no evidence that C. produces any effects by causing increased elimination of uric acid, but if continued for a lengthened time it appears

to exert a contrary effect. (2) It does not influence amount of urea or other solids of the urine. (3) It does not always act as a diuretic, but has a contrary effect when it produces a marked effect on the alimentary canal. (GARROD, *On Gout*, 3rd ed., pp. 324, 333.)

27. Experiments on a healthy man, æt. 28. Urine for 3 d. previously was of following average character, viz.:—Quantity 1230 c.c., sp. gr. 1025·08, solids 63·12 grms. (inorganic matter 29·83, organic 33·29), strongly acid. Took *miss* officinal tinct. of C. 3 times in 24 h. for 3 d. 1st d.—Urine:—Quantity 1595·7 c.c., sp. gr. 1024·37, solids 77·29 grms. (inorganic 36·50, organic 40·79), strongly acid. 2nd d.—Urine:—Quantity 1484·1 c.c., sp. gr. 1024·31, solids 75·22 grms. (inorganic 35·01, organic 40·21), strongly acid. 3rd d.—Urine:—Quantity 1620 c.c., sp. gr. 1022·06, solids 79·33 grms. (inorganic 34·20, organic 45·13), strongly acid.

Average in health and under colchicum:—

Normal.—Quantity 1280·0, sp. gr. 1025·08, total solids 63·12 (inorganic, 29·83, organic 33·29).

Colchicum.—Quantity 1556·6, sp. gr. 1023·58, total solids 77·28 (inorganic 35·23, organic 42·04). (W. A. HAMMOND, M.D., *Amer. Journ. Med. Sciences*, xxxvii, 277.)

28. R. H.—, æt. 18, student of medicine, suffering from slight sore-throat, took 50 dr. vin. colch. at 9 a.m. At 12.30, no effect; took 30 more. At 7.45 p.m. 20 more. At 11.15, slight nausea. At 8.30 a.m. next d. took 60 dr. more. Breakfasted sparingly, appetite impaired. At 9.30 sudden copious stool, with considerable griping pain; 15 m. afterwards he experienced in large intestines feeling of great commotion, which was immediately followed by 6 very copious yellow watery stools. A feeling of weakness continued for 24 or 48 h. (LEWIS, *Ed. Med. and Surg. Journ.*, xlvii, 348.)

29. W. F.—, æt. 17, student of medicine, in perfect health, took 70 dr. of vinum at 7 a.m. and 30 more at 10.30. Slight nausea at 11.30. At 12.30 took 30 dr. more. Nausea increased. In 3 h. after he took 40 dr. more. Severe sickness occurred in 2 h. after this dose, followed by a copious stool. At 9 p.m. another stool. Slept well, but on waking at 7 a.m. felt sick and faint. Had yellow watery stools during d. A little after 8 a.m. vomited more than a quart of thick whitish matter, had some desire for food but could not eat. At 11 a.m. vomited viscid greenish matter, and soon afterwards vomited again. At 3 p.m. rejected brandy and water which had been taken, and at 4 p.m. vomited again. Next m. felt sick and could not eat, sickness subsided during d. Urine of deeper colour than usual and deposited a sediment. (*Ibid.*)

30. J. H.—, æt. 15, took 40 dr. of vinum at 9 a.m. and 30 more at 12 a.m. In 2½ h. he felt queamish. At 4 p.m. took 30 dr. more, and had more nausea in ½ h. At 7 p.m. 30 dr. more were taken, soon followed by severe sickness. Vomited 3 times at 10 p.m., and soon after on taking food it was instantly rejected. Bowels were moved once. Slept well; slight nausea next m. Quite well at dinner time. (*Ibid.*)

31. F. L.—, æt. 12, took 30 dr. of vinum at 9.30 a.m., 30 more

at 5 p.m. At 8 p.m. felt sick and vomited copiously and easily. Then took an egg and slept well. At 6.45 a.m. next d. had a copious stool, soon repeated, and before c. 9 watery stools occurred without pain. (*Ibid.*)

32. A. J. B.—, æt. 17, in perfect health, took 40 dr. at 8 p.m., and 30 more at 8 a.m. next d. Slight nausea in forenoon. At 3 p.m. took 30 dr. more. Bowels moved at 6 p.m., slight vomiting during c. several times, and once he fainted after a copious stool; 5 stools before bedtime; slept well; was well at noon next d.

6. Same 10 d. afterwards took 70 dr. at 6 p.m. and became sick in n. At 1 a.m. very sick, vomited bile; much nausea, with occasional vomiting until 4 p.m. Upwards of a pint of bile was ejected between 1 and 9 a.m.; headache in course of d., ate little dinner, could taste tea at 7 p.m. Perfectly well next d. Pulse feeble during first 24 h. and below normal standard. It afterwards rose to 100, and there was feeling of debility. (*Ibid.*)

33. R. B.—, æt. 10, took 20 dr. at 10 a.m., and at 4.30 15 more. Next m. 2 stools, no nausea. At 11.30 25 dr., and at 4.30 20 more were taken. An h. later bowels moved, and twice again between 6 and 7 o'clock, at which time he vomited. Nausea and vomiting, not violent, continued all c., also twice in n. (viscid bile), and had 3 more stools—in all 9 operations. Nausea continued 15 h. Slept pretty well, though sick and awake in n. Little desire for food until next d., and not inclined to get out of bed. Pulse during continuance of nausea was feeble and less frequent than natural. (*Ibid.*)

II. *Poisonings*.—1. A boy, æt. 6, after eating about 5 or 6 oz. of colch. seeds and capsules when playing in a meadow, complained on returning home, e., of headache, pains in r. wrist and throat. Then there came on a scarlet rash all over body, trembling of limbs that went on to an attack of violent convulsions about 8 h. after taking the drug. The convulsions lasted $\frac{1}{2}$ h. and quiet sleep ensued; 3 h. later the convulsions were renewed in the same way, and ended in vomiting of 3 or 4 oz. of chewed, dirty green vegetable matter and 1 to 1½ oz. green fluid. Next m., 15 h. after poisoning, he was very restless, complained of pains in forearms which were very sensitive to the slightest touch; skin leaden coloured, dry, hot; nose, cheeks, and soles cold; pupils dilated, consciousness oppressed; pulse not to be felt, several h. later threadlike, trembling; hardness of hearing, carphologia, unconscious urination, paralysis of r. leg and l. arm, head fell backwards. An emetic brought away seeds and pods of colch. The 3rd and 4th d. there were carphologia, grinding of teeth, unequal breathing, involuntary passage of stools and urine; but he heard better, the temperature of skin was more natural, and the skin a better colour; increased strength and diminished rapidity of pulse, pupils less dilated. On 5th and 6th d., l. sclerotic slightly reddened; on cornea a sharply defined white spot, in anterior chamber some purulent fluid deposited, a capsular cataract commencing. Energetic treatment and tranquil sleep during n. brought some improvement. On 7th and 8th d. the purulent effusion in anterior chamber was diminished, the sclerotic less inflamed, the spot on cornea gone. But the l. elbow and knee-joint were swollen, hot, painful, the r. side

half paralysed and nearly insensible, hearing again gone, grinding of teeth, tongue covered with thick, brown, dirty coating; thirst increased. After a long sleep in the n. of the 9th there was a recurrence of the gastric symptoms, the fever, arthritis, and scleroticitis. But the r. side was completely paralysed and its sensibility very small, only the toes were drawn inwards towards soles when touched ever so slightly; spinal paralysis, the head fell backwards when the child was raised, the mouth was drawn wide open. Pulse 190. The cornea appeared very convex and pointed, as if by the enlarged opaque lens being pushed forward towards iris and pupil. On 10th d., m. and noon, there occurred convulsions of l. side and facial muscles for 15 to 20 m.; grinding of teeth lasted all d. with short intervals; both eyes were always directed towards the sun's light, temperature of skin diminished, pulse 180. The swelling of elbow and knee gone, the eyes seemed to be better. Same report for 11th d. On 12th d. the hearing and sight improved, he could support his head and muttered some incomprehensible sounds. L. thumb turned inwards, urinary secretion much increased. Pulse from 185 to 190. L. eye had almost regained its normal state, only there was dimness of pupil. On shutting and quickly opening lids a yellowish flocculent membrane continually flickered round the edge of the pupil, which was of normal size, but dilated sluggishly and contracted quickly. On 13th could drink water but could eat nothing but sugar. Teeth and tongue again covered with brown sordes, sclerotic again red. The membrane in the l. eye had fixed itself immovably in anterior chamber; it appeared about 2" long and $\frac{1}{4}$ " wide. In posterior chamber the lens was perceived opaque but smaller than before, the brown iris dim and obliterated, the pupils extremely sensitive to light; this symptom declined the following d. The membrane had fallen to the bottom of the anterior chamber. The lens had a greenish hue. The 15th d. the boy ate some cake and drank 2 cups of coffee which caused vomiting. But the grinding of teeth which had diminished again returned. The sclerotic was less red, the membrane absorbed, the iris had recovered its dark brown colour, its excessive sensitiveness was gone. The lens had the colour of verdigris. Pulse small, hard, 180 to 185. Much diabetic (?) urine was passed every $\frac{1}{4}$ h. The next 9 d. the state remained unaltered, but he could take nothing but a few spoonfuls of coffee; milk was vomited. He grew extremely thin. On the 25th d. the green-coloured lens seemed to have receded more into the depths of the chamber. 26th d., there was only some cloudiness towards inner angle, which was gone by the 28th. On 29th grinding of teeth returned with convulsions of l. side and of both eyes. Tongue white, skin hot and dry, r. arm lay motionless on chest, the thumb turned in, the other fingers tightly closed over it. Consciousness gone. The 30th d. he drank a glass of wine sweetened with sugar and some coffee without vomiting. On 32nd d. vomited everything he took, arms and legs and fingers spasmodically contracted, L. hand trembled. Eyes rolled convulsively. Abdomen felt doughy, not distended, but painful on slight pressure. L. sclerotic again red, and in bottom of posterior chamber a slight cloudiness which seemed to belong to vitreous; l. pupil contracted, r. dilated, both lids wide open. Pulse thready, 190

to 195, strong palpitation of heart. Till the 44th day the breathing was irregular, the convulsions more frequent, spreading over cervical and facial muscles; lower jaw firmly pressed against upper. Foam at mouth. These symptoms went off during next m., but the r. eye turned incessantly in a semicircle, while the l. eye was always in slight convulsive movements directed towards inner canthus. Both were little sensitive to light, l. iris again discoloured, r. pupil moderately dilated, l. extremely contracted, the white spot again in the cornea, but the inflammatory redness of sclerotic gone. Nostrils dry and blackish. Cheeks and chin alternately leaden coloured and bright red; face covered with sweat, breathing easy and uniform; skin very dry, abdomen doughy; r. arm could not be extended, l. arm could not be flexed, both feet drawn up, the soles in form of semicircle, the toes spasmodically drawn towards soles. The body extremely emaciated, pulse and heart's beats scarcely to be felt; each d. the same quantity of diabetic urine passed, and the bowels were moved. The spot on cornea gone on 49th d. On 50th d. the most violent convulsions of all parts of the body, except the paralysed r. side, came on. The spine was much affected. The head was bent backwards, the spine forwards, the abdominal muscles were drawn up, the abdominal integuments drawn tightly against lumbar vertebræ. At 3 p.m. death ensued. (*SCHILLING, Heidelberg Med. Ann., 1840, vi, 591.*)

2. A workman took at 7 p.m., Oct. 31st, 1 oz. of tinct. sem. colch. (from about 1½ drachm of seeds). After 5 h. oppression and violent pressure in scrob. cordis, feeling of constriction in chest, dyspnoea, great burning in mouth, difficulty of swallowing, alternate heats and chills, anxiety, violent vomiting and diarrhoea. He was 18 h. without medical aid, except that he drank in the m. chamomile and elder-flower tea without relief.—Nov. 1st, 1 p.m., he lay in bed, countenance sunken, pale, anxious expression, eyes surrounded by deep-blue circles, pupils contracted, swallowing difficult, with pain along œsophagus, tongue moist, forced yellow. No tenderness of abdomen. Pressure on it caused difficulty of breathing and increased anxiety. The vomiting continued violently, and brought up much yellowish-green water (probably the teas he had drunk). The diarrhetic stools had a very bad odour, they were orange-yellow slimy fluid, with many large bright yellow flakes, no fæces. Unquenchable thirst, desire for cold drink, cold skin, coldness of extremities, contracted spasmodic pulse, 80. He was treated as a case of cholera with emollient and narcotic medicines, he having concealed the cause of his malady. At 10 p.m. he confessed what he had done. He then got vinegar and water, and the other medicines were continued. His symptoms after this were not purely attributable to the colch. He gradually sank. A curious symptom was great pain in the heels which lasted till his death. He remained conscious till death, which occurred after 39 h. (*Med. Zeit. v. Ver. f. Heilk. in Preussen, 1834, No. 29.*)

3. A man, æt. 52, took at 9 p.m. by mistake for a cough mixture a decoction of a big tablespoonful of seeds. After ½ h. felt rumbling and griping in bowels; some diarrhoea alternately with vomiting repeated about 15 times. Next d., at 8.30 a.m., the doctor found him

in bed, countenance not altered, quiet, but rather anxious. The vomiting and diarrhoea were gone, felt very weak; when touched the stomach is spasmodically contracted, pulse small, rather quick. Stools have a very fetid odour, are rather watery, and contain white flakes. He got warm water and butter, which caused a recurrence of the vomiting and diarrhoea. He then got coffee and decoction of marsh-mallows with lemon-juice. He felt pretty well after this. But next d. he looked pale, breathing hurried, he coughed and groaned, voice hoarse, eyes lay deep in head, pupils very dilated, frontal headache. The tongue protruded with difficulty, it was covered with white fur, gastric region painful, face and extremities cold, pulse quick and scarcely to be felt. Stools contain some bright blue matter. Mind confused, paralysis set in, followed by death. *P.M.*, 23 h. after death, showed great stiffness of all limbs and muscles, the muscles of a dark brown colour. On abdomen peculiar spots, increasing on both sides towards back, of violet colour with a shade of green, not circumscribed, but shaded off and of a streaky character. Inflammation at the junction of bronchi with trachea. Lungs normal. Little fluid in pericardium. On upper and posterior part of heart large black, violet and blue spots, in the shape of clouds. In heart's cavities much coagulated blood like wagon-grease. Inflammation of œsophagus after passing through diaphragm, very distinct inflammation about cardia, which was of a dark violet brown colour. Peritoneal covering of stomach bright violet, its m.m. dark violet, its veins congested with black blood; the liver on its under surface, especially towards stomach, was violet. Mesenteric veins full of black blood. Small and large intestines showed reddish-brown colour of their m.m. (NEUBRANDT, *Würt. med. Corresp.*, x, No. 3.)

4. A child, æt. 2½, ate some seeds; seen next d. The doctor learned that the previous e. there was vomiting and watery diarrhoea, with occasional slight stupefaction. The following n. the child was running about in the room, and not till 11 a.m. did the toxic symptoms occur. The child was pale, sat on its mother's knee with wide-open eyes and stony look, bluish lips, dilated pupils, white tongue, very distended abdomen, hot skin, quick pulse, great thirst, frequent watery stools, scanty urine, restless irritable humour, sometimes moaning. Put to bed it became immediately stupefied, but could be easily roused. Eyes distorted, sometimes slight twitchings in limbs. After an emetic of ipec. vomiting of a large quantity of curdled milk. After various medicines were given the vomiting ceased after a time, but the watery stools continued, and the child became comatose, and died 36 h. after taking the seeds. After death the abdomen was very much swollen. (BALLUR, *Inaug. Diss.*, Tübingen, 1845.)

5. One drachm vin. sem. colch. daily caused great weakness, prostration, cold skin and tongue, diaphoresis, extreme thirst, contraction of chest, and dyspnoea. On 2nd d. eructation, violent pain in stomach, vomiting, increased biliary secretion, pinching in abdomen, copious yellow stools, violent diarrhoea, yellow watery stools, profuse secretion of turbid urine, sp. gr. 1034; urine like chalk and water, caused by urate of ammonia. Next d. urine acid,

cramps in legs, pulse 170, weak and thready. (*Hufeland's Journ.*, Dec., 1841.)

6. A man, æt. 60, who had suffered for 15 years from arthritis anomala, took in 1 h. 50 dr. tinct. sem. After 18 h. he felt in middle of forehead a fine pain, accompanied by peculiar excitement of cerebral nerves. His vision was unusually acute, but his intellectual powers were so weakened that he could not understand what he read. He could not speak intelligibly, and mistook one object for another. He had a difficulty in moving his tongue, which often refused to move. For a week he could not write in a connected manner, and frequently left out a syllable in the words he wrote; his thinking power was much impaired. (*Ibid.*, 1835, lxxv, 1, 101.)

7. I found on my arrival at Fort Denard in Florida a private in the Marine Corps labouring under symptoms not unlike those of Asiatic cholera. He had constant sero-mucous ejections and purgings, resembling rice-water, and thrown off with considerable force; cramps of the abdominal muscles and of the flexors of arms and legs; cold surface, tongue and breath; mottled skin and bluish nails; shrunken features expressive of great agony; sunken and watery eyes, with contracted pupils. I found that he had swallowed the d. before over a pint of vinum colchici, mistaking it for liquor. Death took place in 48 h. after ingestion. (*McPHAIL, Am. Med. Lib. and Intell.*, 1839.)

8. A bottle of vinum colchici was drunk by 17 persons, 7 of whom died from effects, of which following is a *résumé*:—In from 45 m. to 1½ h. after ingestion vomiting ensued. Contents of stomach were first rejected, then bile or mucus; afterwards a fluid similar to "rice-water" of cholera. When amount taken was great purging came on simultaneously with vomiting; but if only a small quantity, comparatively speaking, had been swallowed, action of bowels was delayed for several h. Passages were first natural fæces, then bilious stools, then "rice-water"—a very large amount of frothy, slimy secretion, compared by one patient to clean soap-suds. In no case was any blood to be found. Vomiting continued till last moments in fatal cases, and bowels were emptied involuntarily. Cramps were severe in stomach, bowels and legs. Severe pains were felt in knee-joints in some, and in 2 cases were very marked in l. shoulder,—so much so, indeed, as to be a continual cause of complaint, and to compel avoidance of lying on l. side. Rubbing was frequently demanded for relief. In the majority there was numbness from elbow to wrist, cramps of fingers, especially 2nd; in one extreme numbness of thumbs under nails, lasting 26 d. In a boy there was great pain between shoulders. Features (½ h. after) were pinched and drawn; lips and nose blue, as also lobes of ears. Eyes were congested, pupils slightly dilated; voice hoarse and husky, pain experienced in speaking. Feet and legs icy cold, as also hands and arms; rest of body had clammy feel, but was below normal temperature. Pulse rapid, 125—145, small, compressible, intermitting, and at times imperceptible at wrists, though it could be found at elbow with some trouble; temporal arteries difficult of detection, even carotids required patience to distinguish. For several h. before death arteries were almost pulseless; heart's impulse not to be felt, and its sounds

with difficulty heard on applying ear to chest wall. They might be likened to a blowing sound, to a murmur, or to a heart beating at a very great distance, or heard through a stone wall—both sounds melting into one. Respiration was full and easy, and well maintained throughout, as was also pulse-respiration ratio. The sufferers were sensible throughout and to the last. One case ended with a slight convulsive effort. All sat up before dying, falling back in an instant. No headache was complained of. Muscular strength was retained. They were all able to sit up, lift a cup to their lips, or even walk. They were perfectly sleepless. In a recoveries there appeared a pustular eruption on face and lower extremities. (Major, *Canada Med. and Surg. Journ.*, 1880.)

9. A somewhat corpulent woman of 33, habits not strictly temperate, took at 11 p.m. one Thursday nearly $\frac{3j}{\text{ss}}$ of tinct. Within 3 h. she experienced severe pain in stomach, with vomiting, first of food, then of thick bile; thereupon followed bilious diarrhoea, stools growing thinner, and mixed with small white membranous fragments. This continued more or less all n. On Friday m. patient complained of numbness in feet and hands. To this succeeded a pricking feeling, as if (so she expressed it) they had been asleep. All joints of fingers and toes, and also wrists and ankles, were very painful, and toes and fingers were painfully flexed at times. Pain in shoulder-joints succeeded, and, on Saturday, in hips and loins. It was also increased in intensity, so that she said she thought she should go mad. Ultimately almost all the bones and joints were affected with pains, which were of a gnawing dragging character. Just before these symptoms were at their height, very profuse sweats came on, and were of a very sour odour. I may mention that to the pains in the joints were added, on Sunday morning, great stiffness and pain in back of neck and occiput, which was aggravated by moving head; there was also a feeling as of something tightly bound round head; and on moving tongue and in swallowing she experienced sharp pain about root of tongue. She asked me if she had not got rheumatic fever. The pain in the joints continued exceedingly severe long after vomiting and purging had ceased; it was still so on Tuesday. (HENDERSON, *Land. Med. Gaz.*, 1838-9.)

10. Six persons drank from a bottle containing tinct. sem. colch. under the impression that it was brandy and bitters. Two soon died after vomiting and purging. *a.* A boy, *æt.* 15, was the following day in "a paralysed state" but quite conscious. Brought to the hospital his symptoms were: cold extremities, pulse weak, between 80 and 90; appearance of great suffering, face very pale, lips but slightly red, tongue normal. Abdomen fallen in, gastric region painful also to touch. Sensibility and motility normal. Expression of face showed great suffering, thighs drawn up, still inclined to vomit, great exhaustion, violent abdominal pains. Consciousness clear, pupils normal, n. very restless, repeated stool, no vomiting. Collapsed features, pulse scarcely to be felt or counted, quite cold extremities, sopor, death. *P.M.*—Sunken eyes, stomach filled with sour yellowish fluid, m.m. of cardia easily detached, gall-bladder full, bladder full of urine, vena cava ascendens filled with thick, dark, cherry-coloured blood, r. ventricle of

heart full and l. ventricle partially filled with dark blood, also large blood-vessels, cerebral membranes distended with blood, also vessels of cerebrum and cerebellum, sinuses unusually full.

b. A man, æt. 44, when admitted to hospital had marked paleness of face and of visible m.m., deep-lying dull eyes, expressive of great suffering, great collapse, temperature of skin diminished, skin feels moist and clammy like that of a cholera patient, pulse from 80 to 90, small and weak, abdomen flat, little pain when pressed strongly. Stools yellow, bloody, liquid; at n. vomiting of whitish-grey fluid and several dysenteric stools. Next m. pulse 108, small, scarcely perceptible, irregular and intermitting, temperature of extremities lowered, abdomen slightly painful to pressure; suppression of urine for 24 h., bladder not distended. No sleep, no appetite, much thirst, great prostration, headache all n., perfect consciousness, died at 1.45 p.m. P.M.—Stomach filled with a sour fluid like curdled milk; its blood-vessels full, kidneys congested, vena cava ascendens distended with thick, dark, cherry-coloured blood, heart distended with dark blood, cerebral membranes congested.

c. P.M. of man, æt. 30, who was not observed during life. Stomach shows network of blood-vessels, its inner surface scarlet red, is distended with a sour greenish fluid, gall-bladder empty, on outside of small intestines numerous rose-coloured spots. Kidneys unusually full of blood, bladder contains about a tablespoonful of acid urine. Vena cava ascendens much distended with thick, cherry-red blood, r. ventricle full of dark blood, very little in l. ventricle. Cerebral membranes distended by blood, also substance of the brain, sinuses filled with dark blood.

d. A boy, æt. 14. Eyes stand open, bluish lips; small curvature of stomach with distended blood-vessels, stomach filled with acid fluid, m.m. pale, its posterior surface presenting small purple spots; liver full of blood, gall-bladder full; both kidneys much congested, bladder filled with acid urine; vena cava ascendens filled with dark red blood, both ventricles of heart filled with dark blood, also great blood-vessels; cerebral sinuses filled with blood, cerebrum very full of blood. (*Caspr's Viertelj. f. gericht. Med.*, vii, 1, 1854.)

III. *Experiments on animals.*—1. a. 30 dr. of a vinous infusion of C. diluted in 3j of water was injected into the jugular vein of a moderately-sized dog. The pulse was 140 in its natural state. In 5 m. dog had tremulous motion of muscles with fluttering of pulse, accompanied with nausea. In 14 m. p. 180, with frequent intermissions. In 4 h. p. 120, of natural strength and frequent intermissions. In 7 h. a natural motion; p. 140, no intermission. At end of 3 d. same dog swallowed 60 dr. of same infusion. In 2 h. he was languid, pulse wiry and weak, 140. In 4½ h. less languor, p. natural. In 8 h. natural motion, in 11 h. well.

b. Into the circulation of another dog 160 dr. of same infusion were injected. The animal instantly lost power of voluntary motion, respiration slow, and pulse hardly to be felt. In 10 m. pulse was 84; inspirations natural, 40. In 20 m. p. 60, inspirations 30, and a tremulous motion in hind legs. In 1 h. p. 115, irregular; animal in state of violent tremor, inspirations could not be counted. In 1½ h. tremor

gone; p. same; ineffectual attempts to vomit for 10 m., accompanied with great languor. Inspirations 54. In 2 h. p. 150, very weak; 1½ oz. urine voided, 2 liquid stools, and twice vomiting of a quantity of mucus tinged with bile. In 3 h. vomiting again, and another stool; p. too weak to be counted. In 4 h. very languid. In 5 h. vomited bloody mucus and died. On opening body stomach contained mucus tinged with blood, surface of duodenum was universally inflamed, less so that of jejunum and ileum, but that of colon more so than that of ileum. (Sir E. Home, *Philos. Trans.*, 1816, pp. 259, 263.)

Colchicinum— $C_{17}H_{19}NO_3$.

I. *Proving*.—1. HEINRICH took 0.05 grm. of colchicine, and soon after experienced eructations and great nausea, with augmentation of saliva. Nausea lasted some h. even after supper, which was taken without appetite. Pulse fell gradually, 11 pulsations in first 2 h. Eight d. later took 0.02 grm. in a wafer (½ past 4 p.m.). No change in pulse for 2 h. Until 8 p.m. no symptoms except eructations and slight ptyalism; supper without appetite. After 10 p.m. broken sleep, from which he was woke at ½ past 1 by painful dreams. Desire to go to stool, but he had scarcely left his bed when nausea increased, and vomiting came on for 2 m., at same time soft and copious stool with violent griping. These symptoms recurred three times at short intervals. The first vomited matters consisted of undigested dinner and supper, then a greenish-yellow, bitter liquid. Slept from 3 till 6, then vomited and evacuated abundance of mucilaginous, greenish-yellow liquid. Vomiting ceased from that time, but eructations, nausea, and total loss of appetite lasted for 4 d. Only a little cold water taken on first d., and on the others a little soup. Abdomen was tympanitic, sensitive, and gurgling. On 2nd d. two stools, on 3rd one, and on 4th three, accompanied with griping, and containing, particularly on 2nd and 3rd d., flocculi like white of egg. Weakness, considerable on 1st d., increased on appearance of febrile phenomena. Was obliged to keep his bed 1st d., and only left it with difficulty on the others. Fever commenced about middle of 1st d., shivering followed by great heat lasting several h., with thirst, much accelerated pulse, cerebral distress, agitation and want of sleep. Sensibility of abdomen disappeared only on 4th d. Urine was thick, and had an abundant white deposit; its quantity could not be determined. (SCHROFF, *Zeit. f. prakt. Heilk.*, 1856.)

COLLINSONIA.

Collinsonia canadensis, Willd. Horse-balm. Nat. Ord., Labiatae.

I. *Proving*.—1. Dr. BURT, in perfect health, on April 27th, 1866, took ʒss of 3x dil. (aqueous). In ½ h., dull pain over eyes, pressing in s. temple, distress at umbilicus and eructations of air. At 12, dull frontal headache, with tearing pains in both knees, passing down inside of legs to feet while sitting; neuralgic pain in upper jaw when in open

air. At 2, same headache, with frequent "rheumatic" pains in arms, hands and legs. At 3, dryness of nostrils, with frequent sharp pains in r. temple, and dull aching distress in stomach and bowels. At 4, sharp cutting pains in stomach for 5 m. while sitting down. No more symptoms. 28th.—Slept well, but feel languid. At 10, repeated dose. At noon, dull frontal headache, with frequent flying pains in legs; slight nausea, with distress in stomach and bowels. Great lassitude, with desire to sleep all d.; no stool. Wake next m. with dull headache, and same lassitude and drowsiness, which lasted all d.; no stool. On 30th, took ʒss of 2x dil. Languor and constipation followed. On May 1st, took 20 dr. of tinct. At 7 p.m., light-coloured lumpy stool, with hard straining, followed by dull pains in anus and hypogastrium for ¼ h. At 9, great nausea, with hard, cutting pains in hypogastrium, and frequent emissions of flatus; lasted 1 h., when he went to sleep. Awoke twice in n. with sharp cutting pains in hypogastrium, with which at 4 a.m. was great desire for stool. Stool was in first part hard and lumpy, in last thin as milk, with severe nausea, straining, and faintness. Pains continued for 15 m., when there followed another copious watery stool, with same symptoms as at first. Returning to bed, slept 1 h., when he awoke with same symptoms. Tongue now coated yellow along centre and base, with rough, bitter taste in mouth; feels very weak and faint; face quite yellow round eyes. Since last stool pains recurred every 10—15 m., so hard that he was compelled to sit down each time, and became very faint; stool of yellow faecal matter, mucus, and about ʒj of blood, with tenesmus. At 10, small stools of mucus and blood, with tenesmus and hypogastric pains. At noon, same, but some bile in stool; dull distress in r. hypochondrium; urine high coloured and scanty. Nausea while sitting, with cutting pains every few m. in whole hypogastrium. Some pains and occasional stools during later d.; feeling weak. Slept well; pappy stool at 7 p.m., preceded by dull pains in small intestines. At 10 p.m. dull umbilical pain for 5 m. 4th.—Mushy stool at 8 a.m. No more stools for 3 d., then natural stool. (HALLE'S *New Remedies*, 2nd ed., p. 259.)

2. M. M. DOWLE, M.D., took 1½ teaspoonfuls of powder. In ¼ h., while supping on potatoes and milk, felt warmth in lips, and simultaneously tense pressive headache at l. supra-orbital foramen. Ten m. later headache scarcely felt, but warmth spread within lips with sense of enlargement of parts and as if innumerable needles were darting to and fro in them. Same pricking, with numbness, spread over whole face, which seemed to grow broader and broader. Tongue was unaffected, but mind felt pleasantly exhilarated. Numbness with weariness now invaded arms (first r., then l.) from elbows to tips of fingers; balls of thumbs especially numb. Felt nausea, and thought he must vomit. No better in open air. Lay on bed for 5 or 10 m.; lips seemed growing larger; head do.; face flushing and pricking; forearms "fast asleep," hands feeling twice their size. Uneasy; got up and sat by stove; shut house up, feeling sick, faint, and giddy while doing so. Breathing natural; but pulse under finger would withdraw like a thread, and then return with more volume. Hot things seemed to intensify

symptoms. *Nux vomica* was then taken as antidote. Face returned to natural, feeling with each dose; the drug disorder seemed to pass away from above downwards; balls of thumbs only persisted in their numbness, r. feeling somewhat unnatural even next d. The toxic sensations lasted from 6—9 p.m. At later h. walked out; feet and limbs felt strangely light like a deer's, and as though he could run very fast if chased. Lower extremities seemed not to belong to him. Returning home after 10 m. felt for first time strong glow in bowels, from umbilicus down to toes, and numbness with sense of enlargement invaded lower extremities from hips (save l. thigh). *Nux vomica* (1st dil.) removed this also. Urinated several times during proving, and had one lumpy stool. (*U.S. Med. Investigator*, 1876, p. 386.)

COLOCYNTHIS.

Citrullus Colocynthis, Schrad. Bitter apple or cucumber. Nat. Ord., *Cucurbitaceae*.

1. *Proving*.—T. HAHNEMANN, *Materia Medica Pura*, vol. vi of original, vol. i of translation. Contains 26 symptoms from self, 195 from 6 fellow-provers, and 29 from authors.

2. *IBID.*, *Chronic Diseases*, Part 3 of original, vol. of translation. Contains a few additional symptoms only, from self.

3. Dr. ARNETH, æt. 25, choleric temp., strong and healthy.

4. In Nov., 1842, took increasing doses of tinct. up to 25 dr. from 1st to 13th, without result. On 14th and 15th took 45 dr. twice daily. From 16th to 23rd, without repeating medicine, had (contrary to habit) two pappy stools daily, with slight abdominal griping. Stools having become natural again on 24th and 25th, on 26th took at 1 p.m. 50 dr. Pappy stool that e. and next m., and abundant urination, were only results. 27th.—70 dr. At 11 a.m. increased urine, and on following d. there was griping in epigastrium after each meal, worse towards e., and pretty severe drawing in l. testicle for ½ h. 29th.—80 dr. at 2 p.m. Next m. furuncle on face, and on Dec. 2nd another on back. Both disappeared in a few d.

5. All traces of former action of drug having disappeared, A— took, Dec. 7th, m. and e., ℥j of 3rd (aqueous) dil. After it two pappy evacuations. 8th.—Repeated dose at bedtime; had scarcely got into bed before he experienced in epigastrium more violent griping than from tinct., but without evacuation following. 9th.—Same dose m. and e. After each two pappy stools. From 10th to 14th took daily ℥j of 2nd dil. about noon. 11th.—Towards e. began irritability of larynx, and voice became rough and hoarse. 12th.—Besides these symptoms, distressing dryness of air passages, and on 2 next d. sensible and unpleasant fatigue in affected parts. Remarkable aggravation after each dose. Two pappy stools daily. Foregoing symptoms having subsided, 21st—23rd took twice daily same dose. For first 2 d. only usual griping (lasting 4 d. more) and pappy stools. On n. of 22nd, in bed, drawing in r. shoulder. 23rd.—In afternoon, violent drawing pain in all teeth (quite unprecedented). 24th.—Besides the toothache (which

lasted all d.) in e. moderate tension of ant. sup. spinous process of l. ilium, which next d. changed to violent drawing, extending to groin and upper third of inner aspect of thigh, pretty violent all d., and not disappearing till 26th; with singular feeling of stiffness in l. great toe. No toothache since n. of 24th. On 26th, ℥j in e., and next d. at noon ℥iss and in e. ℥j of 1st dil. without result save for a slight conjunctival irritation not uncommon with him.

c. From Dec. 27th to Jan. 6th great inclination to looseness, often 3 stools a d. On 9th (being quite well) and 2 following d. took at noon ℥j of 4th dil. Soon after first dose violent eructations for $\frac{1}{2}$ h. 10th.—Drawing and tearing in r. shoulder-joint in m., lasting all d. Painful tension in l. patella in e. 11th.—Pain in patella so considerable that walking was painful; heat and swelling found there on undressing in e., with indistinct pulsation. Itching at anus all d.; stools natural. By 12th symptoms had disappeared; and no result could be obtained from 5th dil. (*Osterr. Zeitschr.*, i.)

4. BÖHM, æt. 40, atoning for every error of diet by a violent fit of colic, took on several occasions small increasing doses of tinct. Up to 3 dr. no effect was noticed, but whenever dose exceeded this there came on after eating cutting in umbilical or hypogastric region, with tenesmus or fluid stool. On Oct. 3rd he took 12 dr. in forenoon. Soon afterwards slight colic in umbilical region; little appetite at noon; violent eructation after eating, cutting in hypogastrium, and fluid stool with tenesmus. Cutting and tenesmus lasted till in e. he got warm in bed. Slept well, and felt well on waking while in bed; but soon after rising had fresh attack of umbilical colic and frequent eructations. On going out felt very weak; had little appetite at noon; fluid stool after eating, with discharge of flatus and painful feeling in abdomen whole afternoon, only removed (as before) on getting warm in bed. These symptoms were daily renewed till 13th, when, after cocculus taken as antidote, they rapidly disappeared. (*Ibid.*)

5. FLAUSCHMANN, æt. 41, strong but gouty, took on 1st d. 5 dr., and on 2nd d. 10 dr. without effect. On 3rd d. 15 dr.; violent griping in umbilical region all d., feeling of coldness in abdomen, looseness of bowels. These symptoms lasted with more or less intensity for several d., and he took no more for three weeks. Beginning then again with 10 dr., besides previous very troublesome symptoms he had discharge of blood from anus, which continued for more than a year afterwards, with violent sticking and burning pain in small of back and anus. Before this proving he had never had anal hæmorrhage. (*Ibid.*)

6. FRÖHLICH, æt. 32, liable to furuncles on face, laryngeal catarrh, constipation, and hæmorrhoids. Nov. 21st.—Took 5 dr. at 6 a.m. and 10 dr. in e. without effect. 22nd.—10 dr. in m., fasting. At 1.30 p.m. umbilical colic, with painful stitches in bladder, subsequently alternating with same in rectum, disappearing on discharge of flatus; also transient headache, feeling as if temples were screwed into, with heaviness of eyelids without sleepiness. Symptoms disappeared after café noir. Copious urination during d., and one soft but not copious stool. 23rd.—Woke with slight griping round navel; took 20 dr., and in $\frac{1}{2}$ h. had loud rumbling and discharge of flatus; griping round navel,

increasing after fruit; stitches, transient in upper jaw, frequent in l. flank and along outer border of l. sole; cramp-like drawing in r. calf. These symptoms lasted all d., and did not diminish after coffee. At 7 p.m., 20 dr. N. quiet, but all next d. (which was foggy) he felt uncomfortably chilly and had continual griping about navel. In e. very weak; sacrum and lower limbs painful as after a forced march, and a tearing-sticking pain encircled r. inner malleolus. On e. of 24th took 20 dr., and on following m. 25 dr. After some beer at 11 a.m. violent griping, coming on in paroxysms and only disappearing after dinner. In e., 40 dr. At 3 a.m. awoke by violent constrictive pain in umbilical region, lasting 15 m. No med. or symptoms till 28th and 29th, on which d. he took 40 dr. in m., fasting. In forenoon, griping and slight urging, both much increased after dinner till 4 p.m., with 2 stools, second having mucus in it. On 30th took 60 dr. in m., fasting, and 40 in e. Same abdominal symptoms, but less marked; in e., painful lassitude in sacrum and lower extremities; flying stitches in humeri. Dec. 1st.—Pain in ankle while walking, as if from a false step, ceasing at rest; feeling of stiffness in hands, continuing longer. 2nd—7th.—Stitches in ankle; tearing in shoulder; occasional deep stitch in l. flank; weary feeling in sacrum and viscid soft scanty stool every 3 d. (*Ibid.*)

7. A young woman, slightly chlorotic, took April 29th 2 globules of 3rd dil. Soon, inodorous eructations and unusual discharge of flatus; later, drawing-tearing pains in whole abdomen and in finger-joints of l. hand. May 1st.—Three globules. Same eructations; drawing in nape and dorsal muscles. 3rd.—Same; pain in sacrum; tearing drawing in both thighs and in l. arm down to finger-joints. 5th.—Four gl. Drawing in l. hypochondrium; tearing in l. calf as far as heel. 9th.—Six gl. Stitches deep into abdomen; tearing in joints of l. hand.

Similar doses, with similar effects, were taken every 3 or 4 d. till June 6th. Symptoms generally appeared 6—7 h. after dose, lasted 9—10 h., and even manifested themselves slightly on following d. (*Ibid.*)

8. A sister of the above took same dose, with corresponding effects. She had, however, more frequent isolated deep stitches as from a needle, sometimes in r. sometimes in l. flank, apparently connected with ovaries. Neither experienced any other symptom connected with genital system. (*Ibid.*)

9. Dr. GERSTEL, æt. 38, stout, full-blooded, in good health, save that he is liable to dyspeptic difficulties, cramp in stomach, and diarrhoea (after taking cold in feet), besides slight rheumatism, permanent palpitation, and moderate hæmorrhoidal bleeding every 4—8 weeks.

a. Nov. 20th, at 4.30 p.m., took 15 dr. of tinct. $\frac{1}{4}$ h. after a moderate dinner. A few m. after dose a slow stitch on r. beneath navel; soon after on l. of navel; colic only perceptible when walking, disappearing when standing still or even when going downstairs, but returning on walking on a level; drawing in upper r. teeth, with feeling as if upper lip was swollen; constant ringing in r. ear; slight inflation at epigastrium with pulsation in sacrum, ameliorated by emission of flatulence; general hot flush, especially in face, with sweat on forehead; constriction round middle of l. leg as if from a narrow

ribbon; free discharge of flatus. All these symptoms appeared within 1½ h. On 22nd took 25 dr. in m., fasting, but after usual stool. Soon after dose rumbling in abdomen and deep-seated pulsation in it, not perceptible to hand laid upon it; sticking in pubic region; transitory tickling itching on thigh, and same repeatedly in face, shoulders, flanks, as well as at extremity of glans penis, with tendency to urinate; feeling of numbness down outer side of r. calf as though in track of nerve, increasing to sensation as if nerve were swollen, passed into dull pressive constriction, and slowly disappeared; soon after same feeling in great toes; constrictive pressure in dorsum and ankle of l. foot and in r. upper arm. All these symptoms appeared in course of 2 h. while lying in bed. Half an h. later griping in hypogastrium, going off in stitch towards l. pubic region, with rumbling and sense of inflation; immediately after, dulness of r. head, especially temple; numbness of r. forearm; dull stitches of l. leg; yawning; lassitude; copious urination. On 23rd, at 7 a.m., fasting, 40 dr. A tearing in l. nape, experienced yesterday before taking drug, aggravated during its action and then entirely disappearing, becomes again excited; sticking pressure in various parts of body; some swelling of abdomen about navel, accompanied by slight dulness in forehead and temple; sensitiveness of incisors; unusual thirst; burning in urethra after urinating; burning and sore pain with moisture at anus as if after diarrhoea, and stitches in rectum. At 11 p.m., just before going to bed, 23 dr. Immediately, pressive pain in vertex and l. eye; colic with violent borborygmi; copious discharge of flatus; drawing twitching with dull throbbing in l. iliac region, and in r. loin over crista ilii towards buttock; pressive pain on both eyeballs from above downwards; burning of under lip; prickling at end of glans; heat, especially in upper part of body. He fell asleep about ½ h. after dose. Once when he awoke in n. he felt unusual warmth over whole body, especially in upper limbs. 24th.—In m., soon after waking, sticking-drawing pains, now here, now there; usual normal stool, soon followed by one of pappy consistence, and this by burning in anus, and at same time prickling in orifice of urethra after micturating. Towards noon, colic only when walking, disappearing every time he stood still; pain, starting from upper abdomen, when more severe extended upwards towards chest, and then became constrictive, sensibly aggravated by any shock (as violent hawking); bowels painful on strong pressure on abdomen, as if excoriated; unusual thirst; another pappy stool. Soon after dinner, when walking in open air, oozing at anus and discharge of moisture from rectum instead of expected flatus; oozing continued whole afternoon; at 6 p.m. another pappy stool, with much mucus, and subsequent burning at anus. Soreness of abdomen continued all e., accompanied by thirst and early sleepiness. At n. very sound sleep. 25th.—Dulness of head early in m., especially in frontal region, with unusual weakness of memory. Normal evacuation. Frontal headache returned in forenoon when walking. Towards noon, after violent exercise, colic of yesterday returned, less violent, with dull pain in r. temple, aggravated by stooping, and gloomy mood. Finally, strong heat rising from abdomen towards chest, ending in partial sweat on abdomen and chest, with prickling at, and oozing from,

anus, and very copious urination. Some slight intimations of colic were perceived, principally about noon, on next 2 d.

5. On Dec. 25th, 60 dr. at 7 a.m. He had had for 2 d. some catarrh, with swelling of *r. ala nasi*. Immediately after dose moderate epigastric pinching; frequent empty eructations; dryness, heat, and roughness in throat (continuing till afternoon), with constant hemming; dulness of l. head, with pressive-burning pain in l. face and forehead, and feeling as if eye and nose were swelling (clearly marked and lasting); stitches above *r. eye*, with itching of scalp. Soon after breakfast, when walking rather rapidly, some vertigo; frontal dulness; constriction and pressure in l. cheek, extending into eye; warmth in abdomen, increasing to griping and ending in sweat; burning on tip of tongue, for several h.; slight burning and moisture at anus, after diarrhoea; prickling stich like lightning from point of glass through abdomen to l. flank. Towards noon, while walking, some colic with inflation (clothes tight). Immediately after dinner, pappy stool, with horripilation over head and back; soon after, while lying down, pain and rumbling in abdomen, with urging to stool and general horripilation; in $\frac{1}{4}$ h. watery stool with griping, followed by continued and almost irresistible tenesmus. He became exceedingly sensitive to the damp weather. Legs were unusually weak; it was hard work going upstairs. On waking during n., tearing in l. tibia and ankle. In m., empty eructations; stool soft, pappy, leaving tickling in rectum; subsequently sensation of ball as large as fist rising up in pharynx, with oppressed respiration. In afternoon, continued sensitiveness, and griping and commotion in abdomen for several h.; another pappy stool after eating, with subsequent burning at anus and cramp in l. calf. Exceedingly increased sexual impulse for several d.

6. Dec. 26th.—80 dr. of tinct. at 5.30 a.m. In course of 7 $\frac{1}{2}$ h., while seated and quietly employed, he experienced empty eructations, sometimes amounting almost to sobbing; nausea, with scraping in throat, former departing after drinking water; frequently recurring sharp pinching at epigastrium, with slight frontal dulness; constant roaring and throbbing in both ears, especially l.; palpitations, and pulsation in whole body, most felt in back and l. chest; itching with smarting and burning at various spots, especially of l. side; prickling over *r. cheek-bone*, as if eruption would come out, and exceedingly painful sticking burning on edge of l. upper eyelid; sneezing; pressing and dull throbbing in l. temple, with similar sensation about l. shoulder, and itching of scalp; toothache on l. side, with twitching extending into l. arm as far as elbow; pressure on temple grew gradually acute and cutting; troublesome pressure on l. scalp, increased by turning, as in rheumatism; aching in l. sacro-iliac commissure, with formication in l. sole, afterwards in *r.*; paralytic pressure in whole l. arm, and fine shooting in skin in back of hand; persistent pressure in *r. malar bone* and eye; heat and swelled feeling in roots of *r. lower teeth*, similar sense of swelling in arms; heaviness and oppression in sinuiput; intimations of vertigo and nausea; burning on dorsum of tongue; urgency to micturate. Immediately on taking only a few steps into room, pain in bowels and excitement of *r. toothache*; on sitting down again,

pressing inwards and dull throbbing in r. lumbar region; palpitation; feeling in r. foot as if asleep; pulsation in l. popliteal space; rumbling in abdomen; flying pains in l. side of epigastrium; burning at anus. Subsequently, constant crawling and itching on whole l. side of head; continuance of r. toothache; dulness in forehead; feeling of warmth in r. ear; burning on fore part of tongue; burning and feeling of swelling in under lip; scraping and burning in throat and hard palate (as from pepper); frequent erections. After 5 h. urgent inclination to stool, almost irresistible, and—in quick succession—two loose motions, with sore pain in bowels, better on bending forward, worse when upright; frequent yawning; weariness of thighs, especially noticed when going upstairs; legs feel as if asleep; moisture at anus and perinæum. Burning pain at stomach, even when eating; chills after eating, especially in upper arms, and repeated yawning. Pain in stomach and tongue, and eructation, continued all d. and grew worse towards e., when another yellow, pappy stool took place, with griping; abdomen continued tender and inflated even after the evacuation; little appetite at noon, none in e.; frequent micturition. 27th.—In m., pressive spasmodic pain in stomach, rising into throat; sense as of foreign body in throat, as though he had to swallow over a lump; pappy, but otherwise normal, stool. Burning on tongue and eructations continued all d., but less intense; moisture in perinæum all forenoon; want of appetite in e., with nausea and malaise after eating; sleep disturbed by frequent waking. 28th.—Better feeling and appetite at first; towards e., burning in tongue and stomach again; empty eructations, causing burning in pharynx; twitching in l. 5th and 6th ribs; in all upper teeth fine shooting and drawing, varying in intensity, with aching in l. orbit, and some peppery sensation in mouth. Subsequently, sensation as of a coil in stomach and pharynx; sobbing eructations; salt taste of mucus hawked up; burning in stomach; pressing in abdomen; discharge of much flatus; prickling and crawling on different parts of body; feeling of numbness, swelling and heat in l. foot, gradually invading whole leg, with itching and tickling, and lasting some time; pressing throbbing pain at inner and upper part of l. leg, extending along back of thigh to ischium (when sitting and walking). 31st.—The scalded feeling at tip of tongue, gastric troubles, occasional eructations, diminished appetite and depression of spirits have continued, with e. exacerbations. To them was added a frequently-repeated throbbing, finally twitching pain in r. upper arm at insertion of deltoid, whence it extended through shoulder towards upper teeth, and as far as temple and vertex; pain seemed to pressure, and after its frequent recurrence arm there became sore to pressure. Every exacerbation, without exception, began with burning at apex of tongue. The gastric pains were always accompanied by pains in face and teeth. It was particularly observed that the symptoms appeared in groups, and were aggravated in e. and during rest. (*Ibid.*)

TO a. Dr. HAUSMANN began, Nov. 8th, with 30 dr. of tinct. After 6 h., symptoms appeared in following order:—continual tensive pain in bowels which feel as if they had been gathered into a ball, had fallen down, and now lay like a pressive weight in hypogastrium, with

also sense as if anterior wall of abdomen were wanting, and bowels would fall out forwards; occasional urging at anus as though a quantity of feces were about to be discharged, with escape of only a little fluid mucus; diffusion of pleasant warmth, which seemed to deprive limbs of strength; weakness of all joints, especially knees and elbows; disinclination to bodily or mental exertion, even to visiting his dearest friend; pressing pain in r. hypochondrium, at arch of diaphragm, oppressing breathing. Nothing being felt on 9th, on 10th H. took 3ss at 12.30 p.m. In $\frac{1}{2}$ h. sudden violent pressure on bladder, which was full, passing off as rapidly on emissions of abundant flatus in rapid succession, driving before them some mucous fluid. These emissions of wind frequently recurred in midst of following symptoms:—noises as from breaking of large bubbles in various parts of abdomen; frequent urging towards anal sphincter which caused at once an escape of slightest quantity of wind or mucus; pressure and tension at occiput, worst at inferior lateral protuberances. 11th.—Very slippery, soft stool about 11 a.m., tensive pressure over whole forehead during its evacuation. Same symptoms as before, p.m., vesical alternating with rectal tenesmus; finally, entire relaxation for an h., during which he was incapable of bodily or mental exertion. Spasmodic yawnings occur continually. 12th.—About middle of forenoon both last symptoms return. Sudden shock (from behind forwards) through hepatic region and then through head. Sensation at anus, as if successive slippery bubbles were escaping; and while walking discharge of much flatulence, causing rectum to vibrate. 14th.—Took a.m. ʒj of tinct. At noon, after continual gentle urging and much easy flatus, a rapidly passing stool. At 1 p.m. pressive pain in l. forehead, occasionally slightly vibrating, along edge of frontal sinus. Towards 4, first griping about navel, subsiding, then returning as cutting as if from chisel thrust deep into abdomen, thence curving into pelvis, and finally cutting its way up again. Cutting continued in hypogastrium at intervals, relieved occasionally by passage of wind or mucus, till towards 5, after a very painful pressure, a quantity of thin bland feces passed involuntarily at a single impulse, and therapeutic pains in abdomen all disappeared. In e., while in society, violent long-continued pressure on both sides of occiput. At n., much pleasant dreaming. Pressure and weight in l. forehead on waking in n., l. eyelid feeling thick and heavy; slight pulsation in l. hypochondrium. Next d., head befogged, difficulty in collecting thoughts, no interest in things. Slight exertion caused fatigue and made him perspire; morbidly sensitive to open air. Easy stool p.m.; frequent flatus as before. 16th.—While walking, drawing and tension within r. knee, several times; painful tension in r. shoulder on first walking, continuing and becoming worse from moving arm; at one time tensive and pressive pain at attachment of diaphragm, both sides. 17th.—Mist before r. eye in m., lasting several h., not removed by rubbing it. 18th.—Frequent, loud, and long-continued ringing in ears; sexual impulse highly excited. 19th.—At 10 a.m., shimmering before r. eye, in shape of circle with rays, pressure in ball in e., upwards and outwards, aggravated by rubbing with finger, ball feeling harder than natural. This lasted some d.

6. June 7th, 1863, at 1 p.m. took 100 dr. of a very concentrated tinct. From 6 p.m. he had several attacks, at short intervals, of umbilical colic, followed by liquid stool, with much tenesmus, sphincter seeming paralysed. On endeavouring to repress urging pressive tension came on in hypogastric parietes, and acute aching at angle of r. scapula, with tensive pain from thence downwards. At one time a great, white, very bright light came at side of and below line of vision of r. eye; but as he turned eyes sideways to see it, it vanished. (*Ibid.*)

11. Dr. MASCHAUER, æt. 28, took from 7th to 14th Nov., 1863, doses of 5—20 dr. of tinct. without effect, save usual colic and diarrhoea, and some constriction of, and stitches in, chest. Doses of 15—25 dr., from 20th—25th, did no more. On 26th he took 30 dr. After 6 h. violent griping and cutting about navel, increasing from h. to h.; abdomen tense, inflated, painfully sensitive to touch; some diminution of pains after 2 watery stools. During n. great restlessness and sensibility of abdomen, so that it could hardly bear lightest pressure; this continued next d. Increasing doses of 1₂ were then taken for 14 d., but without result. (*Ibid.*)

12. Dr. PUFFER took for 6 d. in succession, about noon, 4 or 5 dr. of tinct. Immediately after dose bitter taste and eructations; 1 h. later rumbling in bowels, and disturbance as if diarrhoea were about to come on, with discharge, however, only of fetid flatus. Subsequent stool was hard and insufficient. On one occasion stool, at first knotty and dry, was later diarrhetic. Sleep was broken by lively dreams and frequent call to micturate; urine remarkably increased. (*Ibid.*)

13. a. Dr. REISINGER, æt. 30, strong and healthy. Nov. 3rd, 4th, and 5th, took 10 dr. of tinct. m. and e. without effect save on e. of 5th and following d. stiffness of r. forearm with painfulness of extensor muscles. 6th.—15 dr. in m. After 5 h. flatulence and a soft stool, with colic, rather aggravated after evacuation, and accompanied by chilly feeling over whole body. 7th—11th.—15 dr. on 1st d., and 20 dr. on others, were followed by nothing but eructations, griping, and flatulence. 12th.—25 dr. followed in 5 h. by 3 loose stools, and colic lasting throughout d. 13th.—26 dr. in m. Towards noon slight drawing in r. upper arm, remarkably increasing after dinner, and becoming almost painful, but decreasing again when walking in open air. 14th.—15 dr. Same drawing all d.; towards e. griping and loose stool, with burning at anus, also cold feeling of whole body, followed by heat without thirst. Drawing continued into next forenoon.

b. On 19th and 20th, in m., took 5 gr. of 1, trit. No symptoms on 19th, but on 20th nausea, empty eructations and pinching in abdomen, with accompanying transient headache in l. forehead. (*Ibid.*)

14. a. Dr. ROTHMAN took, Nov. 2nd, 3rd, and 4th, 4, 5, and 12 drops of tinct. without effect. On 5th, 14 dr. Pressing in scrobiculus and constriction of larynx, compelling frequent swallowing. 6th.—16 dr. Same pressure in forehead and root of nose, as if catarrh were coming on (for 3 h.). On 7th, 8th, and 9th, 18 dr. each d. On last d. disturbance in abdomen and three pappy stools, with feeling of coldness in whole body. On 12th, 13th, and 14th 20 dr., without effect. On 19th, 15 dr.; violent colic starting from umbilicus, with emissions

of flatus giving relief; this continued all n., and entirely deprived him of sleep. 20th.—Constriction of larynx, disappearing after $\frac{1}{2}$ h. in open air; n. sleepless from cramp-like pressure in scrobiculus and constriction of stomach,—latter so sensitive that he could not endure pressure of lightest covering. Towards m. loud rumbling, and escape of flatus upwards and downwards, which relieves. Took 15 dr. 2 m. Tensive headache in r. temple; single flying stitches in r. flank. P.m., cutting and rumbling in abdomen, with flatulent emissions (which relieve); diarrhœic evacuations (so also on two following d.). 24th.—25 dr. Aching in both temples, in open air first worse, then entirely disappearing; burning, while walking, along l. tibia; constriction about umbilicus and in larynx. 25th.—30 dr. Abdominal cutting immediately after eating, diarrhœic stool with tenesmus. 26th and 27th.—35 dr. each d. Same symptoms as before. Colic continued all n. of 27th and 28th, with extreme sensibility of abdomen; general lassitude, with beaten feeling in sacrum on 29th, and pressive headache on m. of 30th.

b. Dec. 5th and 6th.—3 dr. without effect. On most d. from 7th to 19th, 5 dr. 7th.—Great oppression of chest before midnight, driving away sleep; after midnight restless sleep, with vivid troublesome dreams. 8th.—Early, pressive headache in temples and annoying twitching of r. upper eyelid (last continuing during 3 following d.). In e., pappy stool; at n. slight spasm in stomach, rising along gullet to throat. 9th.—Sudden transient vertigo with darkness before eyes in e. while sitting down. 13th.—In m. in bed rumbling in abdomen and slight headache; at noon, tensive pain in l. thumb, impeding its motion. 14th.—Weight in both knees; in e. tearing in l. knee, disappearing on walking. 15th.—Repeated tensive pain in l. thumb. 16th.—In e. considerable headache, and unfitness for any kind of occupation. 17th.—Noon and e., slight colic after eating; extremely restless sleep, with vivid nonsensical dreams; troublesome oppression of chest. 18th.—In e. deadness in knees when stooping, so that it was difficult to get upright again; n. very restless, full of dreams. 19th.—Drawing pains in r. thigh as far down as knee—a symptom which continued in nearly equal intensity for next 3 d. The intestinal canal was torpid during all this time, evacuations hard and occurring only every 2nd or 3rd d. 23rd.—In m. took 10 dr.; soon after dinner, rumbling in abdomen, constrictive pain in umbilical region, and a pappy stool; during succeeding n. colicky pains, with emission of flatulence. 26th—28th.—Took 5 dr. each m. 26th.—Cutting abdominal pains after dinner and supper. 27th.—Headache and stitching in r. patella, from m. In e., rumbling and cutting in bowels, two pappy stools. 28th.—Stitching in patella returned, coming on when walking but going off on continuing to do so. The following two n. violent attacks of colic. Distinct colocynth symptoms were felt by prover for 4 d. after taking last dose—stitches in patella, frequent griping in abdomen, cramp in stomach at n., relieved by eructations, restless sleep, tossing about in bed. (*Ibid.*)

15. a. Dr. WACHTEL, æt. 30, sound health, took Nov. 16th—19th daily doses increasing 1—4 dr., with scarcely any effect. 20th.—5 dr. P.m., twitching at anus and thereafter two ordinary stools. 21st.—

5 dr., with no special result save unwontedly copious urination. 22nd.—24th.—10 dr. each d. 22nd.—Soon after dose, pressing feeling in orbits, towards root of nose. P.m., feeling of heat in nape, burning and twitching in rectum and anus; soon after, three fluid, mucous, but painless stools. 23rd.—Feeling of stiffness in muscles of nape on moving head; after dinner flying stitches in hepatic region and sacrum; in e. feeling of dryness in eyes. 24th.—A.m., urging to micturate, with discharge of great quantity of clear watery urine (returning nearly every h.). P.m., confusion of head with pressure in orbits; feeling of coldness through whole body, especially in knees (though room was warm enough); later, ineffectual urging in rectum, soon followed by itching in anus and orifice of urethra. In e., uneasiness and weakness of whole body, especially of lower extremities; craving hunger, especially for bread and beer. 25th.—Took 15 dr., and increased by 5 dr. each d. till 29th. Symptoms observed were: Confusion of head; scraping in throat; rumbling in abdomen; constriction in umbilical region; distended abdomen; feeling of emptiness and soreness of bowels; pappy stools with burning at anus; itching on various parts of body, obliging him to scratch; flying stitches in hepatic region, sacrum, dorsum of r. foot, and great toe.

b. Dec. 20th—28th.—Each m. took 10 gr. of $\frac{1}{2}$ trit. On 21st, only some pressure on forehead. 22nd.—Increased secretion of urine, and towards e. confusion of head. 23rd.—Flying drawing stitches as if in periosteum of bones of both forearms. 24th.—Scraping in throat about uvula. 25th.—Throat reddened, and swallowing difficult. 26th.—A true angina set in, for which belladonna, and subsequently lachesis was taken. Jan. 3rd.—After throat affections had subsided, began again with same dose, which he took daily till 15th. 3rd.—Frequent urging to stool, but no evacuation. 4th.—Taste of drug seemed to-day disgustingly bitter, and it continued all d. In e., stitching drawing along l. tibia to ankle-bones, with at same time burning pressure in l. eye, both disappearing in 5—6 m. Later, a very hard evacuation, as if he were passing stones. 5th.—Pressure in both temples; itching at several points on surface, causing constant restlessness, so that he can scarcely remain seated. At noon, beer tastes remarkably bitter. In e., when walking, sensation as if all strength were failing; feeling of emptiness in stomach and thereupon voracious hunger. No stool all d. 6th.—Towards noon, violent cutting pain, like an electric shock, through whole abdomen to anus. Soon after, urging to stool, but without evacuation till an h. later, when it came away in pieces of stony hardness. P.m., flying stitches in r. chest from before backwards. During whole d., sensation as if tongue had been scalded (had same feeling in pharynx during angina). 7th.—Towards 3 p.m. feeling of weakness in whole body returned, but without subsequent voracious appetite. Towards e., flying drawings in extremities; single needle-stitches under l. pectoralis. No stool. 8th.—The feeling in tongue recurred, but less severely. 9th.—Drawing aching in l. instep. At noon, extreme sleepiness. After dinner, stitching-cutting pain on r. instep, as if a nail were driven through. 10th.—Soreness of scalp at vertex, as if on that spot hair were being

continually dragged up. 12th.—Feeling in scalp continues, and is accompanied by drawing-pressive pain in occiput. Both symptoms disappeared towards e. 13th.—Drawing stitching in joints of both insteps, lasting a m., often recurring, and not interfering with walking. It was worse after coffee and wine, and accompanied by boring pains in bones of lower extremities. These pains lasted all next d. with inconsiderable remissions, but in less intensity; upper extremities were similarly affected p.m. 15th.—Pressive pain in sacrum, diminished by movement. 16th.—Rheumatico-gouty pains came on more violently than ever before, sometimes in joints, sometimes in long bones of extremities, but were not lasting. P.m., drawing aching in both shoulders. 17th.—In e., in addition to pains, heat in head and palpitation, which continued next d. in less degree, and disappeared the d. after. 20th.—A.m., feeling of repletion in gastric region; rumbling in abdomen, with great inflation; violent colicky pains continuing for an h., but disappearing after two evacuations following each other in quick succession. N. restless from flying stitches in hepatic region; on following d. continuous pain in l. knee-joint impeding walking. Up to Feb. 1st was still troubled with "rheumatic-gout" in joints and long bones of extremities, of greater or less intensity at different times. (*Ibid.*)

16. a. Dr. WATZKE took, Nov. 3rd, at 8 a.m., ʒ dr. of cinet. No symptoms save slight nausea towards noon. 4th.—4 dr. at 7 a.m. Head somewhat affected soon after dose. Towards 9, much rumbling in abdomen; at noon, some intimations of nausea as yesterday; restless n. with horrible exciting dreams. 5th.—7 dr. at 7 a.m. Towards 10, sense of distension in umbilical region with compression in throat and nausea. These symptoms lasted all d., and became worse some h. after dinner. Towards e., disgust before eating and inclination to vomit. 6th.—No symptoms save occasional slight drawings in scapulae. 7th.—15 dr. at 8 a.m. Frequent eructations soon followed, and towards noon 2 brown, thin, almost watery, painless stools. Nothing else. 8th—12th.—Constant sensitiveness of umbilical region; frequently-repeated long stitches in l. chest and knee; several pappy stools daily. 12th.—20 dr. soon after breakfast. A.m., acute pain in umbilical region, increased while walking; later, transient drawing in r. shoulder; towards e., stitches in l. side, arresting breathing; drawing in scalp; painful pressure in eyeballs, especially when stooping; frequently returning stitches in r. elbow and forearm. During whole d. borborygmi and empty eructations. 14th.—In m., fasting, ʒ5 dr. In 1½ h. (immediately after breakfast) rising of bitter white frothy fluid; violent unintermitting pain about umbilicus all forenoon, in spot about size of hand,—a bruised pain, aggravated by walking, but not by pressure, and more tolerable after eructation; therewith at times jerking stitches from navel to loins and spine; intimations of nausea; urging to stool (which could be repressed). Towards 11, constant burning pains in spot on r. chest; feeling of roughness in throat; pressure in both temples; smarting in eyes; painfulness of eyeballs; excited fretful state of mind; taciturnity. After dinner, abdominal pains worse, gnawing and boring, compelling him to sit, lie, or bend forward; violent tenesmus came on, at first with pappy, copious, strong-smelling stools, which, 20 h. later, were watery,

scanty, yellowish, and almost inodorous. Twitching pains while walking in dorsa of both feet towards tibiae. Colic diminished somewhat after café noir at 4, but became much worse again after supper, with confusion of head and frontal aching increased by stooping. Restless n., vivid dreams, frequent waking (apparently produced by persistent painfulness of umbilical region). 15th.—A.m., occasional stitching pains in r. chest; two pappy, yellow, painless stools. In e. painfulness of whole head and eyes, very much aggravated by bending forwards; constant colic with (repressible) urging to stool. N. very restless; umbilical region unintermittingly painful, profuse perspirations towards m. 16th.—Colic (after moving about) more violent, gnawing, somewhat diminished towards noon, but not entirely remitting for whole d. P.m., frequent pressure on, and oppression of, chest, dull stitches in chest and sides. During whole d. sensitiveness of head, as though compressed, especially in sinicup and temples, with painfulness of eyeballs, aggravated by stooping, better in open air. 17th.—After quiet n. awaked in m. by griping in bowels and tenesmus, followed, however, by perfectly normal stool. Griping disappeared after black coffee, but returned in course of forenoon, accompanied by rumbling and movements in abdomen; sensitiveness of head, pressure on temples and painfulness of eyeballs, came on again. Bruised pain in r. middle finger at noon; after dinner, yellow, diarrhetic stool, without tenesmus or pain. In e. painfulness of umbilical region; stitches in back; spots on front of thorax that were sore and painful, as if bruised. 28th.—“I am not yet free from effects of dose taken on 14th. I am constantly annoyed by a feeling as of a stoppage, a compression, a coil in the umbilical region, sometimes more, sometimes less. At times, especially towards m., it increases to a piercing or cutting pain. I generally wake in m. with colic and tenesmus, and have every d. several thin pappy stools. I have frequent attacks of the painfulness and aching in sinicup and eyeballs, and the dull stitches in flank checking respiration. Since 24th I have perspired very profusely over whole body every n. towards m., and urine is of a faint flesh-redness, throws down a light-brown, floccy, irregular transparent sediment, and leaves on vessel small, hard, and rough reddish crystals, which adhere so strongly that they cannot be washed off. Umbilical pains were much alleviated, and head-troubles immediately disappeared, on supervention of these ‘critical’ phenomena.” Dec 1st.—To-day for first time urine is bright again, but of a somewhat deep wine yellow, and containing a transparent cloud. Every abdominal symptom has now disappeared. 4th.—The morning sweats and cloudy reddish urine, with brown floccy mucous sediment, have returned for 2 d. past; the pressing, sometimes gnawing pains about navel come on, especially in m. fasting; movements and rumblings in bowels are often experienced. On e. of 3rd, gnawing pressive pain in inner ball of l. foot, and painful stitches in cardiac region on going to bed. 10th.—Since 5th several little boils on hands, and stye in l. eye, following usual course. Nothing else now, save feeling of tension and pressure in region of navel. On 18th, while writing, exceedingly painful, long stitches in r. metacarpus, frequently recurring in course of a few m., and embarrassing extension of hand and fingers. An h.

later, while reading, same symptoms recurred, only pain was more constant, stitches more intense and longer. Same symptoms (quite unprecedented) were repeatedly experienced curing following days.

6. Proving with triturated pulp. Dec. 26th and 28th.—10 gr. of 3x, fasting, each m. Transitory stitching, drawing, twitching, itching, burning, smarting in different parts of body, now here, now there. Jan 10th.—10 gr. of 1x. After 3 h., griping, especially about navel, with easily repressed urging to stool (lasting 2 h.); diarrhoeic stool after dinner, without colic or tenesmus. During next d., especially in forenoon, frequent reminders of gripings, weakness, nausea; also fretful disposition and strong aversion to drug. 14th.—1 gr. of same at 8 a.m. produced more transient griping. After 2 gr., 4 h. later, painful gripings, and long-lasting movements in region of stomach, ending in loose stool. Towards e., pressive pain in several places on thorax, in hepatic region and over heart, impeding respiration (for several h.). 15th.—Long stitches on inner side of l. thigh, from ischiatic tuberosity towards knee, in forenoon, when walking (frequently repeated for several m.). Towards noon, griping about umbilicus, and sensitiveness of abdominal integuments aggravated by pressure. 22nd.—10 gr. of 3x, in m., caused movements in abdomen, frequently repeated during d.; on following m. constant violent smarting on middle of tip of tongue, as if part was sore; drawing-stitching pain on outer side of thigh, while walking.

7. In Dec., 1843, W— proved tincture by rubbing it into abdomen. From 10—40 dr. produced very slight symptoms,—transient gripings, several small evacuations in d., with frequent inclination for stool; clucking in groin. From 50 dr., rubbed in towards midnight, unusually noisy discharge of much flatus in m., movements in bowels, sensitiveness of abdominal integuments, repeated but easily resisted inclination for stool. From 100 dr., sensitiveness about anus, with frequent urging to stool, which was unsatisfying and diarrhoeic, but painless; clucking in a spot below navel; painfulness of abdominal integuments, especially when walking; griping and frequent micturition with apparently increased flow. On following d. same symptoms followed a similar application; in e., painfulness of whole head, most felt in frontal region, aggravated by bowing or turning head, with incapacity for intellectual work, lasting some h. (*Ibid.*)

17. Dr. WEINKE, æt. 30, strong, in good health. Nov. 19th, at 9.30 a.m., 12 dr. of tinct. An h. later, while writing, painful pressure in dorsum of r. foot towards great toe, with slight numbness of r. leg; less felt on walking, and disappearing in 15 m. At 10.15 took 15 dr. more. Towards 3 p.m., pappy stool, with slight griping and rumbling, and later, transient stitches in l. chest. At 7 p.m., semi-fluid stool, with a perfect storm of flatulence. All p.m. feeling as of having taken cold in bowels, so that diarrhoea would follow. 23rd.—20 dr. at 10.30 a.m. Abdominal symptoms recurred in $\frac{1}{4}$ h. P.m., lassitude. 30th.—60 dr. at 10.30 a.m. Recurrence of sensations in chest and abdomen shortly afterwards, and at 11.45 of those of foot. At 2, sudden tenesmus, copious pappy stool, same sensations in belly, sleepiness, disinclination to study. At 4, similar stool, followed by flatulence and debility.

For three following weeks heavy sleep, full of dreams; heaviness of legs; swelling of both feet; persistence of pain in r. dorsum (as if in periosteum); at r. edge of tarsus a tumour size of pigeon's egg, soft, pale, painless; same pain in l. foot, but no tumour. While these symptoms lasted, bowels were sluggish, but stools not hard; constant flatulence; urine apparently rather diminished. (*Ibid.*)

18. Dr. WÜRSTL, subject to gouty-rheumatic pains, toothache, diarrhœa, &c., proved drug in doses of 1—10 dr. of tinct. He experienced short attacks of these very symptoms, apparently traceable to drug; but after proving was over found himself perfectly relieved of the pains, &c., which formerly annoyed him so frequently, and stronger and more healthy than ever before. [Under these circumstances, we have deemed it best to omit Würstl's detailed sensations, as of doubtful purity.—Eps.]

19. *♂*. Dr. WURM, æt. 36, strong and healthy. Nov. 8, 9, 10, took 1, 2, 4 dr. of tinct. without result, save that on 11th his usual stool was absent. On 11th took 6 dr. at 10 a.m., whereupon came oppression of head, worst after dinner, nearly disappearing towards e.; frequently recurring tearing in r. metatarsus, near great toe joint, in e.; frequent micturition. 12th.—8 dr. in m., without effect save a second stool p.m. with slight burning at anus following. 19th and 20th.—10 and 15 dr., with nothing but quantity of inodorous flatulence. 22nd.—25 dr. After 5 h. violent urging to evacuate bowels, demanding instant attention; copious fecal diarrhœa with great discharge of wind. 23rd.—30 dr. in m. Little appetite at dinner, though food tasted well; pappy taste in mouth for 1½ h. thereafter; pretty violent pressing pain in l. little finger about 6 p.m., particularly towards middle joint, soon disappearing, then same pain in all r. toe-joints, save those of great toe, for 8 m. 24th.—40 dr. in m. Usual effects on bowels p.m. 25th and 26th.—20 and 30 dr. caused similar symptoms, but colic was more violent and lasted longer. 27th.—40 dr. a.m. Continued perfectly well all d. and had no evacuation; but slept badly following n., often roused by vivid dreams, every time finding himself in a perspiration. 28th.—50 dr. at 8.30 a.m. Pressing and throbbing in first joint of l. great toe, as if boot were too tight, going off on moving about; heaviness of feet, most troublesome in forenoon, as though he had made a long pedestrian journey; while sitting constant sensation in both feet as if they were going to sleep. Itching inducing scratching here and there, especially on scalp. Soft stool after dinner. 29th.—Heaviness in feet felt again on waking, going off on moving about; hard insufficient stool about 5 p.m. In n. many and vivid dreams, waking him nearly every ½ h., when also he found prepuce retracted and somewhat constricted. Each time he brought it forwards he found it retracted again at his next waking. 30th.—40 dr. at 8.30 a.m. and 20 at 5 p.m. Aching in hypogastrium soon after dinner, ameliorated by discharge of abundant foetid flatus, and disappearing after stool at 4. Sensation of violent pressure in l. temple all p.m., better while sitting, worse standing and walking, specially violent after micturition. N. as last. Dec. 1st and 2nd.—Frequently repeated aching in an upper hollow tooth; drawing in r. ankle; very transient sensation of pressure in different

parts of body, especially finger- and toe-joints; insufficient stool. 3rd.—50 dr. a.m. After 6 h. griping in hypogastrium, abundant discharge of flatus. Colic paroxysmal, very violent, obliging him to bend forward, continuing 2 h., and only ceasing after expulsion of soft stool. Very weak in e. before going to sleep, and on waking next m., but better after moving about; no stool on 4th, frequent micturition; itching in various spots on body; feeling of pressure in joints. 5th.—60 dr. at 8.30 a.m. Oppression of head, most felt in r. frontal region, continuing all d. Colic p.m. as on 3rd, also lassitude, itchings, and pressure in joints. In e. while sitting l. foot feels as if it would go to sleep. 6th.—Save drawing in calf and thigh and absence of evacuation, no symptoms. 7th, 8th, and 9th.—50, 40, and 35 dr. taken in forenoon produced almost identical phenomena—i. e. symptoms of head, abdomen, and bladder as before; also pressure and weight in sacrum. On 9th, in addition, transitory drawing in various joints of upper and lower extremities, especially fingers and toes, disappearing instantaneously on motion, as rapidly returning in rest. This last symptom troubled him quite often the two following d., when he took no medicine. 12th.—40 dr. Usual abdominal symptoms p.m. 13th.—On getting out of bed, drawing in l. ham, as if tendons were too short; oppression of head; pressive drawing in joints of toes and fingers, as well as in r. knee. Joint troubles remained all d., but not long in one place. 14th.—45 dr. a.m. Soft stool and frequent micturition. 15th.—Transient drawings in several joints, and in l. neck (especially on turning head). These returned for several d. but with less violence and frequency. On 17th, in e., also for several h. violent pressure in sacrum, and l. foot felt as if going to sleep. On 18th, in e., sprained feeling in all toes of l. foot when going upstairs.

b. Proving of triturated pulp.—19th.—12 gr. of 1st cent. Joint pains still perceptible; nothing else. 20th, 21st.—24 and 40 gr. No symptoms, save on m. of 22nd burning at orifice of urethra after micturating, for 1 h. Took 50 gr. that forenoon, and same next m. Oppression of head, insufficient stool with burning and stitches at anus, and burning in urethra after micturating. 24th.—20 gr. of 1—20 trit. After 3 h., cramp at middle of l. thigh with usual abdominal and joint symptoms. Towards 5 p.m., prostration, with chills, violent thirst, and quickened pulse; this febrile excitement lasted for ½ h. During it was possessed with idea that he was not in his own room. Well in e. 25th.—No stool. Joint pains returned paroxysmally, especially while walking about. At 7 p.m., while walking, cramp-like drawing inner side whole length of r. thigh; felt very much debilitated, but only when at rest. 27th, 28th.—30 and 40 gr. developed succession of symptoms over 12 d.,—drawing and pressure in joints; hard insufficient stool; on Jan. 3rd 3 small boils on neck and larger one at lower angle of l. scapula, with burning pain; drawing in inner side of l. thigh. By 8th perfectly well. Took 15 gr. on 15th, 30 gr. on 16th, 18th, and 19th, of 1½ trit. with usual abdominal symptoms only.

c. On each m., from 21st to 26th inclusive, took 10 dr. of 1½ dil. of sinct. without effect, save that he was awakened on 23rd at about 4 a.m. by a violent, pressive-throbbing headache in frontal region.

Although pain went off on sitting up and moving head, head remained much oppressed all forenoon. (*Ibid.*)

20. HÄRGENÄRGER.—A single drop, of tinct., m. and e., seemed to have no effect on ordinary people during 5 or 6 d. On persevering in its use, a copious, strikingly brown, often black, stool occurred, preceded by painless rumbling. If dose were still continued, stools kept growing thinner, but always brown, with lively borborygmus. A drop repeated every 2 h. from early m. brought on, p.m. and e., in persons not altogether torpid, diarrhœa, without colic or other inconvenience. From 4 to 8 dr. in single dose in m., occasional slight diarrhœa same afternoon, or at least next m., preceded by griping in umbilical region. Further almost constant symptoms of continued use of *C.* were: striking increase of appetite and thirst; more copious secretion of urine, which was often light-brown like beer, becoming cloudy on cooling, and depositing a copious, sometimes sandy sediment; noisy discharge of a great deal of wind; gentle, painless awakening of hæmorrhoidal flow, leaving behind peculiar burning around anus and along sacral region; menses more profuse and too early. (*Kolocyntologie*, 1840; quoted in *Ibid.*, p. 38.)

21. KRUMHOLTZ, Nov. 26th, 1836, took 3 times during d. several drops of tinct. in water. At n. quiet sleep. 27th.—Took same. In afternoon uneasiness throughout body, especially in digestive organs. Towards e., pains in bowels, with feeling of great heat in stomach; they increased in severity, till towards 9 p.m. there occurred a troublesome diarrhœa for $\frac{1}{2}$ h., after which pains went off. Sleep not very quiet. Dec. 2nd.—Took in m. and p.m. grt. xv of same. About 2 p.m. same uneasiness, confusion of head, great heat of stomach, violent pain in bowels, loose stool about 3, whereupon pain and uneasiness subsided. On 3rd, took 2 more doses with same results. (Martin's provings, *Ham. Viertelj.*, x, 1.)

22. MARTEN took, Nov. 28th, 2 dr. in water at 10 a.m. In 1 h. pain in l. arm, soon going off. Urging to stool. In e. same dose. Soon after some pain in bowels and in forehead (l. frontal nerve). Urging to stool. At 7 p.m., 3 dr. In 15 m., pains in bowels, with feeling of approaching diarrhœa, pulsation in l. arm. After supper abdomen very full and heavy. Same next m. Urine scanty. At 10 a.m., 3 dr. Violent itching at anus. Dec. 3rd.—At 5.30 p.m., 6 dr. Collection of saliva in mouth. In $\frac{1}{2}$ h. contractive pain in r. hand, which constantly increased, until similar pain occurred in l. malar bone; as this abated hand-pain extended into forearm, but declined as pain came on in r. cheek and (later) bowels. Itching in face with painful drawing, which latter after a time came also in l. forearm, persisting at elbow. A similar pain later outside of r. thigh, during which there was toothache in l. upper molars. In 1 h. heartburn, following voracious hunger; then very crampy pain in l. forearm. About 10 p.m., during walk after supper, transient, pressive, contractive pain in scrob. cordis. On following d. itching at anus. 6th.—At 10 a.m., 10 dr. Oppression in forehead, sore feeling at scrob. cordis, pressive pain in l. cheek. After $\frac{1}{2}$ h., violent headache, going off in $\frac{1}{2}$ h. Later, unusual weariness, weight of head, itching at anus, strange burning in pin-scratches

on fingers, also on face and head. 7th.—In m. occasional violent pains in l. forearm. (*Ibid.*)

23. MAYER, Nov. 26th, e., took 2 dr. of tinct., and noticed next m. slight pain in stomach with headache, and also moderate diarrhoea. 28th.—Took 2 or 3 dr., and had violent stomach-ache, with flatulence and headache, but without diarrhoea. Became also lazy, gloomy, and listless, almost without spirit. In consequence, he took smaller doses only (1 dr.). Symptoms lasted some time longer, but finally nothing save flatulence remained—till 30th. Dec. 1st.—Again took 3 dr., whereupon previous symptoms immediately recurred. Felt specially pressive headache on small spot at about middle of linea semicircularis; also alternate heat and cold, or transient and recurring perspiration, without change in temperature; there even occurred some threatening of syncope, but this he was able to ward off by holding hand before eyes. These symptoms seemed more severe in e. than in m.; next d. they were much less felt, but teeth seemed on edge, as they had begun to do on previous e. All went off gradually, as it came on; stomach-ache and depression of spirits lasted longest. (*Ibid.*)

24. RUNGE.—Nov. 26th.—From 6.30 a.m. to midnight took repeated doses of 2—5 dr. of tinct. P.m., had urging to micturate and collection of saliva in mouth. Towards e., great lassitude; peculiar state of mind, cannot pursue any train of thought. Repeated doses on 27th, without effect. 29th.—From 3.30 to 10.30 p.m., 4 doses of 6—10 dr. After each, rumbling in stomach; towards ß, oppression about heart. Wakeful n., but felt well next m., save for transient pressure in scrob. and abdomen. 30th.—At 6.30 a.m., 10 dr. Soon after liquid stool. At 9 a.m., 12, at 11.30, 20 dr. After dinner stupefied feeling in head; stomach-ache; for a few moments almost giddy; transient deafness—at least he heard everything accompanied by a roaring noise, nothing seeming to him to have its proper sound. All this lasted but a few m. At 3.30, 10 dr. Towards e., internal oppressed feeling, accumulation of saliva. At n. again great wakefulness; quite liquid evacuation 3 times in e. and once next m. Dec. 1st.—Disagreeable feeling in all limbs on making mental exertion. P.m., great lassitude. At 7.30, 12, at 11, 20 dr. 2nd.—At 9 a.m., 20 dr. Very liquid evacuation. Oppression and stitch on breathing in r. side, not very considerable. At 12.30, and at 2, 36 dr. 3rd.—At 8 a.m., 30 dr. Soon after liquid stool. Weakness, fulness, prostration all d.; and another watery stool. At 11, 36 dr., without any fresh effects. (*Ibid.*)

25. Dr. J. V. MÜLLER took at 9 a.m. 20 dr. of 4th dil. No effect till 5 p.m., thereafter on walking briskly some painful obtuse stitches, suddenly coming and as suddenly ceasing, in r. hip, that caused him to stop his walk for a short time. This recurred so often that he had to give up his walk and go home. Amelioration when sitting, but instead of the above pain he felt a heavy weight in the lumbi-dorsal region, which was only relieved somewhat by lying on l. side. The painful parts felt warm and sensitive to touch. On rising and walking the stitches above mentioned recurred, but the dull weight went off. At n. in the warm bed the pain declined, but it woke him about 4 a.m.

It was now throbbing, almost boring in character. The point of origin of the pain was in the sacral region at the seat of the plexus ischiadicus, it passed thence through the incisura ischiadica major towards the hip-joint, whence the pain radiated to the posterior aspect of the thigh and towards the knee-joint and popliteal fossa. In its origin and course it corresponded to the seat of the sciatic nerve. But it also spread to the branches of this nerve to the glutæus superior and inferior. The feeling was as if the hip-joint were fastened by clamps to the pelvis. Other symptoms were: slight febrile movements with development of heat, tendency to sweat, and moderate thirst. The following m., after the pain had lasted 17 h. (it did not quite go off till after 30 h.), the urine was examined; it was clear, scanty, dark orange coloured, sp. gr. 1030, acid, urophen and uric acid increased, chlorides diminished, increased discharge of epithelium. (*Z. d. V. d. Ham. Aerzte Oesterrichts*, 1857, i, 43.)

16. Dr. LEUBNER took, Feb. 11. 12, 7 a.m., 5 and 8 p.m., 5 dr. tinct. At 5 p.m., pressure and drawing in r. temple, several times repeated, tearing in forehead, 6 p.m., boring in r. knee, several times repeated.—22nd, 4 a.m., 5 dr., 5 p.m., 10 dr. Tearing and pressure in r. temple, stool consilid.—23rd, 7 a.m., 10 dr. At 2 a.m., a soft, dark brown stool. 10 a.m., severe boring in r. lower jaw. 3 p.m., soft, dark stool. E., tearing in forehead.—24th, 8 a.m., 10 dr. Soft stool, boring in r. temple. 3 p.m., boring in l. temple, frequently repeated. 5 p.m., liquid, bright yellow stool. 6 p.m., liquid, dark green stool.—25th, 2 a.m., 10 dr. Much rumbling in bowels, tearing in both temples frequently repeated. E., a soft yellow stool, tickling in larynx, dry short cough, especially at n., which wakes him.—26th. At noon a hard dark stool. Much flatulence in bowels and discharge of flatus.—27th, 8 a.m., 10 dr. Last n. frequent dry short cough. Tickling and irritation to cough in larynx. 9 a.m., yellow, small, firm stool. Much flatus discharged. Frequent short cough without expectoration. At noon, copious, soft, bright yellow stool, with great development of flatulence. 3 p.m., a liquid, bright yellow stool, preceded by much tumbling in bowels; several times pain in umbilical region, tearing in r. temple. 8 p.m., liquid bright stool, preceded and attended by much pain in belly.—28th. At noon, a liquid, bright yellow stool. During all these d., but more and more frequently at n., short dry cough that wakes him, and is accompanied by much scraping and tickling in larynx.—March 1st, 4 a.m., 5 dr. At noon, bright yellow soft stool, tearing in r. temple repeatedly, drawing in r. leg when sitting. 5 p.m., 5 dr. Drawing and pressure in knees when sitting, with exhaustion and bruised feeling; pressure and drawing in r. ankle-joint, boring in r. hip-joint, bruised pain in sacrum and in both inferior extremities; short dry cough at n.—2nd, m., pain in knees and hips as if bruised and tired, severe pressure in l. ankle-joint. 8 a.m., 5 dr. Drawing in r. toes, pressure in r. fingers; boring in r. shoulder, then in l. knee, later in r. knee. 9 a.m., small, hard, dark stool. Much pressure in knees when sitting; pressure in ankle-joints, boring in shoulders, and in flesh of thighs; tearing in l. side of head; wandering pains in joints of toes, fingers, and ankles; shooting in calves, boring in skin of calves, mostly in r. Much pain as if tired in knees, worst when sitting; drawing in r. side of occiput; much drawing and pressure pain in joints of hands, fingers, and shoulders; tearing in forehead and cheeks. All d. tearing in joints of arms and legs, worst when at rest. Also during d., sometimes scraping in larynx and short dry cough. At n. dry short cough, and tickling in larynx.—3rd. After rising m. pressure in wrist- and ankle-joints; a hard, dark green stool. 8 a.m., 5 dr. Pressure pains in wrists, drawing and pressure in knees and tibia; tearing in l. side of forehead; tired pains in knees when sitting; boring in r. toes; boring pain in r. lower jaw; drawing above r. ear and in r. ankle-joint; tearing in l. upper arm; pressure in elbow-joints, in flesh of thighs frequently. Much flatulence in bowels; tearing on instep frequently; all these pains frequently recurring during d., more severe when at rest than when moving. By d. dry tickling cough with nausea; retching, almost vomiting; the cough comes on suddenly without cause. E., a firm dark stool; severe boring as with a peg in l. temple, in e. frequently; boring in

elbows and shoulders. 9 p.m.,pressive and boring pains in joints of toes and fingers; drawing in hands and fingers in various places, then in foot and ankle; tearing in forehead in different spots. 10 p.m., drawing in face and toes. Much tickling cough e. and n.—4th, m., tearing in cheeks, on different parts of forehead; frequent drawing in limbs, hands, and fingers. 2 a.m., 3 dr. Drawing and boring in shoulders and wrists; drawing in forehead; pressure in joints of upper arms; boring in temples. All these pains are of frequent occurrence, jump from one part to another, but remain nowhere long; tearing in r. side of skull; the pains are worst when at rest; a hard dark stool; bellyache about navel. As the pains in limbs increase the cough declines. Tickling cough at n.—5th. The same pains in the limbs as on previous days; tearing in head and l. side of forehead; drawing in flesh of thighs when sitting; boring in joints of toes, then in shoulders, then drawing in various parts of head; when walking boring and drawing in head, joints of fingers, shoulders, knees, thigh and ankles; a hard dark stool. In e., pains in limbs increased when sitting; they are particularly severe in knees, feet and shoulder-joints; their character is pressive, drawing and tired pain. Tickling cough at n.—6th, m., same symptoms in limbs as last e., also boring in bones of head, especially on r. side, repeatedly; they are always worst when at rest, not so bad at n. 2 a.m., 3 dr. Much boring in forehead and cranial bones; a hard dark stool; much aching in knees and ankle-joints; drawing pains in knees; severe and frequent aching in wrists; tearing and burning pains in l. elbow; burning and drawing in thigh-muscles; much boring and tearing in forehead, during d. and in e.; burning and aching pains in muscles of r. thigh when walking, making walking difficult and tiresome. E., soft dark stool; much tickling cough at n.—7th. After rising, m., drawing, aching, boring in wrists, fingers, knees, thigh-muscles. During d. same pains as on 6th, especially boring in forehead and temples. A dark hard stool, and again in e.; same pains in e. At n. tickling cough.—8th. After rising, drawing in legs, ankle-joints, shoulders, forehead, muscles of thighs, wrists, knees, quickly changing locality. A small painful pile. 2 a.m., 3 dr. Much aching in knees and wrists when sitting, then in muscles of thighs; much boring, aching, pinching in calf-muscles; frequent boring in r. side of forehead; drawing aching in wrists when sitting; a hard dark stool; the hard stool consisted of small lumpy pieces. Aching and drawing in forearms; when walking drawing in legs and knees; bruised pain; also when sitting. Boring aching in ankle-joints when walking; these pains are not worse when walking, but are as bad when sitting. Much tickling cough with retching almost to vomiting several times during d. Tearing and boring in forehead when walking. 1 p.m., light-coloured soft stool, partly in lumps. Urine darker than usual. 4 p.m., 5 dr. All d. drawing and aching in same joints and parts of body, more when sitting than when walking. Much tickling cough e. and n. At n. much flatulence in bowels.—9th, 6 a.m., a light-coloured soft stool. Besides above pains in limbs, much bruised pain in knees, arms, shoulder-joints, when sitting; tearing in r. side of forehead. Drawing and burning in muscles of l. axilla towards arm, later some pain in r. shoulder; much boring in ankle-joints; drawing abouting in flesh of thighs, when walking drawing in muscles of calves and thighs, making bending legs difficult and painful; this frequently occurs when walking and hinders walking; much aching and boring in wrists and muscles of forearms; weary pain in arms. When sitting drawing in both groins, frequently repeated, and extending to pelvis. Severe and frequent tearing in r. side of forehead, in and above r. temple. Very frequent dry cough, with tickling in larynx, and inclination to vomit; much aching and boring in knees when sitting; drawing in soles; weight and pressure in forehead towards r. In e. a small, hard, lumpy stool; some boring above nose and in wrists. All d. these pains recur, are generally felt when sitting, but some only come on when walking, e.g. the painful drawing in muscles of calves and thighs. At n. tickling cough.—10th, m., some of the above pains; a hard dark stool. During d. the same symptoms. For some d. pain on skin of l. upper arm a small pustule without pain; to-day it is surrounded with a hard red areola, and is the seat of burning pain, worst when moving arm. Severe boring and burning pain in r. side of forehead. At 2. much tickling cough.—11th. Same symptoms. The swelling on upper arm is harder, larger, redder, and more painful, drawing all through arms. 6 a.m., 3 dr. A hard lumpy stool, much flatulence. Neco, a soft dark stool. Tearing, drawing, aching in various joints and parts of head as before, especially much boring in r. side

of head and behind r. ear; frequent pressure in stomach and umbilical region; much tired pain in joints. At n. much tickling cough.—1st, m., a dark, small, lumpy stool. Boring and drawing in knees, r. side of head, and forehead. Bruised pain in st. limbs; boring and drawing in ankles and instep, when walking, repeatedly; frequent boring in toe-joints. The swelling on l. upper arm is harder, larger, more painful; the pains in st. extend sometimes to axilla and fingers. Drawing in tube, more on l. side, in calves, worse when sitting. Frequent boring in malleoli of ankles and in forehead, when sitting, e. A soft, dark green stool in e. At n. sleep greatly disturbed by pain in pusule.—1st. The swelling is one inch in diameter, is deep, is pointed, bluish red, hard, hot, painful; the glands of l. axilla swollen, painful; pain extends to elbow, sometimes into fingers, all the l. arm is more painful when moved. Drawing aching in forehead, in muscles of thighs, in knees, when sitting. Aching in wrists; drawing in toes, extending to instep and ankles. M., a small, lumpy, dark green stool, much flatus. Boring in r. side of forehead, 1 a.m., 3 dr. Bruised pain in knee when sitting; drawing behind l. ear. Aching in knees repeatedly when sitting; drawing in legs and ankles, aching in calves, when sitting. Aching in shoulders; boring in various parts of head on r. side, then in l. side of forehead, repeatedly. Pressing drawing in calves when standing. Aching above knees when walking, frequently. Aches when walking drawing in tibiae, ankles, calves, toes, arms, wrists, hands. During d. frequent tickling cough with nausea, inclination to vomit, retching. Great boring in forehead, especially r. side. E., very violent pres-sive pain in r. knee, repeatedly, when standing. Boring in r. maxillary joint. Compression in r. leg when sitting. 7 p.m., pressing in wrists and finger-joints. Drawing and pressing in calves when sitting, then aching in tibiae and knees. The pains jump from one part to another and change their character quickly; they are alternately drawing, aching, boring, pressing. Drawing in nose, then on both sides of tendons Achilles, when sitting. N., much tickling cough.—1st. After waking, in bed, some of the former pains in lower extremities, and after rising aching and boring in forehead. 1 a.m., repeated drawing on sides of tendo Achilles when sitting; boring in r. temple; during d. some boring and aching in forehead over eyes; then repeated drawing behind r. ear; pressing in l. leg when walking, in fingers and l. hand. Tickling cough also at n. The boil on l. upper arm larger, harder, more pointed, emits pus, glands of l. axilla swollen, painful; drawing pain in whole arm.—1st, m., boring in forehead; pressing in thighs; repeated aching and drawing in thigh-muscles with tired pain; drawing in ankles when sitting, also in fingers and wrists; boring and tearing behind l. ear. 1 a.m., 5 dr. Frequent drawing in lower part of thighs when sitting. The boring and tearing in forehead above eyes repeatedly during d. Severe and frequent boring in several parts of muscles of l. thigh when sitting. A dark soft stool. Pains more frequent and severe when sitting than when walking; much tickling cough, 5 p.m., severe boring in joints of r. big toe, shooting and boring in top of r. toes. Tickling cough at n.—1st, m. Same pains as yesterday; a dark soft stool. 1 a.m., 5 dr. Same symptoms as yesterday, especially pressing in toes and wrists and boring in forehead. Pains change their seat frequently and quickly. Boring above and behind r. ear; tearing and boring in forehead; tickling cough also at n.—1st, m., in bed, tearing in toes, knees, ankles, hands; tickling cough. After rising same symptoms, but more frequent and severe, especially aching and drawing in joints and muscles of lower extremities, with tired pain in knees and legs; boring on instep and bend of foot, 1 a.m., 10 dr. Much boring in head in various parts. The swelling on l. upper arm discharges pus; the hardness, redness, and pain are less, the swelling of axillary glands gone down. Much drawing in r. hand and wrist, then in r. elbow and forearm. Severe and frequent aching and drawing in muscles of r. thigh. Same symptoms as previous d. Two dark soft stools. All the pains seem to be increased; those in muscles of limb and seat are more boring and burning.—1st, m., repeated drawing on both sides of tendo Achilles; much aching and tearing in muscles of thighs and forearms; boring in wrists, forehead, r. side of head, knees, ankles and above them, when sitting. 1 a.m., 10 dr. Besides above symptoms shooting in tip of tongue. The pain in some joints is sometimes as if encircled with a tight ring. All pains worst when seated. Shooting in some finger-joints, in skin of calves, in muscles above knee. Severe boring in forehead. Drawing in l. toes and shooting in their tips. Very painful boring in l. knee, also when standing and walking. Draw-

ing and aching in fingers and hands, as if squeezed together, then the same in l. knee. The abscess on l. upper arm still discharges pus, but is smaller and less painful. When walking boring in dorsum of foot, in ball of big toe, in tendo Achillis. Frequent tearing and aching in various parts of occiput, in l. zygoma. Drawing in muscles of nape. Aching in scapula; two soft stools. During d. same symptoms as on previous d. After pain in limbs and joints they feel as if bruised from over-exertion. Pains all worse when sitting, but they sometimes come on when walking. Frequent pricking as from needles on the tips and under nails of l. toes. 12 p.m. a soft stool mixed with hard lumps. E and n., much yellow urine, and tickling cough.—19th, m., same symptoms as yesterday. Bruised pain generally and fatigue when walking, which go off on continuing to walk. Frequent tearing on sides of tendo Achillis, sometimes very severe aching pains in thigh muscles when sitting. Boring in toe-joints when sitting. Frequent and severe boring in joints of lower extremities, worse in e. when sitting. Aching, drawing, boring in trape muscles, in various parts of occiput, in r. side of head, worse in e. Two loose stools with much flatus. 4 p.m., 10 dr. Same symptoms occur. At n. only tickling cough.—20th, Pains like previous d., also boring and drawing in r. shoulder and temple, drawing in r. side of forehead, boring in l. sole. Two soft dark stools. Tickling cough at n.—21st, m., same symptoms. E a.m., 10 dr. Much boring in knees, forehead, r. side of head, ankle-joints, toes and feet, worse when sitting. Drawing in several fingers, in thumb-ball, lower jaw, l. elbow. 9 a.m., fixed pain from knee to leg and ankle when sitting, repeatedly. Abscess in l. upper arm healing, still discharges. Violent boring in various parts of muscles of thighs and forearms. The former pains also recur with tired or bruised feeling. Frequent boring behind r. ear and in forehead. At n. much tickling cough.—22nd, m., same symptoms. D. and n. much tickling cough.—23rd, m., pains as before. E a.m., 10 dr. Much drawing in fingers, hands, wrists. Aching in knees; boring behind r. ear; drawing in legs and arms. Two dark soft stools. Dry tickling cough d. and n.; boring in forehead and r. temple.—24th, Same symptoms all d.—25th, Same symptoms. Two soft dark stools.—26th, Same symptoms; they are worst m. and e. The tickling cough is sometimes worse at n. than at other times. The boring, aching, drawing pains are sometimes very severe in forehead, face, ankles, and wrists, in one side of head, in knees, occiput, and toe-joints. In the following d. the pains gradually abated, and the tickling cough disappeared. The 2 soft dark stools daily continued for a considerable time. None of the symptoms except the tickling cough occurred at n. Aggravations occurred m. and e. and when at rest (*N. Zeitsch. f. Hom. Klinik*, xv, 69, 65.)

27. a. Böcker says that those who handle C. for a long time become affected with vomiting; and Sachse saw this result induced by laying it upon stomach.

b. Michaelis states that extr., laid upon bare skin of epigastrium, produced diarrhoea. Chrestien noticed frequently increased evacuation of feces and urine from external abdominal application; and Neumann saw from friction with tincture and castor oil (1—4) violent colic and frothy diarrhoea with blood. (*Oest. Zeitschr.*, i.)

II. *Poisonings*.—1. A woman of 40 was advised, for rheumatic pains in shoulder and thigh, to boil $\frac{1}{2}$ lb. of colocynth in red wine, and drink the strained liquor before going to bed. Fortunately she divided the potion into two parts, for she had hardly swallowed the first half before she was seized with frightful pains in region of stomach, great anguish, vertigo, fainting fits, and spasms. Frequent vomiting set in, but without relief; then stools, first fluid and feculent, later almost of pure blood, with frightful tenesmus, and passage of pieces of intestinal mucous membrane 2—3 in. square. Pain then became concentrated in stomach and lower end of rectum; abdomen was collapsed; finally tenesmus ceased, and she gradually fell asleep. Oily and mucilaginous

drinks, with opium, were administered, and patient gradually recovered, but was compelled to keep her bed a long time from weakness and dyspepsia. (SCHAEZL, cited in *Oest. Zeitschr.*, i.)

2. A man of 55 took for a swelling of knee a small quantity of tinct. He was shortly afterwards seized with nausea and vomiting, with feeling of heat and burning in epigastrium. Delighted with this result, he took a second and third dose to increase the effect. Copious, exceedingly frequent stools now came on, and such intolerable pain in whole extent of abdomen, and so violent a colic, that he sprang out of bed and rolled on the floor. Convulsions of the strongest kind soon set in, and patient died ere n. *P.M.*—Stomach and duodenum externally purple, jejunum and ileum rose coloured; mucous membrane of former parts was vividly reddened, full of erosions, loosened, and very easily detached. Similar abnormal appearances were found in lower portion of small intestine, but less decided; and large intestine was but little coloured externally or internally. Whole canal was empty. (DUVERGIE and RATTIER, in *Ibid.*)

3. A pregnant woman, who took a teaspoonful of tinct., was seized with a dysenteric flux, burning pain in loins, swelling of vulva, and sense of bearing down and heat in vagina. (HECHENBERGER, *op. cit.*)

4. A man, æt. 28, who suffered from bleeding piles and dyspeptic troubles, drank two glasses of a decoction, and experienced colic, frequent stools, and—some h. later—great heat in bowels, dryness of pharynx and unquenchable thirst. Dr. Carron found patient with small accelerated pulse, tongue red, abdomen tense and very sensitive to touch, umbilical region very painful, bowels constipated. In spite of soothing measures, abdomen was on succeeding d. still more painful and tympanitic. In e. there was retention of urine, retraction of testicles, and priapism. On 3rd d. (after nitre) retention of urine relieved, but other symptoms continued; pulse was small and contracted, and hiccup, coldness of extremities, and clammy sweat on head and chest came on. In e. pains ceased; abdomen sank in, and there was manifest fluctuation. Patient died in n. *P.M.*—Intestines red, with black spots; for most part glued together with lymph; a whitish fluid had been effused into abdomen, filled with a quantity of white floccs; ulceration here and there in mucous coat of stomach; traces of inflammation in liver, kidneys, and bladder. (ORPILA, *Toxic.*, sub voce.)

III. *Experiments on animals.*—1. The œsophagus of a medium-sized dog was tied, after 12 grm. of powder had been administered. He soon after made violent efforts to vomit; in 11 h. his gait became unsteady, and he fell as if giddy. Two h. later he gave hardly any sign of life, and allowed himself to be shoved about like a lifeless mass. Death occurred 13 h. after administration. *P.M.*—Mucous membrane of stomach at cardiac end dark red, with blackish streaks, rest to beginning of colon bright red; large intestines little changed, save rectum, whose lining was highly inflamed and fiery red; lungs and cerebral vessels filled with blood. (ORPILA, *op. cit.*)

2. An infusion of ℥ij in wine was introduced into stomach of similar dog, and œsophagus tied. He whined during d., became weak, had 2 copious stools, and died in 22 h. Mucous membrane of stomach,

duodenum and jejunum reddened throughout, with dark-red spots at places; ileum, cæcum, and commencement of colon almost normal; in lower colon, and in rectum, blackish raised streaks on fiery red ground. (*Ibid.*)

3. A wound was made in thigh of a dog, ʒij of finely powdered C. inserted, and the lips brought together. The animal did not seem troubled the d. after, did not whine, and went about as usual; but he died during following n. Mucous membrane of rectum was very much altered; nearly whole surface was covered with blood-red spots; rest of canal unaltered. (*Ibid.*)

4. A strong white rabbit, 10 weeks old, was poisoned gradually during 7 d. with 10—30 dr. doses of tinct. No symptoms save increasing dulness and weakness. P.M., 20 h. after death.—Animal emaciated; skin easily separated, and on hind legs tender, and coming off only piecemeal; areolar tissue of latter infiltrated with a gelatinous mass. Muscles pale and flaccid. Mucous coat of stomach pale, with dendritic injection of vessels, easily torn; mesenteric vessels injected with bright red blood throughout whole course of intestine. Liver much enlarged; upper surface marbled with dark- and pale-red; section there presenting granulated appearance throughout, in other places only in spots; whole five lobes exhibiting cavities of size of millet seeds, filled with a purulent-looking fluid; gall-bladder distended with similar fluid. (*Oest. Zeitschr.*, i.)

5. Another rabbit had taken daily for 8 d. 5 gr. of the t, trit. without manifesting any particular symptoms. He then took at 8 a.m. 40 dr. of tinct. He became weak $\frac{1}{2}$ h. after dose, and remained motionless, with eyes fixed and staring all d. Some diarrhoea occurred at noon, and he died at 7 p.m. P.M., 12 h. after death.—Emaciation; veins of thighs and cerebral vessels filled with dark blood, r. heart the same, l. empty. Stomach marked with a few bright red injected vessels; general mucous coat pale, easily torn. Adhesions in places between large and small intestines; whole mass, as well as entire mesentery, marked with bright red injected vessels, which surrounded bowel, and towards lower portion by one straight vessel; inner surfaces red only at extremity. Liver of normal size, colour, and consistence; scantily set with whitish, millet-seed points, permitting purulent moisture to escape on being opened; gall-bladder distended with thin brownish bile. (*Ibid.*)

6. Röhrig [as also Rutherford, Eds.] from his experiments on fasting animals, is led to place C. high among cholagogues. It makes the bile watery, but also increases the solid constituents. It powerfully stimulates the intestinal glands. (RINGER, *op. cit.*)

Colocynthinum.

1. *Proving.*—1. GARSTEL began, May 28th, 1843, with 20 dr. of 6x dil. (aqueous), taken fasting at 7 a.m. Nothing followed but slight fulness in head and bowels, and copious discharge of flatus. 30 dr. on 29th, and 20 dr. of 5x on June 3rd, were alike ineffective. June 4th. —40 dr. of 5x. Soon after, slight oppression in sinciput; creeping in lids and lower l. incisors; pressure in temple; pricking and metallic

taste on tip of tongue; these symptoms soon disappeared. 6th.—50 dr. Four painless pappy stools during d.; suggestions of tenesmus in urethra and rectum after micturating. 7th.—Same dose. Soon after tooth-ache, oppression of head on l. side, painfulness of l. face, weakness of r. arm while writing, tearing in l. shoulder, pricking in l. calf and sole, tickling in rectum, crawling in penis. In course of forenoon, weakness of legs. 8th.—50 dr. without slightest effect. 20th.—30 dr. of 4x; no symptoms. 21st.—60 dr.; same result. 22nd.—100 dr. in m. Suggestions of colic, with inflation of umbilical region; pressive aching in both soles, with feeling as if they were swollen; frequent micturition. Same dose at bedtime caused (in 6 h.) slight colic below navel, palpitation, and pulsation in scrob. cordis, accompanied by prickling stitches on back about middle dorsal vertebræ. 24th.—M., 50 dr. of 3x. Heat in stomach. E., 80 dr. Sharp inward-pressing pain at some spots on nape, as from sprain, aggravated by movement, spots tender on pressure; at same time, short hacking cough from tickling in throat. Vivid dreams at n.; on following forenoon continual burning pressure in stomach up into œsophagus. 27th.—20 dr. of 2x in m., fasting. Soon after, whole head affected; slight pains here and there in l. leg and arm; feeling of heat and congestion in genitals, with painful persistent burning on small spot on scrotum (without erections); stitches in region of lowest dorsal vertebræ; pain in r. great and little toe, with dull sense of heat in various spots of r. thigh, especially along course of sciatic. Some h. later, pressure in l. cheek-bone and l. great toe; burning at back of pharynx; colicky pains, with inflation of abdomen—all this developed while sitting, lasting 2 h., and going off on walking. 28th.—40 dr. Took long and fatiguing walk immediately afterwards, and noted no symptoms. 29th.—60 dr., fasting. Soon after, burning stitching and sense of warmth on dorsum of r. foot; pressing-digging pain in l. second toe; cramped pain in muscles of l. wrist; feeling of swelling and pressure in lower lids; slight intimations of colic, from hypogastrium upwards, with contraction of scrotum, erections, and pain in buttocks. (*Oest. Zeitschr.*, i, 96.)

2. WATZKE took, May 21st—23rd, twice each d. 6 dr. of 6x dil. without effect save that he woke on m. of 22nd with griping and movements in abdomen. On 24th, two doses of 6 dr., and on 25th of 10 dr., of 5x. Some looseness and slight colic. 26th.—At noon, 6 dr. of 4x. P.m., some slight, rapid, brown, soft stools. In e., felt all over better than usual, and remarkably depressed, but with excellent appetite. Slept very restlessly, had many and vivid dreams, and perspired profusely towards m. 27th.—In m. great depression; dull frontal headache; aching in eyeballs, aggravated by straining sight, moving eyes rapidly and bowing head, lasting all d. Several soft stools rapidly and easily discharged. 28th.—10 dr. in m. All symptoms continued, but more mildly; also feeling of great stiffness and immobility in lower legs. Towards e., stitching for several m. in epigastrium, which was tense and inflated. 31st.—10 dr. Late symptoms continued for several d., in slight and transient fashion. On June 9th and 10th, 5 dr., on 15th, 10 dr., and on 16th, 10 dr. of 3x dil. produced nothing fresh. 18th.—10 dr. of 2x at 9 a.m. Soon after, slight oppression

of head, sensibility of temples and forehead, transient vertigo. Three h. later stool with colic and tenesmus; inclination thereto several times afterwards. Towards e. prostration, heat in whole body, thirst, quickened pulse; at 11, loose easy stool. Restless and feverish n.; towards m. perspiration. In m. prostration and lassitude of whole frame, painful pressure in eyeballs and temples, appetite diminished, pulse over 90. This condition lasted all d., getting worse towards afternoon and e.; could then hardly keep up. In bed, sensibility and feeling of heat all along spine; chest sensitive and oppressed at times; dry cough; frequently repeated stitches from l. axilla to elbows; pulse 100. N. as last. 20th.—In m. as yesterday, but in less degree; effort required to get up; skin hot, pulse 92. Prostration increased towards noon, with previous symptoms of head, chest, and spine; at same time, feeling of roughness in throat, repeated stitches in epigastrium, painfulness of malleoli. No pain in swallowing or difficulty in deep breathing; no stool to-day or yesterday; urine now fiery, becoming cloudy on standing. N. good; woke several times in profuse perspiration. Next d. better, but railway journey brought on headache badly, and cough caused violent stitches through cerebellum. Same thing happened through subsequent ride p.m.; also for whole afternoon disagreeable feeling of chilliness, great debility, unusually disturbed temper—so that he could not bring himself to take notice of the stitches, tearings, pressings, crampings, and such feelings, which came and went in various parts of body, especially in joints, outer thighs, and upper arms. He was most conscious of a cramp pain in penis, lasting several m., during which it seemed as if bent double. A cup of black coffee immediately relieved symptoms, but they did not disappear till he went to bed, which he was glad to do at 7 p.m. Slept uneasily, and perspired copiously, but felt pretty well on waking next m. 22nd.—A good deal of cough; mucus, formerly whitish, now thick and yellow. Was fairly well all d., but towards e. head and general symptoms returned, lasting till bedtime. This continued, with free perspiration at n., for 3 d. more. [Dr. Watzke, who was an experienced prover, is satisfied that the above symptoms were medicinal, and not due to any acquired bronchial catarrh.—Eds.] (*Ibid.*)

III. *Experiments on animals.*—1. A strong rabbit had received during 2 mo. 40 gr. of $\frac{1}{2}$ t. of pulp, and 700 dr. of tinct., without being strikingly affected by it. Having remained 4 d. without med., he now got 1—5 gr. doses of colocynthin, without effect, save some sluggishness. Five d. later 7 gr. were given at 4 p.m., and next m. he was found dead. *P.M.*—Animal not emaciated. R. cavities of heart, with veins, filled with pitch-black coagulated blood; l. cavities with blood of same colour, but this was fluid. Some injection of stomach, within and without, about smaller curvature, increasing towards pylorus, diminishing towards cardia. Mesenteric vessels bright red and injected throughout intestine; meso-colic vessels distended, dark-red,—this especially noticeable in great veins accompanying rectum to its termination. Mucous membrane of small intestine pale red, of colon unaltered. Liver presented a single protuberant suppurating point. All else normal. (*Oest. Zeitsch.*, i.)

2. A strong doe rabbit took 5 gr. in water, and had dose repeated next d., after which animal became dull, but continued to eat with appetite. On next 2 d. she had 7 gr. each time; on latter began to seem very ill, and died on d. following, after having several thin stools. *P.M.*—Liver of normal consistence, but strewn with cysts from size of millet seed to that of pea, filled with serous fluid, having snow-white hardish points rather depressed below surface; cysts themselves covered with injected vessels. Similar appearances in intestines. Spleen eroded in one place to peritoneum; mucous lining reddened, easily separated, and thickly set with brownish-black points. Vivid reddening of mucous membrane of small intestines; mesenteric vessels injected. (*Ibid.*)

COMOCLADIA.

Comocladia dentata, Jacq. Bastard Brazil-wood; Guao. Nat. Ord., *Asaccharifera*.

1. *Proving*s.—1. M. Dr. J. S. HOWARD took, Nov. 18th, 1854, a dr. of tinct. m. and e., and same on m. of 19th. Nothing noticed till 2 p.m., when severe tickling itching attacked scrofum, l. thigh, arm, and r. leg in succession, shifting rapidly from place to place, worse in warmth and at rest. At bedtime and next m. took 1 dr.; no symptoms till after wakening, when similar itching set in, and continued through r. aist.—In m., 4 dr. Similar itching at various times, and in e. eyes felt sore, with some lachrymation, and.—On waking, face around eyes felt swollen, and e. eyeball very sore, worse on movement. At 4 p.m. eye still very painful, feeling larger and more prominent than l.; eyes look dull and glazy, vessels congested, lids red and swollen, and just below lids face is much puffed. While in open air during d. profuse lachrymation. 23rd.—Eyes same, in e. severe pain at intervals from back of eyes to occiput, with pressure on balls from above, seeming to roll them downwards and outwards. Eyes worse on using or moving head, and on exposure to light. 24th.—No change in eyes; in e. took belladonna. 25th.—Soreness greatly diminished, but swelling took 2 or 3 d. to subside.

2. Feb. 4th, 1855, took 3 dr. in m. fasting. At 4.30 p.m., sense for 30 m. as if all e. molars were loose; after which steady aching and soreness in one of them, carious but painless hitherto, lasting till bedtime, relieved by heat. 5th.—At 10 a.m., 4 dr. In e. soreness and stitching in eyeballs. 6th-8th.—During these d. stitches, itching, and crampy sensations in various places, and (for 4 h.) similar pain in another (sound) r. molar. From 10th to 13th, eruption of small pimples in various parts of body, with much itching. On 15th and 16th, several recurrences of acute short-lasting pain in various places, especially in maxilla. (*Philad. Journ. of Hem.*, iv. 75.)

3. Miss J.—21. 28. On Feb. 3th, 1855, at 10 a.m., took 4 dr. of r. dil. From 12-3, aching in a r. upper molar, with twirching and sense of elongation, relieved by heat; after this, head and eyes felt heavy and large, and eyes as if pressed down from above, heat aggravates, also stooping, open air relieves; eyes water profusely from exposure to heat or light, and felt painful up till bedtime. 6th.—Head still heavy. At 10 a.m., 3 dr. At noon, nausea for 1 h., after which intermittent aching in all teeth for 4 h., and soreness in eyeballs. 7th.—Much epigastric distension, causing dyspepsia, lasting from 1 p.m. till 3 p.m. next d. 8th.—At 1.30 p.m., heavy aching drawing in l. axilla, through to shoulder, with sensation as if shoulder would be drawn towards neck, for 4 h. 9th.—Painful drawing in r. palm for 14 h., followed by (for 4 h.) sharp stitches and then smarting in popliteal region. 10th.—Violent pain from back of r. eye to occiput, with great soreness and sense of enlargement of ball and profuse lachrymation, from 10 to 11 p.m. Eye felt quite sore next m. Also itching of nose below bridge, within and without, for both these d., worse in warm room, better in cool air. 13th.—For 2½ h. a.m. dull aching on extensor surface of l. forearm and hand. (*Ibid.*)

3. Mr. G—, æt. 17, took on e. of Feb. 25th and 26th 15 pellets of ræ dil. About 4.30 p.m. on 26th, aching soreness in eyeballs, increasing in severity during e., sometimes making him very dizzy, and continuing till he went to sleep about 10; aggravated by looking at lighted candle and by motion, stooping or moving head, causing flow of tears. 8th.—At 7.30 a.m., drawing or cramp-like pain in r. axilla, lasting ½ h. (*Ibid.*)

4. Man, æt. 22, Nov. 13th, 1854, after breakfast took 2 dr. of tinct. At 12 a.m., tingling itching on lower sternum, and shortly after on whole chest; itching of same character on ankle, and (later) on calves and abdomen. At 10 p.m., 2 dr., and same at 9 next m. Found red, hard pimple outside of sacrum, painful when touched. About noon, intense itching on scrotum and penis, also felt internally; at intervals during d., tingling itching at various spots on lower limbs; at 6 p.m., numb, tense pain of forearm, and rheumatic stiffness of shoulders and elbow-joints, lasting for 4 h.; at 10 p.m., similar pain on inner thigh from scrotum to condyle; continued tingling itching of scrotum during n. 10th.—3 dr. at 9 a.m. At 10 violent burning tingling itching of lower limbs. (*Ibid.*)*

II. *Psionia*.—1. Mr. OTTO, in cutting off some shoots of the guano, stained his hands with the dark brownish-green sap. About noon he experienced painful burning on face and arms, and particularly about eyes, which became greater towards e. Sleep was tolerably placid, but on waking next m., he found face dreadfully swollen; eyes protruding, only a faint glimmer of light perceptible with the l.; and a tormenting itching and burning came all over body. As this and the swelling of face subsided, a general red colour of white surface supervened, with burning sensation, and after this his skin looked like that of a mulatto. (*Phil. Journ. of Med., ser. vi.*)

CONIUM.

Conium maculatum, L. Common hemlock. Nat. Ord., *Umbelliferae*.

I. *Proving*.—1. HAHNEMANN, *Mat. Med. Pura*, vol. iv. of original, vol. i of translation. Contains 88 symptoms from self, 131 from three fellow-observers, and 155 from authors.

2. IBSO., *Chronic Diseases*, part iii of original, vol. of translation. Contains additional symptoms from self and two others, making total 912.

3. The man that was to administer the poison brought it ready pounded in a cup. Socrates, on seeing him, said, "Well, my good friend, as you are skilled in these matters, what must I do?" "Nothing else," he replied, "than when you have drunk it walk about until there is a heaviness in your legs, then lie down; thus it will do its work." . . . He, having walked about, when he said that his legs were growing heavy, lay down on his back; for so the man bade him. And at the same time, he who gave him the poison, taking hold of him, examined his feet and legs from time to time; and pressing his foot hard, asked if he felt it. He replied that he did not. In like manner afterwards he pressed the thighs, and thus going higher he showed us that he was growing cold and stiff; and Socrates touched himself also, and said that when the poison reached his heart he should depart. But now the parts about the lower belly were almost cold; when, uncovering himself (for he had been covered over), he said, and these were his last words, "Crito, we owe a cock to Æsculapius; pay

* For the proving by Dr. Hyde, in *Amer. Observer*, vol. xiii, see Appendix to this volume.—ED.

it, therefore, and do not neglect it." "It shall be done," said Crito, "but consider whether you have anything else to say." To this question he gave no reply; but shortly after he made a convulsive movement, and his eyes were fixed; and Crito, perceiving it, closed his mouth and eyes. (PLATO, *Phædo*, ed. Stallbaum, lxxvi.)*

4. a. After taking ʒij of the "succus conii" of the B.P., I set out walking, and 2 h. after the dose felt a heavy clogging sensation in my heels. There was a distinct impairment of the motor power; I felt "the go" taken out of me; sensation as if a drag was suddenly put upon me, and as if I could not, even if strongly urged, have walked fast; after walking half a mile this sensation very decided, and, on putting the foot on a scraper, the other leg shaky and almost too weak to support me; my movements appeared clumsy to myself, and it appeared to me that I must make an effort to control them. At the same time a sluggishness of the adaption of the eye; vision good for fixed objects, but on looking at an uneven object put into motion there was haze and dimness of vision causing some giddiness. After an h. these symptoms rapidly disappeared, leaving me as well as ever.

b. The following effects were produced, during rest, 2 h. after taking ʒj dr. of succus. On raising the eyes from a near to a more distant object, vision confused and giddiness came on suddenly; but so long as my eyes were fixed on a given object, the giddiness disappeared, and the definition and capacity of vision for the minutest objects were unimpaired, but all was haze and confusion with giddiness on directing the eyes to another object, which continued till the eyes rested securely upon one object again. Ten m. afterwards, general muscular lethargy with heavy lids and dilated pupils; in 1½ h. decided weakness in legs. Giddiness and diminished motor power increased for next 15 m. These effects attained their maximum 1½ h. after taking the dose; then I was cold, pale, and tottering. The pulse, which had been emotionally excited by the sudden accession of the foregoing symptoms, was now 68, quite regular, and of undiminished force and volume. The legs felt as if they would soon be too weak to support me. Less muscular power all over body, amounting to complete paralysis as far as the hamstring and levator palpebrae muscles were concerned. It required great effort to open the lids. The mind clear and calm, and brain active; but the body heavy and well-nigh asleep. The symptoms continued at their maximum for ½ h. and then declined rapidly, and in 2½ h. had wholly disappeared. (HARLEY, *Old Veg. Neurotics*, p. 3.)

5. A man æt. 57, of great muscular development, took doses of the succus, increased from ʒij to ʒj. No effect till ʒvj were taken: 20 m. after that sudden giddiness, and such weakness of the legs as prevented his walking and obliged him to lie down. There was aching pain across brows, and mistiness of vision. He could scarcely raise the lids, which seemed pressed down with a heavy weight. Disposed to

* This is strictly a poisoning rather than a proving. Yet it has some of the features of the latter class; and no record of the effects of hemlock could do otherwise than begin with it. It excellently compares, moreover, with the description of Harley which immediately follows.—E03.

sleep. In 20 m. he got up and walked a mile, but with very tottering legs, the knees tending to fall forwards. In $\frac{1}{2}$ h. the effects had almost entirely passed off. On another occasion, after taking \mathfrak{ss} , there followed the same symptoms, but the giddiness and weakness came so quickly that he would have fallen had he not caught hold of something. All the symptoms were intensified and continued longer. (*Ibid.*)

6. A delicate young woman, inactive in her habits, took \mathfrak{ss} of the succus. In 20 m. nausea and giddiness came on. She dropped an ink-stand she had in her hand, lost her walking power, and was laid down. The pulse, from excitement, went up to 120, but, in a few m., the heart became quiet, and she remained calm, but without the power to move arms or legs. In an h. there was nearly complete muscular paralysis, eyelids were closed, pupils dilated, but the mind was clear. Could not open lids. In an h. these symptoms were gone, and in 3 h. she resumed her usual habits. Next d., however, she complained of slight wearisome pain in muscles of legs. (*Ibid.*)

7. John R—, æt. 57, a powerful man, took at 7.45 p.m. \mathfrak{ss} of the succus. In $\frac{1}{2}$ h. he was suddenly seized with giddiness and leg-weakness, and for $\frac{1}{2}$ h. could neither stand nor walk. During the next $\frac{1}{2}$ h. was tottery, but could walk with assistance. For the next h. heaviness of lids and drowsiness. The giddiness and leg-weakness then ceased. The pulse never varied. The pupils were only slightly dilated, and there was no change in the urine. (*Ibid.*)

8. Mary L—, æt. 36, took 50 m of tinct. of green fruit. In $\frac{1}{2}$ h. giddiness came on. \mathfrak{ss} caused more decided symptoms; and \mathfrak{ziss} was followed by double vision for several m., much giddiness, muscular weakness, causing slight tottering, and dilatation of pupils. The giddiness and muscular weakness lasted for 1 $\frac{1}{2}$ h. (*Ibid.*)

9. Mrs. M—, æt. 46, took 3 gr. of extract of green fruit. In $\frac{1}{2}$ h. severe giddiness, muscular relaxation of the orbicularis, drooping of lids almost amounting to ptosis, and inability (nearly) to walk, came on and lasted for 1 $\frac{1}{2}$ h. (*Ibid.*)

10. After taking 15 or 20 gr. of extr. I have often been affected with a weakness and dazing of my eyes, together with a giddiness and debility of my whole body, especially the muscles of my legs and arms; so that when I attempted to walk I was apt to stagger like a person who had drunk too much strong liquor. (WHYTT, *Nervous Disorders*, p. 22.)

11. SCHNELLER began with 5 dr. of tinct., increasing daily by 5 dr. up to 65; then he increased dose by 10—40 dr., so that at last he took 200 at a time—altogether nearly \mathfrak{ss} . Up to dose of 50 dr. nothing was perceived but eructations followed by rumblings in bowels, which passed into gripings or pressure in epigastrium. When taking doses of 55—85 dr. there was also shooting-drawing pain in tonsils with burning in the gullet. When dose was 100—200 dr. there was strong saline taste in tongue, observed especially when hawking up mucus, but less in saliva, continuing for several d.; also flying stitches and tearings in cardiac region, or in the head, hands, and legs, increased appetite, and frequent micturition. He felt the drawing in tonsils, and occasionally the taste, for 14 d. after last dose. (*Wien. Zeitschr.*, Jahrg. II, Bd. 2.)

12. Dr. FOUNTAIN proved extr. In rather more than $\frac{1}{2}$ h. after taking 12 gr. he noticed dimness of vision with bright points scintillating or rather quickly moving in the distance; turning from side to side to notice them he reeled in the saddle; there was no vertigo in head but a slight feeling of lightness there. Very soon numb pricking sensation in fingers, extending gradually to the elbows, causing stiffness of muscles and difficulty in moving forearm and hand; soon same sensations in feet creeping slowly upwards to upper part of thigh. Eyes now began to feel uncomfortable, causing him to brush them frequently to clear apparent obstructions from the lids; pulse soft and feeble, but not fast. Dismounting in an h., difficulty in walking, requiring assistance to reach house, lower extremities appearing nearly paralysed; smoking tobacco relieved symptoms quickly; sight became clearer, and he felt well when sitting; on rising, however, the paralytic condition of the legs betrayed itself but was less. Morbid feelings continued all d., and not till after sleep did all the symptoms disappear. (*Amer. Journ. of Med. Sc., Jan., 1846.*)

13. a. Dr. EARLE took gr. doses of American extr. 3 times a d., increasing dose at rate of 1 gr. a d. till he took 25 gr. 3 times a d. When taking latter dose he experienced during breakfast fulness of head, as if ligature had been tied round neck, with slight vertigo. Next d. he took 120 gr. in 3 doses at m., 10 a.m., and e., with little effect beyond more vertigo and sensation as if eyes were swollen and unnaturally protuberant. Next d., before breakfast, took 45 gr.; in addition to the other symptoms had vision slightly dimmed, aggravated by rising from the table; weariness and weakness of knees, and gait not so firm as usual; pupils slightly dilated. At 1 p.m. took 45 gr. soon after eating an apple; in 15 m. sensation of heat in gastric region, followed by the other symptoms. At e. took 45 gr.; effects much the same. Next d. took, in m., 50 gr.; vertigo in 20 m.; in 30 m. dim sight and weak knees; sensation of weakness and weariness in biceps brachialis muscle with constant disposition to flex and extend forearm. At 10 a.m. took 60 gr. and had same symptoms, effects ceasing in $1\frac{1}{2}$ h. At 9.30 took 60 gr. again after eating apples, when no new symptoms showed themselves. Double vision noticed on 2 following d.

b. In a second series of experiments with English extr. the dose was increased to 100 gr. and symptoms produced were nearly the same. On two occasions acute lancinating transient pain at neck of bladder. (*Ibid., July, 1845.*)

14. a. Dr. E. CURTIS took ʒss of Squibb's fluid extr., while busily occupied in writing, and continued his task. After about 10 m. "I raised my eyes quickly from the MS. on which they had been steadily fixed towards the inkstand some little distance away, but in so doing I instantly experienced a slight difficulty in accurately sighting that object,—the eyes did not strike exactly where they were aimed. Simultaneously a faint but distinct thrill of the peculiar swimming feeling that I know so well as the beginning of sea-sickness, swept through the brain. As the palsy of the ocular muscles advanced, soon the slightest movement of the eyes produced a curious and very disagreeable apparent flickering of the field of view, and was always accompanied by a sudden

rush of giddiness. So long as the eyes were kept motionless, then, as long ago pointed out by Harley, there was no giddiness. For experiment, I tried the eyes in various ways, seeking to find, among other things, how the focalising power on near objects was affected; and the consequence was that I quickly became not only very giddy, but also decidedly nauseated, in fact, veritably sea-sick, the sensations being the same as those felt at sea. Fearing I should vomit, I got up to cross the room to the wash-stand, but at once the floor seemed to rock and waver, and I staggered against a table. Not being conscious, however, of any real weakness of the legs, it immediately struck me that the uncertainty of step was purely because the eyes were playing false as guides for the feet; if so, I argued, walking ought to be steadier with the eyes shut than open. Accordingly, after getting the proper bearings, I shut the eyes, and sure enough found at once that I could now walk straight and steady, and, what was more, without any feeling of giddiness. Securing a basin, I repeated the little experiment on the return trip to the desk, and with precisely the same result,—giddiness, transient nausea, and staggering gait on trying to walk with eyes open; freedom from all trouble with them shut.

"4. The paresis, which had hitherto been mainly confined to the ocular muscles, now became general, and then I found that even with the eyes shut any movement involving the balance of the body was attended with a singular uncertainty and falling short of the desired effect, and this was again invariably accompanied by a fresh rush of sea-sick feeling. I accordingly now settled back in my armchair, shut my eyes, and for some 10 m. kept absolutely still, with every muscle completely relaxed. The sea-sickness then completely disappeared, and I became wholly unconscious of any influence of the poison whatever. Indeed I had to open my eyes at last, and experimentally look about, in order to know whether the enemy was still with me at all or not." (*N. Y. Med. Record*, May, 1875.)

25. 4. Oct. 29th, 7 a.m., 2 dr. tinct. Shooting in throat, especially on empty swallowing, soon, lasted 1 h. to a.m., heat of face and sinicupit more inwardly than outwardly. Pressure in various parts of forehead. In warm room, chilliness through back with cold hands and bluish nails. Tired pain in muscles of upper and external parts of r. upper arm, so that it is difficult to raise it, frequently.—31st, 7-45 a.m., 1 dr. 9 a.m. weight and pressure on base of brain, pressure in l. side of occiput, nausea and flow of saliva. Black points and stripes before eyes, chilliness in back; pressure from deep in l. forearm to fingers; later, bruised pain in l. elbow.—Nov. 3rd, 7.30 a.m., 5 dr. Much scraping in throat and dryness of mouth and lips; dull pressure over both eyes, then in occiput as if a hand were round head; with heat of occiput, then of forehead and cheeks; at same time wandering pressure in forehead and r. temple. Pressure and weight in sinicupit all d. Dull pressure in crown, then down to forehead. Drawing in r. pygoma in l. toes, and in r. calc. (8.30 a.m.). After-noon, pupils dilated, shooting in urethra (9.30 p.m.), repeated weak feeling of whole r. arm. Sharp stitches from l. axilla to inner side of upper arm repeatedly (7 p.m.). Dull shooting under l. 9th and 10th costal cartilages.—4th, 6 p.m., sharp blow through middle of chest, from sternum to spine when sitting. Much rumbling in bowels. This symptom always showed itself in all subsequent trials.—5th, 7 a.m., 3 dr. Scraping in throat (also in all future trials). Fine s. h. dryness of mouth, alternating with flow of watery saliva, and at same time dryness in fauces. This symptom occurred in subsequent provings. Occiput as if full and confused (7.30). Pressure in sinicupit alternately stronger and weaker, later heaviness; the same sym-

prom in occiput lasting all d. 3 a.m., pressure in r. side of forehead, l. side of occiput, anal, at 9.45 a.m., l. parietal protuberance, 7.45 a.m., drawing in lower part of l. calf and sole, posterior surface of l. upper arm, l. thumb, l. calf and instep, under r. scapula, in r. gluteus muscle, worst when walking, in muscles on inner and outer sides of l. forearm, in muscles of r. leg to foot and toes, on inner side of r. upper arm, on lower surface of l. big toe (these symptoms came on till 9.30 a.m., and then again from 5 to 9 p.m.). 7.45 a.m., tickling in larynx and dry cough. 8 a.m., before eyes large dark spots with white borders. 9 a.m., pupils persistently dilated. 3 a.m., pricking in nape-muscles, 9 a.m., in l. calf as with needle. 3.45 a.m., shooting and burning in l. side of tip of tongue. 9.45 a.m., shooting in orifice of urethra; sudden pressure like a blow deep in scrobiculus cordis, cutting pain on l. side of navel, like lightning. 8 p.m., sudden cutting in stomach on eating. 8.30 a.m., bruised feeling in l. ankle-joint, tension and stiff feeling when moving it. 1.30 p.m., after dinner, pressing in flexor tendons above l. wrist. All symptoms worse when sitting than when moving.—6th, m., in bed dull pain and stiff feeling in r. 4th finger, then severe pressure on upper and outer part of l. upper arm. After dressing scraping in larynx, irritation to cough and dry cough, bruised pain in extensor muscles of r. forearm; pressure over and into r. eye; shooting in l. axilla; drawing in l. elbow and r. heel; flying shoots in l. hypochondria, &c.—7th. On waking suddenly from a loud noise, anxious palpitation of heart, frequently. 10 a.m., drawing in r. fingers and r. big toe, and at 6 p.m. on anterior side of r. leg, in l. toes, &c. Noon, when walking violent shoots in r. mamma round nipple, at each inspiration, relieved by strong pressure of hand on chest. 4 p.m., pressure in chest. Noon, shooting in l. axilla, in abdomen, with lightning-like stich through glans penis (6 p.m.), 6.30 p.m. in tip of l. big toe, as if under nail, when sitting, 3.30 under l. border of ribs, when sitting. 5 p.m., much tickling in throat and dry cough, bruised pain in r. elbow-joint.—8th, 7.30 a.m., 3 dr. Heat, weight, confusion of head. These symptoms returned after each dose, lasted 5 h. or more, and should be distinguished from the various bore pains of head. 10 a.m., pricking, then burning on outer side of l. testicle, dull pressure, then bore feeling in stomach. M. and e., drawing on outer side of r. leg, in lower part of r. forearm, on inner side of r. upper arm. 10 a.m., pressure behind sternum and l. side of chest, when sitting. 9.45 a.m., chilliness in back and cold hands, lasting ½ h. 5 p.m., shooting in knees often, behind 8th and 9th costal cartilages, under l. ribs making him press upon them, when sitting; 7 p.m., under r. border of ribs, 5.30 p.m., in lumbar muscles, and painful stiffness on moving back, when sitting. 4 p.m., sharp shoots in r. axilla. 6 p.m., pressure in ball of r. big toe. 8 p.m., shooting in orifice of urethra.—9th, 5 a.m., pressure in r. calf, in r. lumbar region, irritation to cough. 3 a.m. and 4 p.m., pressure in l. lumbar region and under edge of l. ribs, 4 p.m., in elbow, siniciput. 6 p.m., in r. side of occiput as from a peg. 9.30 a.m., drawing in 1st joint of l. little finger, with feeling of stiffness, in fingers, under e. patella, in toes, in extensors of r. forearm, repeatedly. 10 a.m., dull pain in chest on l. of sternum, suddenly when sitting. 5 p.m., shooting in l. axilla, stiff feeling in r. masseter muscle.—10th. The noise of opening the door produces a feeling in upper part of abdomen as after a sigh, as though diarrhoea would ensue.—11th, 7 a.m., 10 dr. This dose caused symptoms that lasted till 12th. During this time these occurred daily, more or less severely, and jumping from one part to another, the following symptoms:—boring, tearing, aching in various parts of cranial bones, shooting-aching in nape-muscles, drawing in cervical and pectoral muscles, weak feeling in arms, aching tearing in arm, elbow, wrist, and finger-joints; drawing and pressing in forearms; shooting in inner side of upper arm, in axilla; pricking in tips of fingers, anal same symptoms in lower extremities; aching shooting burning scapula, in lumbar region, in short ribs, in both hypochondria; cutting deep in umbilical region; irritation to cough, &c. Pains in various parts of chest, stitches in chest on inspiration, which they almost prevented, chiefly when sitting. Drawing tearing on zygomata, aching in masseter muscles, feeling in throat as from a foreign body.—12th. Shooting in tip of tongue.—13th. Itching in r. leg followed by tearing sore pain when scratched, the front slightly reddened.—14th, m., and during d. this burning retained, spreading around, much aggravated by slightly stroking; a small blood-red spot appeared on the burning place, not removed by pressure, the spot and surrounding skin very sensitive to slightest touch; frequent itching on various spots of both wrists, and on scrotum for 3 c. Drawing in l. spermatic cord; itching

and shooting in legs and feet, in l. palm with needle-pricks; in bed shooting in both nipples and around them, and in l. inner wall of buccal cavity.—16th, 17th, 18th. Urine scanty, dark, frothy, with red sediment.—17th. Shooting in r. heel when walking or sitting, in skin over l. zygoma, in l. elbow; itching in l. thumb and little finger, in ball of l. hand, and two vesicles size of pins' heads filled with clear fluid and red areola; burning pain on a small spot in l. palm near root of third finger. Stiffness and pain in tendons of l. popliteal space on commencing to walk.—19th. Shooting and burning in tip of l. big toe. Burning of red on l. side of upper lip, after some h. on r.; creeping in toes; shooting and smarting in tip of tongue for several d. Cutting pain in flesh near nail of l. thumb and r. big toe, with burning; frequent calls to urinate for some d.—20th. Burning and great sensitiveness of skin above l. knee; cutting in tips of l. toes. At n. wakes suddenly from a sharp stitch deep in abdomen; then severe shooting deep in chest, on r. side when lying on l., so that inspiration is impeded, followed by long-continued burning in ball of l. toe, felt on waking in m. of a.m.; much shooting in urethra, sometimes increased with every cardiac beat. Pulsation in abdomen under 8th and 9th l. ribs, later severe shooting in that part. When rising sudden shooting between r. nipple and sternum, increased by inspiration; severe aching weak feeling on anterior surface of r. leg down to foot in bed; next d. same in l. leg after rising, relieved by moving limb.—22nd. Shooting in r. groin when walking. Great burning in skin of r. side of forehead. Aching and shooting in r. conj. bulbi in its inner canthus, and close to inner border of r. cornea a thick mesh of fine blood-vessels (also on 31st). Pricking and sensitiveness of skin on posterior aspect of r. forearm.—23rd. On back of r. hand, between thumb and index, three small vesicles with rose-red areola and itching after scratching, worse in e.; they dried up on the 25th. Burning as from pepper on tip of tongue; burning on hairy scalp above r. frontal protuberance, and sensitiveness of skin there.—24th. Burning on inner surface of lower lip.—28th. Small itching vesicle on back of l. thumb-ball, dried up on 30th.—Dec. 2nd, 7 a.m., 15 dr. This dose acted till the 10th. Besides the well-known symptoms in head, chest, the various pains in the joints of the lower extremities, sole, heel, ball of foot, toes, upper extremities, back, joints, abdomen, the feeling of weakness, burning in tongue and lips, there occurred also shooting under nails of r. hand, ringing in r. ear and diminished hearing power, feeling of a spider's web on r. cheek, small vesicle with red areola near knuckle of l. little finger, shooting in edges of lids and canthi, shooting under skin of septum of nose; at n. many erections, drawing in limbs, shooting under ribs, copper taste in mouth, and in tip of tongue feeling as if it were touched with copper; drawing in spermatic cord; confused dreams at n.; much itching on r. side of body; burning and smarting on inner surface of l. cheek.—4th. Needle-pricks in l. mamma; much shooting in urethra; emission without dreams three successive n. (from 6th to 9th); burning in upper part of l. coccyx.—7th, 7 a.m. 30 dr. Brought on usual symptoms and tearing in nasal bones, shooting in rectum, pain in belly, increased by pressure, very excited sexual desire, internal uneasiness in scrobiculus cordis, when it is tense, hurriedness in all actions and accelerated breathing. After a cup of coffee with two tablespoonfuls of wine, at 6 p.m., general heat and sweat. In forenoon, after urinating, several drops of urine ran out; this occurred frequently.—Jan. 6th, 30 dr. caused the usual symptoms, tickling in larynx and dry cough after $\frac{1}{2}$ h., weight in head, staggering when walking and pressure in forehead (7.30 a.m.). 3 p.m. itching on sides of l. third and fourth fingers, relieved by rubbing; pains in joints of hands and feet, fingers and toes.—7th, 8th, and 9th. Same symptoms. 8th. Sexual excitement without erection.—11th, 6.30 a.m., 30 dr. All symptoms increased; same also on 12th.—14th, 7 a.m. 30 dr. Same effect; in addition, feeling in lower incisors as if they were pushed up. 2.45 a.m., pricking in toes; burning in lips and tongue.—15th. Itching in r. nough, drawing in spermatic cords; itching in back of both thumb-balls all e., and in m. of 16th, on both places some small vesicles as formerly.—17th, m., sexual excitement. Since 17th a soft stool every m. and e.—21st, 7.30 a.m., 40 dr. Soon small, soft, slow pulse till 9.30 a.m.; dyspnoea, weight in head, bright spots before eyes. 11 a.m. when walking in open air, pressure on crown and feeling as if he would fall; shooting in tip of tongue, in room dilated pupils, fulness in head, shooting behind sternum extending to axilla. Haste and restlessness in all actions, dull aching deep in thigh, memory weak, disinclination for all work. 8.30 a.m., pupils were dilated, many white spots and glittering stars when looking at different

things in room. All these symptoms ceased about 9.30 a.m. Swaying when standing; heat of head and cold extremities. Much scraping and tickling in *nostrils*, and frequent dry cough. Many pains in various joints, cranial and other bones, chest and back. Bruised pain in arms and legs, shooting in lips and tongue, itching on flexor side of wrist.—22nd, m., urine turbid, frothy, with red sediment. During d. the affection of larynx, the various pains, an itching vesicle on l. thumb-ball, dried up on 24th. Similar symptoms till Feb. 6th.—Feb. 3rd Long-continued visible twitching of muscles of l. thumb-ball, jerking the thumb by its metacarpal bone to and fro, not painful.

4. Feb. 13th, gr. j., and 14th, gr. ij pulv. herbæ con. On both d. symptoms similar to those of Jan. 23rd appeared, also stiches in glans penis, anxious feeling in heart and quicker heart's beats, and profuse epistaxis at 7 and 9 p.m.—13th, Gr. ʒ caused similar symptoms till 15th.—14th, 5.30 p.m., anxious heart's beats and epistaxis, visible twitching of muscles in ball of l. little finger and in l. cheek, long continued; urine turbid, red sediment.—13th, 3 a.m., severe burning in skin of r. temple, then on top of l. thumb and at the sides of its nail. Later, especially e., the usual pains in joints, bones, belly, thorax, loins.—16th, 4 gr.—17th, 5 gr.—18th, 6 gr. On all these d., in addition to usual symptoms, there occurred: The eye affection mentioned on Nov. 22nd, stiches in penis, sexual excitement without erection; under nail of e. index a pain as if part were torn and the nail forced upwards, repeated visible twitching in l. thumb-ball and l. cheek, internal cold feeling and numbness from thigh to foot, increased sweat on genitals, forcing-out sensation in r. groin, jerking starting. Soon after taking the dose persistent dilatation of pupils, feeling as if the whole body tended to the r., much burning on lips and tongue. Painful burning and sensitiveness of skin of back and l. forearm (less on r. forearm) even to the slightest touch, all 18th and 19th, compression in root of penis (also on 20th), shooting in r. nipple. Numbness of both heels with pricking as from needles when sitting; crawling under skin of r. cheek to corner of mouth; itching in backs of toes and fingers, burning and sensitiveness of skin on side of l. little finger with redness of the part almost all d. These symptoms and the former pains gradually went off by the 21st. All symptoms aggravated till 10 or 11 a.m. and from 4 to 9 p.m., also 11 and 12 p.m.; they rarely occurred at n. Symptoms generally worse when sitting than when walking, more in room than in open air. (LEMBKE, *Abg. A. Ztg.*, xlvii, 177, 185.)

16. 5 p.m., health good,* pulse 65, took 10 drops 2x in $\frac{1}{2}$ oz. water. Soon flushings followed by repeated itching in various parts. 5.5, cramp in r. 3rd finger prevents writing easily, itching returns. 5.7, twitching of l. eyelid, drawing in l. forearm. 5.12, flushing with sweat on forehead; itching nostrils, pinching over l. hip; watery eyes. 5.15, itching in hairy parts, especially scrotum; this was followed by erection of penis, no sexual desire or other cause. 5.35, perspiration in axilla, offensive; itching of anus; drawing in r. tibia; sneezed, nose stuffed. 5.45, pulse 84; salivation; much mucus in throat; sexual excitement returns without provocation. 6.10, slight griping in bowels; itching scrotum, it seems swollen. 6.40, drawing in l. spermatic cord; no appetite for dinner. 7, pulse 90; walking across room sends it up to 110, with slight dyspnoea; pain in r. arm as if bound. 8.10, slight headache; much distension of bowels and flatus; testes heavy and sore; free urine. 9.30, called to urinate, dribbling afterwards; desire to sit erect; cannot breathe easily when stooping; itching very annoying; extreme voluptuous desires during night; coitus attended by spasmodic respirations and musk-like odour from axilla; great exhaustion followed. 2nd d., woke with catarrhal obstruction of head and throat; incontinence of urine and marked languor during m.; usual appetite and stool; easy sweats. 10 a.m., occasional sneezing; pulse 90. 2 p.m., no

* Complete sexual continence had lasted for thirty days.

appetite; mind dull; sleepy and languid; disposed to diarrhoea; itching at intervals. 4 p.m., exercise develops a weak back, lumbar region feels disjoined. 5.30, urgent liquid stool; violent tenesmus, followed by sweats; much sexual excitement during p.m. without cause. (A. W. WOODWARD, M.D., communicated.)

17. *a.* After moderate doses the interference of vision is only such as results in haziness, as if a thin film of transparent vapour were floating between the eye and the object; the effect being identical with that observed on looking through a medium of unequal density, such as the mixture of hot and cold air enveloping a highly heated stove. It occurs independently of any dilatation of the pupil and is compatible with good definition for fixed objects. It is due to imperfect adjustment of the refracting media of the eye from partial paralysis of the ciliary branches of the third nerve. It is through these minute branches that the individual first becomes conscious of the effect of hemlock; and if he should be reading at the time he will suddenly find the occupation fatiguing, and, very soon afterwards, it may be impossible; and he will be glad to close the eyes to relieve himself of the symptom, and as the muscular lethargy begins to be felt, content to lie perfectly still as if asleep.

b. In full doses, the depressing influence involves the other branches of the nerve, and the lazy movements of the eyeball, or dull, fixed, and occasionally divergent stare, indicate the partially paralysed condition of the external muscles of the eyeball; while more or less drooping of the upper lids expresses a similar condition of the levator palpebræ. Double vision, from inability to maintain the convergence of the optic axes, except as a very evanescent effect, is a comparatively rare result of the action of hemlock. I have only observed it in a few persons. In one of these, a delicate invalid, confined by weakness and ovarian disease to the recumbent position, ʒij of the succus produced full effects accompanied by double vision. This was a constant symptom—it came on ¼ h. after taking the medicine, and lasted 20 m. After having taken the hemlock for 6 mo., she told me as often as I happened to see her during the operation of the medicine that she saw each object in the room double, that my eyes were also doubled, and that she felt as if she were squinting.

c. Dilatation of the pupil occurs usually after only very large doses, and then it is often but slight, and only observable in a subdued light—the excitement of strong light overcoming the tendency to dilate, just as the exertion of a strong will strengthens for a time an enfeebled limb. (HAMLEY, *op. cit.*, p. 8.)

II. *Poisoning*.—*a.* A man who had been fasting all d. ate greedily of hemlock leaves between 3 and 4 p.m. Going immediately afterwards to a house about ¼ mile from his own he staggered, on entering, as if intoxicated. Converses rationally while there, sitting down, but staggered again on leaving and on returning. Was found by policeman sitting on a doorstep, and said that he had completely lost his sight and had not perfect use of his limbs. Policeman tried to support him, but legs bent under him and he fell upon his knees. On water being given him he could not swallow. Lids (which were

closed) being lifted up, eyes were dull. He seemed sensible, and endeavoured to say something, but could not articulate. Police-surgeon now saw him. "He was sensible when I spoke to him, and tried to turn his face towards me, and slightly raised his eyelids, but appeared unable to speak. His power of motion appeared completely prostrated, for when I lifted his arm and laid it down, it lay where it was put; and when his armpits were tickled he seemed to manifest a little sensibility, but could make no exertion to rid himself of the annoyance. There were occasional movements of the l. leg, but they appeared to be rather spasmodic than voluntary. Several efforts were made to vomit, but these were ineffectual. His pulse and breathing were perfectly natural, so also heat of skin. I visited him again about 10 m. to 7, at which time all motion of chest appeared to have ceased; action of heart was very feeble, and countenance had a cadaveric expression; pupils fixed." He was then sent to the Infirmary, and on arrival, soon after 7, was found to be dead.

P.M., 63 h. after death.—Unusual quantity of blood flowed from scalp and long. sinus when divided. Slight serous effusion below arachnoid and about 3ij of clear serum in lateral ventricles. Substance of brain soft throughout, and on section presented numerous bloody points. Lungs throughout intensely engorged with dark-red fluid blood. Heart healthy in structure, but soft and flabby. Blood in cavities mostly fluid, presenting only here and there a few small grumous clots. Kidneys and bladder showed much venous congestion. Spleen soft, easily breaking down under fingers. Mucous membrane of stomach much congested, especially at cardiac extremity, where were numerous extravasations of dark-red blood. Intestines were healthy, here and there presenting patches of congestion in mucous coat. Blood throughout body was of dark colour and fluid. (HUGHES BENNETT, *Ed. Med. and Surg. Journ.*, 1845.)

2. *a.* Woman, æt. 28, in sixth month of pregnancy, took for dry night cough 13 dr. of succus at 7 p.m. Went to bed about 10 feeling as usual, but awoke about midnight feeling uncomfortable, and with severe headache. Tried to speak to her husband, but felt as if tongue stuck to roof of mouth, and could not open jaws. Headache was a violent pressing squeezing sensation on vertex; there was also severe pain in forehead over eyes, and profuse acrid lachrymation. Pain went down from top of head to sides of jaws, and from thence to below l. breast, of a sharp stitching character, accompanied by feeling of choking and inability to draw breath. There was a feeling as if something were coming up the throat to choke her. The breathing was so difficult and stridulous that her inspirations could be heard outside the door. Her face was very red and flushed, so much so that a neighbour woman, who had been called in, thought she had erysipelas. The next symptoms were a numb feeling in the lower extremities, with utter want of power to move them; this was followed by a similar state of upper extremities. Along with numb feeling there was sense of stiffness in limbs, different from feeling of powerlessness of motion. The latter, with numbness, then extended over whole body, but was not accompanied with coldness of surface. Sensibility of skin was normal,

and she was perfectly conscious, and saw all that was going on. A cup of tea now taken was vomited. Symptoms went off partially for a time, and then returned as before till about 4 a.m. During latter part of time she was imagining objects in room as figures of dead relatives; was aware of their being illusions, but could not help seeing them. At this time also objects in room seemed to be indistinct, and as if moving about.

6. At 4 she fell asleep, and slept quietly till usual time of waking in m. When she rose she felt constant aching soreness in jaw, with pain under l. breast, also such weakness in legs that they shook under her. She was hardly able to walk across floor, and had to return to bed in middle of d. Between 7 and 8 p.m. she felt a sensation as if symptoms of preceding n. would return, but it went off. I saw her the d. following, and found her with still the aching soreness in the jaws, and her limbs so weak that she could hardly walk to the dispensary. (A subsequent experience with a medicinal dose of hyoscyamus proved this woman to be extremely sensitive to the action of such drugs. —EDS.) (DYCE BROWN, *M. H. R.*, xiii, 708.)

3. In the case of two children who had swallowed only a small quantity of the leaves of the shoots of young hemlock, face was pale and livid, pupils dilated, heart's impulse weak and slow, pulse hardly perceptible; both complained of general lassitude and somnolence; all their movements resembled those of one much fatigued. There was no paralysis. The action of a stronger dose was seen in two other children; the aspect was cadaveric, face pale and livid, pupils largely dilated and immovable, cornea glazed and shining, eyelids completely passive, jaw and tongue equally so. Only respiration (which was itself very slow) showed that life was not extinct; radial pulse could no longer be felt; heart's impulse and sounds were so feeble that observer even felt doubtful of their existence. Recovery was easy in the former cases, difficult—under the strongest measures—in the latter. In no case was there delirium, or convulsions, or vomiting, or diarrhoea. (SKINNER, *Liverpool Med.-Chir. Journ.*, July, 1858.)

4. My brother ate by chance some eggs dressed (through error of the cook) with fresh leaves of hemlock instead of parsley. After a short time he staggered, his sight became dim, he wept and smiled, vomited spontaneously, then swelled up so that his belly threatened to burst; he could not pass urine nor could he speak or raise himself up, but lay as one intoxicated, until copious draughts of milk and almond oil relieved the symptoms, and purgatives and roborants finally restored the health. (ЕНКНАРТ, cited by Imbert-Gourbeyre, *De la Mort du Saecre par la Cigue*, 1876.)

5. Dr. COMOZ was called at 8 p.m. to a family of 3 adults who, since dinner at noon, had been strangely ill. All had been seized from about 1 with nausea and an indeclinable malaise. The symptoms increased; the patients became much agitated; they were attacked with hallucinations and delirium, and went out of doors. The neighbours, much alarmed, thought they had gone mad; they laid hold on them, and were obliged to employ force to compel them to return home, where they watched them closely. Patients were mirthful all the time.

About 3—4 p.m., one of them—a brother-in-law—vomited copiously, and from this time steadily improved. At time of doctor's visit he had nearly recovered; but the others (man and wife), who had eaten most freely of the dish found to contain the hemlock root, and had not vomited, were much agitated; pulse 110—120; tongue dry and reddish; intermittent delirium; always mirthful; hallucinations. The husband, who was somewhat addicted to liquor, saw all sorts of animals dancing upon the bed; had a little subsultus tendinum; his facial muscles seemed somewhat contracted; slight risus sardonius. Delirium was more marked in his case than in that of his wife. In both eyes were somewhat congested and wild; lips slightly cyanotic. They had nausea, but no vomiting. There was dull burning, of no great intensity, at epigastrium. Emetics brought speedy improvement. (*Ibid.*)

6. A medical student, of Castleton, in the course of experiments on himself with narcotic drugs, took as much as 2 grm. of extr. without experiencing any peculiar symptoms except diplopia and muscular contractions. He now chewed and swallowed 15 grm. of root. In 1½ h. his head became affected, as if it would wander, and his eyes very sensitive to light. Delirium supervened, during which he at first took to walking about. Two h. after swallowing poison he was seized with an epileptiform attack, which lasted 4—5 m., with contractions of all muscles. Before convulsions pulse was 52, of ordinary force; after these it became weak and frequent; then ensued spontaneous vomiting. He was now dosed with opium, ammonia, alcohol, and capsicum. A second and still more violent attack came on, leaving him as if dead. Five h. after poison he came to himself again, but was unable to move his limbs; he felt inclination to vomit as often as he tried to rise. After 16 h. he vomited 3 or 4 times; 4 h. sleep completely restored him. (*Boston Med. and Surg. Journ.*, vol. x.)

7. HAAG was one e. called to a soldier said to be dying. He found him unconscious; pulse small, hard, only 30; extremities cold; face bluish, congested, like one strangled. He found that he with some comrades had partaken of soup in which hemlock had been mixed, he most largely. About 1½ h. after supper all felt as if intoxicated, and had pain in head and throat; this man had gone to bed, where they noticed him groaning and breathing with difficulty. An emetic was given, with cold to head, and warmth to extremities; but efforts to vomit were fruitless, and his state grew manifestly worse. He spoke, and complained of feeling very cold, but soon again lost speech and consciousness, constant palpitation in chest and precordia being the only manifestation of his feelings. He died 3 h. after the fatal supper. Autopsy showed great congestion of brain. (*Journ. de Méd. de Lereux*, xxiii, 1813.)

8. A young man, with two phagedænic buboes, was treated with extr.; ℥j was taken in course of d. for some time, later ℥iiss, ℥ij, and even ℥iiss. It produced indistinct vision and blindness, loss of the pain, falling of lower jaw, temporary palsy of the extremities, once or twice a loss of sensation; but nutrition did not suffer, and ulcers improved. After laying drug on one side for some time he returned to it, taking in course of one morning 3x. It produced great restlessness

and anxiety; he dropped insensible from his chair, fell into convulsions, and expired in 2 h. (J. HUNTER, *Works*, ed. Palmer, i, 379.)

9. In 1871 a man was knocked down by a brick. The injury he received is supposed to have caused the contusions of his face for which he took con. He dictated this to wife: "At 4.10 p.m., 50 min. Squibb's extr. of con. 4.40 p.m., dizziness and relaxation of muscles of limbs; 50 min. more then taken, immediately difficulty of walking and want of power to control movements, forced to lie down, no mitigation of spasm, limbs weak, unable to hold up head, speech thickening, some pain and heaviness in top and back of head, pulse 56. 5.15 p.m. took 50 dr. Some nausea, some tremor at base of clavicle and its muscles across chest, no diminution of spasms about eyes [the symptom he took the con. for], more photophobia. 5.20 p.m., drowsiness. 5.40 p.m., eyes difficult to open, speech difficult, difficulty in throat, prostration nearly complete, diplopia vastly increased. 6.10 p.m., nausea, twitchings on r. side, unable to articulate, eyes closed, fulness almost to suffocation in throat, pulse 60 in past six—Water! water! water!" These were his last words. His wife ran to get some coffee; and when she came back he was dead. (*Med. Times and Gaz.*, May, 1875).

10. An actress was troubled for several months after her confinement with excessive fulness of her bosom, and a superabundant secretion of milk. A weak infusion of hemlock was administered for 2 d. Lactation suddenly stopped, and the breasts wasted away. She became pregnant shortly afterwards, but no activity of mammary glands appeared. There was a slight fulness during the confinement, and a few drops of milk elicited, but this soon ceased for ever. (Prof. D'OUTREPONT, of Würzburg, *Lond. Med. Gazette*, viii, 125.)

11. The mother of four children had given suck to youngest for fifteen months. On weaning it the flow of milk continued to the extent of 8½ pints a day. The menses were suppressed. This condition continued for 4 years, the health not suffering. A grain of ext. of hemlock was given *ter die*. In 7 d. discharge of milk altogether stopped, the breasts were reduced in volume, and the menses recurred at the regular period. On their cessation the galactorrhœa returned. The lady took 7 gr. of ext. a day. The breasts became emaciated to baggy flaccid skin, and never returned. (*Ibid.*)

12. a. In a case of chorea treated with ʒiij doses of succus for 17 d., on 8th d. a severe attack of urticaria came on, and lasted 24 h.

b. The application to an axillary cancer of lint saturated first with the pure succus, then with equal parts of this and water, produced a dry, scaly eruption of the cuticle in crescentic patches, and a dark copper-coloured very irritable condition of the cutis, identical in appearance with the irritable variety of lepra. (HARLEY, *op. cit.*)

13. A young student, in perfect health, imagining himself the subject of a venereal affection, took a long and active course of C. He lost colour, vivacity, appetite, sleep; all the functions became deranged; at length he was attacked with a tertian fever of bilious type. Bark and opium, with good regimen, arrested the paroxysms and effected a cure; but there remained such weakness of stomach that at the least excess there came on immediately indigestion, buzzing

in head, ringing in ears, excessive lassitude of lower extremities, and frequent periodical paroxysms of fever. (CHRIAPPA, *Gaz. Méd.*, 1833, p. 640, from Imbert-Gourbeyre.)

14. TRACUS relates that he had seen a woman, who had accidentally eaten of hemlock root, become, as it were, tipsy and insane, so that she attempted to scale heights and to fly. Vinegar restored her to herself. (*Hist. Scipion.*, L. 1, c. 159; from Imbert-Gourbeyre.)

15. A peasant and his wife ate of hemlock root by mistake, and then went to bed. Awakening in middle of n. they had completely lost their reason, they ran about house in dark, quite wild, striking head, face, and eyes against walls. In m. the neighbours found them in a pitiable state, covered with bruises. (MATTHIOLUS, who states that he personally ascertained that it was really hemlock they had eaten; from *Ibid.*)

16. I knew two monks of high family, who ate freely of C. brought to table by error. Scarcely had food entered stomach than its virulence so oppressed the head of either that a manifest insanity seized them. One imagined himself changed into a goose, and hurried into a lake; the other, tearing off his clothes, declared himself to be a drake, and that the internal fire could not be extinguished unless he should swim in a river. Cathartics and other measures soon brought them to themselves, but for more than three years they were harassed with tremors and ptechieal spots. (KASCICUS, from *Ibid.*)

17. Several persons—3 women, 1 man, 1 boy, and as many girls—ate of hemlock root. All became delirious—more or less according to quantity taken. One woman complained of oppression and anxiety, and for two hours was quite out of her mind, but manifested sense of thirst and of excessive heat of guttes. For 4 d. more her mind wandered; she thought she saw hinds and dogs about her, and men seemed dead or sick. Others in their delirium imagined they saw lizards or serpents; others threw themselves into fire; others danced and wandered through bushes and hedges. (WEPFER, from *Ibid.*)

III. *Experiments on animals.*—1. At intervals of a week, Mr. Mavor and I gave the B.P. succus conii in doses of 6, 8, 12 and 16 oz. to a two-year-old colt. No effect followed any but the last dose, which = 1 lb. of the fresh leaves. He continued lively, and eating as usual, until 25 m. after the dose, when he was observed to remain standing stock-still, with ears fallen, head and neck pendent, upper eyelids swollen and drooping so as nearly to cover eyes. He presented at the same time a dull, heavy, tumble-down appearance. Pulse, pupila and tongue were unchanged. An experienced veterinary surgeon happened to come in at the time; and observing the general expression of languor exhibited by the animal, and the swollen and nearly closed eyelids, said, "That horse has the influenza, so prevalent just now." Five m. afterwards, the animal dropped upon his knees, and in recovering his position nearly tumbled down. After a little stumbling, he regained his legs, and continued for the next 20 m. in the same state of dulness and perfect quietude as before, excepting that now and then a fore or hind leg gave way, and he was obliged to exert himself to regain his equilibrium. At the end of this time he was walked out. After a little stumbling he went along slowly and languidly, with ears down, head and

* The remaining cases of poisoning by hemlock are inserted for the sake of completeness, but with our present knowledge of toxicology it must be confessed that they are somewhat dubious, and are accordingly relegated to the smaller type. It will be noticed that in most, if not all of them, the root was the part employed; whereas it is from the leaves or fruit that modern preparations are made. Dr. Imbert-Gourbeyre's obs. vi. proves, on reference to the original, to be a case of poisoning with *cicuta nigra*.—Ebs.

neck depressed, and eyelids half closed, swaying a little as he went. Two h. later effect had entirely passed off, and he was as active and lively as before the dose. (HARLEY, *op. cit.*, p. 7.)

2. At 5.30 p.m. I injected mxx of the succus beneath the skin of a full-grown active male mouse. In 7 m. he began to stumble; at the 20th m. he tumbled over several times while sitting, kangaroo fashion, upon his hind legs cleaning his fur. Up to the 20th m. the little animal continued tolerably active and self-possessed, getting up as if nothing was the matter, as often as, in sitting or walking, he happened to roll over upon his side. He now gathered himself together in the usual crouching posture, and resting the nose upon the table became very still and dull, with eyes partly closed; respiration normal. When disturbed he was unable to run, and on attempting to walk he rolled over on the side. Without any visible change or movement the little animal now passed into a state of complete paralysis, in which he remained until 8.15 p.m.—2½ h. after dose was given. During whole of this time he lay motionless in the position in which he was placed, with eyes nearly closed, perfectly flaccid, and exhibiting no indication of sensibility when dangled by an ear or a toe, or by the tip of the tail. As he lay upon the side the only indications of life throughout this period were the following:—distinct and regular respiratory movements of the sides of the chest and abdomen, decreasing during the 2 h. from 160 to 135, and interrupted by one or two full swelling inspirations during the m. On gently pressing the point of a pencil along the half-closed margins of the eyelids so as to touch them, a sluggish contraction, so faint as to be scarcely perceptible, occurred; but on separating the lids and touching the cornea no contractile action of the orbicularis was observable. On rolling the rump portion of the tail gently between the thumb and finger a reflex movement, consisting of sudden backward jerk of all forelegs, was simultaneously excited; the vibrissæ were at the same time momentarily agitated. At 8.15 the effects of the hemlock began to subside, as indicated by a little increase in the depth of the inspirations (which were 135); and on irritating the tail as above mentioned, the head, body, and legs were simultaneously jerked backwards, the general movement being such as to throw the body backwards nearly an inch. The eyes were at the same time opened and the vibrissæ strongly worked. Shortly afterwards there was a slight movement of the forepaws, apparently of a voluntary nature—the first performed since the paralysis came on; but there was no further movement until 9, when, on disturbing him a little as he lay on his side, he struggled forwards a little, but did not succeed in getting upon his legs. This, however, was accomplished when I again disturbed him at 9.50, and he then drew himself together, opened the eyes and began to look about him and sniff for food. At 11 p.m. he was in his usual condition (resp. 140); and next d. was as lively and active as ever (resp. 160). (*Ibid.*)

3. The first symptom produced by the drug, according to M. M. Devay and Guilliermond, is almost constantly paralysis of the posterior extremities, to which succeeds an involuntary emission of urine. The animal will use its forelegs to drag along the hind part of its body, which

is almost inert, like a dead weight. Then, shortly after, convulsions supervene. According to van Praag, in the greater number of experiments the convulsions were preceded by symptoms of progressive paralysis, consisting in an unsteady gait, requiring support against walls, bowed head, desire to lie down, bending of knees while walking, inability to stand upright. Then came convulsions, always followed by muscular tremors. Van Praag remarked, as less constant symptoms, falling of the membrana nictitans, retraction of the ears, grinding of the teeth, continual slavering and difficulty of deglutition. General sensibility is neither exalted nor diminished. (IMBERT-GOURBEVRE, *op. cit.*)

4. I used very strong extracts, prepared by absolute alcohol from the fresh leaves or full-grown seeds; and each of them occasioned, in doses of 30 gr. or thereabouts, paralysis of the voluntary muscles, with occasional slight convulsions, then paralysis of the respiratory muscles of the chest and abdomen, and finally cessation of the action of the diaphragm. Sensation appeared to continue as long as it was practicable to make an observation on the subject, and the heart contracted for a long time after death. (CHRISTISON, *op. cit.*)

Conium.— $C_8H_{11}N$.

I. *Proving*.—I. a. SCHROFF made 27 experiments on 3 healthy persons with doses of 0.003—0.085 grm. Locally, drug caused very sharp taste, strong burning in mouth, sense of scraping in throat, salivation; epithelium of tongue was removed in spots, papillæ were strongly prominent, and organ lost sensibility and was as if paralyzed. In about 3 m. after larger doses head and face became very warm, with fulness, weight, and pressure in head. These head symptoms reached a high degree of intensity, and became associated with giddiness, inability to think or to fix attention on one subject, with sleepiness, great general discomfort, and malaise, which—in less degree—lasted till next d. Vision was indistinct, objects floating together, and pupils dilated; hearing was obtuse, as if ears were stopped with cotton; sense of touch was indistinct, and there was feeling of formication, and as if skin were covered with fur. There was general weakness and prostration, so that head was with difficulty kept erect; arms could only be moved with exertion of much effort; and, on account of weakness of legs, walk was very uncertain and tottering; even next d. weakness of extremities continued, slight trembling being induced by much movement. On walking out muscular debility was especially great, walk consisting rather of a throwing forward of body so as to entail as little muscular exertion as possible. On ascending steps, and on pulling off boots after returning home, cramps in calves occurred, as well as in other groups of muscles when called into action as, for instance, in balls of thumbs when thumbs were closely bent. This symptom was constantly observed in two of the provers when dose = 1 dr. of alkaloid.

b. Fresh air diminished the giddiness and fulness in head, but in one prover occasioned temporary pain in course of supra-orbital and maxilar nerves. Eructations, abdominal rumbling and distension, nausea,

even efforts at vomiting, took place. Sometimes there was tendency to diarrhoea. In all cases there was dampness of ends of fingers, and after large doses hands were absolutely moist. Countenance was sunken and pale; hands were cold and blue. After the larger doses, pulse commonly increased in frequency by a few beats, but subsequently always lessened. Respiration often yawning, but otherwise no constant anomaly presented itself. (*Wochenblatt der Zeitsch. der K. K. Gesellsch. der Aerzte zu Wien*, 1856.)

2. Whilst preparing solution of conium, the peculiar, penetrating smell of the drug caused an aching pain in the supra-orbital region, lasting several hours. One drop of 1st dil. had no effect; nor had 4 dr., but 25 dr. taken some d. later caused slight vertigo with feeling of weight in upper and lower extremities, especially l. arm. The vertigo went off in a few minutes, but the feeling of weight lasted upwards of $\frac{1}{2}$ h. The pulse, which was full and strong and 70, became in 10 m. remarkably small and only 59; after 24 m. it was 68 and in $\frac{1}{2}$ h. normal. After 2 d. took 50 dr. and in 6 m. the heaviness returned, especially in l. arm, with a peculiarly uncomfortable feeling. The pulse, which was previously 72, in 6 m. fell to 62, in 8 m. to 60, thereafter it increased in rapidity and in $\frac{1}{2}$ h. was normal in force and quickness. The feeling of weight and discomfort gradually went off. After 3 h. pain in l. lumbar region like slight rheumatism; this lasted more than 2 h. and gradually went off. (PÖHLMANN, *Phys. u. tox. Unters. ueber das Conium*, Erlangen, 1838.)

3. a. Dr. BURMAN injected hypodermically mx of a 5 per cent. solution, and proceeded to play at billiards. "In 5 m. there was slight weakness of legs and confusion of vision; in 25 m. these were more marked, and there was a certain amount of unsteadiness in my gait as I walked around the table; also some numbness with tingling of arms. In 55 m. numbness and weakness of both legs and arms were well marked, and I felt that I handled the cue awkwardly, and that, when standing still, there was inclination to sway backwards and forwards, while knees began to give way under me. In 45 m. weakness of both arms and legs was intensified; I could not now walk without swerving to one side or staggering; I was fast losing all interest in the game, and doubted whether I could go on with it, but managed to do so by dint of great effort. In 1 h. and 10 m. my legs were very stiff, and awkward in motion; it was just as much as I could do to get along; I had to progress slowly; legs felt as if thoroughly tired. It was only possible to get upstairs with the greatest effort, and I did so in a very awkward manner, and often knocked my toes against the steps; strange to say, I found it more difficult to go down than up stairs. When I sat down, I had to let myself drop suddenly when within a few inches of the seat. There was now a great feeling of calm and tranquillity, and some slowness of the mental processes. In 2 h. 20 m. sight and legs were almost right, but arms still weak. In 3 h. I was quite myself again."

b. Same injection was given to several healthy hospital attendants, and gradual loss and return of power in upper extremities shown by dynamometer. All complained of giddiness, with in one or two cases

nausea, in one vomiting. One described legs as feeling "independent, and as if they didn't care for him or anybody else;" another as if they weighed a ton. One felt "as if had been working hard all d.;" another as if he had "been 'fashed' a bit the n. before, and tired-like;" another "as if he had been up all n. on duty, and should like to go to bed." (*W. Riding Asylum Reports, 1872.*)

II. *Poisonings.*—2. A woman with mammary cancer took, to ease her pains, gr. $\frac{1}{8}$ ter die. After 3rd dose, spasmodic distortion of neck supervened, convulsion of face with drawing of mouth, loss of consciousness as in fainting. The remedy was suspended; but on resuming it a week later same spasmodic phenomena recurred. After a twelve-month a third trial was made, with same results. (*ALBERS, Deutsch. Klin., 1853.*)

2. Another such patient to whom A— gave the drug had vertigo lasting for 3 weeks. (*Ibid.*)

3. A young man who had for some time been exposed to the odour of C., became giddy, sick, and faint, the vertigo lasting 3 d. Himself having inhaled it for 5 or 6 m. was giddy and powerless all the d., and had tendency to vertigo for 3 weeks, with great fatigue. (*Ibid.*)

4. Casaubon reports that, a vial of C. being open in the laboratory, a friend working with him was seized with malaise and went out. He stated that he had hallucinations of vision and headache, and was found with fibrillary tremors and a pulse of 108. (*IMBERT-GOURBEYRE, op. cit., p. 115.*)

5. A few drops of C. being spilled, and two persons having been exposed to their emanations, these were speedily seized with violent symptoms of congestion to head, with headache, vertigo, and prickings in eyes. (*Ibid.*)

6. A woman, taking C. for ulcerated cancer of breast, took for some d. unduly large doses, and was compelled to desist by the super-vention of trembling of the upper extremities. After a week she resumed the remedy, but in 2 days' time became the subject of obstinate vomiting; soon there succeeded dazzling of sight, vertigo; in following d. there were spasms of limbs; face became cyanosed, and delirium was continuous; to photophobia soon succeeded complete blindness. Instead of gradually diminishing on suspension of drug, these symptoms continued for a fortnight,—vomiting, spasms, delirium, occurring all that time. (*DEVAY and GULLERMOND, from Imbert-Gourbeyre, op. cit.*)

III. *Experiments on animals.*—1. ROUSSEL made 45 experiments with C. upon rats, cats, dogs, and horses. He thus summarises the result: We have ascertained in the first place a manifest action on the hind quarters. This is characterised by a stiffness, slight at first, but soon increasing more and more till it becomes a sort of tetanus. A similar stiffness afterwards attacks the fore-quarters, and runs the same course. Only on one occasion was the order reversed. This tonic convulsion soon seized on the muscles of the head, neck, tail, abdomen, thorax, and finally the diaphragm itself, so that we can now understand why death takes place from asphyxia. If the dose is not large enough to cause death, the muscular symptoms go no further, and these parts

gradually return to the normal condition. But it is otherwise when the dose has been very large. The animal, which had at first exhibited a laborious, irregular, jerky gait, comes to a standstill, seems paralysed; it steps backwards, tries to support itself with its forelegs, but, these refusing their office, it falls back and tumbles down. At this stage the animal is seized with great anxiety, the body is covered with profuse perspiration, the cutaneous muscles are strongly contracted, general tremors supervene, and convulsions appear. The clonic phenomena follow the same course as the tonic ones, to which they succeed. Sometimes stronger, sometimes less pronounced (least so in the horse), they generally have a short duration, but are (with rare exceptions) the precursors of death. (From *Ibid.*)

2. *a.* Drs. Brown and Fraser conclude from their experiments with *C.* upon frogs that in relatively small doses it first produces paralysis of the motor nerves, and subsequently of the reflex function of the spinal cord; but that in relatively larger doses it first occasions paralysis of the reflex function in these animals. Damourette and Pelvet, in their exhaustive experimental treatise upon this subject, arrive at conclusions essentially identical with those above stated; but they also claim to have demonstrated that *C.* occasions a destructive alteration of the red blood-discs. They state that in poisonous doses it prevents the coagulation of the blood, rendering it dark and fluid.

b. No poison, except prussic acid, excels *C.* in the subtlety and rapidity of its operations. A drop placed on the eye of a rabbit killed it in 9 m.; by a like application of 3 dr., a strong cat was destroyed in 1½ m.; and 5 dr. placed in the gullet of a small dog caused its death in 1 m. Introduced into the veins, the fatal effect was almost instantaneous. (STILLÉ, *op. cit.*)

3. M. VERIGO experimented with *C.* upon man, frogs, rabbits, and dogs. His conclusions are: 1. *C.* acts most strongly on the spinal cord, affecting especially the motor nerve-fibres. 2. This action is established in frogs by the phenomena of paralysis, without any trace of convulsion whatever. In mammals, on the other hand, the most violent convulsions occur after large (lethal) doses of the poison, whilst after small or non-lethal doses paralysis in the extremities only occurs. 3. The phenomena of paralysis proceed from the spinal cord to the peripheric system of the motor nerves, which therefore first becomes affected after the cord itself. 4. The brain appears to be but little affected by *C.* 5. Administered in small doses, *C.* retards respiration, and may in large doses altogether paralyse the respiratory acts—which effects depend, not (as Kölliker supposed) upon an affection of the peripheric nerves, but upon paralysis of the cord. 6. The convulsions produced in mammals by *C.* form a tolerably certain indication of the fatal issue of the case in which it has been administered. They constitute a symptom of the poisonous action of the drug, and do not depend upon paralysis of the respiration. 7. The blood does not undergo any alteration, the corpuscles at any rate retaining their capability of absorbing oxygen. 8. *C.* exhibits no action upon the heart or pulse. 9. It depresses the temperature of the body, and to a greater extent the more distinctly the parietic symptoms are produced. 10. Its action on

ling of heart, lungs, liver, and spleen; all organs were normal except the heart; there be found the area of cardiac dulness normal; movements of heart could not be seen by inspection; by palpation heart could not be felt beating so hard as normal against the chest walls; apex in normal position; no mitral or tricuspid regurgitation; all sounds normal except being somewhat weak; pulse very weak and easily compressible; when hand was extended above the head the pulse was slightly dirotic. Professor D—also took a sphygmographic tracing of right radial artery, which was as it here shown.* 12.30 p.m., took 30 dr. 1, sore feeling in hypogastric region, with colic-like pains, which commenced soon after beginning to eat, coming at intervals of about 1 m. and lasting about $\frac{1}{2}$ m.; pains continued for about 30 m. 3.30, took 130 dr. Eructations of fat all the afternoon; sore feeling in whole abdomen when coughing; feel better in open air. 10.45, took 130 dr. 13th, 11 a.m., took 130 dr.; 6 p.m., took 160 dr.; 11, took 220 dr. Face has a pinched look. 14th, 9 a.m., took 220 dr.; 1 p.m., took 180 dr. Feel very weak; head feels dull; face looks pinched, and very yellow; pulse very weak; when holding my arm above the head it was imperceptible; my hand turned pale, became numb, and soon went to sleep. 5 p.m., took 180 dr. Eructations of fat. 3, felt very faint upon having gums touched lightly with point of a knife, so that I had to lie down; feel better in open air. 11, took 180 dr. 15th, 9 a.m., 180 dr.; 3 p.m., 180 dr. 4, dull aching pain in hypogastric region, with dull feeling in head; eructations of fat since dinner. 7, dull aching pain in hypogastric region with dull feeling in head, relieved by stool; 2 stools 10-day. 16th.—After exercising enough so that I perspired freely, my face was of a smoked colour, and remained so all d. 6 p.m., took 180 dr. Very dark lines under eyes. 8, sharp aching pain in l. nipple. 9, tenesmus during stool, with inactivity of rectum; 2 stools of natural consistency; pulse, while sitting, 72; temperature 97 $\frac{1}{2}$ °; my temperature before taking convallaria was between 99° and 100°. 11, took 180 dr. 17th, 11 m., took 180 dr.; 6 p.m., 180 dr. Have had 2 stools to-day, and there was an uneasy feeling in lower part of abdomen for some time before each stool; stools slightly thin and of very offensive odour. 9.30 p.m., examination of heart and pulse by Professor J. W. Dowling; heart-sounds feeble; pulse compressible, and remained compressed for a few m. after compressing it; holding my hand above my head, the pulse was very feeble, being scarcely perceptible, and very compressible; as compared with a very anæmic female, her pulse was a great deal stronger than mine. On auscultation anæmic murmurs were heard over jugular veins; pulse 76, temperature 97°; 2 stools to-day; stopped taking med. 18th.—Have had a dull feeling in my head all d., getting gradually worse until now at 3.30 p.m. I have a very dull headache with a sleepy feeling; pulse 79, temperature 97 $\frac{1}{2}$ °; only 1 stool to-day. 19th.—After breakfast felt very dull and sleepy, as if I had not slept any during n.; pulse 75, temperature 97 $\frac{1}{2}$ °. From Jan. 19th to 21th had only 1 stool each d. (N. A. J. of H., May, 1883.)

2. Mrs. C. E. LAMB. I do not think there are any symptoms recorded in this proving that were not caused by the drug, as she was very careful not to make a note of any symptom that was common for her to have. She was in good health before taking C. Age 52; eyes dark brown; head large; form stout and fleshy; habits good; bowels slightly constipated; chest well developed. Jan. 7th, 1883.—Commenced taking tinct. prepared by adding 4 parts of water, 4 of alcohol, to one part of fluid extract of flowers, three times per day, between meals. 4.30 p.m., took 30 dr. In a few moments warm perspiration broke out over whole body, which was very uncommon, as she never perspires naturally, except in axilla; went to sleep in a few m. after taking first dose; pains in ankles and wrists commenced slightly before going to sleep, but were much worse after sleep; after sleep, wrists and ankles ache very hard; very redness; aching pain in lumbar region; colic-like pains commencing in r. side of abdomen and going to l.; labour-like pains in meso-iliac synchondroses, on both sides, as in first stage of labour, with bearing-down sensation extending across pelvis, but seemed harder at both sides than in middle, aggravated by sitting down, especially sitting up straight, or leaning back, ameliorated by standing or leaning

* RIGHT RADIAL.—TRACING TAKEN BY DR. DOWLING.

forward while sitting; the labour-like pains come and go at intervals of about 3 m., each time coming bolder until they increased to a certain height, when they seemed to remain the same, she described these pains as being just like the real labour pains; went to sleep between all the pains. Suffocating sensation in throat, as if she could not get her breath; frequent desire to urinate, but only a little passed, which seemed scalding hot, but left no smarting. 5.45, labour-like pains come at regular intervals, about every two or three m., and last about one m., but are not quite so hard as they were; they come quick and pass off slowly; sleepy between the pains; 6, pains come and go about the same intervals, but decrease in severity; feels sleepy between the pains; 6.40, labour-like pain continues about the same, except the interval between has increased to about 4 m.; the headache and wristache are about the same, but pain in ankles has nearly disappeared; pain in ankles extended from about 3 in. above the instep, up the leg about 4 in.; 7, ankles do not ache at all; pains in back and wrists gradually passing off; labour-like pains have changed to a dull heavy ache; all letters look alike while reading; 7.15, all pains changed to a dull ache, and are gradually passing away; 7.30, knees feel sore while walking; 8, all pains have slowly disappeared. Jan 8th.—Sensation in abdomen, as if the were filling up, causing dyspnoea; desire to take a deep breath when sitting down; sensation as if abdomen was larger than it really was, but it is somewhat distended when sitting. Dull, aching, paroxysmal pain in abdomen, causing desire for stool, relieved by stool; had four stools to-day between 2 and 3 p.m., all of natural consistency; eructations of gas, tasting of what had been eaten. Dull, aching pain across region of kidneys from 2 to 4 p.m.; sensation in r. breast as if milk was coming in breast, followed by sharp, stitching pains, which all centre in nipple; these pains were from 3 to 4 p.m.; all symptoms aggravated from 2 to 3 p.m. When reading, sees small words (as "the," "it," "too," &c.) before beginning of a sentence, which are not there, and letter P is substituted for other letters; mind wanders away from subject when reading. Depression of mind; upper eyelids feel heavy when looking up; short paroxysms of hot suffocating feeling, with slight perspiration all over body, at no particular time. 9th.—No symptoms. 10th.—Same symptoms as on 8th. 11th.—No symptoms. 12th.—Same symptoms as on 8th and 10th, only they were not so severe. 13th, 2 p.m., took 30 dr.; 6.30 felt very sleepy, could scarcely keep from going to sleep. Sensation as if she was getting fat internally; so filling her up. Blisters like mosquito bites on anterior part of thigh and foot, and both sides of back; 7.30, sort, dull pain between lower angles of scapulae; 8, the dull, aching, sore pain between lower ends of scapulae extended up and down spine. Labour-like pains in sacro-iliac synchondrosis region, worse on r. side, extending down along inner side of r. thigh; these labour-like pains come at intervals of about 3 or 4 m.; feels sleepy all the while, as if she was tired out from some bodily exertion, but has done nothing through d. to cause this feeling. Dull, grumbling pain in bowels, as if they would move; sensation of abundance of flatus in the bowels, that would surely pass off, but can retain it; feels irritable when asked a question. 14th.—Blisters on body like mosquito bites, which itched so last night when undressing that she scratched the skin off in places; they continued to itch for about $\frac{1}{2}$ h. after getting into bed. Awake between 12 and 1 a.m., and was very restless for about two h., with a burning, hot feeling all over body. 10 a.m., took 18 dr.; 11.30 a.m., blisters on body commenced to itch like mosquito-bites; could hardly keep from scratching them. Labour-like pains in sacro-iliac synchondrosis, worse on r. side, and running down leg; they come about every 3 or 4 m., and last from 30 seconds to one m.; 2 p.m., blisters do not itch as much as they did; labour-like pains continue much the same; 4 p.m., labour-like pains still continue, but not so hard; aggravated by motion, sitting up straight or leaning back. Pain commences in anterior part of abdomen, on r. side, same as in second stage of labour, but extends higher up. The blisters do not itch much. 6 to 8 p.m., sensation as if a large cord extended from sacro-iliac synchondrosis to inguinal region, and this cord was pulled down by pelvic organs, worse on r. side; sensation as if the uterus is descended and recovered, fundus of uterus pressing on rectum, causing very hard aching pain in rectum and anus, the pain is continuous and unbearable. Sensation as if the rectum was full of gas; not relieved by passing flatus. Labour-like pains commenced about 6 p.m., and gradually increased until 7, then gradually decreased, aggravated by sitting, extended up back and caused nausea and a faint, sick feeling, with hunger; when lying on back the pains were relieved, and there was

a sensation in abdomen as if a fetus at eight months were kicking, aggravated by being on feet. Head fresh dull and heavy; dull, heavy ache over eyes, with sleepy feeling; 8, intense itching at orifice of vagina, continuing all n.; 10, while sitting, had severe cramp in r. leg just below knee, relieved by standing (never subject to cramps of any kind); it passed off quickly but returned soon after sitting down; cramps continued to come and go for about 30 m. 15th, 8.15 a.m., on raising head from pillow had a faint, dizzy feeling, like morning sickness; nausea relieved by vomiting a few mouthfuls of a clear substance tasting like phlegm. The itching at orifice of vagina has extended to meatus urethrae. 9 a.m., took 36 dr.; 10, pressive, aching pain under lower angle of r. scapula, which comes suddenly and passes off gradually, ameliorated by bending shoulders backward; constant yawning and gaping after pain, lasting about 5 m. The itching at orifice of vagina still continues. 2 p.m., took 40 dr.; 3, uneasy feeling in hypogastric region, with colic-like pains; these pains lasted 15 m.; then there was an urgent call to stool; colic relieved by stool; stool slightly light coloured, natural consistency, with slight tenesmus after stool, very offensive, smelling like decayed meat. 5.30 p.m., pressive aching pain under lower angle of r. scapula, as at 10 a.m.; had four stools to-day since 3 p.m., very slightly thinner than common, light brown colour, and offensive, like decayed meat; about 15 m. before each stool there was uneasy feeling in bowels with slight pain, which continued until there was urgent call for stool, and no time to lose. 8 p.m., all symptoms the same as they were at 3 last n.; only not quite so marked. All symptoms are ameliorated in open air, aggravated by laughing or coughing, causing a sore, bruised feeling in r. hypogastric region; feel greatly exhausted during the labour-like pains; also feel sleepy. Itching at orifice of vagina gradually extended from meatus urethrae all over labia, with great hyperæmia but no eruption; at 8 p.m. it was almost unbearable, and caused a feeling as if she must weep, aggravated by the slightest motion of legs, and relieved by applying cold water. 16th.—Morning sickness, same as yesterday m.; took no med., and itching and hyperæmia of vulva have gradually passed away. She took no more med. on account of great dread of above symptoms, and did not take any more until all effects of med. had passed away; and on Feb. 2, and commenced taking C. again. 9.15 p.m., took 30 dr. Temperature normal; pulse 76, 3rd, 10 a.m., took 35 dr. Sharp pulsating pain in middle ear on r. side; when swallowing symptoms of r. ear seemed to bulge; relieved by pressing on temporal artery in front of ear. 2 p.m., took 55 dr.; 6, took 55 dr.; 6.45, after exercising for about 10 m., immediately after eating, had nausea and faint feeling with vomiting of small quantity of mucus that tasted and was like slime from oysters; in about 5 m. had nausea and dry vomiting of same substance (she had eaten no oysters); two stools to-day. 4th.—Feel sick all over; dull heavy aching in r. eye and temple; about every 15 m. dull pain from r. eye over top of head and down r. side of neck. Sensation as if heart had palpitated. 11 a.m., worse in every way; when exercising there would be fluttering of the heart, which would last about 2 m., then face would get red, with sensation as if heart stopped beating, and would start again very suddenly, causing very faint sick feeling. Pulse full, compressible, and intermittent; aggravated by motion, ameliorated by lying down; after lying quietly for a little while, felt better and was hungry; all symptoms relieved by eating, but would return again in 30 m.; great prostration; kept up with great effort until 12 m., then had to go to bed. At 9 p.m., when feet bearing her weight on her feet they were numb; then in 2 m. it seemed as though they were filled with needles (or as if asleep), and she was so weak that she could not walk across room without assistance. 5th.—Rested well last night, but still very weak; feeling as if she was just recovering from a long sickness; 8 p.m., itching on anterior part of thigh, but no eruption; 9, pulse 75, full, very compressible, and imperceptible with hand extended above head; temperature normal; two stools to-day, very offensive; dull aching pain under lower angle of r. scapula, lasting about 5 m. (*ibid.*)

3. JAL. A. VARIANT. Dec. 27th, 1842, 11.20 a.m., took 10 dr.; 5.45 p.m., 20 dr.; 9.20, 10 dr. 28th, 9 a.m., took 25 dr.; 1 p.m., 15 dr.; 9.10, 15 dr. 29th, 10 a.m., took 15 dr.; 3 p.m., 20 dr.; 9.20, 20 dr. 30th, 9.30 a.m., took 10 dr.; 1 p.m., 15 dr.; 8.30, 15 dr. 31st, 9 a.m., took 15 dr.; 1.30 p.m., 15 dr.; 10, 15 dr. Jan. 1st, 1843, 10 a.m., took 15 dr.; 1.30 p.m., 15 dr.; 9.10, 15 dr. 2nd, 9.30 a.m., took 15 dr.; 1 p.m., 15 dr. Dull heavy headache, principally in occipital region, with dull burning pain in small spot, just back of the mastoid process. 10 p.m., took

15 dr. Headache continues, with pressing pain in both eyes and stiffness of muscles of neck; cannot study. 3rd, 9 a.m., no med., headache nearly gone; on asking Mr. Vansant whether he was subject to headaches of the above description he said he was, so I cannot record that symptom as being caused by the drug. Mr. Vansant made an examination of his urine before taking C., and found everything normal except sandy phosphates, of which he found a slight amount. On the 3rd he made another examination and found a moderate amount of earthy phosphates, traces of glucose and a slight amount of urophaein. 9th, 10 p.m., took 25 dr. 10th, 10 a.m., took 30 dr. 11-45 p.m., 35 dr.; 9-10, 40 dr. 12th, 9.30 a.m., took 45 dr.; 4 p.m., 50 dr.; 9-10, 55 dr. 13th, 10 a.m., took 50 dr. No effect; urine, tested by Dr. Dunning, found normal. (*Ibid.*)

III. *Experiments on animals*.—1. These have been made with the two glycosides contained in C., convallamarin and convallarin. The former acts like digitalis (q. v.) on the heart and arteries; the second is a simple purgative. (BRUNTON, *op. cit.*)

COPAIVA.

Oleum-resin of *Copaifera mombaja*, Hayne. Nat. Ord., *Leguminosae*.

1. *Proving*.—1. HAHNEMANN (from a solution of the balsam in spirit; no other information given.) Continual micturition. Scanty urine, passed *guttatim*. Burning in urethra between acts of micturition. Throbbing pain in urethra unconnected with micturition, urethral orifice open, swollen, inflamed. Pain at urethral orifice, as from a wound. Purulent blennorrhagia. Fever recurring for several d.; in forenoon, rigor and coldness, in afternoon, general heat, with thirst for water. Whitish diarrhoea, chiefly in m. between rigors; with cutting pains in belly, compelling bending forwards, before and between stools, preceded by constrictive pain as if in medullary cavity of femur. Between febrile rigors also pain in dorsum of foot, while at rest after movement. Involuntary diarrhoea. Metrorrhagia. (*Fragmenta de Viribus.*)

2. *Teste*.—"This pathogenesis is the result of two distinct experiments, instituted at two years' interval on myself and seven or eight persons besides, of both sexes. Each experiment lasted several weeks. The drug was taken in drop-doses of the 6th, by myself and some of my fellow-provers m. and c., by others more irregularly."

a. *Mind, &c.*—Depression with anxious sadness; in m., immediately after waking, deep sadness, passing off during exercise, but returning in e.; excessive sensitiveness of whole nervous system, so that least noise causes starting and irritates; attack of weeping (in a young girl, on hearing sound of pipes); periodical attacks of sadness and tears, p.m., with cold extremities and flushes of heat in face; quarrelsome, irascible, gloomy, intolerable temper for a week, with vascular excitement, heat of head, and trembling of hands on meeting with least contrariety; absurd recriminations about trifling things that had happened a long time ago; dislike to society; insurmountable aversion to one's usual occupations. Complete inability to perform any mental labour; head is empty and ideas are confused; dull pain at forehead when struggling against this irritability; deficient memory, causing impatience and gloomy depression of spirits; anxiety about health.

b. *Head*.—Paroxysmal attacks of vertigo; headache in m.; every step he takes jars his head for $\frac{1}{2}$ h., but feeling then goes off though he continues walking; pulsative, deep-seated stitches at occiput; dull pain at occiput; lancinating pressure, proceeding from r. occipital protuberance; stitches at l. occipital protuberance, with occasional shocks in whole head, only in m.; l. hemiparesis, with boring pain, sense of

coldness in affected part, weeping and constant moaning, for 3 d. (in man of 23, disposed to hypochondria, after 3 doses); pressure at forehead; heaviness of head and especially of occipital region,—relieved by external pressure; pulsative stitches at vertex, not synchronous with pulse; stitches in temples and behind ears; searing pain in temporal regions, especially l., relieved by gentle pressure; bruised pain in r. temple, e. and n., becoming intolerable when affected part is pressed against pillow; sudden stitches in both temples, while washing face with cold water; sensitiveness of scalp and even of hair; falling of hair.

r. Eyes.—Formication in canthi, e.; redness of l. eye; passing obscuration of sight; black points hovering before eyes; objects look paler with l. than with r. eye; contraction of pupils; sensitiveness of eyes to light; involuntary contraction of orbicularis, m.; spasm in r. upper lid, several times in d., with slightpressive pain in eyes; agglutination of lids in m.

d. Ears.—After 3 d. stitches in l. ear all n., obliging patient to cry out, followed some d. later by discharge of a little purulent matter from meatus; humming or humming in ears; formication in ears; excessive sensitiveness of hearing, especially to sharp sounds.

e. Face.—Pale and sickly look; bloating; heat in m. on waking; transient searing in l. cheek.

f. Mouth and Throat.—Sensitiveness without appreciable swelling of parotid, but bruised pain and evident swelling of submaxillary glands; teeth on edge, or feeling elongated; gnawing and throbbing in carious teeth, worse from cold; sense of coldness in teeth; teeth seem less firm in their sockets; dryness of mouth, especially at n. and in m.; flow of saliva in e., at n. and in m.; every now and then sudden profuse flow of sweetish saliva; foul breath in m.; tongue has whitish coating, greenish at base; redness with smarting of sides and tip of tongue; excoriative pain in gums, palate, and pharynx; tenacious phlegm in mouth and throat, which is constantly reproduced; sense as of a foreign body in pharynx; swelling of both tonsils (especially r.); troublesome pressure in pharynx; constriction of throat; bitter taste in mouth.

g. Stomach.—Thirst and diminished appetite; excessive hunger for first 2 d., then loss of appetite; unwooded hunger in e. when on point of retiring; a kind of fainting at stomach, without any real appetite; every article of food seems too salt; rush of blood to head and face during or after meal; hicough or eructations after eating; sour or foul eructations; flashes of heat in face, heat and sweat in palms with anxiety and general malaise after eating; beating at pit of stomach, followed by palpitation and clouding of head on leaving table after eating; pressure at pit of stomach, even before breakfast; burning pain at stomach; paroxysmal stitches in stomach; spasms at stomach; nausea in m.

h. Abdomen.—Pressure pain in region of liver which becomes pulsative from time to time; whole epigastric region intense and painful to touch; stitches in hypochondria; noisy borborygmi; pinching coldness in abdomen; swelling; heaving or pressure as from stone in hypogastrium; very fetid fatus.

i. Rectum and Stools.—Violent cutting pain followed by two diarrhetic stools, immediately after cup of café au lait; pressure on rectum, causing constant urging to stool; several soft stools every d., especially in m., followed by general prostration; diarrhœa in m.; violent diarrhœa, 25 stools in m., with spasms at stomach, coldness of extremities and cramps in calves; whitish fecal stools of sour smell, with discharge of mucus; stools at first dry and formed, later diarrhetic; stools like sheep's dung; insufficient stools; no stools for 3 d.; stitches or spasms in rectum; burning itching at anus; constant oozing from about of serous or even purulent liquid.

j. Urinary Organs.—Pressure or dull pain in bladder; frequent unsuccessful urging to micturate; unpleasant itching at tip of glans.

k. Genital Organs.—Constant sexual excitement during whole time of proving; mucous discharge from urethra; profuse milky discharge, which, however, stops of itself after 3 d. though drug is continued; dull, heavy pain in testicles; swelling of l. testicle, which is very sensitive to touch; same in inguinal glands. Constant pressure on uterus, as if prolapsus would set in; pulling pains in suspensory ligaments of uterus; deep stitches in vagina and neck of womb; spasms of uterus; beatings in r. ovarian region when standing; milky leucorrhœa; acid leucorrhœa, excoriating vulva; bear and red spots on vulva; itching at vulva; menses too early by 3, 7, or 10

d. menses appear on regular d., but are pale and much less abundant than usual, menses reappear after ceasing for several d. During recovery,—sadness in m., depression, pains in loins; great nervousness; tightness at larynx, hoarseness in m., dry cough m. and n.; stomach-ache; rheumatic pain in l. hip and knee, and uterine spasms; cold feet and knees.

l. Respiratory organs.—Stuffing of nose for a d., only in m.; frequent sneezing; fluent coryza with headache, pressure pain at root of nose, and itching in eyes; dryness and roughness in larynx; hoarseness in m.; excoriative pain in larynx, especially in attempting to emit higher notes of voice; cough excited by tickling in larynx, trachea, and bronchi; dry cough m. and c.; rough cough with difficult expectoration of greenish mucus; cough with profuse whitish expectoration, sometimes saltish, sometimes flat and paucous; heat in chest; stitches in r. chest; acute stitches in l. axilla, penetrating into chest; sense of fulness at chest, compelling frequent sighing; laboured breathing while digging in garden; pressure at sternum; stitches between shoulders, impeding breathing.

m. Circulatory Organs.—Palpitation, during work; pulsation here and there.

n. Back and Limbs.—Rheumatic pain at nape and l. neck; dull pain like spasms in lumbar region; stiffness in back, disappearing when walking; burning pain in dorsal spine; axillary glands sensitive to contact; stitches in l. scapula; acute pain in l. shoulder-joint; numbness of arm on which one is lying at n.; pulling in both arms; stiffness in fingers, cold hands; trembling of hands; crampy pains in both hips, worse in r.; bruised pain in r. hip while lying on it; bruised pain in r. thigh when walking, and when touching it; dull pain in knees; cracking in knees when stretching legs; numbness of legs when sitting; pain as if sprained in feet, very troublesome when first commencing to walk, but which walking causes to disappear; swelling of feet; icy coldness of feet from m. till noon; twitching of limbs during rest; intolerable uneasiness in lower limbs; pulling in all muscles, especially in r. and at n.; trembling of extremities.

o. Skin.—Small, red, slightly itching pimples on upper part of forehead, and on scalp above ears, and at occiput; small furfuraceous tetter at concha of l. ear, with burning pain only when touched; itching of cheeks here and there, on eyebrows, and on chin; small, white, milium vesicles on a red ground, at l. wing and tip of nose; yellowish spots of size of misepore, of irregular shape, and slightly itching, on r. cheek, m. and c.; red humid tetter (after 8 d.) on upper lip, which is swollen and painful when touched; heat at skin of scrotum, redness and slight desquama between scrotum and thigh; superficial excoriation at glans and prepuce; boil on pubes; red spots, slightly itching, on sternum and r. axilla; red itching spots on l. arm.

p. Sleep.—Drowsiness in daytime; restless sleep at n.; coldness of feet, knees, and thighs at n.; frightful or lascivious dreams; frequent waking; wakes early, and is unable to fall asleep again; sour-smelling sweat at n.; profuse inodorous sweat in m.

q. Miscellaneous.—Excessive sensitiveness to damp and cold; paroxysms of spasms and other hysterical symptoms. (*Med. Med.*, sub voce.)

3. June 18th, 4 p.m., 10 dr. of C.; 7 p.m., 20 dr.; 9.30 p.m., 20 dr.—19th, 7 a.m., 20 dr.; 7 p.m., 30 dr. 8.30 p.m., urine increased in quantity, smelt strongly of C., frothy, dark yellow, strongly acid.—20th, 8.30 a.m., 30 dr.; 7 p.m., 40 dr. Urine as yesterday. 9 p.m., severe aching in r. elbow-joint, last n. it was in r. shoulder.—21st, 9 a.m., 40 dr.; 4 p.m., 40 dr. Urine as yesterday. When walking, severe pain in r. ankle-joint.—22nd, 8 a.m., 40 dr.; 1 and 3 p.m., diarrhoea; 10 p.m., 40 dr. In bed, severe pain in l. wrist.—23rd, 8 a.m., 40 dr.—24th, 8 a.m., 40 dr. When walking, aching in knee. 2 and 10 p.m., 40 dr. At n., frequent micturition, much clear urine.—25th, 8 a.m., 40 dr. At 9 a.m. and 3 p.m., liquid stool; 8 p.m., without pain.—26th and 27th. No pains, constipation.—28th, 9 p.m., 50 dr.—29th, 8 a.m., 50 dr. Severe pain anteriorly in r. ankle-joint, when walking and when at rest. 10 p.m., 50 dr. Frequent urging to urinate, even immediately after passing urine, lasting several h., at

same time persistent tickling in glans; the same at 11 p.m. in bed. Constipation.—30th, 8 a.m., between 60 and 70 dr. Two stools, drawing in urethra.—July 1st, 7.30 a.m., 70 dr.; 9 a.m., liquid stool, also at noon. 4 p.m., 70 dr.; 10 p.m., liquid stool.—2nd, 7 a.m., no pain; no urging to urinate. Increased discharge of mucus from rectum. Several small stools and all d. urging to stool. 10 p.m., 70 dr. At n., vomited 4 times.—3rd, 8 a.m., copious loose stool, also in e.—4th. Loose stools m. and e.—5th. At noon and several times during d., loose stools. The following d., normal stools m. and e. After every dose, frequent eructation with odour of C. In all 2 oz. of C. were taken. (LAMBKE, *N. Z. f. h. Kl.*, xi, 161.)

4. WICKART took \mathfrak{ss} of the "Mistura copaibæ," containing about 20 gr., 3 h. after a full meal. The urine passed after 45 m. gave no precipitate or turbidity with nitric acid, but some passed after 1 h. 20 m. became opalescent on addition of either nitric or acetic acid. The same reaction occurred with that passed 2 h. after, but not with the next instalment, passed 9 h. after taking drug. He subsequently took \mathfrak{ss} of mixture 2 h. after a full meal. Urine passed after 20, 40, and 60 m. gave no reaction, but a turbidity was produced in that passed 1 h. 25 m. after taking dose, and the precipitate was abundant in that discharged 50 m. later. Twelve h. after taking medicine, urine became only faintly opalescent on addition of acid, and it was not further noted. (*Guy's Hosp. Reports*, 1876, p. 1.)

5. a. BERNATZIK took 18 grm. of the oil in 3 doses during 12 h. It caused acceleration of only a few beats per m. in pulse and rise of a fraction of a degree in the temp., with—after a time—violent gastric and intestinal disturbance, characterised by vomiting and purging. Complete strangury was not produced, but there was some difficulty in passing the urine, which caused decided burning in the urethra.

b. In his experiments with the balsam, B— exhibited 15 grms. inside of 5 h. It acted as an emeto-cathartic, causing a great deal of pain and irritation. (H. C. Wood, *op. cit.*)

6. KÖNIG, medical student, took at 8 p.m. 2 tablespoonfuls of an emulsion of $\frac{1}{2}$ oz. cop. in 4 oz. vehicle. After each dose increased secretion of saliva and frequent eructations. Next d., 8 a.m., 2 tablespoonfuls. Between 11 and 12 a.m., rumbling and flatulence in bowels, with feeling as if bellyache were coming on, soon going off. 4 p.m., 2 tablespoonfuls. After 1 h., griping, inclination to vomit, 2 liquid faecal stools in 2 h. Faeces and urine smelt of cop., the urine was more copious and more frequently passed, with slight itching and smarting in urethra before and after micturition, but not lasting long. On 3rd d., 7 a.m., 2 tablespoonfuls. After $\frac{1}{2}$ h., great inclination to vomit and colic, this went off after perspiration. No appetite all d. 2 p.m., 2 liquid stools in rapid succession. 7 p.m., a firmer stool. (WILMKA, ii, 184.)

II. *Poisonings.*—A patient affected with gonorrhoea, after the inflammatory stage had passed, took \mathfrak{ss} of cop. Next m. the discharge had stopped, but all over body and even on face large wheals appeared like urticaria. At same time constipation and some fever. The eruption went off after a purgative, on which the discharge reappeared.

The patient again took cop., and had a return of the urticaria. (RÖMHELD, *Med. Ztg. v. Ver. f. Heilk. in Preussen*, 5th Jahrg., No. 36, p. 181.)

2. A recruit, æt. 20, had gonorrhœa, and by advice of his comrades took in 5 or 6 d. about ʒiiss of cop. The discharge was much diminished, but after 2 d. of malaise there came on with strong rigor, followed by great heat, an eruption consisting of lentil-sized, red, elevated spots, dark in their centres, where they were most elevated. The eruption resembled measles, and was combined with itching and pricking in skin. The fever declined on the 3rd d. The eruption became paler, sharply defined, and remained elevated. After 7 d. the cutaneous surface appeared marbled, spotted, pale bluish-red, and the sharp definition of the several spots was effaced. After 14 d. the eruption had quite disappeared. It left the face before the chest and arms, and lingered longest on the legs. No desquamation. (GROSSHAHM, *Ibid.*, 6th Jahrg., No. 8, p. 36.)

3. A man æt. 20, had been taking 150 dr. daily for gonorrhœa. On the 4th d. the discharge diminished considerably, but an eruption came on similar to the above, only that the spots were larger and more elevated in the centre. The 3rd d. the eruption disappeared from the face, the 4th d. from the chest, but it remained on the arms till the 6th d., and on the backs of the hands till the 14th. No desquamation. (*Ibid.*, p. 37.)

4. Lieut. v. K— had been taking 150 dr. of cop. daily for gonorrhœa. On the 5th d. the discharge ceased, and 2 d. later, when he had ceased to take the drug, an eruption like nettlerash appeared. It came first on the forehead, then on the backs of the hands, and afterwards on other parts of the body. In 8 h. the eruption was general; it was attended by burning in skin, slight soreness of throat, and a feeling as if sweat were going to burst out, which it did after patient got into bed. The eruption consisted of discrete elevated red spots and wheals like those caused by bug-bites; it was confluent only on ears and backs of hands. The 6th d. the redness was quite gone, and where the eruption had been the skin was of a brownish yellow, like the so-called liver spots. No desquamation, except on ears, where there was a bran-like desquamation. After 4 weeks the brown spots on the skin could be seen when the patient was in the cold. When the eruption disappeared the gonorrhœa returned. (LÖWENHARDT, *Ibid.*, 6th Jahrg., No. 32, p. 159.)

5. A man affected with gonorrhœa was treated with cop. ʒj n. and m. On the 3rd d. the discharge was gone. On the 4th d. there broke out an eruption resembling variola discreta in its 3rd d. The spots were dark red, slightly elevated; they reached their height in 12 h., and then declined and became petechial spots, which spread around and became confluent. There was slight pain and moderate headache. The eruption was gone on the 5th d. (LISLE, *Rec. de Mém. de Méd.*, v. xxiii, p. 108.)

6. A phthisical patient, æt. 40, had taken, on account of profuse expectoration, from Jan. 26th to Feb. 4th, about ʒiiss cop. with ʒiiss tinct. opii, when an eruption came all over body, resembling roseola,

only the spots were larger and more elevated, some confluent from the first on some parts of chest. On leaving off the medicine the eruption went off in 4 d., and there was very little desquamation. (LANGER, *Deutsche Klinik*, 1853, No. 36, p. 397.)

7. J. McK., *et.* 22, 3 weeks since contracted a first gonorrhœa, for which he used injections of sulphate of zinc. These arrested the discharge for a time, but it returned, and he began to take the oil of C. May 19th.—He took 2 tablespoonfuls, having taken one on 2 or 3 d. previously. After each dose he vomited a little. On 20th discharge stopped; he had a rigor, and noticed his face swollen and red. Went to business without taking food. On 21st had great thirst, nausea, vomiting, complete anorexia, restlessness, with increased swelling and redness of face. Arms and legs, and finally body, became red and swollen. When seen I found whole body œdematous; face of dusky yellowish-red colour; œdema worst about eyelids, which could not be opened; some sticky discharge at margins of eyelids; surface of skin on face and neck raised rather like measles. This is more observable where raised eruption terminates, next the hair and at lower parts of neck. Over body is a dark red smooth eruption, studded with innumerable points of a deeper colour scattered over surface. Hands and feet somewhat resembled face in appearance. Throat was inflamed, of dusky redness, with œdema of uvula; no difficulty in swallowing. Complained of no pain, but of feeling very ill; was sick and restless, and had no sleep, tossing about all n. There was no difficulty in passing water, which was rather dark in colour. Intense thirst; tongue very foul, fur yellowish-white and thick; bowels not moved for 2 d. Temp. 104°; pulse 140, small and thready. In e., temp. 103°; pulse 130, stronger; has felt head going round during d. and slight sore-throat; penis œdematous; bowels moved slightly; otherwise much the same. 23rd.—M., temp. 101.6°; pulse 108, stronger. Eyelids can be opened, showing conjunctivitis, with smarting, and copious, slightly purulent discharge; small vesicles, like sudamina, with more opaque contents, began to appear last n. over face, hands and feet; otherwise better. E., temp. 102.2°; pulse 100; increase of vesicular eruption, which is now more general; urine examined, but nothing abnormal found. 24th.—œdema and vesicles subsiding, save on back of hands, where latter are large and purulent; photophobia and lachrymation very great; on looking into eyes slight erosions of the conjunctiva seem to have occurred. E., eyes same, tears very smarting; otherwise improving. 25th.—Has not slept during n. from short dry cough, but all symptoms better. 26th.—Still improving; epidermis desquamating generally; has scratched it off back of hands, leaving them sore; eyes well. 27th.—Convalescent save for desquamation.

He had for treatment acon., bell., rhus., and merc. corr., with, for first 24 h., $\frac{ʒj}{ʒ}$ of brandy every 2 h. (W. A. KENNEDY, *Monthly Ham. Rev.*, xx, 479.)

8. a. When the dose has been unduly large, it occasions some heat and tenesmus in urinating, as well as a frequent desire to pass water, and even hæmaturia,* and at the same time a feverish excite-

* "I saw," says Kraus, "hæmaturia brought on by it, followed by very dangerous

ment of the whole system, fulness and frequency of pulse, headache, and thirst.

b. Its cutaneous eruptions were first noted in 1814, by Montégre, who described certain red spots as appearing on the skin whenever the urethral discharge was suspended. Delpech noticed a miliary eruption connected with gastric disturbance. Armstrong also observed itching and an eruption of the skin produced by C. In 1828, Dr. Hewson, of Philadelphia, published a notice of several such cases. In two of them the eruption resembled urticaria, and in two others it had the character of roseola.

c. As regards the action of C. upon the nervous system, it may be stated that Ricord met with cases in which too large a dose, or the untimely administration of the medicine, occasioned alarming symptoms. In one temporary hemiplegia was produced, which ceased upon the occurrence of a rubefoid eruption; and in another an attack of convulsions terminated in like manner. Macozzi observed a case in which large doses produced rigidity of the muscles of the trunk, and partial paralysis of the facial muscles. (STILLÉ, *op. cit.*)

g. The effects of C. upon the respiratory tract are shown, according to Ricord, by its producing irritation in the larynx and the bronchi; dryness also in the larynx, huskiness in the chest, and dry and painful cough, in connexion with which there is expectoration of a semi-purulent, greenish, and nauseously smelling mucus. (PHILLIPS, *op. cit.*)

10. Very serious injury may be done to the gastro-intestinal canal, and to the kidneys, by the use of this agent in too large doses. The author has known gastro-intestinal catarrh to persist many months after a course of the balsam; and he has reason to believe that desquamative nephritis and fibroid kidney have resulted from its free administration for a lengthened period. (BARTHOLOW, *op. cit.*)

11. C. F.—æt. 43, July 10th, 1846. Was quite well till 3 weeks ago, when he contracted gonorrhœa, for which he took from a druggist a copaiva mixture, after a time doubling the doses prescribed. Urethral discharge had in a few d. entirely ceased, when a new train of symptoms set in,—much pain in lumbar region, urine scanty and very high coloured. When he presented himself at the infirmary his legs and thighs were œdematous, besides a little effusion into abdomen. His urine was of a smoky colour, and very albuminous. He soon recovered under treatment. No other cause of renal dropsy was traceable. (*Med. Times*, xix, 144.)

12. It is now some years since I expressed my belief that the so-called "gonorrhœal rheumatism" originates from the administration of C.; and I take this opportunity of stating that further experience and observation have confirmed this opinion. I had, last February, under my care a gentleman, æt. 19, of a stumous habit of body, labouring under gonorrhœa, for which he had been ordered a C. mixture, two d. after taking which he was attacked by acute rheumatism in knees and feet, which rendered him a complete cripple. He had been in this miserable state a fortnight when he applied to me. I immediately, at 36 h. standing, almost instantaneously relieved by a poultice of hyocyamus over the genital organs" (PERLINA, *op. cit.*).

diately ordered him to discontinue the C., and substituted the iodide of potassium with sarsaparilla; he was almost immediately relieved and shortly cured. (MADDOCK, *Lancet*, 1838-9, ii, 337.)

13. S. C.—, March 28th, 1827, came under treatment with urethritis. Balsam of C. was administered in doses of ʒ5 gradually increased to ʒ5 dr. 3 times a day. April 5th.—Yesterday he suffered anorexia, and afterwards felt nauseated. 6th.—This m. on waking he found his head, face, body, arms, hands, legs, feet, and even palms and soles, thickly studded by a bright crimson papular eruption. On the finer portions of the skin it is slightly elevated into little prominences, so that each cone can be distinctly felt on passing the hand over it. They appear to be numerous, and so thickly set on inflamed bases as to render him quite crimson, and they tingle excessively. This eruption had barely disappeared by the 15th. (JUDD, *Urethritis and Syphilis*, p. 47.)

14. H. R.—, æt. 28, took for gonorrhœa each d., for 8-10 d., 4 to 6 capsules of C. (= 1 grm. 20—1 grm. 80). Heat, irritation, and erythema of surface supervening, he left it off, but after a time resumed it in same manner. The eruption which now appeared was a modified pemphigus, and was generalized over the whole body, commencing at the flexures of the joints. Where the skin was thin the bullæ aborted, but where it was thicker they were regularly raised and more or less lasting. There was much anasarca of the limbs. The discharge from the patches deprived of their epidermis was excessive, of an offensive odour, and very viscid. After 6 weeks of emollient treatment the pemphigus disappeared in a general desquamation. (HARDY, *Manièur des Hôpitaux*, 1869, p. 141.)

III. *Experiments on animals.*—1. According to Mitscherlich, the oil is poisonous to rabbits in doses of ʒj or more. The symptoms produced by it are hurried breathing and palpitation of the heart, restlessness, frequent micturition, loose alvine discharges, which at length become mucus and blood, and finally death by asthenia. The gastro-intestinal mucous membrane after death does not exhibit inflammation, but only a partial destruction of the epithelium. (STILLÉ, *op. cit.*)

CORALLIUM.

Corallium rubrum, Linnk. Red coral.

1. *Proving.*—1. ATOMYR. [A— says he proved it on himself and two girls in the 3rd tri., but nowhere gives any information to which of the three the symptoms belong. Neither in his nor in Mélicher's proving is there any mention of the time after taking the dose when the symptoms appeared. A— says a few grains of the tri. sufficed to produce the symptoms he records.] Head empty as if hollow; extremely violent headache, pressing out at forehead, compelling to move head from place to place, but without relief, which is only obtained for a short time by almost completely uncovering the burning hot body; pressure pain in forehead, so that her eyes cannot be kept open, relieved by walking in open air; pressure in forehead and temples whereby her sinciput seems to be pressed flat; violent headache as if her parietal bones were driven asunder, increased by bending forwards; on moving quickly or shaking head she felt as if wind rushed through cranial cavity; her head felt as if

three times the normal size; on bending forwards all her blood seemed to be propelled towards head and face; heat of face increased by bending forwards; dry heat in face with normal temperature of rest of body; when she lays her hand on face a cold shudder comes over her, in m.; the eyes smart as if sore when she moves the eyeballs or even the lids; pressure in the reddened eyes as if from sand in them, c.; burning of eyes from the glare of the candle; the l. eye pains as if hot and dry; pain in eye as if it were pressed from the front back into orbit; an extremely acute drawing pain in external wall of l. orbit, whence it extended to beneath cheek-bone, in the course of the malar nerve; he does not hear as well as usual; on drawing down lower jaw, as also when biting and yawning, the l. maxillary joint pains as if dislocated; great dryness of nasal and pharyngeal m.m.; in r, nostril on inner side of its ala a painful ulcer involving the nasal bones with a painful feeling as if they were forced asunder, then the pain extended to frontal sinus and the eyes and temples, with thirst; the r. side of nose is swollen, the swelling is hot and pulsating; disturbed sleep, nocturnal epistaxis; bleeding now from the r., now from the l. nostril; the lips cracked, painful; swollen, painful submaxillary glands, l. side, worse when swallowing and bending head forwards; pressure on the fovea canina causes ulcerative pain in the two corresponding teeth; both l. rows of teeth are as if on edge, the teeth feel as if too close to one another, or as if a rough substance stuck between each pair; on swallowing, dry sore-throat; on swallowing pain in temporal muscles; food seems to him quite tasteless, everything tasted like sawdust; farinaceous food tastes like straw; beer tastes sweet to him; wine tastes right to him, but stupefies him immediately; anorexia; no appetite, but yet no marked repugnance to food or drink; longing for acids and salt meat; great thirst; 2 h. after eating, hot cheeks, burning hot forehead; cold feet; nausea with dry tongue; nausea with violent headache, both increased by sitting up; painless rumbling in abdomen; constipation for 6 d., the 7th a copious soft stool; scalding urine; urine clay-coloured with similar sediment; great sweat of genitals; two seminal emissions in 24 h., the first at n., the second in afternoon vests, the latter with flaccid penis and without any dream. Frequent sneezing, preceded by tickling in nose; stuffed cold in head, cannot breathe through l. nostril. After stuffed cold in head for 2 d. a very violent burnt coryza, during which mucus resembling melted tallow, and which leaves a similar stain on the linen, comes away in such quantities that a pocket-handkerchief were saturated in an h.; it dropped out of the nose as fast as blood in epistaxis, ceased for a short time, and again recurred, for 2 weeks. Sacrum feels bruised. Stiffness in nape muscles, she cannot move head to either side without pain. Pain in wrist after writing rapidly for a long time. Painful tearings through r. tibia. Pain in knee, tibia, and ankle-joint after a long walk. After slight exercise in open air protrusion of upper and lower extremities, c. The hot parts become chilly when uncovered. Artificial heat is grateful to the hot and cold symptoms. On palm and some of the fingers smooth spots, at first coral coloured, then dark red, finally copper coloured. Excessive yawnings very frequently and in rapid succession, during which maxillary joint is painful. Very great drowsiness and irresistible desire to sleep, so that she could fall asleep standing. As soon as she falls asleep she starts up from a frightful dream. Very restless, dreamful n. Tossing about and throwing off clothes in sleep. Sleeplessness till midnight, though otherwise well. He does not fall asleep before midnight, rouses about in bed, cannot rest, if he uncovers himself he is too cold, and under the bedclothes too hot, for 3 successive n. Great but allayable thirst with febrile chill, but normal temperature of skin and severe frontal headache. Dry febrile heat without thirst. General inward and outward febrile heat without thirst, not followed by sweat, with full hard pulse. Very peevish, he scolds and sweats on account of the pains. Irascible, ill-humoured. (*Archiv., xl. 3, 166.*)

2. FR. MELICHER took 3rd trit. Confusion of head as after intoxication; headache as from pressure in the frontal sinuses, with increased secretion of nasal mucus; on closing lids hot feeling in eye, as if it were in tears; the l. zygoma pains as if bruised, worse when touched; great accumulation of nasal mucus through posterior nares, making him constantly hawk; a painful pimple on the upper lip, near the orifice of the r. nostril; after eating, giddy as if intoxicated; in scrob. cordis a pres-

sure, aggravated by coughing, swallowing, and breathing deeply; swelling of prepuce, the border of which pains as if raw when it touches the shirt; the frænum preputii is painful, as if wounded by fine needles; the whole glans and inner surface of prepuce secretes a yellowish-green foetid pus, is very sensitive, red, swollen; red flat ulcers on glans and inner surface of prepuce, with secretion of much yellowish matter. A painful cough, with feeling as if a stone lay in the pleural sac, pressed it down, and caused a violent pressive pain in chest beneath sternum, thence the pain extended to scapulæ, but goes off gradually as the cough diminishes. He expectorates yellow pus-like mucus. On breathing deeply, the air that passes through air passages appears to be icy cold, with some irritation to cough and much difficult hawking up of bronchial mucus, m. Pain in sacral region as from pressure of a blunt instrument. Pressive pain in scapulæ, aggravated by coughing. Pain in shoulder-joints, first in l. then in r., then in both together, as if the head of the humerus were forcibly pressed out of the joint. Pain in insertion of deltoid muscle and in middle of r. forearm, as if those places were pressed by sharply-opposing fingers. Tearing in r. tibia, with feeling as if someone tickled him in the hough, which makes him quickly bend the knee when walking. (*Ibid.*)

CROCUS.

Crocus sativus, L. Common saffron crocus. Nat. Ord., Iridaceæ.

I. *Proving*.—1. Symptoms elicited by provings on healthy persons, under superintendence of Drs. Stapf and Gross; small quantities of tinct. being used, "none of the provers taking more than 12 gr. in all, some much less."

a. Giddy and staggering when rising from recumbent posture during n.; whirling in head and heat in whole body; giddiness and great oppression of head; giddy in head (immediately); tensive oppression, first in forehead then in whole head, as if intoxicated (10 m.); head dull in front, as in intoxication, and whirling (in a moderately warm room, not in open air)—1 h.; dull feeling in head, with painful oppression in occiput (2 h.); sensation in head as if intoxicated, with oppression of eyes as though she could not see out of them, and feeling of heat in face (7 m.); gloominess in head, dull pain in eyes and momentary vertigo; frontal headache whole of 2nd and 3rd d. after taking drug; headache after waking in m., pressure on vertex and heaviness of whole head, he is scarcely able to support it; momentary drawing headache, r. side, from behind forward, like a painful vein, somewhat external, recurring at intervals; pressive-drawing pain along narrow streak in centre of forehead ($\frac{1}{2}$ h.); over l. frontal eminence from time to time a rapid broad thrust deep into brain, which makes him start (12 h.), leaving a momentary painful oppression, which is relieved by external pressure; headache over eyes, with burning and pressure in same, which induces rubbing, and increases considerably, especially in candlelight, towards e.; pressure in forehead; from l. frontal eminence

to l. side of nasal bones a painful crampy drawing ($\frac{1}{4}$ h.); on l. frontal eminence a dull tension; on same intermittent painful itching; under same sudden acute pain, as if a blunt arrow were pushed into it, this is followed by several thrust-like attacks of same pain (1st d.); painful drawing in forehead, with nausea; dull headache on l. side; dull pain in l. side of head, spreading as a contractive pain into r. temple, ear, and throat, where it is especially painful during deglutition; rhythmical pulsations in whole l. half of head and face ($2\frac{1}{4}$ h.); sudden clicking sensation on small spot over l. parietal bone, as if a drop of water had fallen thereon from above; drawing pressure in r. occiput; acute tearing in head and r. eye, likewise in a l. hollow tooth, with dimness of the eye and sensation as if a current of cold air were rushing through it; sensation on moving head as if brain were loose and swayed to and fro.

b. Dilated pupils ($\frac{1}{4}$ h.); very dilated pupils (in a few m.); somewhat contracted pupils (after several h.); eyes become dim, he can see nothing plain, and all things appear as in a mist ($2\frac{1}{4}$ h.); after a few h. her eyes, usually clear and of acute vision, are misty, all things seem pale to her, as if a gauze were before them, this disappears for a moment on wiping eyes, but soon returns (at 8 p.m.); darkness before eyes, after which sensation as if bright stars danced before them (2 d.); the light is less bright, as if a gauze were between her and it; when reading he imagines he has a gauze before his eyes,* which disappears on frequent winking.—at same time pressure in eyeballs, becoming mere heaviness when eyes are closed, but returning on opening them again; aching in eyeballs, as from looking through too strong glasses (without diminished sight)— $1\frac{1}{4}$ h.; he is frequently obliged to wink, and to wipe his eyes, as if a pellicle of gum were drawn over them ($4\frac{1}{2}$ h.); inclination to close eyes firmly from time to time; tendency to prosis, with dim-sightedness ($\frac{1}{2}$ h.); pain in r. eyeball in m., as of a stitch at one point; sensation as if eyes became smaller ($\frac{1}{2}$ h.); while reading, the white paper looks pale red; sudden flashes before eyes, like electric sparks, in daytime (after several d.); after reading awhile, even in daytime, eyes ache and feel sore and burning, with some dimness, compelling frequent winking; pressive pain in eyeballs, with profuse lachrymation, and after cessation of pain great dim-sightedness (7 h.); he cannot read a word without a rush of tears from the dim eyes (8 h.); sensation in eyes (only in warm room, not in open air) as if they would water all the time; on closing eyelids water runs out of them; feeling in eyes as from smoke; sensation in both eyes as if she had wept much, they feel swollen and tense, though others see nothing wrong in them (for several d.); in another, same sensation with corresponding appearance; burning in eyes; burning-pinching under l. lower lid (9 h.); very dry eyes; itching in lids of r. eye, with sensation as if dragged towards outer side, afterwards in both eyes (7 m.); creeping in l. eyebrow, with sudden twitching in lids, and transitory sensation as if something were lodged upon the eye which ought to be wiped off ($\frac{1}{2}$ h.); twitching and itching of upper eyelid; visible twitching of eyelids, with sensation as if she ought to wipe something off eyeball ($\frac{1}{2}$ h.); creeping in eyebrows, he

* Four other similar symptoms are recorded, possibly from separate provers; in one case the eyes felt dry.—E 61.

must rub them ($\frac{1}{4}$ h.); sore feeling in lids, by candlelight, with inclination to close them frequently and to wipe the eyes; burning in lids, worse when closing eyes; long-lasting dull pressive stitch in l. lower eyelid ($4\frac{1}{4}$ h.); when waking at n., she feels as if she could not open eyes, as if a weight were pressing on them,—if she forces them open, she feels a tension and pressure, and only succeeds after repeated attempts.

c. Glow in face, in m. on waking; very hot in face and fore-part of head; circumscribed burning red spots in face.

d. Cramp-like drawing in concha and meatus of ear, like otalgia (20 h.); pain in and behind r. ear, like cramp (immediately); after lying down in bed, sound in l. ear as of bells ringing at a distance, heard on stopping ear entirely, it continues till he goes to sleep, and only disappears on forcibly withdrawing thought from it (for several e.).

e. Dry lips, inclining to crack; smarting of lips; painful feeling of stiffness in throat on movement; scraping in throat—as after eating fat meat—before and after coughing; sharp scraping sensation at back of throat, obliging hawking; frequent hacking, occasioned by tickling in upper larynx during expiration; feeling like heartburn along œsophagus (9 h.); sudden drawing in l. side of throat externally and internally, extending into ear ($\frac{1}{2}$ h.); sensation during empty deglutition as if a hook were lodged in throat which could not be got away, compelling hawking; sensation in throat after eating, as if a plug had been pressed in, more during empty deglutition than on swallowing food, it continued till next d., uvula seems somewhat elongated, with feeling of pressure independently of deglutition; feeling as if uvula were elongated, both between and during deglutitions; dryness and scraping in mouth; dryness in mouth and violent burning of one side of tip of tongue, as if vesicles would form upon it, very painful when talking or putting out tongue (on dorsal surface only); white-coated but rather dry tongue, becoming clean after breakfast; white-coated, very humid tongue, papillæ erect; a good deal of water in mouth, with slight smarting on tip of tongue, as if salt had been strewed there, with salt-sweet taste; unusual warmth in mouth; sweet taste at back of throat; repulsive, sour-sweet taste in m. after rising, going off after washing mouth; bitter taste at back of throat.

f. Eructations; tasteless eructations; frequent empty risings before breakfast; empty feeling in abdomen, with complete want of appetite; qualmish, disposed to vomit; qualmish and uncomfortable feeling from scrob. cordis into abdomen, where is a slight feeling of movement as if pinching would come on; great qualmishness and feeling of weakness in præcordial region, abating in open air; feeling of nausea in chest and throat, as though she would vomit immediately; transient pain in scrob. cordis; contraction in pit of stomach and below sternum; rumbling and working in præcordial region ($\frac{1}{4}$ h.); drawing in scrob. cordis, hither and thither, up and down ($\frac{1}{4}$ h.); single violent stitches in scrob. cordis; burning in stomach; distension of stomach and abdomen; fulness and pressure in abdomen, and at same time in chest, as if she had eaten too quickly and too much (but not after eating); a.m., on empty stomach, feeling of distension of abdomen; she feels very full after eating very little, as if she had taken too much, with loss of appe-

rite; slight grunting in epigastrium with uncomfortable feeling; repeated bubbling in hypogastrium (2 h.); repeated grunting in abdomen, m. in bed; pinching on a small spot on l. abdomen, on a line with umbilicus; drawing in præcordia, towards stomach, like colic; sensitiveness of stomach, as after catching cold there; after a wanted drink of fresh water, pinching jerks in abdomen; painless squeezing pressure as of a broad hard body in r. upper abdominal cavity at each inspiration; flying pain as from pressure on a sore place, now in l. now in r. abdomen; colic, as from a chill; drawing colic as if menses would appear (1st d.); flying, titillating sensation darts through abdomen; stitches at times on one side of abdomen, arresting breathing; painless shock in abdomen, as if something living were bounding about on both sides of abdomen, with nausea and chilliness (9 h.); occasional sensation, as of something living bounding about, in scrob. cordis, abdomen, arms, and other parts of body; in n. while wide awake she feels in l. abdomen repeated shocks, such as in a pregnancy, now over for some months, she had felt from the movements of the child (after several d.); similar sensation in hypogastrium; several dull shocks below r. short ribs near scrob. cordis, and immediately after pain at that spot during inspiration (2 h.).

g. Movement through whole abdomen, with pinching sensation, and occasional slight inclination to stool; dull, long, sensitive stitch near anus (l. side) from time to time, long lasting; creeping in anus as from ascarides; itching in anus, 1st e., compelling scratching; intolerable writhing in anus; sensitive, dull stitches on r. side above anus; slow dull stitch from time to time from anus through sacral region into l. groin, terminating in a simple pain, increasing during an inspiration, and afterwards going off gradually; stool earlier than usual, but somewhat difficult; some blood passed with stools.

h. Excitement of sexual desire; pressure in groin, as before catamenia; feeling of weight in inguinal region; intermittent sharp shooting from genital organs into r. half of epigastrium, as if a knife were carried up in that direction with rapid pushes, penetrating gradually farther, and becoming more and more cutting; sensation as if menses would make their appearance, with colic and urging towards pudenda (in a few h.).

i. Dry coryza several h. after taking drug, l. nostril quite stopped up; dry coryza with cold hands and feet, and heat of face, especially after a meal (for 3 d.); violent sneezing shortly after taking drug; epistaxis of tenacious, thick, black blood, with cold sweat on forehead, in large drops; her breath, which is generally sweet, has an offensively sickly smell; much clearing of throat, owing to formation of a quantity of mucus, which makes voice thick and scrappy; much cough; very violent paroxysm of tearing dry cough, relieved by pressing with hand on pit of stomach; paroxysms of dry cough, as if occasioned by a persistent and violent irritation in trachea; a sort of constriction, making it difficult to accomplish a full yawning, he succeeds in it only after several ineffectual attempts (10 m.); weight on chest, he must frequently breathe deeply; shooting in trachea, mostly at back (4 h.); warm sensation ascending towards heart, with anxiety, and some dyspnoea, pro-

venting deep breathing though there is a disposition to it, she feels more comfortable after yawning, which is frequent; tightness of chest; dyspnoea; sensation in throat, on inspiration, as if irritated by sulphurous vapour; stitch below heart, worse on inspiration (2½ h.); stitching in both sides of chest, externally, later spreading more to front of chest, and changing to burning,—uninfluenced by breathing or movement (1 h.); in lower part of chest and pit of stomach suddenly an aching pain with slight nausea (¾ h.); within l. chest a peculiar jerking pain as if drawing by a thread towards back, in paroxysms; a kind of bounding, as of something living, below ribs of r. side; soreness in whole chest; short stitches in r. chest; paroxysmal shocks in l. chest, as if breath were arrested; dull stitches in l. chest; a few painful shocks on a small spot behind shoulder.

j. Cracking in shoulder-joint during sudden motion with acute pain as if arm were dislocated; twitching of muscles on top of shoulder, sensible and visible, in m. in bed; occasional sensation in shoulder-joints as if arm would become dislocated, as if bone were too loosely fixed (in two provers); dull pain with paralytic feeling in l. arm; when moving upper arm outwards, tense feeling in shoulder-joint and cracking of same; pain in r. forearm extending obliquely to thumb; a kind of intermittent drawing, every intermission marked by transient digging, on small spot on forearm, worse when it rests on anything, in which case a stupefying warmth spreads over hand; slight pain on small spot of l. forearm, not far from elbow, which is tossed up spasmodically and involuntarily, causing him to start (9 m.); arms, especially forearms, are very heavy and as if bruised; arms feel bruised immediately upon moving them slightly; dull pain in r. hand; one hand, arm and foot go to sleep; both arms go to sleep; both arms and hands go to sleep, with a sort of immobility (1½ h.), recurring several times during d., and lasting ¼ h. each time; arms and hands go to sleep at n. while she is asleep, and the tingling pain awakes her (8 h.); after walking in somewhat rough air and now entering warm room, he suddenly feels an uneasy, burning, tingling feeling in tips of fingers, as if they had gone to sleep, with a strained sensation as if they were wrapped round tight, and the blood was unable to circulate freely (23 h.); violent stitches in l. index finger (immediately); formication in same; considerable feeling of coldness in l. half of back, suddenly, as if cold water were poured over it, lasting a long time; tearing pains in sacrum, worse during inspiration (1 h.); sudden convulsive sensation in buttocks while sitting, as from violent fall on them; violent crack, like a report, in r. hip-joint, when stretching thigh forward; feeling of weakness in thighs, extending down to knees, especially when sitting (½ h.); pain in posterior surface of thighs, during long-continued sitting; great weariness in legs, with painful buzzing in legs from above downwards,—felt less during, but much more after, motion, somewhat abated by rest; tearing over knees down to malleoli, at n., thereafter continued pain and drawing here and there in parts, obliging her constantly to alter position of feet; knees bend double even in standing; painful tension in knees while sitting down, on rising again pain in joints as if they were dry from lack of synovia, and would crack and scrape on motion; inter-

mittent painful drawing in the bent knee; audible noise in knee-joint immediately on stooping, with a not altogether painless feeling; weariness in knees as if they would give way; legs feel bruised; he finds it difficult to stand and walk, and on sitting there is weak feeling in legs; painful weariness in legs, also while sitting feeling of weight as after long pedestrian exertion; burning and tingling in feet, especially soles, as after walking in tight shoes; smarting in calf and soon after tearing in same; bruised feeling in calves, as if he would stumble over his own legs; legs feel extremely weak and weary; after some walking paralytic feeling in legs, especially knees and ankles, so that further walking and even standing are difficult; transient, more or less rapidly intermitting, dull but very sensitive pain at small spot above malleolus, apparently in periosteum (8 h.); pain of soles, as if he had walked for hours, he must shift feet from place to place; soles ache from standing; smarting in l. sole (while sitting); sensitive drawing in l. ankle; single small stitches in ball of l. great toe.

k. He is waked in n. by desire to urinate and a bruised pain and feeling of numbness in l. humerus, on which he had been lying, body below waist covered with sweat, on rising he feels giddy and reeling, cool air seems blowing on perspiring parts and cool sweat trickling down legs; itching on several parts of body; extreme lassitude, with sensation as if general sweat would break out, he is scarcely able to stand, would like to sit or lie down all the time, though even then he feels prostrate (4 h.); lassitude even to collapse, with feeling as if sweat would break out over whole body, and quickened pulse; feels relaxed, lazy, sleepy; in m. excessive weariness, yawning, prostration, better in open air, worse indoors; feels weak all over, including hands and feet; sense of weakness and great laziness in whole body, even approaching to faintness; debility in single limbs, even slight movements cause bruised feeling, especially in hip-joints.

l. Drowsiness (immediately); immediately after dinner great desire to sleep, with thrills of chilliness; after a simple and moderate supper he feels extremely collapsed, prostrate and weak, as if he had undergone the most violent bodily exertion, with great drowsiness and heaviness of eyelids (sense also as if they were swollen), this lassitude is relieved by literary labour; with great drowsiness weak, glassy eyes; he sings in his sleep; unusual drowsiness, he would like to sleep continually, with great yawning in daytime; restless sleep, frequent waking, he tosses about but falls asleep immediately, and dreams vividly; he wakes uncommonly early and imagines it is very late; he wakes earlier and remains awake longer than usual; a number of confused, even terrifying, dreams about what he had said and done during d., about fires, &c.; she wants in sleep to reach a distant place, but cannot get there in spite of all her efforts; in dreaming he is in a cheerful merry mood; violent yawning, several times in succession.

m. Anxious trembling through whole body; lack of desire to do anything; she feels least comfortable in m.; she feels better in open air than in room, her symptoms seeming almost entirely to disappear in open air; tingling now here now there all over body, often in rapid succession, going off by scratching; cracking of joints on movement,

not without some pain; an old indurated bruise on finger immediately forms matter, and becomes painful and sore.

α. Cold thrill along back, over shoulders and down arms, with goose-skin and frequent yawning (5 m.); he feels chilly ($\frac{1}{2}$ h.); feeling of coldness in back (2 $\frac{1}{2}$ h.); at 9 p.m., 4 h. after taking drug, he feels chilly, as if (which he was not) in a room without a fire, which feeling gradually increases to a shaking chill all over body, with pale face and icy-cold hands; at 7 p.m., 8 h. after taking drug, sneezing, and then immediately rigor from back down to feet, scarcely in anterior part of body and face was warm, no subsequent heat; all p.m. chilliness with some thirst; yawning and chilliness after supper, with burning of eyelids and thirst for cold drinks, without drinking much; he is seized with great heat, so that he feels tingling in skin; distended veins with feeling of heat but only moderately increased temperature of skin; scarlet-redness of whole body; ebullition of blood, as if there were movement in whole body, without any perceptible heat; he had violent heat over whole body, but especially about head, with redness of face and violent thirst, without much dryness, for some h. (towards e. of 2nd d.); a quickly passing suffusion of warmth ($\frac{1}{2}$ h.); heat in face without any great redness; uncommon feeling of heat and prickling in skin, as if sweat would break out, skin being itself rather cool than hot; excessive desire for cool drinks p.m.; palpitation, anxiety about heart, whence a weak feeling passes down through whole body, as if it would collapse, and so down to feet (2nd d.).

β. Uncommon mirth and cheerfulness; alternation each e. of spasms with extremely variable temper; during great debility with dilatation of pupila, strong inclination to jest and laugh (4 $\frac{1}{2}$ h.); very cheerful mood, is witty, joking, loquacious; inclination to sing; even when out of humour, quick humming of a lively tune; if someone happens to sound a note she begins to sing involuntarily and then laughs at herself, soon, however, singing again in spite of determination not to do so; there suddenly comes before her fancy a concert at which she was present a long while ago, as vividly as if it were going on before her, so that she can distinguish the separate instruments; immoderate laughter as if he would die; disagreeable mood, vehement, out of humour, quarrelsome, an h. after loquacious, merry, laughing, and singing; frequent alternation of cheerful and sad humour; disagreeable feeling as if he were longing for something without knowing what, with a sort of anxiety, which, however, leaves him very cheerful; is sometimes very angry with people, and next moment would like to embrace them; a slight thing which would make her laugh at another time now excites her almost to rage, so that she is near losing consciousness, afterwards she is astonished at her passion (4th d.); reproaches make her very angry, she wants to justify herself, but the words vanish on her lips,—vexed at her silence she tries to speak again and again becomes dumb, continuing wavering in this fashion, and not succeeding in uttering a single word in her defence though she tries very hard; the manners of a relative whom she loves excite her anger, she is on the point of breaking out when she feels calm again, next moment this calmness seems to her weakness, at which she is vexed, and she is more angry than ever,—and so on for

several h. (in a quite unwonted way) (2nd d.); vacillating peevish mood,—a slight cause excites his anger, for which he is sorry the next moment, but it soon returns and he frets that his calmness hinders him from giving vent to his feelings, he exchanges a harsh word he was about to utter for a milder one and *vice versa* (after several d.); uneasy, anxious, sad mood; melancholy sadness, hypochondriacal mood; he takes everything in bad part and then repents of having hurt other people's feelings; if he attempted to write anything down he was unable for want of ideas; she feels for a few moments as if her thoughts would vanish; great forgetfulness, she inquires about a thing and next moment forgets what she had been inquiring about; during an interesting lecture he became suddenly and peculiarly sad, so that in spite of every effort he was unable to fix his mind upon the subject (10 h.); absence of mind and forgetfulness, even to non-recognition of friends; his mind errs, and he is mistaken about the time and about objects, although these are near and distinctly visible. (*STAPP'S Beiträge.*)

3. THÖRER. [Mode of obtaining symptoms not specified.] Confused sensation in forehead; headache on r. side (3 h.); shooting headache with dry coryza; violent headache for 3 d.,—quite unprecedented; violent burning of eyelids; violent stinging itching of l. upper eyelid, compelling rubbing (1st c.); frequent darkness before her eyes (1st d.); excessive hunger, she must eat every m. (1st d., p.m.); drawing, first in epigastrium then in uterine region; the child suddenly complains of colic, and bends double (and d.); sacral pain, m. and n. in bed, on movement; itching on r. side of scrotum (1st and 2nd c.); hoarse voice with some cough (2nd m.); agitation of blood and palpitation; bruised feeling in both shoulders; sudden violent tearing pain in r. elbow-joint, disappearing again immediately. (*Ibid.*)

3. WAHLB. [As 2.] Her senses readily vanish, and all becomes dark before her eyes; whizzing as of a strong wind in head; humming and roaring in ears; menorrhagia from slightest movement; very frequent palpitation; great sense of emptiness in stomach; frequent faintness; she least thing puts her out of humour, so that she does not know what to do, with anxiety and trembling through whole body; indifferent to everything; joyless and sad, alternating with mirthfulness; the least thing that affects her drives her thoughts quite away. (*Ibid.*)

4. VZZOLD observed "inflatio colli" in a girl of 18, who had swallowed ʒj. Riverius states that it may cause even fatal hæmorrhage from the uterus, especially after delivery. Tralles relates that a woman from odour while putting it up in paper in a heated room became overcome and lay for a time as if apoplectic. Zacutus Lusitanus speaks of having seen from it excessive gaiety, bordering on delirium, with pallor, headache, obscuration of vision. Boerhaave speaks of almost constant unbecoming laughter as an effect of it; and Schultze says that children laugh as soon as they smell at a bottle which had contained it. (*Ibid.*)*

CROTALUS.

Venoms of several species of rattlesnake, especially *C. horrius* and *horridus*.

1. *Proptings*.—1. HERING. Vertigo; frontal headache; pain above eyes and in temples, worse on r. side, with nausea and vomiting of bile,

* "Alexander swallowed ʒ scruples of saffron without perceiving any obvious effects therefrom; and Widmer took ʒj without observing the slightest effect" (PERRIN).

is obliged to lie down; together with constipation; better from walking in open air. (*Wirk. des Schlangengiftes*, 1837. All symptoms here recorded were obtained with 1st and 2nd trits.)

2. KUMMER. Pressive headache, with vertigo, nausea, and sensation of discomfort on movement, pain is worse above eyes, especially r., not continuous, but in paroxysms; pain in l. breast and next d. in r. (*Ibid.*)

3. LUGER. Remarkable weakness of memory; makes mistakes in writing and does not spell correctly; excessive sensibility, as, for instance, to anything touching in what he reads; confusion of whole head; itching in angles of eyes; a little clear blood from nose; large pustule over l. ala nasi, with drawing pain in neighbouring cheek, and redness and hardness of spot, continuing a long time; tickling on palate and fauces; shootings in pit of stomach; pappy stool; twice a sensation of cutting in glans penis; unusual sexual excitement, only by d., with complete relaxation of organs, indeed, apparent impotence; tickling in supra-sternal notch, as if in trachea, causing cough with expectoration, after a few d. tickling only without cough; eruption of numerous distinct red spots (petechiæ), very small, with a few larger ones, between shoulder-blades; trembling in hands when at rest; itching in middle joints of fingers of both hands; rheumatic drawing in r. popliteal space between tendons; stinging itching, flying to all parts of body, worst on shoulder-blades; in m. on awaking feels as if beaten; can hardly muster up courage to rise. (*Ibid.*)

4. SCHMÖLE. Unusual obtuseness and stupidity 1st d., by reason of which he cannot express himself correctly, and therefore does not note down some symptoms; for a few d. a certain diffidence in the selection of medicines, which previously had been a pleasant task; vertigo before eyes, even to falling, pupils a little dilated, face chalky-white, with blue around eyes (1st d.); yawning; dull, heavy feeling in head; headache in whole forehead, which gradually became worse, until at last it was unbearable, then again a little better, and so continuing till e. ($\frac{1}{2}$ h.); headache which, though very bad indeed shortly before going to sleep, and especially on undressing, in m. after a good night's sleep had vanished; pressing pain in balls on moving eyes, as if orbits were dry inside; dusky redness of l. upper lid, with dryness and burning of inside of eye and redness of angle; fading of sight by reading; sensation as if r. ear were stopped up, and drawing in interior of both ears, worse in r., with heat and sensation as if cerumen were passing through Eustachian tubes into mouth; hot tingling sensation in both ears; painful drawing in r. ear, with sensation of heat in it; heat in r. ear and bruised feeling in lobes; drawing in r. ear, with painfulness of whole l. side of head and paralysed feeling in l. jaw-bone; pressing-drawing pains, first in r. jawbone and then in l., and then in both at once, from behind r. ear drawing pain down neck; bruised sensation of r. lower jaw and teeth; drawing-tearing pain from r. shoulder up side of neck, as if muscles were stretched and being torn out, aggravated by moving arm backwards; in l. neck posteriorly rheumatic drawing pain as far as shoulder; sour taste in mouth after ordinary breakfast; crushed sensation of entire r. lower jaw, together with teeth; transient

violent shooting downwards, almost like a blow, in an upper molar (2nd d.); sudden transient pain in a r. lower molar, shooting up and down in it a few times (1st d.); painful roughness in throat; bruised, sometimes shooting, pain from larynx to chin, sometimes as far as lower teeth; scraping rancid sensation from pharynx down to stomach, with pressure in epigastrium; heartburn all d., especially p.m., with sensation as if whole œsophagus up to mouth were filled with rancid fluid, with eructations tasting of ingesta; eructation of acrid sour fluid after eating some white bread, and rancid eructations all p.m. (4th d.); nausea and malaise, and feeling as if something rancid rose up in œsophagus; pressure in stomach and uncomfortable sensation about region of epigastrium, as if he had eaten too much—a similar sensation to that occurring before syncope, which came on a few m. later; cannot bear clothes round stomach and below r. hypochondria (1st d. only); pressing pain in middle of abdomen, below navel, as if too full there; deep pain in umbilical region, like violent burning (1st d.); pain in l. abdomen, like a splenic stitch from violent running, much aggravated by deep breathing (1st d., recurred 2nd d. after stronger dose, but not quite so bad); frequent diarrhœic stools, with pain in abdomen from navel downwards; urine somewhat increased and of very high colour, reddish yellow (2nd—5th d.). Hoarseness and weakness of voice; larynx painful on being touched (2nd d.); oppression in chest on sitting down, almost causing fainting (2nd d.); a single violent sneezing, with stitch in r. chest near shoulder, followed by pains in sternum; in middle of chest, rather to r., sharp sore pain and shooting, as if through sternum, increased by pressure, but not by deep breathing (1st d.); continuous dull stitch in front of chest as far as l. shoulder ($\frac{1}{2}$ h.), returning following d.; stitch in r. chest close to sternum; pain under arm on r. side, then on l.; throbbing bruised pain under r. arm on ribs, worse on touch and movement, and at same time pain in r. elbow; pain under l. arm passing into l. chest, much aggravated by deep breathing; in front of shoulder-joint, above axilla, several small soft tubercles under skin, and many continuous stitches as if from pins sticking into flesh, worse on bending arm backwards (2nd d.); sudden pain over l. nipple as if from a blow, lasting 2 m., and recurring speedily (1st d.); bruised pain in paroxysms in shoulder-blades, especially on moving arms backwards (2nd d.); weight in arms and legs as if bones were made of heavy wood; in e. on sitting, painful paralysed sensation in bones of fingers, arms, and legs; drawing in bones of r. arm as far as thumb and little finger, at same time heat and intolerable gnawing pain in l. foot; in toes and fronts of fingers numb pains, as after cramp, several times (2nd d.); bruised cramp-like pain in upper part of both arms; occasional dull pains in bones of fingers, especially r. index; in 1st phalanges of r. little and l. middle fingers violent pain as when a very cold hand is brought suddenly to the fire, later same pain in l. ring finger; violent pain in r. arm, immediately above elbow; dull tired sensation in r. hand and fingers; dull pains in last joints of r. hand; violent pain in l. palm, as from sting of bee, but more cramp-like, much worse on moving little finger, which pains in its first joint; violent dull drawing

pains in bones of l. thumb; in l. ring finger 6 times a shooting pain, with rapid pulsation, each time lasting only a few seconds (4th d.); in first two phalanges of l. little finger bruised pain, with pulsation at finger end; continuous dull painful tired feeling in legs; legs go to sleep readily if he lays one over other for a little; in m. on walking bruised pain in all bones, which passed away after rising; in whole r. leg downwards sensation as if only half alive on extension, to which he is driven by involuntary impulse, upper part of body trembling till head shakes, with tension of muscles of forehead and back; stretching-drawing pain in bone from l. hip to foot, with twitching in calf; violent tired and cramping pain in thighs towards abdomen, and passing backwards, as if he had greatly strained himself at skating,—it feels as if flesh were dragged up; bruised pain in thighs, worse on touch or movement, for several d.; on walking out a few dull drawing pains in r. knee-cap and shin, so that for a few m. he could hardly walk, then violent pains in hand and jawbone; when walking a few sudden pains in r. knee, like gout, which returned and continued on sitting still (2nd d.); gouty drawing through r. knee and down leg, worse from standing on r. foot (1 h.); dull drawing pain as if through marrow from l. knee to sole; during and after a walk in the street sensation in r. leg as if a tendon were being dragged up from sole through leg, foot being thus drawn up; bruised pain in l. calf, worse when touched (1st d.); same in both ankles, very painful on walking; same in l. tendo Achillis, increased by touch or movement (1st d.); pressing-drawing pain in both heels as far as ankles, feeling as if chiefly in bones; burning and blunt pricking in r. sole, with sense of leaden weight in foot; pain in sole near heel as if one had trodden on something sharp with bare feet (4th d.); crampy feeling under l. little toe, sensation as if something were twisting it round (1st d.). Uncommonly sleepy at noon of 1st d., almost irresistibly so at same time on 2nd d.; dreams he is travelling about all over world; at n. many dreams or quarrelling and fighting, dreams he has quite broken with his father, who would no longer recognise him as his son; in m. on waking, bruised pain in all the bones, which passed away after rising. (*Ibid.*)

5. Dr. J. W. HAYWARD, æt. 43, in good health; lives by rule; never uses tobacco in any form, and seldom alcohol. His habit in proving is to try to forget having taken the drug, and not to note any symptom unless it distinctly arrests his attention whilst otherwise occupied.

a. July 24th, 1872, took in water 10 dr. of 1st cent. atten., at 10.40 a.m.; at 10.50 my attention was arrested by a sharp downwards-drawing pain on r. side of nose, near inner canthus. This lasted about a m., and then gradually changed into a dull bruised pain, which lasted for 10 m., and then passed off gradually. There was, at same time, slight quivering feeling in lower lip, near l. corner of mouth, lasting $\frac{1}{2}$ m. At 11.0 there was continued tearing pain in brain, just above root of nose, with confused muddled feeling; on coughing back part of brain felt jerk, as if it were tender. After this I went out of doors and was too occupied to notice symptoms. Returned at 1.15 and took another 10 dr.; at 1.30 felt quivering in l. under eyelid, for a few m. I now lunched, and did not observe any symptom until,

when sitting quiet after lunch, there was return of pain and sensitiveness of front part of brain, aggravated by coughing and sneezing. Being called out proving was interrupted, and was not resumed.

6. Sept. 17th, 1881, took 5 dr. of 3rd cent. atten., in water, at 10 a.m. Did not notice any effect. At 11 took another 5 dr., and went out of doors; after about $\frac{1}{2}$ h. my attention was drawn to my heart by feeling of soreness, as if in pericardium; this lasted a few m. After another $\frac{1}{2}$ h. attention was arrested by feeling of soreness along cartilages of rib in epigastrium; this lasted a few m. At 1 p.m. took another 5 dr.; did not notice any effect. At 3 took another dose and went out; nothing peculiar arrested my attention until e., when I noticed myself yawning constantly; and then my attention was drawn to the fauces by a feeling as if velum were stiff and too long, and as if fauces were lined with mucus. At 11 p.m. took another dose and went to write; went to bed at 11.45. Slept heavily and dreamed much, and on awaking in m. felt as if brain were contracted and lay loose within skull, and fell about on moving head; and as if it were tender or morbidly sensitive, so that a pulsative headache was felt synchronous with the pulse, as if the brain were somewhat grasped; also tenderness of heart on turning to lie on l. side, as if pericardium were morbidly sensitive; these two symptoms continued for $\frac{1}{2}$ h., and went off whilst dressing. 18th.—Breakfasted at 9 a.m.; at 10 took 10 dr.; at 10.10 felt pressing pain behind l. orbit, slightly pulsative. 11, took another 10 dr. and went out; at 11.30, whilst driving, attention was arrested by sensation of swelling of velum with feeling of mucus in fauces, which had to be swallowed down or hawked up, or as if uvula were hanging too low. 12.30, constant yawning, also downwards-pulling pain in small spot in head on r. side of vertex; still feeling of mucus in fauces, with some sore pain about uvula on swallowing, followed shortly by singing in whole head as after taking chloroform, continuing for some time, and succeeded by full congested feel of whole front part of brain, with torpidity of intellectual faculties, or dull confusion in front of brain. 1.30, took another 10 dr.; same symptoms continued. 4 p.m., took another 10 dr.; same symptoms continued, they only disappeared in e. 19th.—On awaking this m. had much itching of skin all over. 10, took 20 dr.; attention not arrested by any symptoms. 11, took another 20 dr., and went out; all forenoon much yawning and sneezing, and much increase of secretion of watery mucus from nose. 2 p.m., took another 20 dr., was very busily occupied, and attention was not drawn by any symptom. 3.30, took another 20 dr., and went out; all afternoon much yawning and sneezing, and catarrhal running from nose, with some stinging about nostrils. 5, took another dose; sneezing, stinging and catarrh continued all e. Went to bed about 12; about 2 a.m. was waked up by painful neuralgic drawing in fauces, worse on l. side about root of tongue, almost producing choking, and not relieved by anything I did; it lasted over $\frac{1}{2}$ h., and then disappeared. After 3 h. more, was waked up again with severe drawing pain in r. wrist, not relieved by rubbing; it lasted 10 m. 20th.—From unfavourable interruption took no more of drug; felt, however, out of sorts all d., weak at heart, and more easily tired and out of breath than

usual, especially on going uphill, and only regained my usual good health gradually after some days.

c. June 19th, 1882, took 5 dr. of 1. in water, at 8.45 a.m.; whilst at breakfast, 9.5, attention was arrested by a severe clawing pain in l. side of cerebellum, lasting a few m.; at 9.40, whilst reading, attention was arrested by pricking and sensation of constriction at fauces; at 10, attention was arrested by grasping pain at under surface of l. frontal lobe of brain over back part of orbital plate, for about a m., followed by dull, heavy, congested feel of whole front of brain, lasting several m.; this recurred on intellectual exertion shortly afterwards. Was occupied too much during d. to notice symptoms, but during afternoon and e. attention was constantly being drawn to the fact of dimness of vision, especially for distant objects; could scarcely recognise the face of friends across the street. During n. had to rise twice to urinate, urine copious and light coloured. 20th, 7.40, took 5 dr.; shortly afterwards return of grasping headache at under surface of l. frontal lobe; and during forenoon sneezing and nasal catarrh, with dimness of sight during reading, and as if letters had a reflection beneath making them appear double, one line half underneath the other. Afterwards too much occupied to observe symptoms; and proving interrupted. (*Mat. Med. Phys. and Applied*, i.)

6. E. J. H.—, married lady, æt. 40, nervo-lymphatic, black hair and eyes; has had bronchitis and quinsy; now in good ordinary health. Sept. 20th, 1872, took 3 dr. of 3rd cent. dil. every 2 h. for 24 h., not knowing what she was taking. Shortly after beginning, and for whole d., she complained of much palpitation and trembling of heart and feeling as if heart tumbled about, with heat and itching of palms, and flushing of heat throughout whole body. During n. had sudden attack of sore-throat, as if there were swelling of uvula and velum, with dryness of whole mouth; next m. the tumbling of heart was worse, and she objected to take any more of the drug. The weak trembling condition of heart continued for some days. (*Ibid.*)

7. M. J.—, a married lady, æt. 50, nervous temperament, light hair, grey eyes; delicate, but in usual health. March 28th, 1874, took 3 dr. of 3rd cent. dil. 4 times a day, and continued same dose for 2 weeks, under a pretext as a tonic, though not complaining. During the time she frequently complained of a feeling of exhaustion at heart, and sensation as of its jumping out or tumbling over, with a general weak feeling. She afterwards felt better than usual in her general health. (*Ibid.*)

8. Mrs. T.—, æt. about 28, light hair and eyes, of somewhat strumous constitution, had been suffering for some time with a dry cough, worse at night. It was caused by a tickling in larynx and fauces, especially about l. side of root of tongue. *Crotalus 3* was ordered, 2 dr. every 2 h. This relieved the cough the first d., but it caused her to have horrible dreams; sometimes it was herself that was in difficulties and dangers, at others it was members of her family, and once it was her baby being murdered before her eyes. This was quite a surprise to her, as she was not at all subject to dreaming. It was the first time she had taken C. Her cough being cured within a week the

C. was left off; the dreaming then ceased, and she has not been troubled with either the cough or dreaming since. (*Ibid.*)

9. Mr. GALSTON having some *Crotalus* 12, he designed a proving on an intelligent and observant lady, Mrs. B—, æt. 29, who had a slight chronic hawking. Without letting her know the design or the drug, he ordered her 3 dr. in water 4 times a d., and requested her to take it for a month; this she did, notwithstanding the morbid effects produced, he calling occasionally and encouraging her to persevere. After taking the drug for about a week she noticed herself becoming dreadfully irritable and cross, so that the least annoyance would send her into a fury, which was very contrary to her natural disposition; she was also very sensitive to noises, particularly such as the crumpling up of paper; the slamming of a door quite alarmed her. She further noticed appearance of dark red spots under nails of fingers and toes, and in skin of different parts of body, especially legs, under mucous membrane of mouth, and in conjunctiva—the eyes became bloodshot. On blowing nose or coughing there would be blood on handkerchief, and on wiping ears after washing there would be blood on towel. The spots under nails appeared as if blood would issue out at finger ends. Stools also were bloody; and urine of a dark smoky colour. These symptoms increased gradually during taking of drug, and only disappeared gradually during the three weeks after leaving it off. (*Ibid.*)

10. J. V. MARTIN took one dose 1st or 2nd trit. of venom. There followed, during 1st d., heavy pain in back of orbit and at l. eyebrow; 2nd d., pain under r. orbit, and at r. side of forehead; 3rd d., dry cough with tickling in throat at n. After a second dose there followed, on 1st d., pricking all over body; starting during sleep; sleeplessness. (MURK, *Mat. Med.*, tr. Hempel. Many other symptoms are recorded in both these provings, but they are by the Eds., as by Dr. Hayward (from whose monograph they are taken), considered untrustworthy.)

11. Dr. QUINT having frequently witnessed the good effect of the use of alcohol after bites of venomous animals, and particularly after those of rattlesnakes, and perceiving that not only was the action of the poison arrested, but under these circumstances the system was scarcely susceptible of being intoxicated with alcohol in any form, was desirous of reversing the experiment by watching the effects of the poison when introduced into the system of a person already thoroughly intoxicated. This experiment he performed through the stomach instead of through the circulation direct. For this purpose he carefully extracted a small quantity of venom from a healthy rattlesnake, and compounded it into pills with bread-crumbs. He then intoxicated himself considerably with brandy; after this he swallowed one of the pills. Its effect was soon to diminish the pulse; and although the intoxication was pretty deep, three of the pills so reduced the pulse and depressed the whole system that, for danger of collapse, powerful stimulants had to be resorted to. This, and other subsequent trials, fully satisfied him of the profound sedative action of rattlesnake venom, which he thought was scarcely equalled, in this respect, by any other substance. (W. J. BURNETT, M.D., *Proc. East. Soc. of Nat. Hist.*, iv, 323, 1854-56; from Hayward.)

12. In view of the fact that carbonic acid gas, so deleterious in the lungs, is innocent, nay salutary, in the stomach, I made myself and others subjects of experiments with the poison of the rattlesnake (*Crotalus horridus*); and I extended the experiments further on myself than on the others. This animal substance is the true Samson of the materia medica, and I anticipate the time when rattlesnakes will be reared for medicinal purposes as the poppy and the palma christi are now. I mixed with some cheese, by friction in a glass mortar with a pestle, the bags, venom and all, taken from the fangs of a large and vigorous rattlesnake; and then divided the mass into one hundred pills. Of these I took, sometimes one, at other times two, or three or four pills a day. A general dropsy succeeded the first state of heavenly sensations, which has not, even to this day, fully gone off; I being even now (March, 1827) subject to swellings in the evening. (WALLACE, 1824, *Cox's Dispensary*, 1827, p. 664; from Hayward.)

13. *Inoculations.*—Oct. 20th, 1832, being in usual good health, at 9.30 a.m., with a perfectly clean lancet, I scratched the cuticle off a space the size of a shilling on inside of l. wrist, without making blood flow. I then rubbed into the place $\frac{1}{2}$ dr. of a mixture of crotalus venom and glycerine, half and half. Immediately blood began to flow excessively, and a pricking smarting pain occurred in the spot and lasted nearly 2 m. The part also immediately began to swell like a wheal of urticaria, quite raised and hard with sharply defined edges; and within 5 m. had reached the size of a florin, and continued to swell slowly during the next $\frac{1}{2}$ h., finally reaching the size of half a crown. After 10 m. my attention was arrested by a sudden dig at heart, and I found pulse 80, its usual number being 70. At end of $\frac{1}{2}$ h. there was quivering sensation in epigastrium, with slight nausea. At end of $\frac{3}{4}$ h. pulse had fallen to 60, was small, soft, empty, and very easily compressible; there was frequent sneezing and much catarrhal irritation in nose, with faint, sinking sensation in epigastrium. After $1\frac{1}{2}$ h. swelling on wrist had smoothed down and was soft, but no less in circumference. I now went out and was too busily occupied to notice symptoms, except a great craving for stimulants, especially wine, but did not take any, though on seeing some at a patient's house could scarcely resist asking for it. At 2.30, when sitting writing, had sudden attack of vertigo and nearly fell off my chair, and for some time had to make considerable effort to maintain equilibrium. At 4.30 had full congested feel in front part of brain lasting for some time. In e. I became conscious that during d. urination had been seldom, and urine scanty. During n. I dreamt much, not unpleasant. I awoke in m. of 27th with same congested feeling in whole front part of brain, and a really aching pain, especially over l. eye; these two last symptoms went away after having been awake for about $\frac{1}{2}$ h. On rising did not feel usual necessity to urinate, and on attempting noticed that urine passed previous n. and this m. together made but a small quantity and looked concentrated, and was of very high colour; these characters were so evident as quite to arrest my attention, so I tested urine, and found sp. gr. 1031; on boiling it became paler and of a greenish colour, but a little darker again on addition of nitric acid, remaining

clear. Another portion, on addition of caustic potash, became milky; and on boiling became of darker colour and more green than with nitric acid, and the milkiness became a flocculent brown deposit, under microscope non-crystalline. The specimen boiled with caustic potash retained its greenish-yellow colour, but that with nitric acid lost it in $\frac{1}{2}$ h. and looked then of lighter colour than normal. This m. (21st) l. wrist felt as if there were some painful swelling amongst the deep-seated structures, but skin had its natural appearance, except that the scratches were very red and visible; appetite, taste and general feeling normal; perhaps a little more buoyant than usual, and more pleasure in exertion. At 5 p.m. on this (2nd) d. urine appeared rather copious and of light colour, though I had not drunk more than usual; sp. gr. 1014. 22nd.—N. and m., urine rather copious, sp. gr. 1018. Mark on arm still full size and looks dry and rough as if threatening scaldiness; and the scratches are still very red. 23rd.—Awoke this m. with severe dull pain in whole front part of brain as if congested, especially in under surface of l. frontal lobe; also sharp pain in small spot in centre of l. occiput; these both disappeared after being awake about $\frac{1}{2}$ h. On a little exertion heart beat rapidly, and with it there was aching at point of l. scapula, as if deep internally, not superficial; these subsided shortly after exertion was over. Urine appeared normal; sp. gr. not taken. 24th.—Same heavy, dull frontal headache on awaking, but it went away after 15 m.; urine clear and normal quantity, sp. gr. 1020; rheumatic pain in both wrists, elbows, and ankles, all d. 25th.—Some dull frontal headache on awaking, but it went away after 10 m.; urine rather scanty, sp. gr. 1022; still some rheumatic pain about same joints. During this d. noticed myself making several absurd mistakes in spelling, especially in writing out some symptoms, having to write some very familiar words three times over, thinking of the proper letter but writing a wrong one. 26th.—On turning to lie on l. side, early m., felt as if whole heart were very tender so that I could not lie on that side, though accustomed to sleep on it; tried it several times before rising. Had no headache on awaking, but skin of palms felt and looked dry and stiff, like thin dry parchment, with some feeling of heat in them. During d. noticed an occasional mistake in spelling; and during e. frequent tickling deep in r. meatus auditorius. 27th.—Languid and reluctant to rise and hesitated to have my usual cold bath; urine scanty, sp. gr. 1022. 28th.—Languor and reluctance to rise. After this was prevented making observations until Nov. 11th, when I noted down that during last two weeks I had felt weak and not equal to exertion; there had been a sense of weakness about heart especially, and it had beaten quickly on exertion; and I had been more easily out of breath than usual on ascending a hill. Several small hard itching tubercles, each the size of a pea, had appeared in skin of calf of legs; especially l. one. Thighs, especially l., had been and were painful as if deep-seated muscles were tender, especially noticeable when thigh was resting on edge of chair, and on walking. My singlets, the last two weeks, have been stained a reddish orange under arms, as if by the perspiration from axillæ. 29th.—Tubercles on calves still present and still itch, but no new ones have appeared; tenderness of thighs gone gradually worse, so

as now to interfere much with walking and sitting, as though deep-seated muscles were inflamed or suppurating. I was now driven to rub thighs occasionally with arnica tincture the next 3 d.; this afforded some relief. Dec. 2nd.—Still some tenderness of l. thigh; some of the tubercles have disappeared. 9th.—Thighs not painful, and tubercles gone; they gradually came to surface and scaled away with the scratching. The foregoing symptoms were most certainly results of the crotalus venom, for I never had them before or afterwards. (HAYWARD, *op. cit.*)

14. E. D.—, a young lady, æt. 25. Sunday, Dec. 17th, 1882, at 3 p.m., application of about $\frac{1}{2}$ dr. of a mixture of venom and glycerine—1 to 3—to small spot on r. wrist from which cuticle had been scraped without drawing blood. Immediately blood began to flow, and part to swell and smart; blood oozed out in many small points. After about 2 h., while sitting, giddiness came on, and was so great that I feared falling off seat, and so removed to an arm-chair; it was relieved by resting head and keeping it still, but recurred on slightest movement. Whilst sitting on chair heaviness of head came on so much that head felt as if it would tumble about; as if muscles of neck were too weak to support it, and required assistance of hands. Struggled against these two symptoms during e., but was eventually driven to retire to bed early in order to lay head down, which relieved both symptoms. Slept as usual, and awoke on Monday without either giddiness or heaviness of head, but after breakfast noticed that I could not think, comprehend, or remember distinctly; could not as usual hold my mind to a subject; and all forenoon could not as usual comprehend or follow conversation; indeed, appeared so dull and stupid that my sister laughed at me; perception appeared clouded, so that on walking in the street I would have been run over but for my sister's watchfulness; memory was so affected that after getting into a shop I found I had forgotten what I had gone for. In e. had severe sharp shooting, rather burning pain, repeating at short intervals; apparently starting about l. side of womb, and passing upwards to region of transverse colon, and there shooting or cutting across, as if from both sides towards centre, thence passing up l. side of trunk to face and temple as a sharp, cutting, intermittent, neuralgic pain; across middle of forehead there was a heavy, dull, continuous pain; there was also the same mental dulness. The sharp, shooting pain in temple lasted about an h.; but the dull, heavy, frontal headache only disappeared after going to sleep. Slept as usual, and awoke on Tuesday in usual health, and remained so; but on Saturday e. the above-named dull frontal headache returned and lasted until I went to sleep. These symptoms were quite strange to me; never had them before or since. (*Ibid.*)

14 c. Drs. Humboldt and Manzini inoculated many persons (1854) with C. venom as a prophylactic against yellow fever. "Intrinsically considered," the latter writes, "the inoculation fulfilled its promises, and produced phenomena analogous to yellow fever, just as vaccination produces symptoms similar to smallpox. . . . The symptoms of the inoculation appeared in the following order. At the moment of the inoculation there was vertigo, which soon passed away. There

was also a nervous trembling, which is rarer, but which lasts a longer time. After 7 h. the pulse is permanently modified; it is either too frequent or too slow, stronger or weaker. In 11 h. there is febrile heat. At the end of 14 h. headache, want of appetite, and thirst. At the end of 16 h. red countenance, injection of the conjunctiva, epiphora. The swelling of the gums is observed from the commencement. At the expiration of 18 h. pain in the gums, the margins of which are reddened around the teeth; pain of the salivary glands, and in the direction of the different nervous branches of the face and teeth. In 19 h. pains in lower jaw and in the direction of the submaxillary nerve, lassitude. In 20 h. bitter taste, drowsiness, coryza, and œdema of the face. In 22 h. constrictive sensation of the throat, without any visible alteration of the mucous membrane. In 23 h. yellow jaundice. In 24 h. hæmorrhage of the gums. In 28 h. yellowness of the sclerotic coat of the eyes, shivering. In 29 h. angina tonsillaris. In 30 h. pain in the kidneys. In 36 h. swelling of the eyelids. In 38 h. pain in the muscles and joints. In 40 h. toothache. In 72 h. swelling of the lower lip. At different h. sexual excitement. During convalescence itching of skin, cutaneous eruptions of various kinds.

b. "In the majority of the cases the inoculation produced a diminution in the frequency of the pulse, and, what is most remarkable, the 68 who showed this diminution were precisely those who had the most frequent pulse before being inoculated, and those who showed an acceleration had formerly only 69 pulsations a minute. . . . The decrease in the force of the pulse is also very marked. Nearly all the cases show at one time a very noticeable feebleness and sinking, alternating with acceleration, each lasting 6 h. on an average. Headache is one of the most common symptoms of the inoculation. It lasts, on an average, 21 h. It can exist without any alteration of the pulse. It generally occupies the frontal and orbital regions. The heat does not seem to be owing to the increase of the pulse. It was even perceived in those cases where the pulse sank. Deglutition was difficult in all cases, and the tongue was more or less coated. After the cessation of the more acute symptoms it was very common to witness an itching of the skin, of which the inoculated complained very much. Another group of phenomena was constituted by the neuralgic pains in the head and neck. In many cases there were observed erections at night. The intermittent character of several of the symptoms is one of the most interesting and important of the points observed.

c. "Numerical Recapitulation.

The circulation was modified in	183 out of 187
Headache existed in	160 " 187
The face was changed in	54 " 74
The gums were affected in	74 " 74
Colics existed in	52 " 74
Swellings of salivary glands in	5 " 74
Pain in lower jaw present in	10 " 74
Lassitude in	59 " 74
Drowsiness in	10 " 74

Coryza in	16	out of	74
Bitter taste in	54	"	74
Spasm of throat in	14	"	74
Jaundice in	16	"	74
Coldness in	13	"	74
Heat in	46	"	74
Perspiration in	17	"	74
Angina tonsillaris in	17	"	74
Pains in muscles and joints in	7	"	74

d. "Nothing, however, was of higher interest than the fevers from which the inoculated suffered. They resembled yellow fever in its initiatory stage. Nothing was wanting—expression of countenance, pain in loins, headache, the symptoms of the gums." (NEIGHARD, *On Crotalus Horridus*, 1868.)

II. *Poisonings*.—1. Girl, æt. 14. Bitten about 7 p.m., in end of r. ring finger. Mr. Desprez was called to her at 3 next m., and found her hand, forearm, arm and shoulder much swollen; and a dark ecchymosed line running from root of finger almost to shoulder-joint. Inside of bitten finger was covered, as far up as second joint, with blisters filled with dark fluid blood. Whiskey was freely given; capsicum and ammonia were also exhibited; but patient did not improve, but rather the contrary, for inside of arm and belly of biceps became very black. At 4 p.m., that is, 21 h. after the bite, Bibron's antidote (bromine) was given; and by 7 the swelling was reduced, and patient gradually improved, so that in about 10 d. she was quite well. (*Med. Times and Gazette*, 1869, i, 25.)

2. a. Miss H. Biggs was bitten July 24th, 1830, at about 6 a.m. She received two wounds; one on instep and the other on great toe of l. foot. When seen 26 h. after the bite, her body was considerably swollen, eyes being almost closed with swelling of face; tongue was tumid; deglutition was somewhat difficult; and articulation was indistinct. Her l. leg, as high up as hip, was enormously distended, and threatened with mortification, skin having a shining appearance with the swelling and discoloration; it was black on outside, and mottled on inside with black and yellow spots, so that one might have fancied it resembled the skin of the snake. The bitten part was very painful, and the inguinal glands on that side were much enlarged; pulse was low, and about 60; and surface of the body was cold. She felt extreme nausea, and vomited on making least exertion. Great thirst was an attendant symptom from the first, and she had drunk large quantities of water. Her bowels were constipated; her mind was not in the least affected.

b. Long scarifications were made, and large blisters applied over the limb. Liquid ammonia was given internally, in doses of ʒij every 2 h., without any apparent benefit. Oxide of arsenic was afterwards exhibited, gr. ½ every 15 m.,—eight doses—with improvement, checking nausea and swelling, so that she appeared to be out of danger within 24 h. after the arsenical treatment was begun. The blisters were left on the limb for 24 h. and then removed, and the vesicles

opened, letting out from one and a half to two pints of fluid of a dark greenish colour. She was restored to her usual state within three weeks. (H. B. PHILLIPS, *Amer. Journ. of Med. Sci.*, viii, 540.)

3. A boy, æt. 12. When seen within a few m. after the bite, gums were bleeding, and eyes were weeping blood. The blood appeared to be dissolved, so that it readily passed out of its proper vessels; the limb was painful, but not much swollen. The part was scarified, and liq. amm. freely applied; this relieved the pain like a charm, and nausea and distressed anxious feeling soon left him; and by frequently applying the ammonia during d. and n. the boy was perfectly restored in 30 h. (A. G. MILLER, *Boston Med. and Surg. Journ.*, viii, 240.)

4. Miss R.—, æt. 17; bitten on l. instep, both fangs entering, about 5 p.m., Sept. 20th, 1852. Dr. Atchison reports: "I arrived about 2½ h. after the accident, and found her almost moribund; pulse wavy and scarcely perceptible; surface cold and bathed in perspiration; face swollen, with besotted expression; mind wandering; pupils dilated, and she could not see, declaring it was dark and that candles were burning in the room; asked frequently if it were not raining, although c. was calm and clear. The two little punctures on the instep were visible, and round each there was a greenish areola, with some puffiness. I administered brandy, half a glass at once; and the wound was freely scarified and cupped, and the extremity placed in a hot saline bath. Twenty grains of carbonate of ammonia were given, but immediately thrown up, together with the contents of the stomach, coloured bright grass green. An ordinary glass of whiskey was now given, and the patient drank it with avidity and asked for more. A glass of whiskey and 20 gr. of carbonate of ammonia were given every ½ h. alternately, until three pints of the former and 80 gr. of the latter had been administered; and, what is very remarkable, not the slightest intoxication ensued; on the contrary, the urgent and alarming symptoms gave way; warmth returned to surface; pulse returned to wrist; mind was called back from its wanderings; and she fell into a quiet sleep, from which she awoke at 5 a.m., complaining of intense pain in the foot, shooting up inside of leg to knee; for this she had gr. ½ of morphia, and fomentation of laudanum and camphor, followed by a poultice of linseed, with the effect of entire relief of the pain; and she was nearly well next d." (*Ibid.*, xlviii, 200.)

5. "The subject of this case," writes Mr. Baillie, "was a strong muscular Indian peon, æt. 45. He was about one hundred yards from the house when a rattlesnake wounded him. In a few seconds pain extended up limb, followed by loss of sight and feeling of intoxication. The people observed him throwing his arms about him in a strange and violent manner, calling for assistance, and saying that some animal had bitten him. Before they could reach the place, he fell prostrate on the ground. After 15—20 m., I found him (7 p.m.) supported between two persons, and completely powerless, having no control over upper or lower extremities; countenance is livid or darker than usual; appears in a lethargic state, requiring to be spoken to in a loud tone, but, when aroused, answers questions distinctly; complains of blindness,

and severe pains in r. ankle and extending up limbs and all over body. There are two small punctured wounds, situated perpendicularly an inch apart, equi-distant between tendo Achillis and external malleolus. Extremities are cold, and pulse is quite lost at wrists. I directed the wounds to be bathed with lime-juice; and administered pulv. ipecac. comp., gr. x. 7.30, drowsiness has disappeared; he is now able to converse with his companions, the extremities are less cold, and a very slow, small, thread-like pulse is distinguishable; shortly after this he vomited with great violence (he dined at 6). Bowels acted simultaneously, and bladder expelled its contents. It appeared to me that an intense degree of gastro-intestinal irritation existed, manifested by spasmodic contractions of alimentary canal and bladder. Vomiting, tenesmus, and strangury existed without intermission nearly 2 h.; thirst was excessive, and water he drank was immediately ejected, or passed in limpid urine. The quantity of urine secreted was really surprising. Once I endeavoured to control the spasms, and gave him tinct. opii, ℥i, which was not retained. 9.30, vomiting has ceased; complains of pain in stomach and great thirst. Tenesmus and micturition disturb him every few m. Extremities are not very warm, pulse fuller but slow. Rep. tinct. opii, ℥i. 10, pulse is improving, extremities are warmer, and pains are less. 11.30, he has passed some blood with mucus per anum, and has also expectorated about half an ounce more of a florid colour with the sputa; he is extremely restless; has thrown off all his clothing, and rolls about in great agony. Pain is now concentrated at epigastrium; fingers are cold, and general temperature of the body is diminishing; pulse is smaller, slow, and sinking. Rep. tinct. opii, ℥ix. During succeeding h. there was a gradual improvement of all symptoms, and he finally ceased to answer me and fell asleep. Perspiration was suppressed from commencement, inspiration natural, and, until the last h., voice was clear and sonorous. 12th, 4 a.m., my patient is dressed and sitting in his hammock; pulse is full and quick; he has been perspiring freely, and appears excited and loquacious. Ordered him some strong coffee with milk, and desired the people to leave him. 10 a.m., he has had some sleep, and is much better; complains of pain in arms and wounded ankle; latter is a little swelled and tender. Says that with the r. eye he is unable to see objects. Has lost power of raising upper lid, owing to levator muscle being paralysed. Conjunctiva is a little injected. There is a red zone a line and a half broad round the cornea. Pupil is extremely contracted, and aqueous humour looks cloudy. Vision of l. eye is indistinct, as if a film was interposed between it and the object; conjunctiva is less injected, corneal zone is fainter, pupil is of a greyish colour. To apply lime-juice to forehead and temples frequently. Diet, chicken broth. 13th.—He has passed a good n.; pains are relieved; feels shooting pains in wounds; can see a little with r. eye. To have animal food, and remain quiet. 14th.—He is considerably better. The amaurosis is rapidly disappearing; has been walking about the house with the aid of a stick. 15th.—He is quite well; eyes have regained their natural appearance, and vision is perfect. I saw him a month afterwards in good health and condition; he still com-

plained of slight pains or twitchings in the wounded part, and I observed he did not bear the heel firmly on the ground." (*Med. Times*, xx, 179.)

6. An Irishman, æt. 23. Bitten about 11 a.m., May 18th, 1866, in middle of l. palm. The wound was cauterized with nitrate of silver, and whiskey given. When seen 5 h. afterwards he was found nearly comatose; surface cold; pulse imperceptible at the wrist; heart beats 55 in m.; respirations 14, and laboured. Constant vomiting. Both hands and forearms much swollen and very painful; and glands in l. axilla swollen and tender. Ice was applied, and whiskey was given by rectum because of the vomiting. Next d., the 19th, there was some cough with expectoration of bloody mucus. The swelling of l. forearm had extended to arm, but that of r. only to elbow. Pain was severe in l. arm, but only moderate in r. About wound were several large vesicles filled with very dark bloody serum. He had had several bloody stools, but urine was not bloody. Tongue was swollen to nearly twice its normal size. On the 20th he remained in much the same state, though he had lost the cough, expectoration was not bloody, and there was no blood in stools. On the 21st swelling was much less in both arms; he had very little pain and was comparatively well. In course of a few d. more swellings and pain had entirely subsided; and he was discharged cured, on 30th. (*N. York Med. Journ.*, 1866, ii, 40.)

7. Dr. G. E. SHIPMAN bitten in hand. In giving his own case he says that in May, 1846, one m. moving a piece of wood he felt a prick in l. palm, and thought he had struck against a sharp splinter. On examination, however, he found he had been bitten by a rattlesnake. He caught the snake and stamped it out of shape, and in his anger threw stones on it until pain became so severe in his hand as to cause him to desist. He then went and told his wife; he remained with her for a while when, the pain increasing all the time, he examined his hand and found two little punctures in palm, and a little blister; pain was intensely burning. He tried Dr. Hering's plan of dry heat, but pain increased so that he was obliged to give that up, and he became wild. A glass of salt and water being brought to him he drank it off, but observed that there was no taste of salt in it. This might, however, he thinks, have prevented the usual sickness that occurs in these cases, as he was not nauseated in the least. Pain increased all d., and there was intense restlessness, which was worse to bear than even the pain, so that he could neither sit, nor lie, nor stand, but paced up and down the house like one distracted, as indeed he was. He soaked his hand in lye water, and applied plantain and many other things until n. Some time in the course of the n. he took a few doses of arsenicum 3 cent. trit.; this entirely removed the restlessness, but did not seem to touch the pain at all. The blister in palm had gradually enlarged to size of a good-sized pear; and on being opened the water that filled it scalded the parts it passed over just as boiling water would have done. Hand and arm began to swell during 1st d.; and on 2nd d. fingers became semi-flexed on palm and rigid; hand flexed on forearm and forearm on arm; and all were of a livid colour, black and blue, and cold. He got no sleep until 4th or 5th n., when he put on a bread and milk poultice, after which he slept well as long as he kept the poultice moist, but on

its becoming dry, hand became again too painful to allow him to sleep. Skin became extremely dry, so that he had to keep the poultices on for several d., because when skin was dry pain was extreme. The hand desquamated several times, and part of the forearm also. His strength was so much reduced that it was three or four weeks before he felt like himself again. (HAYWARD, *op. cit.*)

8. A woman bitten in l. foot just above heel. Vomiting commenced immediately, and within 15 m. there was pain in whole head; great anxiety and uneasiness; violent thirst and diarrhoea; oppression of chest, and violent burning pain in trunk, especially lower part, increased by touch. Violent burning pain in whole l. leg, and great swelling; also above bandage tied above knee. The swelling spread over whole body, and not until some d. afterwards had it begun to decrease, leaving marble-like green, yellow, and bluish spots. (DET-
WILLER, in HERING, *op. cit.*)

9. A woman stepping on her doorstep with bare foot on a rainy night in October, was bitten on great toe of r. foot. She imagined she had been scratched by a young cat, so that terror and fear could not in this case have such influence as is usual in cases of snake-bite, and could not therefore increase the danger. Immediately she had walked five or six steps she fell down as if fainting. She had violent burning pain in leg of bitten side, and great swelling and burning sensation as far as thigh. After 5 m. there were violent pains in front part of head. After 10 m. violent vomiting of food (this lasted for several d., following each meal). After 1 h. there was dryness in throat, with violent thirst and red, watery, tearful eyes. After 8 h., much oedematous swelling of whole body. After 10 h., whole head, and especially face, much swollen; also burning pains in trunk, lasting several d., with great sensibility, increased by touch. Great oppression of chest, with evident inflammation of lungs and of bowels. Great languor and delirium. After 10 h. swelling gradually decreased; marble-like green, yellow, and bluish spots remained, and only departed after entire disappearance of swelling. Swelling and discoloration extended to loins of bitten side. (*Ibid.*)

10. PATRICK BURNS, a young man, was bitten near second joint of l. index finger, about 6 a.m., on August 9th, 1851. When seen about 4 p.m.—10 h. after bite—he was partially delirious; pulse very much exhausted, and ranging from 115 to 130; respiration difficult and hurried; skin hot and dry; eyes red and fiery; hand, arm, and shoulder swollen to a great degree, and pain of limb almost insufferable. Bled, cupped, and poulticed; ammonia and ether internally. 10th.—No better; still delirious; pulse about same; had not slept any during n., and had suffered excruciating pain every moment; still nausea; no abatement of swelling of limb; arm, shoulder, and upper portion of l. side were thickly covered with small blisters filled with fluid of yellowish colour. In addition to former treatment, he had now whiskey *ad libitum* until system was under its influence. 11th.—Slight improvement was recognisable; pulse 100; swelling of arm and shoulder a little diminished; still delirious, anxious and uneasy and very restless, but dozes occasionally; skin still hot and dry. Same treatment continued, with

the addition of some opium, 12th.—Really better; pulse less frequent; less restless, and but little pain; still delirious; occasionally slept a few m. Same treatment continued, with addition of capsicum to whiskey, and administering it without regard to quantity until the patient was fully under its influence; with morphia when necessary, 12th.—Decided improvement; skin moist and quite natural; swelling of arm and shoulder subsided; delirium had ceased, and he talked rationally; and he speedily recovered his usual health. (*Boston Med. and Surg. Journ.*, vol. xlix, 506.)

11. a. Mr. BIENTAL, writing out his own case, says he was bitten on r. hand, Feb. 10th, 1746, and that he then ran to his quarters, sucking wound and spitting out saliva. This appeared to keep hand easy; but his tongue and lips became stiff and numb, as if they had been poisoned. The first thing done was to apply a fowl; its belly was ripped up and it was placed on the wound alive like a poultice, and there tied fast. This must have drawn out some of the venom, for the fowl immediately swelled up and grew black and stank. He kept elbow bent and fingers up; to keep poison from arm a band was tied round arm, and thus he walked about. There was not much pain or swelling up to midnight. About midnight hand grew cold and numb, and suddenly puffed up. He now grew desperate and furious, and slit up his fingers with a razor; this gave him some ease. He also slit up his hand on the back and cupped it, and drew out a quart or more of ugly poisonous slimy stuff. But his arm swelled notwithstanding all they did; he then got it tied quite tight, that all communication with the body might be interrupted, and it became almost void of feeling; yet it worked, jumped, writhed, and twisted like a snake; changed colours and became spotted, and grew painful in the bone. His tongue and lips swelled the first n., but were not very painful; occasioned only, he supposed, by his sucking the wound. The swelling of the arm having diminished to about half, they untied the band; but in 2 h. all his r. side was turned black, though only a little swelled or painful. He bled at mouth soon after, and became feverish, and continued feverish and spitting blood for 4 d. The pain continued to rage in arm, and fever to be violent, and by turns he was delirious for an h. or two; this happened three or four times. After 9 d. fever abated, and he began to mend, but his hand and arm were spotted like a snake, and continued so all summer. In autumn his arm swelled, gathered, and burst, and then away went poison, spots and all.

b. The most surprising and tormenting were his dreams; for in all sicknesses before if he could but sleep and dream he was happy, being ever in some pleasant scenes of heaven and earth and air. But now, on the contrary, if he slept he was sure to dream of horrid places, and on earth only, and very often of rolling amongst old rocks; sometimes he was a white hawk cut into pieces, and frequently his feet would grow into two hickories. To find his sleeping hours so disturbed by the operation of the horrid poison, cast, as it were, a damp sheet over his waking thoughts. (*Philosophical Transactions*, ix, 129.)

12. Mr. R—, æt. 48, of vigorous constitution, was bitten, July 10th, by a small black rattlesnake, on second joint of l. ring finger.

Within $\frac{1}{2}$ h. he drank a pint and a half of brandy; this produced only slight intoxication, though he was previously very little used to alcohol, and it passed off within a few h. 11th.—Hand and arm up to shoulder were greatly swollen, otherwise he appeared not much affected. He continued much the same for 4 d., with addition of some cerebral pain and malaise. 14th.—He complained of feeling of soreness in flesh of r. hip, and on examination a jet-black spot some 2 in. in diameter was discovered, having an elevation or thickening of skin to extent of about a line, and having well-defined edges. During next 4 d. this discoloration extended up to level of umbilicus, completely round body and down to extremities. During convalescence it disappeared gradually from above downwards, leaving toes last. With this strange discoloration, which was at all times jet black and solid (not spotted as is sometimes the case in these toxæmiæ), came on a great prostration, and death-like sickness, so great that syncope would occur on assuming the upright position. Result, recovery apparently without reactive inflammation. (J. S. RICHARDSON, M.D., *Philad. Med. Times*, i, 306.)

13. DANIEL STEEL, bitten below and on metacarpal joint of l. index finger about 4 p.m., Sept. 13th, 1835. Blood flowed immediately from both fang punctures, and parts in immediate vicinity became tumid and livid, notwithstanding his efforts at suction with mouth, which, however, faintness obliged him soon to relinquish. Within first $\frac{1}{2}$ h. fainted several times, and became very pale, and whole back of hand had become puffy and tumid with effused blood in cellular tissue, and forearm had begun to swell. Flow of blood continued profuse, blood appearing to have no disposition to coagulate. Faintness was extreme. After 5 h., hæmorrhage continuing extensive, he appeared to be dying. Tumefaction had extended up to arm, inner and inferior portions of which were discoloured by the effused blood. He vomited incessantly, and complained of insatiable thirst, drinking cold water every few m. He had pain and stricture at lower part of chest or pit of stomach; great restlessness and anxiety; cold skin, except on wounded arm; arm was very painful. In addition there existed delirium, singultus, and difficult breathing. Pulse was scarcely perceptible. Back of hand was blackish and more swollen, and skin of forearm hot and tense. The hæmorrhage appeared to be endangering life. By next m. pulse was improved; thirst and irritability of stomach allayed, and reaction appeared to have set in; but tumefaction had extended to shoulder, with blue-black streaks up to axilla, and there still existed constriction of chest and great local pain. Swelling of hand and hæmorrhage were diminished. These symptoms gradually subsided during d., but still he had a tendency to sinking, and the system appeared to have to struggle with the poison. On 3rd d. reaction appeared to be more established; but, notwithstanding careful nursing, suppuration supervened, and the patient was unable to leave his bed for about a week. (*Lancet*, 1835-6, ii, 574.)

14. S. W. WOODHOUSE, M.D., bitten in side of l. index finger about middle of 1st phalanx, in m. of Sept. 17th, 1851. Pain was intense, and immediately produced a sickening sensation. Within $\frac{1}{2}$ h. glands in axilla were becoming sore and painful. He shortly vomited

freely ; in c. glands in axilla were quite painful, and so was finger. During ensuing n. was restless and sleepless, notwithstanding gr. iv pulv. Doveri. Next m., that of 2nd d., pain in finger was intense ; a well marked line of inflammation extended along arm to axilla ; and several times on attempting to walk a few yards he was seized with nausea and vomiting. This condition continued for several d. Pain was relieved by resting arm on an inclined plane. During 2nd n., under influence of pulv. Doveri, he slept ; but next m., that of 3rd d., hand and arm and glands in axilla were much swollen and very painful. During 3rd n., under influence of pulv. Doveri, he rested, but back was becoming very sore ; and in m., that of 4th d., pain was very great, and swelling extended down side to hip ; blistered skin of finger being removed, there was free discharge of watery sanguineous fluid, without smell. Nail was becoming loose ; broad red line following course of lymphatics was filled with yellow serum ; and point where fang had entered, for space of about $\frac{3}{4}$ th inch, was of dark brown colour. During 4th n. he was very restless and sleepless notwithstanding gr. x pulv. Doveri, hand being filled with serum. He continued much the same during 5th d. On 6th d. swelling had left side and arm, but remained a little in hand ; he could walk a few yards without nausea, and was able to sit up most of d. On 7th d. felt much better, and only finger remained swollen, first and second joints of which looked unhealthy and appeared gangrenous on palmar surface ; discharge was thin and watery, but without smell. The granulations were rough, and many of them appeared as if they had been sprinkled with yellow ochre ; the nail was quite loose. After this nail was removed, a large slough formed, and on coming away left bone exposed ; this afterwards exfoliated, and had to be removed. After 3 months the finger was healed, but left deformed, and its circulation imperfect. (*Account of Sidgreave's Expedition down the Zúmi River.*)

15. Dr. PIPFARD writes [in 1875] : " On March 29th, 1866, I was called to see Mary O—. When about to examine her pulse I observed that tendons of flexor carpi radialis of r. hand were quite tense and hand somewhat drawn up. In addition to this I observed an eruption of small vesicles upon integument between metacarpal bone of thumb and index finger. The vesicles were 4 in number and about size of a No. 1 buckshot and filled with a slightly yellowish fluid, and were situated on a somewhat reddened but not raised base. Upon inquiry I obtained the following history : Six years previously she was bitten by a rattlesnake, its fangs entering both palmar and dorsal surface of proximal phalanx of r. thumb. The bite was followed by severe pain and great swelling of hand, forearm, and arm, nearly to shoulder, accompanied with discoloration of integument. In addition there was marked contraction of some of the flexors of the hand ; and also nausea. From this accident she appeared to have recovered. Three months later, however, there appeared upon integument covering metacarpal bone of r. thumb an eruption of three or four small vesicles, accompanied with 'bite' pain at site of eruption, together with contraction of flexors and inability to extend the hand. In the course of a few d. vesicles dried up and other symptoms disappeared.

Since that time, and up to date of my visiting her, she had had return of the eruption with contraction of some of the flexors every three months. April 7th.—Vesicles have disappeared; leaving only small reddish spots which mark their site, and flexor contraction has subsided. June 30th.—Her husband called to inform me that the eruption had returned 2 d. ago. I found it was so just as on March 29th. Oct. 1st.—To-day she showed me the vesicles again. They had appeared some d. before and were now on the decline; in fact, nearly dried up. The flexor tension was slight, but distinct. On several occasions I have seen a repetition of the phenomena described above, occurring with the same periodical regularity. For several years I lost sight of the patient, but met her again a year ago, and she then informed me that for some 3 or 4 years the vesicles did not return with their previous regularity, but at indefinite intervals, always now more than 3 months intervening between the attacks; and that during the last 7 or 8 years there had been no return. (*Amer. Med. Recorder*, Jan. 23rd, 1875.)

16. a. ADAM LARK, æt. 40, a robust muscular man, July 1st, 1831, was bitten, during d., in bend of elbow, both fangs entering. Being intoxicated he forgot this, but some h. afterwards—in the e.—he felt an itching at the place, and on examination found a "red spot" there. Shortly after this whole arm swelled to nearly double its size and became very painful. Next m. about 8.30, he vomited in the conveyance in which he was being driven. The scarifications made near the bite the previous e. were still bleeding freely. The arm, from shoulder and front of thorax to fingers, was swollen to twice its natural size, and very painful on movement. Pulse was almost imperceptible and threadlike; extremities were cold; he was depressed, restless, and uneasy; had cramp in legs, and debility was very great; eyes were muddy and heavy, and face somewhat bloated. Feeling a desire to go to stool he was assisted from his bed for that purpose; whilst on the way he was seized with general spasm without foaming at mouth; being laid on floor it went off in a few minutes, and he had an involuntary evacuation from bowels, of dark bilious colour. Symptoms continued stationary until 11.30 a.m.; he then complained of violent pain in course of the colon; said he felt sleepy; closed his eyes; and in a few m. died, without agony or convulsions, that is, in less than 24 h. after bite.

b. P.M., 4 h. after death. Face was much bloated; neck tumid and purple. Bitten arm much swollen from serum effused into cellular tissue, and purplish and mottled. Much fluid blood followed on cutting into scalp, and still more from sinuses of brain, perhaps nearly a pint. Arachnoid covering hemispheres was raised into vesicles by deposit of serum beneath, giving it appearance of a blister. Veins of pia mater were much injected. Brain-substance was much congested, and cortical substance of a deep brown colour. Much serum issued from every cut made into brain. Cerebellum also was congested. There was no extravasation of blood. There was very little blood in heart, perhaps having run out from its fluidity. No ecchymoses in stomach. Mucous coat of small intestines exhibited patches of acute

inflammation throughout whole length, of a lively red colour, and of various diameters, from 6 to 12 or 18 lines, and very close in succession, especially in jejunum. Liver was somewhat yellow (was this at all a result of his drinking habits?). Muscles were brownish, instead of red. Bitten limb was tumefied from effusion of serum in cellular tissue. Blood was universally fluid. (W. HORNER, *Amer. Journ. of Med. Sc.*, viii, 397.)

17. *a.* Female child, æt. 2 years; bitten on l. cheek. Wound was immediately sucked by child's mother. Within 10 m. Dr. Renzger found child almost expiring; countenance was deadly pale; eyes half open and staring; mouth covered with foam; extremities cold and insensible; pulsations of heart irregular, pulse trembling and scarcely perceptible; respiration slow and laborious. The body was perfectly motionless, and covered with a cold viscous sweat; eyes and ears appeared to be insensible to impressions. After 3 or 4 m. more face was slightly convulsed; and after a few deep stertorous respirations the child died, that is, within 15 m. after being bitten. Circumference of the wound was red and somewhat œdematous, perhaps from the suction.

b. At the *post-mortem*, 3 h. after death, brain was found healthy, but sinuses and pia mater were filled with blood; as were also lungs, venæ cavæ, &c. cavities of heart, and pulmonary artery. (*Lancet*, 1849-50, ii, 90.)

18. *a.* Mr. DRAKE, an Englishman, bitten twice in l. hand, near root of thumb and in palm, at 11.30 a.m., Feb. 9th, 1841, at Rouen. Within a few m. he became very agitated, anxious, and pale, cold sweat bathed face and chest, and eyes expressed anxiety. Within 4 m. after bite a ligature was tied tightly round wrist; and in about 38 m. the fang punctures were cauterized with a red hot needle. The hand becoming swollen, very painful, and of a violet colour, the ligature was removed shortly after the cauterization. About 25 m. after the bite there was sudden paleness of face. Drake went to sit down but fell over. There was general relaxation of muscles, and total loss of movement and of power; his head hung upon his chest. There was stertorous breathing, syncope, and involuntary evacuation of urine and feces, with cold extremities. About 12 o'clock I had patient carried into his room. Pulse was scarcely perceptible; respiration still noisy; eyes closed, and pupils contracted; conjunctiva was not yellow at all. In spite of his very weak condition he made painful efforts to aid those who were trying to take off his clothes. He was placed in bed. His pulse became perceptible again; it was weak and only beating 50 times in m. Skin of extremities was cold; that of abdomen, trunk, and head much less so. Lower extremities seemed insensible—strong pressure or pinching up of skin excited no expression of pain. There was no tumefaction of wounded hand, nor any congestion of arm. The state of torpor continued until 12.30. He complained of feeling cold, and vomited for the first time, with marked relief. At 1 he vomited again, and ejecta were yellowish-green and fetid. Hand was slightly swollen round wounds, and patient said it was painful. There were 3 stools—one at 12, another at 12.30, and a third at 2. He was remark-

ably calm up to 2, when there was renewed vomiting. At 3 he felt better—mind was calm and self-possessed, and he had hope of recovery, but he was readily annoyed by least noise. Pulse was 80, firm, but irregular. Though right handed, whenever he attempted to drink or take anything it was with the wounded (l.) hand, and he complained that he could not use the r. arm with freedom. At 4 his respiration became difficult, and he had trouble in swallowing liquids; he could drink, but only a little at a time. Pulse became 90 to 100. Vomittings were less frequent. At 5 he complained of pain in l. shoulder. Upper lip was evidently swollen. Tongue was yellowish, but not at all swollen. By 6 there was acute pain in shoulder, but without any appearance of inflammation. At 7 face was drawn, voice very weak, tongue with a white fur; there was considerable oppression and great anxiety, and he begged to be bled; his pulse was 110. Drinks had to be given in a spoon, and he kept them in his mouth a long time, and only after a painful effort could he swallow them; he often objected altogether to take them and said his blood was suffocating him. Three leeches were applied to bend of neck, and he said he was less oppressed afterwards. At 7.30, breathing became stertorous; upper lip was still swollen; neck was bent, head hanging slightly towards r. shoulder; body lying on back, limbs flexed. Much agitation; efforts to get out of bed, as he believed he could then breathe more easily. By 8 the extremities were cold; pulse imperceptible; total incapacity for swallowing. His mental faculties were unaffected, and he had no incoherent ideas, even while the most alarming symptoms were present. He took notice of all that was going on around him. While enduring the very agonies of death he even paid attention to noises in the street. The noise of the diligence starting for Paris recalled memories of home. "Is that Martin going off?" (Martin was the conductor.) "No," said the interpreter. "I am very sorry, as he would bring my wife; for I believe I shall never see her again. . . . I feel very bad." Some m. afterwards there was sudden extension of lower extremities. He sat up, and tried, in vain, to get out of bed. His respiration became more and more embarrassed; head was thrown back; rattling in throat increased. The patient expired at 8.15, that is, within 9 h. after the accident.

b. P.M.—Drake was interred on the 10th. An order by the mayor of the town of Rouen, dated the 12th, was requested by Drs. Pihoré and Desmoulins, and by its permission was obtained for his exhumation. The *post-mortem* was made at 1 o'clock in the presence of several other physicians; below is the result thereof: The exterior of the body, and its preservation, were normal. The semi-transparent condition of the cornea allowed the pupil to shew through, and showed the dilatation which it had assumed immediately after death; that is to say, its diameter was twice that of the iris itself. The state of the corpse itself was such that the autopsy was just as valuable as if it had been made immediately after death. There was no swelling of the bitten hand; no coloration of the rest of the limb, of the lips, or tongue. The marks which had been made by the application of the leeches to the neck were not ecchymosed out of the common. The

skin of all dependent parts was slightly œdematous and swollen from gravitation of blood; the ordinary result of gravity in any body when death has been due to hæmorrhage or blood-poisoning. In brain and spinal cord the only alteration was a little injection, of such a kind that the section was just a little spotted with blood; but the cerebral arachnoid was notably thicker and more tough than normally, and was too opaque; moreover, it adhered to the pia mater, the meshes of which were distended with viscid serum. The membranous covering of the spinal cord, also, was more injected than in health. The basilar arteries contained some small clots like those we shall consider further on. The blood was liquid in the cerebral sinuses, and in the vessels of the dura mater. The skin was examined carefully at each of the two bites, and presented no other alteration than that caused by the cauterisation with the red-hot iron. This alteration was little more than a line of redness. The subjacent cellular tissue of the wound on the dorsal surface of the thumb was in no way infiltrated; but it was for the extent of a circle of half an inch diameter round the second mark, that situated at the upper part of the interosseous space between the first and second metacarpal bones. The muscles surrounding this infiltrated area did not present the least alteration in texture or colour. All the veins of the back of the hand, and their tributary vessels, were dissected up to the axilla, and did not present any alteration; they resembled perfectly in all respects the corresponding veins of the other arm. They contained no blood below the elbow; from the elbow as far as the axilla they contained disseminated clots. In the clavicular extremity of each axillary vein commenced a clot, moulded to the interior of the vessel, and reaching as far as the junction of the hepatic vein with the vena cava inferior, passing by the right auricle of the heart; this clot was homogeneous throughout and of only slight consistence, and nowhere was there any evidence of deposited fibrin; a large clot also filled the l. auricle of the heart, spreading into the pulmonary veins, but in the centre of this clot there was a band of yellowish fibrin, 16 or 18 lines in length, and such as is commonly found in venous clots. The completely empty condition of the two cardiac ventricles contrasted with the distension of the auricles, more especially of the r. The mucous membrane of windpipe and bronchi was notably injected. A patch corresponding with the tricoid cartilage was indeed inflamed. The trachea and bronchi were filled with reddish frothy serum. The lungs throughout were healthy and crepitant, but presented the first stage of sanguineous engorgement. The blood did not flow from a cut made anywhere. Two inches below pharynx œsophagus was narrowed for about half an inch, but without any evident alteration of texture. Stomach, intestines, liver and gall-bladder were quite normal. (PETORÉL, *Journ. de Phys. Exp. et Pathol.*, viii, 97; also *Lon. Med. Gaz.*, xxix, 487.)

19. M. J. MACHADO, a white man, about 50 years of age, of ordinary stature, stout, and of sanguine-bilious temperament, who had suffered over six years with leprosy (elephantiasis leontina)—worst in the face, voluntarily submitted himself to be bitten by a rattlesnake in hope to cure the leprosy. He was bitten between articulations of

ring and little fingers with metacarpus at about 11.50 a.m., Sept. 4th, 1838, in Rio de Janeiro. He felt no pain with the bite, nor any effects from the poison introduced into the wound; he only knew that he was bitten when it was announced by the bystanders. His hand was immediately withdrawn from the cage; it swelled slightly, and a few drops of blood escaped from the wound, but he felt no pain; he continued perfectly tranquil; respiration natural and pulse regular. Five m. after the bite a slight sensation of cold was felt in hand. At 12 there was slight pain in palm; this increased after some m. At 12.17 pain extended to wrist; at 12.20 hand was considerably swollen; at 12.30 pulse had become fuller. All this time the patient conversed in a lively manner, and even laughed. At 12.50 there was sensation of fullness in course of jugulars; some alteration in vision; and some formication in skin of face. At 12.55 sensation of fullness had extended to sides and back part of neck; hand continued to increase in volume, and pain extended two thirds up forearm. At 12.59 there was numbness over whole body. At 1.20 p.m. there was tremor of the whole frame, and sensibility to touch. At 1.36 there was some cerebral disturbance; pulse was more frequent; there was some difficulty in movement of lips, somnolency, sensation of constriction in throat; pain was more intense, and extended over the whole arm; also increase in tumescence of hand. At 1.38 he felt cold and covered himself. At 1.48 there was pain in tongue and fauces, extending down to stomach; increased pain and swelling in hand; and coldness of feet. At 2.5 there was difficulty of speech. At 2.25 difficult deglutition, anguish, and copious perspiration on chest. At 2.50 arms were powerless; there were some drops of blood from nose; increased anguish and inquietude; pulse 96. At 3.5 general swelling; involuntary groans, and sensation of sinking. At 3.8 great pain in arms, and restlessness. 3.30, pulse 98, face flushed, continued bleeding from nose. 3.35, drank a little wine and water without difficulty; his shirt was changed, wet with perspiration; there was intense redness of whole body; some drops of blood escaped from a pustule under arm. 3.40, pulse 100; redness of surface more intense, and of a darker hue, especially in bitten limb; violent pain in superior extremities preventing any rest, notwithstanding the exhaustion of which he complained; constriction of throat, and breathing embarrassed; inferior extremities did not yet exhibit any particular phenomena. 4.50, pulse 104; great heat over whole surface of body; salivation. 5.30, torpor; pulse in same state. The urine all along has flowed in great abundance; saliva viscid, of dark colour, and expectorated with difficulty; increase of muscular prostration; frequent groans, excited by pains over whole body; respiration tranquil; pulse full; skin soft; increased tumescence of bitten hand. He continued in this state until 7 p.m., when he had some disturbed sleep, with groans; after this he awoke and said he was free from pain in arms, but had great pain in chest, and a feeling as of a knot in throat; urine copious; deglutition very difficult; saliva viscid and white; sanguinolent fluid running from nostrils; could not drink some sweetened rum and water offered to him. 8.0, sweating has ceased, and groaning is not so constant. 8.30,

passed urine. 9.10, passed urine; ceased to groan. 9.15, profound sleep. 10.0, offered infusion of guaco, three tablespoonfuls, with use of *Eau de luce*, which he refused, but he took the simple infusion; sanguinolent secretion from nose stopped; pulse regular; diminution of the tubercular elevation of both arms and face, which presented the appearance of erysipelatous redness. 10.20, passed about 2 oz. of tolerably perfect urine; he remains more tranquil, and sleeps at intervals without groaning. 10.40, pain in chest is much diminished; he has now pain in legs and feet, in which, until this time, there had been sensation of death-like coldness; pulse 108, regular; thirst, and he drinks without difficulty. 11, took four tablespoonfuls of infusion of guaco. 11.45, emission of urine, high coloured; drinks water easily, by spoonfuls; pulse 119; wounded hand and arm are inflamed and very painful; restlessness. 12.0—midnight—has slept soundly, only interrupted by eructations; pulse 112; passed urine. 12.30, very restless; he cries distressingly and calls for religious consolation; refuses medicine. 12.40, passed urine; pulse 116; sensation of great heat in legs, and desires coverlets to be removed. 1.0, takes his medicine again; asks to be uncovered; passes urine; becomes very quiet. 1.15, passes urine; pulse 100. 1.40, takes a dose of infusion of guaco. 2.0, sits up in bed, and drinks three tablespoonfuls of water, but every time he drinks the pain and restlessness increase. 2.10, passes urine. 2.20, takes his medicine; has become more tranquil. 3.0, passes urine; the lower lip, which has been much swollen and inflamed, returns to its natural state; salivation ceases. 3.55, passes urine, the quantity always from two to three ounces; is more tranquil; takes his medicine; pulse 110; involuntary movements of r. thumb and l. leg. 4.0, passes urine. 4.45, takes a spoonful of medicine; pulse 100; quite tranquil and sits up. 5.0, passes urine; declares himself in great agony. 6.0, pulse 100; respiration free; frequent groans. 6.10, passes urine. 9.15, great prostration; convulsive movements of lower jaw and lower extremities; urine bloody. 10.0, pulse accelerated, and intermitting increase of the convulsions; diminution of redness of skin and swelling of limbs; deglutition extremely difficult; respiration anxious. Blister applied to thighs and a spoonful of infusion of guaco given. 10.50, convulsions diminished; ammonia and brandy given. 10.55, cessation of convulsions. 11.0, remains in same state; swallows with difficulty. 11.30, expired, that is, within 24 h. after the bite. In a few h. the corpse became livid and much swollen. At 10 the following m., 22½ h. after death, body was enormously swollen and covered with red and livid spots, and exhaling a fœtor so insufferable as to preclude the possibility of an autopsy as was desired and intended. (R. WHITMIRE CLARKE, Surgeon, R.N., *Lancet*, 1838-9, i, 443.)

20. Dr. WAINWRIGHT, a large and well-built man, æt. 40, was bitten in last phalanx of middle finger of l. hand, near its articulation with metacarpal bone, about 6.30 p.m. At the time wound was made, bystanders observed that it was immediately followed by a small jet of blood. It was immediately sucked, and within ¼ h. an attempt was made to incise the part, and incised surface was cauterised. From the nature of the part involved in the wound the incisions must have been

imperfect. A ligature was also tied firmly round the wrist, and 10 gr. of carbonate of ammonia and $\frac{1}{4}$ gr. of acetate of morphia were administered. About 7.30 ligature was removed. Previous to removal of ligature hand had been very much swollen, but no swelling had occurred above ligature, it now, however, began to extend up arm. At 9.30 patient was seen by Dr. Post, and soon afterwards by Dr. Parker. Swelling had now extended to about half way between elbow and shoulder-joints; it was very considerable, hard, and terminated abruptly. Hand was of a dark greenish-yellow colour; the discoloration did not extend as far as the swelling, but seemed to follow it at half an hour's interval. At the time Dr. Post first saw patient, that is, about 3 h. after the accident, pulse was of medium fullness and strength; face was flushed, and manner excited; $\frac{1}{2}$ h. afterwards pulse began to flag, and it became less full and forcible, increasing in frequency to 100. It afterwards reached 120; this was its maximum frequency, and it became constantly more and more feeble. By 11 pulse was extinct at wrist, but still to be felt in groin. Between 10 and 11 he became stupid, and took no notice of what was passing around him; this lapsed into complete coma, and he died a little past 12 o'clock, that is, about 5 $\frac{1}{2}$ h. after accident. By this time swelling had extended under pectoral muscle, and discoloration had reached axilla. It is somewhat remarkable that after pulse had ceased at wrist and surface had become covered with cold perspiration, a sinapism applied to epigastrium produced full redness after 20 m. The treatment, after Dr. Post saw the case, consisted in the administration of stimulants (brandy and carbonate of ammonia), and when they could no longer be given by the mouth they were administered by the rectum. (*Bost. Med. and Surg. Journ.*, xxxviii, 65.)

21. *Dr. EDDIE JEFFRIES*, *Æt.* 6, bitten by a rattlesnake on dorsal surface of r. hand, Aug. 31st, 1878, at 9 a.m. After 15 m., whiskey was administered to extent of intoxication, and to wound was applied bicarbonate of soda saturated with brandy, but this was soon replaced by strong solution of ammonia. Above elbow a bandage was applied, but too loosely to be of use. I did not see the child until 3 h. after bite, viz. at noon. Punctures were then plainly visible, corresponding to the two fangs in the upper jaw and to the principal teeth in the lower jaw. Immediate vicinity of bite was not swollen, gangrene having been immediately produced, but hand and forearm for 4 in. above wrist were very oedematous, of livid colour, and shining; swelling of hand was so great that fingers were semi-flexed and separated. Child was delirious; hearing was dull; eyes closed—upper lids and superior recti being paralysed; pupils were slightly dilated and insensible to light; vision apparently lost. Eyes looked straight forwards; but when lids were forcibly opened eyes were directed outwards to escape the light, not, as usually, upwards. Countenance expressed calm indifference, with marked prostration and apparent freedom from suffering; lips and cheeks were of their normal colour. There was no pulse at wrist, but auscultation showed heart to be beating about 100 per m., with feeble impulse and remarkable shortness of the systo-diastolic interval. Respirations were rapid, 30 per m. Skin of extremities was dry and cool, but not cold. Temperature, taken with

difficulty, in l. axilla was 96.4° F. Patient had repeated attacks of sickness, vomiting at first portions of undigested food mixed with a greenish fluid, then of thick viscid mucus like white of egg slightly stained yellow. Immediately on my arrival I tightened bandage so as to effectually occlude vessels of arm. Shortly after this there was one copious emission of urine, and afterwards child only passed small quantities of very pale urine. At same time watery diarrhoea set in, with colic and tenesmus. At 1 o'clock thirst was excessive, and was freely indulged; at this time also swelling had reached bandage, and seemed to be arrested there, though well-marked livid lines followed course of superficial vessels above bandage, pointing to probable disintegration of these vessels and extravasation of blood. From 12 to 3 there was great restlessness and some twitching, alternating with periods of complete repose. In his delirium he uttered plaintive and feeble moans. There was paralysis of both upper extremities, particularly below elbows, and, to a less degree, of lower limbs also. Child made repeated ineffectual attempts to stand up, but as soon as he got on his elbows and knees, or into the kneeling position, he fell back helplessly on his side.

b. As three hours had elapsed cauterisation was useless; I therefore made a hypodermic injection of aqua ammoniac ($\frac{1}{2}$), and administered internally sp. amm. arom. with $\frac{3}{4}$ ss brandy, and ordered fresh milk for food every h. Under this treatment reaction set in, pulse reappeared at wrist on wounded side, and vomitings ceased. At 3 patient expressed himself as feeling better, and now for first time after my arrival he complained of pain in head. I revisited him at 8 p.m., and found arm more swollen; blisters had been formed on various points on injured limb, skin had burst; in bend of elbow, and a small quantity of extravasated blood was visible. The nervous power had, however, recovered to a remarkable extent; agitation and jactitation had entirely disappeared, and sense of taste had become as good as ever; hearing and even vision had become normal, and intelligence was completely restored, though there was still some tendency to drowsiness. Respirations, however, still continued 30 per m., and pulse had again almost disappeared at wrist, remaining about 100. Temp. was now 97.1° in l. axilla. Child complained of great pain in chest; and, the mother informed me, had, during my absence, had two convulsions, not severe ones. At 4, in violation of my orders, the mother had loosened bandage, because, as she alleged, his arm pained him so much. This had allowed an additional increment of the virus to enter the circulation, which might account for the relapse. At 9.30 I again left him, and at my visit next m. I learned that the lad had died at 2.30 a.m., that is, 17 $\frac{1}{2}$ h. after bite. Death must have resulted from syncope, for the family said he went off very suddenly, "all at once," when they were least expecting it. A *post-mortem* was refused, but the child's face was of a light saffron colour, and the ears, the hand and the right arm were livid. (A. IRANS COMFORT, M.D., Kansas, *Phil. Med. Times*, Nov. 23, 1878.)

22. a. *Scorpe prolonged case*.—THOMAS SOYER, *et. 26*. Bitten on back of 1st phalanx of r. thumb and 2nd joint of forefinger at 2.30 p.m. on Oct. 17th, 1869. Hand began to swell immediately, and within $\frac{1}{2}$ h. swelling had extended half way up forearm, part had become very

painful, and skin very tense. Within $1\frac{1}{2}$ h. swelling had extended to elbow, and within 2 h. had reached half way up arm, and pain had extended to axilla. Skin was cold; pulse 100; answers were incoherent and he complained of sickness. After 5 h. pulse was very feeble. After $6\frac{1}{2}$ h. skin was still cold; pulse 80, weak, and there was feeling of great depression. After 8 h. there was much complaint of pain in arm, and fits of fainting attacked him every 15 m.; during these pulse was not perceptible, but in intervals spirits were less depressed. During e. he had two stools. After 9 h. hand, wrist, forearm and arm were much swollen up to top of shoulder and into axilla; arm was quite cold, no pulse could be felt in any part, and skin generally was unusually cold. Mind was collected. After $10\frac{1}{2}$ h. attacks of fainting came on occasionally, and he talked indistinctly; pulse 100; medicine was repeated every h. At 8 a.m., on 18th, pulse was 132 and very feeble; swelling did not extend beyond shoulder to neck, but there was fulness down side, and blood was extravasated under skin as low as loins, giving to back on r. side a mottled appearance. Whole arm and hand were cold, but painful when pressed. Skin was very tense. On inside of arm below axilla and near elbow vesications had formed; and under each vesicle there was a red spot in cutis of size of crown-piece. Skin generally over body had become warm. He was low and depressed; there was tremulous motion of lips, and faintings recurred at nearly same intervals as on preceding e. Last dose of medicine was rejected by vomiting, but some warm wine remained on stomach; arm was fomented. At noon, in addition to above symptoms, there was starting of limbs. He had attempted to take some broth, but his stomach did not retain it. Skin of whole arm had livid appearance similar to what is met with in a dead body when putrefaction has begun to take place, unlike anything I had ever seen in so large a portion of the living body. Obscure fluctuation was felt under skin of outside of wrist and forearm, which induced me to make a puncture with a lancet, but only a small portion of serous fluid was discharged. At 11 p.m., finding that his stomach did not always retain medicine, nor even small quantities of brandy, I directed volatile alkali to be left off, and gr. ij of opium to be given and repeated every 4 h. At this time pulse was scarcely perceptible at wrist; fainting fits were more or less frequent, and vesications and red spots were increased in size. On 19th, at 9 a.m. pulse was scarcely perceptible, extremities were cold, vesications were larger, but size of arm was diminished. He was drowsy, probably from effect of opium. He had taken nothing but brandy during n. At 3 p.m. he was very depressed, spoke in whispers; vesications were larger; vomiting fits less frequent; arm diminished in size, and he had sensation in it down to fingers. At 11 p.m. pulse beat 130, and he was low: opium was left off; a stool was procured by castor-oil; he was ordered to have a glass of camphorated mixture occasionally, and wine and brandy as often as he could be induced to take them. 20th.—He had dozed at intervals during n.; his spirits were rather better, and his extremities warm. At 9 a.m. he took coffee for breakfast; he afterwards took some fish for dinner, but it did not remain on his stomach; he took brandy and coffee at intervals, 3ss at time, in large quantities

did not remain on his stomach. 21st.—He had slept at intervals during n., but was occasionally delirious; pulse 120. Brandy and jelly were only things that stayed on stomach. Size of arm was reduced, but skin was extremely tender. 22d.—He had slept during greater part of n.; pulse 98; he took some veal for dinner, and brandy at intervals. In e. his pulse became full and strong; he was ordered wine instead of brandy. The r. side of neck and body down to loins was inflamed and painful, and had a very mottled appearance, from extravasated blood in skin. 23d.—Pulse continued full, arm very painful, though reduced in size; vesications had burst, and the exposed cutis was dressed with white ointment. Stools were procured by opening medicine. He took some veal and porter for dinner; wine was left off. In e. he had saline draught with antimonial wine. 24th.—No material change. 25th.—Pulse increased in frequency; in other respects nearly same; bowels opened by medicine. 26th.—Arm more swelled and inflamed. 27th.—Inflammation of arm increased; tongue furred and pulse very frequent. He attempted to sit up, but weight of arm and pain prevented him. Arm was bathed with spirits of wine and aq. ammon. acetat. in equal parts. 28th.—A slough had begun to separate on inside of arm below axilla, and purging had come on; for latter he was ordered chalk mixture and laudanum. In n. he had a rigor. 29th.—Purging had abated; pulse 100, and feeble. A large abscess had formed on outside of elbow; this was opened and half a pint of brown matter was discharged, with sloughs of cellular membrane floating in it. Lower part of arm became much smaller, but upper part continued tense. A poultice was applied to wound; lower portions of arm and forearm were covered with circular straps of soap cerate. He was ordered to take bark, and was allowed wine and porter. 30th.—Redness and swelling of upper part of arm had subsided; pulse 100; purging returned. The bark left off and chalk mixture and laudanum resumed, and an opiate clyster administered. 31st.—Pulse 120, discharge from abscess diminished; purging continued; at n. he had a rigor. Nov. 1st.—Pulse 120, voice feeble, no appetite, delirious at intervals. Ulceration had taken place at opening of abscess, so that it was increased in size. He drank 2 pints of water in course of d. 2d.—Pulse very weak; countenance depressed; tongue brown; ulcers had spread to extent of 2 or 3 in.; mortification had taken place in skin nearer to axilla. His stomach rejected everything but porter. In n. he was delirious. 3d.—Mortification had spread considerably; purging continued. The forefinger, which had mortified, was now removed at 2nd joint. 4th.—He died at 4.30 p.m., that is, on the 17th day after bite.

5. P.M.—Sixteen h. after death he was examined by Mr. Brodie and myself, in the presence of Mr. Maynard, the house surgeon, and several of the pupils of the hospital. With exception of r. arm, which had been bitten, body had a natural appearance; skin was clear and white. Wounds made by fangs at root of thumb were healed, but puncture made by lancet at back of wrist was still open. That part of back of hand which immediately surrounded wound made by fangs for extent of 1½ in. in every direction, as also whole of palm, was in a natural state, except that there was a small quantity of extravasated

blood in cellular membrane. The orifice of the abscess was so enlarged as to form a sore on outside of arm, elbow and forearm, nearly 6 in. in length; round this skin was in a state of mortification more than half way up outside of arm and as far downwards on outside of forearm. Skin still adhered to biceps flexor muscle of arm and flexor muscles of forearm by a dark-coloured cellular membrane. Everywhere else in arm and forearm, from axilla downwards, skin was separated from muscles, and between these parts there was a dark-coloured fluid with an offensive odour, and sloughs of cellular membrane resembling wet tow floating in it. The muscles had their natural appearance everywhere except on the surface that was next to the abscess. Beyond the limits of the abscess blood was extravasated into the cellular membrane, and this appearance was observable on r. side of back as far as loins, and on r. side of chest over serratus major anicus muscle. Within thorax lungs had their natural appearance. The exterior part of the loose fold of the pericardium, where it is exposed on elevating the sternum, was dry, resembling a dried bladder. Cavity of pericardium contained about half an ounce of serous fluid which had a frothy appearance from the admixture of bubbles of air. On cutting into the aorta a small quantity of fluid escaped and had a similar appearance. Cavities of the heart contained coagulated blood. In abdomen cardiac portion of stomach was moderately distended with fluid; pyloric portion was rather constricted; internal membrane had its vessels very turgid with blood. Intestines and liver had livid appearance. Within cranium, vessels of pia mater and brain were turgid with blood; ventricles contained rather more serum than is usual, and some was effused into cells connecting pia mater and arachnoid. (SIR EVERARD HOME, *Phil. Trans.*, 1810, i, 75.)

III. *Experiments on animals.*—1. Four dr. of pure venom, which had been preserved in glycerine, were dissolved in 3j of distilled water, and poured down throat of a kitten about 10 a.m. Kitten shortly afterwards began to tremble, and did so quite visibly for 5 m.; at 6h m. it mewed quite distressingly, and appeared very uncomfortable. After 8 m. it crouched down, and partially closed its eyes. After 12 m. it lay down, and remained quiet and loath to be roused up; after 20 m. it revived a good deal, and seemed very much distressed, and on room door being opened ran away as if frightened. The distress and restlessness continued, and at 30h m., on being taken back into room, it lay down as if dull, heavy, stupid and sleepy, and, on being petted, it appeared snappish. It remained much the same for the d., and in e. it vomited, which it had never done before. Next d. it appeared somewhat dull, quiet, and snappish, but nothing otherwise wrong. (HAYWARD, *op. cit.*)

2. I injected under skin of r. shoulder of a kitten 1 dr. of $\frac{1}{2}$ dil. with 4 dr. of distilled water at 10 a.m. After 2 m. her r. foreleg appeared to be in great pain, and she held it up, and mewed distressingly and continuously; she passed into a corner and sat on root of her tail; then, keeping her r. paw off table, she pushed herself backwards; then tried to walk about, which she did with difficulty; she then crept to a towel and sat upon it. After 3 m. more she moved again to the corner,

and sat down panting and breathing laboriously; she appeared restless, moved about for a while, and then sat down quiet and closed her eyes, still holding her leg up. After 4 m. more she again pushed herself backwards into the corner; and after another 3 m. she was again restless and pawed at her throat and mouth, as if they were uncomfortable; her mewling was evidently weaker; she breathed quickly and closed her eyes, but after another 2 m. her respiration became more quick, her eyes remaining closed. After a few m. more she stretched herself out and lay quiet. I was now called out and had to leave her for 3 h. I returned at 2.15 p.m., and found her looking lively and apparently nearly all right again. She had passed urine. At 2.20 I injected 5 dr. of t_2 with 5 dr. of distilled water, under skin of her back. Within 2 m. she trembled all over and breathed very rapidly, and refused to walk about even when urged to do so; she became quiet and stupid, and after 3 m. more lay down on her belly; after another 2 m., on being roused, she moved sideways, and mewed distressingly. I had now to leave her again. On returning after 3 h. I found her dead. The only local evidences of the poison were some softening and discoloration at the points of injection. She was not opened. (*Ibid.*)

3. "This manœuvre . . . secured the passage of the venom—2 dr. with a little water—into the smaller bronchi, and perhaps even into the air-vesicles themselves. A good deal of wheezing and coughing ensued, and within 10 m. the pigeon became drowsy, rocked to and fro, and at the close of 38 m. fell down. Convulsions followed at 43rd m., and terminated in death at 49th m. P.M.—No lesions were visible, except in lungs, both of which contained large extravasations of dark blood, soaked through their sinuses to such an extent as to make it impossible to say whether or not it was fluid or coagulated. Another pigeon was treated in same manner. Death, without precedent convulsions, took place at the close of 8½ h. P.M.—Blood was diffused in every locality examined, and 1 lung contained a large extravasation of dark blood." (WEIR MITCHELL, from *Ibid.*)

4. A small quantity of dried venom was inserted into the muscles of the back. On inspection 21 h. afterwards, the frog was found seated and quiet. During ½ h. no respiration occurred. Upon touching eye frog breathed once and moved its entire body, after which no further motion could be provoked. (*Ibid.*)

5. A cat was chloralised, and part of mesentery placed under microscope on warm stage. Crotalus poison, diluted with water, was then applied to mesentery, and its effects watched. The white corpuscles were observed to cling in quantities to the walls of the vessels, and as the current of blood hurried through them, some masses of pale matter, like aggregations of white corpuscles, were observed to pass with the stream; very soon marked extravasation of red corpuscles took place, and to the naked eye the mesentery became discoloured by patches of ecchymosis in the course of the small blood-vessels, like the foliage on the branches of a tree. There could be no doubt that the local action of the poison had a marked effect in producing extravasation of blood. (BRUNTON and FAYRER, *Proc. Roy. Soc.*, xxiii, 1875.)

6. a. Quarter of a grain (.015 gramme) of dried crotalus venom

was carefully weighed and diluted with 10 dr. of distilled water, and injected into peritoneal cavity of a full-grown guinea pig at 1.52 p.m. 1.55, muscular twitchings of head and neck. 2 p.m., startings and twitchings continue. It gives faint squeaks occasionally, as though the sudden startings which occur at intervals of 5 or 6 seconds cause pain. 2.5, twitchings continue. 2.8, very restless; twitchings going on, but no paralysis yet. 2.17, the same. 2.25, restless and weaker, but still moves freely on being roused. 2.42, sluggish; drags the hind legs. 2.58, weaker; rolls partially over on one side, but can run when roused. 3.3, lying on side, but can be roused; is partially paralysed in hind legs. Respiration abdominal and hurried. 3.5, nearly quite paralysed; is roused with difficulty. 3.7, can still be roused. Abdomen distended and painful; cries out when it is touched as though peritonitis was setting in. 3.12, can be roused with difficulty; respiration hurried; convulsive movements of forelegs and neck. Can still stagger a few paces, but co-ordination of muscular power much diminished. 3.30, in violent convulsions. 3.38, convulsions continue. 3.45, quiet; paralysed, but reflex action still continues. 3.55, dead (in 2 h. 3 m.).

b. *P.M.*—3.56, electrodes in cord cause twitchings of muscles of the back, and very slightly in those of the legs; the cord was evidently all but paralysed. Muscular fibre contracts freely to direct stimulus of current. Intestines were ecchymosed and congested. There were effusions of red serum into peritoneal cavity, and much ecchymosis of peritoneum and subperitoneal and intramuscular areolar tissue. Peristaltic action continued faintly. 4 p.m., heart has ceased to contract 4 m. after apparent death; it continued to contract, especially the auricles, for part (not the whole) of the time. The blood removed from the heart cavities and vena cava rapidly formed a firm coagulum in a glass receiver. The electrodes applied to the sciatic showed that the nerve-trunk, as well as the spinal cord, was paralysed. (*Ibid.*)

7. a. A grain of dried crotalus-poison diluted with water was injected into the peritoneum of a full-grown guinea-pig at 2.40 p.m. Twitchings began almost immediately. 3.3, restless; startings; staggers in hind legs. 3.20, very weak, especially in hind-quarters. General paralysis setting in. Abdomen distended and very tender. 3.30, in convulsions. Still feels when abdomen is touched. 3.37, paralysed; but feels touch. Reflex well marked. 3.45, apparently dead (in 65 m.).

b. *P.M.*—3.48, cavities opened. Auricles flickering. Blood from heart and great vessels coagulated firmly. Abdominal cavity and areolar tissue infiltrated with bloody serum. Much ecchymosis of peritoneum and intestines, but not of lungs. Cord and nerves paralysed. Muscles contract vigorously to induced current. (*Ibid.*)

8. a. .015 gm. ($\frac{1}{2}$ gr.) of the dried crotalus-poison, diluted with 1 cub. centim. of distilled water, was hypodermically injected into thigh of full-grown guinea-pig at 11.30 a.m. Restlessness and muscular twitchings of body generally soon commenced; these passed away, but animal became sluggish, in which condition it remained all n., and died at about 9 a.m. next d. No convulsions were observed, but as the

animal was not seen during a short time previous to death, they cannot be said positively not to have occurred; nor is it known if the heart ceased to beat at the moment when apparent death took place.

6. *P.M.*—The injected limb became much swollen, infiltrated and discoloured with sanguineo-serous effusion. The intestines were not ecchymosed; there was much sanguinolent fluid and also blood effused into the abdominal areolar tissue. (*Ibid.*)

9. *a.* Quarter of grain of dried crotalus-poison was dissolved in 1 cub. centim. of distilled water. The jugular vein of a large white rabbit was exposed, and above solution injected into it at 1.50 p.m. At 1.51, violent convulsions, with opisthotonos. At 1.53, apparently quite dead.

6. *P.M.*—Artificial respiration commenced immediately. Heart acting still, though feebly, and with irregular flickering contractions. Spinal cord exposed. Electrodes applied; no reaction. 2.12, heart still contracting feebly. 2.15, faint contractions of the heart still observable. Ventricle punctured, and blood withdrawn. Peristaltic action has ceased. 2.20, feeble cardiac movements continue. 2.21, heart has now ceased. Muscles react to direct current. Death caused by rapid paralysis of medulla and cord. Blood taken from heart and great vessels did not coagulate. At 4 p.m. it was still fluid, though very florid in colour. Examined under microscope nearly 2 h. after apparent death, white corpuscles appeared natural; red corpuscles not in rouleaux, and very much crenated, though a few retained their natural contour. The blood was neutral to test-paper. (*Ibid.*)

10. *a.* A full-grown cat was chloralised at 1.20 p.m. Quarter of grain of dried crotalus-poison, diluted with 1 cub. centim. of water, was injected into the jugular vein. Respirations were immediately quickened. 1.21, twitching of muscles generally. 1.22, efforts to vomit. Forcible extension of limbs. 1.24, hurried respiration and retching. Reflex action perfect. 1.30, muscular twitching and tetanic stretching of limbs. Efforts to vomit continue. Micturition. Rolls over on the ground. 1.34, ataxy. Stagger when walking, which it can only do for a few paces. Peculiar twitching of diaphragm, not synchronous with respiratory movements. Rolls over on its side. 2 p.m., in the same state. 2.8, injected $\frac{1}{2}$ gr. more of poison into same jugular vein. The animal immediately got up and walked, comparatively steadily, for several paces, as though it had been stimulated, and then rolled over. 2.16, twitching of diaphragm continues at rate of 150 per m. 2.18, again got up and walked for a few paces, but it is gradually becoming more paralysed. 2.44, violent tetanic spasms of limbs. Reflex action diminished. 2.46, reflex action gone from eyes. Deep sighing respiration. 2.47, convulsions. Death.

6. *P.M.*—Body opened immediately. Lungs deeply congested and much ecchymosed. Deep red gelatinous effusion all about roots of lungs. Heart contracting. Electrodes applied to phrenic caused vigorous contraction of diaphragm. 2.50, heart ceased to contract 3 m. after respiration had ceased. 2.52, electrodes in cord do not cause contraction of limbs. 2.54, sciatic nerve, when irritated, conveys impressions; muscles of legs contract. Blood from heart and great vessels did not form coagulum, but remained permanently fluid. Red corpus-

cles of blood much crenated. Death in this case appeared caused through medulla. (*Ibid.*)

12. A large spaniel was bitten twice in fore-shoulder. He immediately manifested excessive pain at part; this, however, soon passed off. Within 20 m. he was languid, and remained standing with his head down, as though sick and confused. Very little local twitching, and respiration was a little quickened. During next 24 h. he refused to eat, but he drank at frequent intervals. He was able to move about, but preferred to remain at rest. There was no swelling, but a slight hardening of the surrounding parts for about 2 in., and on pressure a little bloody serum might be forced out of the fang tracts; this continued for 3 d., when pus also flowed out. He was quite well again in a few days. (WAIR MITCHELL, from Hayward.)

12. A white mongrel, bitten in L. hind thigh. It suffered terribly, and during 2 h. whined and yelled incessantly. Enormous swelling occurred, involving whole thigh up to pelvic joint. Two h. after being struck dog was weak, but still kept his feet, and drank almost without ceasing. Respiration was occasionally jerking, and heart's action rapid and feeble. At 3rd h. he was again howling frightfully. Weakness was increased, and he staggered in his gait, other symptoms being unchanged. At 4½ h. still weaker, ceased to drink, and finally lay down. The parts wounded were still enlarging. At this time he vomited a little food and mucus, and soon afterwards purged and urinated. From this time he began to mend, and although he howled all following n., he was able to run about next m. with only a slight appearance of lameness. Wound discharged blood, and at length bloody pus, and finally pure pus, up to period of recovery 3 weeks later. During first week of this time dog took scarcely any food, and was subject to profuse dysenteric discharges, so that he became remarkably emaciated. From this condition he gradually improved, all symptoms abated, and at end of 3rd week he was as fat as when first injured. (*Ibid.*)

13. A small brown terrier, bitten twice on shoulder. Within 10 m. he vomited, urinated, and passed solid fæces. All this time he whined a good deal; and finally, at 15th m., lay down on his side, breathing in jerks, and twitching in almost every muscle. An h. after being bitten he had a slight convulsion and vomited again. Meanwhile, heart could scarcely be felt to beat, and respirations were long and laboured. At 7th h., when left for the n., he was lying on the floor, scarcely breathing, and nearly pulseless. He had passed liquid and very dark stools, and some urine. Even at this period his sensorium seemed unaffected, and he felt injuries, heard well, and followed with his eyes the movements about him. Next m. he was quite lively and tried to escape. His wound was like a lump on his side and back, and discharged fluid blood in occasional drops. The floor of the box in which he had been left contained a good deal of dark semi-fluid excrement streaked with blood, and he had drunk nearly a third of a bucketful of water during n. (*Ibid.*)

14. A small terrier, struck twice on r. flank by a large snake, both wounds being double fang marks. From one of the wounds blood immediately ran in a thin stream; after it had run for some time I

caught a few drops in a watch-glass, and found it coagulated well. I was called away, and on returning at the end of an h. I found dog standing with his head pendent, having just vomited glairy mucus. His pulse was quick and feeble; his respiration occasionally panting. The hæmorrhage had ceased. In $1\frac{1}{2}$ h. after he was bitten I drew a drachm of blood from the jugular vein. It clotted perfectly. In $4\frac{1}{2}$ h. after bite, a drachm of blood from same vein coagulated equally well. Twenty h. from time of the poisoning, dog was found lying on his l. side, having passed slimy and bloody stools in abundance. At intervals he seemed to suffer much from tenesmus, but was so weak that he stood up with difficulty. His gums were bleeding, a symptom I had seen before, and his eyes were deeply injected. At this time about 2 or 3 dr. of blood were drawn. It was very dark, and formed within 5 m. a clot of feeble texture. In 27 h. after time at which he was bitten, dog was weaker. His hind legs were twitching, and the dysentery continued. Three dr. of blood were drawn as usual, but no clot formed in this specimen, although it was set aside and carefully watched for some time. While I was collecting the fluid for observation the dog suddenly discharged *per anum* at least 4 oz. of dark grumous blood. At this time I supplied the dog with water and left him. At 54 h. after bite he was seen again, and found to have drunk freely of the water, and to have passed fewer stools. Up to this date he declined all food. From this time he improved rapidly, and took with eagerness whatever nutriment was offered. On the 4th d. his blood again exhibited a clot, although it was very small and of loose texture. I made no further examinations of the blood. The dog lost flesh as he gained strength, and had profuse suppuration from an abscess in the bitten flank. At the close of 2 weeks he was active and well, except that the wound was still open. (This case is doubly valuable, as pointing out, even in a single instance, the time at which the blood became altered, and also as showing once more how profound may be the change, and how perfect the recovery. The dog survived very serious visceral lesions, and lived during 2 d. with his blood in a condition of complete diffuence.) (*Ibid.*)

15. *a.* A bull terrier, weighing 30 lbs., bitten on outside of r. hind thigh. He drew up leg, and whined for a few m. The wound bled a drop or two, and the muscles about it twitched considerably at intervals for an h., when this symptom was obscured by the swelling. His pulse, which was naturally about 145 and irregular, was at the 5th m. 140 and regular; respiration 35. At the 15th m. he lay down much weakened, pulse 160 and feeble; respiration 40. At the 20th m. the bowels moved loosely, with a grey discharge, and there seemed to be some tenesmus in the rectum. At the 25th m. he could stand when urged, but lay down again at once, and was much weaker. In 45 m., pulse 160; respiration 45; and laborious. In 55 m., loss of power in hind legs. In 80 m., respiration quick and laboured, and so irregular as to make it impossible longer to count the heart pulses. Observation now interrupted; and on resuming, 3 h. afterwards, he was found dead. He had no foam about mouth, and probably died quietly.

b. P.M.—Whole muscular and areolar tissue of leg and thighs, half way up and down limb, was dark with infiltrated blood. About wound,

swelling was due to a mass of blood partially coagulated. Extravasated blood extended through limb, and on inside it passed half way up sartorius and adductors, and along sheath of vessels to within 2 in. of femoral ring. Nearly an inch of the sheath was clear of it, but $\frac{1}{4}$ in. below the ring tissues were shaded with blood, and same appearance was seen around ring itself. From this point extravasation extended under peritoneum, into pelvis, and on inner face of ileum. The colour of tissues thus stained was a brilliant scarlet. Abdominal viscera were healthy, except that mucous membrane of lower bowels was somewhat congested. Lungs were sound. Heart was relaxed, r. side full, l. nearly empty. Blood on r. side was a little darker than that on l.; on both sides, and everywhere else, it was perfectly fluid and free from clots. Placed in a vial, it remained fluid until decomposition ensued. Two h. at least after death, some of the blood-globules found in heart were slightly indented; those taken from small vessels of ear were perfectly normal. (*Ibid.*)

16. a.—A young dog; bitten, but place not discovered. He immediately cried out as though in great pain. Within 5 m. he was trembling in every muscle. At 20th m. he was so much better he was subjected to a second bite, on neck, in front, above l. shoulder. He at once lay down, then rose and passed water and solid feces, and at 5th m. after second bite fell on his side and vomited freely. The vomiting was instantly followed by general convulsions, in which limbs were extended and head thrown back. Meanwhile, heart was very feeble, breathing laborious, and pupils contracted. The character of the respirations at this time was singular,—eight or ten rapid respirations took place, and then none occurred until 20 seconds had elapsed. The heart-beat, previously 180, fell, at 15th m. after second bite, to 80, and became remarkably feeble. At 17th m. respiration stopped, and heart pulse, though so weak as to be counted with difficulty, rose to 156, falling again, at 24th m., to 56, when it became indistinct through weakness. Pupils dilated. Death.

b. *P. M.* section was delayed 24 h. *Post-mortem* rigor came on first about fore-legs and neck, and was complete $\frac{1}{2}$ h. after death. It was so strong as to snap a small cord with which I had drawn the legs of the dog apart. The wound was the seat of an extravasation, which had passed over the shoulder and on to the neck. The vessels near it were filled with dark and diffuent blood. The muscles near the wound were softened and readily torn. The heart contained an abundance of blood, chiefly fluid, with a number of small clots of very loose structure in the right side, and somewhat less in the left cavities. In the pericardium there was about $1\frac{1}{2}$ oz. of bloody serum. The abdominal organs were healthy, and the peritoneum contained only a little straw-coloured serum. The bladder was partially contracted, and held an ounce or two of slightly albuminous urine. (*Ibid.*)

CROTON.

Croton tiglium, L. Croton-oil seeds, Nat. Ord., *Euphorbiaceæ*.

1. *Proving*s.—1. BUCHNER chewed a bean for a short time and then spat it out. Soon he felt continued burning and contraction in œsophagus, sweat on forehead. After 1 h. purging, 8 stools. (*Toxicologie*, 1827, p. 295.)

2. FRIEDLÄNDER writes: "A healthy English physician licked the stopper and had flow of saliva and slight prickling in mouth. A drop of the oil in a teaspoonful of hot water produced immediately irritation of salivary glands, causing him much mucous expectoration, and each time he expectorated he had the feeling of a rancid acidity and disagreeable burning in throat, which was replaced by a similar feeling in rectum, and he had 5 or 6 stools without pain." (*Journ. Complimnt. du Dict. des Scien. Méd.*, Février, 1824, p. 340.)

3. Two of CAVENTOU's pupils shelled a kilogramme of the seeds and experienced great irritation all over body, in interior of nose and fauces, to such an extent that on waking next m. they could scarcely open their eyes; the eyeballs seemed to be infiltrated, the nose and whole face were in an inflamed condition, which lasted some d. (*Frœriep's Notiz.*, ix, 318.)

4. a. LANDSBERG swallowed the half of a seed; the taste was at first sweet-oily, then extremely bitter and burning; the scraping burning after taste, combined with heat and flow of saliva, went on increasing; the temperature of the body, especially of the face, was greater, the pulse quickened, nausea and eructation, feeling of fulness in belly with rumbling and slight colic, dysphagia, and dryness of fauces came on. The burning and scraping went off after 2½ h.; the tongue showed a white coating, the taste flat, buccal cavity felt burnt. Next d. same symptoms; at 9 a.m. a semi-fluid stool, and a liquid stool at 2 p.m. Urinary secretion increased, urine turbid, cloudy. Weakness, malaise, and swelling of palate continued several d.

b. A smaller seed caused same symptoms but no diarrhœa.

c. A roasted seed swallowed whole caused first an agreeable cocoa-like taste, soon followed by the peculiar burning, nausea, dryness of mouth, weariness, malaise, and irresistible desire to sleep.

d. A drop of the oil on sugar. Taste at first indifferent, soon burning and scraping, total loss of appetite. Peculiar discomfort in chest and abdomen; pulse quick, weak. After a h. a firm stool; soon afterwards, with colic pains in stomach and hypochondria, a second liquid stool. The discomfort continued, the rumbling increased, and after another ¼ h. another liquid stool. After a short sleep the burning in throat much alleviated. After 1 h. more a 4th stool; after 3 h. a 5th copious watery stool. Occasional warm feeling with increased secretion of saliva. Next d. constipated.

e. One dr. of oil caused similar preliminary symptoms; then violent colic in stomach and abdomen; a short sleep strengthened him; burning of lips and malaise continued; he had nausea and eructation after

drinking. The 1st stool, after 2 h., was mucous and firm; after 2 more h. a 2nd stool, at first firm, then watery. Nausea and malaise continued; no appetite. Next m. a 3rd liquid stool. (*Pharmatographia Euphorbiacarum*, Diss. Bernl., 1851.)

5. WISSNER took 1 dr. oil in 2 pills. Half h. after 1st pill slight cutting in bowels and a soft stool. After 2nd pill 4 or 5 mucous stools with some tenesmus. (*Wirk. d. Arznm. u. Gifte*, ii, 212.)

6. a. COXWELL says a girl, æt. 15, after smelling at 8 oz. of croton oil, had 4 copious stools.

b. A few m. after a small dose of oil weakness and weariness, pulse weak and small, surface of body cool. Soon the pulse becomes stronger and fuller, skin warm, and copious perspiration. The movements of bowels could be felt, and after a larger dose occasional pains in belly. After 2 h., sometimes sooner, copious slimy stools. Kidneys irritated; a large quantity of urine discharged. (*Recherches sur les Propriétés Méd. &c. de Croc. Tig.*, Diss., Paris, 1824.)

7. A girl, æt. 25, took 1 dr. of oil on sugar. Soon burning and scraping in fauces and œsophagus, then when walking great nausea, hearing and sight left her, beads of sweat stood on forehead, she felt as though she could never reach home. When she got home she vomited mucus with a bitter taste. Teating at end of ribs and in sacrum, gripping about navel, later a feculent and still later a watery stool; head all d. so full and heavy she could not read. Next d. at 7 p.m. took a similar dose and drank coffee, which she soon vomited. 9 p.m., she felt cold, especially in lower extremities, with goose-skin; she had 5 yellow diarrhetic stools. (HUCHNER, *Archiv*, xix, 1, 120.)

8. A younger girl had after the same dose 6 stools, at first feculent, then watery, with slight shooting in abdomen; the menses, which were 14 d. overdue, came on scantily. (*Ibid.*, 121.)

9. A bookbinder, æt. 18, who had been constipated for several d., took 1 dr. on sugar, but felt only scraping in throat and rumbling in bowels. Next d. no stool. On 3rd d. 2 dr. caused nausea, pain and rumbling in bowels, stitches in spleen, and a poppy stool. (*Ibid.*, 121.)

10. A gardener, æt. 26, took at 10 a.m. 1½ dr. Immediately burning in fauces, increased warmth in whole body, nausea, anxiety in chest, fulness in stomach, inclination to vomit, gripping in bowels, then at 1 a.m. the ordinary stool followed by two soft stools like water with an egg bearen up in it; between 12 and 1 p.m. 2 similar stools followed by exhaustion. (*Ibid.*, 121.)

11. A blonde girl, æt. 26, with carious teeth, took, Aug. 27th, 3 doses of 1 dr. every h., the 1st at 9 a.m. Soon eructation, such a flow of water into mouth it runs out at the corners, vertigo and nausea, she goes into open air which makes her sneeze, she became pale, with great exhaustion and prostration; later, burning in stomach, gripping in colon transversum, renewed before each stool. Afternoon, 6 watery stools, which shot out quickly.—29th. Took 3 successive doses of 1 dr. at intervals of 1 h. After the 2nd dose scraping in throat, felt 1, burning in stomach like coals, nausea increased in open air, vertigo. When 300 paces from home felt so ill she thought she could not get home, hearing and sight left her, scraping in throat became worse, followed by

vomiting of contents of stomach in the street, so that the water ran out of eyes, vomited again after taking 50 steps, she then sat down on a bench and again vomited. In $\frac{1}{2}$ h. she had so far recovered that she was able to get home. She felt nothing more except shooting pain above navel; 2 loose stools in afternoon. (*Ibid.*, 122.)

12. Another girl, a brunette, took 3 dr. rubbed up in sugar, and had the peculiar scraping, distorted features with staring, sparkling eyes, cutting above navel, as if two knives were thrust towards one another in bowels; this went off after 2 stools. She had afterwards 4 watery stools. (*Ibid.*)

13. A male nurse, æt. 36, suffering from nettlerash, took 3 dr. rubbed up in sugar, at hourly intervals. Scraping in throat soon followed by burning in chest, crawling in loins as from cockchafers, scraping in stomach followed by slight nausea, sparkling eyes, heat and anxiety; he felt the medicine travelling through the small intestines and causing rumbling there; when it came to the navel it pinched a little. At noon the 1st stool, firm, in balls, with many white points, the 2nd stool contained many white points and three thread-worms; the 9 following stools were fetid, bilious, slimy, at last watery. (*Ibid.*, 123.)

14. A young woman, æt. 16, thin, bilious constitution, took 3 dr. of the oil rubbed up with sugar, and divided into 3 doses. In addition to usual symptoms she had great nausea as though she should vomit, 9 stools, the first feculent, the others liquid, yellow and green. No more stools after a cup of coffee; in e. chilliness; next d. irritable pulse, hoarseness and catarrh of chest. (*Ibid.*)

15. A theologian, æt. 22, took 3 dr. in 3 doses. The 1st dose caused salt taste and scrapy tickling in throat. After the 2nd dose, the belly began to be uneasy, with cutting and pinching pain. Then confusion of head, tightness in upper part of stomach, inclination to vomit and vomiting; soon afterwards copious stool. After the 3rd dose chilly feeling, especially in abdomen; hurried call to stool, has no time to get to the closet, evacuates into his trousers, nevertheless must sit a long time; p.m., the chilliness forces him to go to bed, where he lies long without getting warm. (*Ibid.*)

16. A girl, æt. 20, pale, took, Oct. 7th, 6 a.m., $\frac{1}{2}$ dr. Scraping in throat till noon, bitter taste.—14th, 15th, and 16th, 8 a.m., $\frac{2}{3}$ dr. After $\frac{1}{2}$ h. nausea, inclination to vomit, vertigo, anorexia, feeling of heat and burning in pit of stomach. Nausea, eructation, burning like yesterday; later, griping about navel, $\frac{1}{2}$ h. later stool. Stomachache and eructation, nausea till afternoon.—26th and 27th, 10 a.m., $\frac{1}{2}$ dr. At first empty eructation, then sickness, so that she can hardly write; after soup at noon occasional tearing about navel, after dinner vomiting of water, mucus and bread, with constant sickness. Eructation, nausea, water collects in mouth, twice bilious vomiting; whilst eating tearing in abdomen.—30th, 31st, 10 a.m., $\frac{1}{2}$ dr. Nausea increased by eating bread and butter, must sit down; retching, vomiting of food and water. Tearing in transverse colon. Noon, anorexia, sadness, pinching and cutting in large intestine, sickness, pressure in pit of stomach, roughness in throat.—Nov. 7th, 9 a.m., $\frac{2}{3}$ dr. Vertigo, cannot remain seated, especially when she looks up; eyes dim as if the

rooms were filled with smoke. Sickness, belching up of water; pinching about navel. (*Ibid.*, 124.)

17. SCH., a man, æt. 32, bilious temperament, took at 4 p.m. 1 dr. on sugar. Scraping in throat, tearing down l. thigh, and in head towards crown, full and distended abdomen, griping above navel. Single twitchings towards l. side of heart and occasional twitching and tearing in l. sole. Pappy stool and burning in anus. Slept ill with many dreams. Great secretion of urine. Next d. coryza with nasal discharge lasting some d., as did also the burning in anus. (*Ibid.*, 125.)

18. Dr. St.—, æt. 26, took on Sept. 8th and 9th, $\frac{1}{2}$ dr. Thereupon dryness of mouth and scrapy feeling in throat, diminished appetite, little thirst, empty eructation. Before dinner, emptiness in stomach, little appetite and thirst; afternoon, painful swelling in inner part of r. upper gums. Little sleep, disturbed by tiresome dreams.—11th, e., $\frac{1}{2}$ dr. Next m. pressive pain in occiput, swelling of submaxillary gland, painful to touch; burning pain in l. temple like a live coal laid on it.—15th, m. $\frac{1}{2}$ dr. Burning in fauces, sour acrid taste rising up from stomach, expectoration of much viscid sour mucus. Lips dry, cracked; 2 dirty yellow, clayey stools. Dislike to beer. Slept till midnight; after that great nausea, then vomiting of much sour, pungent-smelling fluid; afterwards diarrhoea, fluid is heard splashing in abdomen, sound sleep till m. On rising is very exhausted, trembling of hands and feet. With the vomiting has confusion of head, which lasted 3 d., as did the anorexia. On urinating, e., burning in urethra. In m. the urine passed at n. was blood red with thick mucous sediment.—Nov. 1st, 3rd, 7th, m., 1 dr. Urine increased, passed about every $\frac{1}{2}$ h.; nausea with loathing. Constrictive feeling with occasional stitches in anus when walking, stool viscid, swelling of inside of gums on l. side. Spasmodic aching deep in l. ear. Sleep restless, many dreams; dryness of nose and fauces, scraping in fauces making him hawk frequently. Tensive pains in l. hip-joint making rising from seat difficult. Dryness of fauces increased; swelling of tonsils, pressure on outside painful, inflammatory redness of l. conjunctiva. (*Ibid.*, 126.)

19. A maidservant, æt. 32, took on 26th, 27th, 30th, and 31st Oct. and 2nd and 3rd Nov., at 10 a.m., $\frac{1}{2}$ dr. After 1 h. there came on sickness, 4 eructations of water; later, pain in forehead and tearing to r. temple, where there was shooting for 2 h. After another h. pains about navel like twisting in bowels, twice in succession, then tearing in l. side of abdomen. 11 a.m., pressure in stomach, tearing in r. shoulder, nausea, flow of acid water into mouth; cutting pains under stomach, followed by 2 slimy stools with tenesmus. Next d., when she took no medicine, she had shooting pain in crown. Slight pain in abdomen, 3 watery stools.—4th, 7th, and 9th, forenoon, $\frac{1}{2}$ dr. Tearing in r. arm up to humerus, later, down to fingers. Sadness, nausea, 3 times feeling of turning over in stomach, then cutting under stomach, and tearing in bowels on r. side near os ilii; later, splashing in bowels as if they contained nothing but water, chiefly on l. side. At n. 3 watery stools. On this d., when she took no medicine, splashing as of water in bowels, restless sleep, watery stools in afternoon. One h. after taking medicine pains in abdomen, so that she can hardly breathe, cutting about navel,

and thence up to stomach so that she must cough together, thence to l. side. Nervous weakness of legs, trembling all over body, rising up of heat, low spirits, no appetite, 5 watery stools.—11th, 15th, 16th, 18th, m., $\frac{1}{2}$ dr. Cutting about navel; tearing on l. side from flank to r. nipple for some m.; 3 watery stools. When sitting, shooting in instep of l. foot as if sprained. Throat dry, twice hawking of some mucus. Cutting in bowels and about navel, watery stool. Pricking as with needles in r. side of brain above eye. Heat of body; burning in throat as from pepper. Pressure in spleen, cutting in abdomen, then 4 loose stools. (*Ibid.*, 127.)

20. *o. K—M—*, medical student, æt. 26, smelt on Aug. 28th, 9 p.m., a solution of 2 dr. in 100 dr. alcohol. Twitching and shooting through fauces, quivering of eyelids, slight fatigue of whole body with general feeling of comfort. Sleep full of dreams; no waking gouty pain in knee to which he was subject.—29th, 5.45 a.m., 3 dr. of above solution. 7—8 a.m., flatulence, fulness of abdomen with slight pinching. 9 a.m., violent, fixed, obtuse, spasmodic pain in middle of abdomen, worse when sitting with body bent forward than when sitting upright or walking; urging towards anus as when purged; tension and pricking in knee-joints; prostration and tense feeling of thighs; full pulse; warmth of skin, especially of hands, which are usually cold, with swollen and prominent veins; anxiety, fulness in chest, and oppressed breathing. 9.45 a.m., tensive pain in sinuiput with pressure and shooting. Drowsiness, yawning, relaxation and pressive pain in stomach; general weariness and prostration of body with ill-humour. 1.30 p.m., violent tiresome tension and distension of whole belly with urging to stool and tenesmus, discharge of flatus with fulness at anus, worse when sitting than when walking or standing. Broken up, firm stool with straining. Laboured full breathing with tightness of chest. Pressive, colicky pains in belly. 3.30 p.m., congestion from abdomen to head with heat of skin and sweat. Pressure in stomach and anxiety. Fullness of head.—31st, 6 a.m., 5 dr. of solution. After $\frac{1}{2}$ h., pinching pains in belly with tenesmus of anus. Pressure and fulness of stomach; gouty furmication in knee. After milk-soup taken 1 h. later, abdominal pains relieved, but all d. prostration, weariness and pain in abdomen.—Sept. 1st, 6.30 a.m., 7 dr. of solution. 8 a.m., 5 dr. Pains in umbilical and hypogastric regions. Urging towards anus, and feeling in interior of rectum as if about to be purged; pulse small but quick.—2nd, 6 a.m., 10 dr. Scraping in throat; oppressed breathing; pressure in stomach, urging spasmodic pain in epigastrium, especially when sitting, then tensive pain. 9 a.m., slight pinching pains in belly with urging towards anus. Ordinary stool at 6 a.m., and at 9.45 a.m. a stool half soft, half firm. 7 p.m., violent pains in sinuiput, with throbbing, tension and pressure out at forehead and confusion, increased by beer and bread. At 9.30 p.m., drank water and was relieved, slept with tiresome dreams till 1 a.m., when he woke suddenly and had violent headache. 1 a.m., took 15 dr. and in $\frac{1}{2}$ h. the headache was gone but confusion remained till m. Anxiety, oppression and fulness in stomach and chest. From 3.30 till 6 a.m., slept. On waking, had violent pinching pains with rumbling and gurgling in epigastrium; soon

afterwards, following spluttering, malodorous flatus, he had urgent call to stool, which was evacuated amid gripping spasmodic pains in belly. Fæces soft, dark, and fetid. Then slight searching pain and retraction of belly and forcing in epigastrium and umbilical region. This lasted all next d., especially after dinner.—14th, 6 a.m., 25 dr. Tension, pressure, anxiety and oppression in stomach and epigastrium; confusion of head; nausea; inclination to vomit. Tension and pressure in r. upper arm with weakness extending to fingers. 7 a.m., pinching pains in upper belly, rumbling in bowels. After taking milk, loathing and great nausea with inclination to vomit. Increased general heat, slight sweat and headache; oppressed respiration; jerking in head and formication in both arms. 11.30 a.m., gripping and rumbling with fullness in belly and urging towards anus; pain in belly worse when touched or pressed; tension in r. side of throat. 4 p.m., urging to stool with full belly and rectum; difficult and scanty stool. All d. disinclined to do anything, drowsiness, prostration, weariness and weakness.—22nd, 6 a.m., 15 dr. Soon, tensive pain in epigastrium with pressure in stomach and nausea.

b. Smelt strongly 16 dr. of pure oil. Full, giddy head; like a veil before eyes; fulness and pressure in forehead; tension and searching about navel, and forcing towards anus, when lying on sofa; increased heat of body; urging to stool. 4 p.m., when walking out pinching and tension about navel, out-pressing in stomach with sudden nausea; oppression and anxiety; confusion of sinicupit; cannot breathe through nose; slight febrile movement over upper part of body. 10 p.m., rubbed stopper over sugar, which he ate. Slept badly, woke after midnight with heaviness in thighs, dazedness and confusion of whole head till m.; inclination to break wind, which came away like a shot; heaviness of whole abdomen with retracted walls; dull vermicular movement and slight rumbling about navel; tensive pain in both upper arms; urine pale and frothy.—7th, 4 p.m., 2 dr. oil on sugar. Burning scraping in fauces and gullet; numb feeling all over body; coryza, slight discharge; when in open air confusion of whole head with forcing and twisting towards orifices of both ears; tensive pain in both inguinal regions; fulness of abdomen and forcing to anus; increased saliva and collection of mucus in larynx; pressure and tightness in stomach; sudden coldness and paleness of hands with shrivelled fingers; when walking spasmodic, pinching, searching pain in belly and round navel; fulness and dazedness of head with weight in forehead. 5 p.m., in room sight dim with slight vertigo; heat in face and of whole body, with slight perspiration; low voice; anxiety; oppression and aching in stomach with great nausea; fulness and oppression of both sides of chest with burning stitches in l. thoracic cavity and towards both scapulae; pale and cold face; increased pain in upper part of body. 7 p.m., a transient febrile rigor over back; rumbling and rattling in belly; searching pain about navel with increased pain when touched or pressed. 8 p.m., great forcing and tenesmus in rectum, and pinching flatulent pain when sitting as if he wanted to go to stool; when walking slight flatulence with urging to stool; after walking sudden call to stool; splashing, rumbling, and pinching in bowels;

when sitting in the closet forcing and tenesmus, but 3 very small liquid stools of brownish-grey colour squirted out; thereafter prostration and slight pain in belly; all c. a tickling painful feeling in tip of tongue with clammy taste. From 8.30 p.m. to 12.30 a.m., sleep with sudden waking; confusion of head with dulness and pressure in forehead; all abdomen painful; crawling and slight tearing in knees; collection of mucus in larynx with tickling and irritation; on getting up to write rumbling in bowels and fetid flatus. From 12.30 to 3.30 a.m., anxious, oppressed, tossing about in bed, with sleeplessness and constant erections, then fell asleep and had many anxious dreams; wakes at 5.30 with an emission; slight griping in bowels, increased by touch; on pressing on navel the pain extends to anus and the bowel protruded there somewhat. In bed, m., urging to stool, which was soft but formed and bright brown, with uncomfortable feeling in anus after evacuation; taste clammy, tongue white; urine pale orange coloured, slightly turbid, and sediment.—8th. All d. fulness, distension, tenseness, and rumbling in belly; after dinner and walking more violent pains in belly, and at 4 p.m. hurried call to stool, and soft stool of dirty green colour and fetid odour ejected suddenly like a shot; after the stool painful excoriated feeling inside anus, and prolapse and swelling of rectum with urging again to stool; on compressing the belly and pressing towards the rectum the pain extended to genitals and ended with shooting in glans penis, so that he did not know what to do for pain, anxiety, and oppression, and had to keep as quiet as possible; perspiration broke out on forehead, and nausea came on with loss of sight and hearing; on bending body forward the pain was more violent than when standing upright or walking, but this he could hardly do owing to the sore pain of external anus; rest allayed the pain gradually and then the bowel seemed to be retracted; all e. prostration of whole body, crossness, and anorexia.—9th. Sleep uneasy and full of dreams; the pain in anus persisted till he fell asleep. 4.30 a.m., wake with weakness and weariness of limbs; head dazed, heavy, and confused; tension in both inguinal regions, and heavy, fatigued feeling in both upper arms; burning and itching in anus; searching, noises, and slight twisting in belly, with pain on touching navel; rumbling in stomach and weight in chest; urine n. and m. dark fiery red, full of flocculent and opaque sediment, with a clearer mass at bottom of vessel and fat swimming on the top. All d. slight searching pains in belly and frequent flatus as if there would be sudden liquid stool; sufferings increased after eating; frequent flow of saliva and mucous secretion; no stool all d. although frequent urging thereto.—10th. Slight pains in belly and then ordinary stool followed by pains in rectum; the pain in navel on pressure persisted till 13th.

c. Nov. 17th, 6 a.m., 3 dr. of the oil on sugar. Burning and scraping in fauces and gullet; heat of mouth; pressure in pit of stomach. Fulness, pressure, and burning in both sides of chest. Anxiety and tight, laboured breathing. Accumulation of mucus in larynx with tickling. Frequent inclination to vomit. Repeated retching with flow of water into mouth; continual cough; great nausea; confusion of head, especially of forehead, with pressure and weight; transient tear

ing in both knee-joints; pulsation, shooting, and burning in anus; the nausea aggravated by lying. 6.30 a.m., violent retching and twice vomiting of yellow water with oily odour and sweetish-bitter oily taste; constriction in stomach, pressure in pit of stomach, and flow of water from eyes and nose; dull, forcing pains towards orifices of both ears; painful burning and scraping in gullet; weariness and relaxation of lower extremities; painful pressure in thighs; discharge of fetid Ratus; loud pulsation and throbbing of heart. On drinking a little water he had a flat disgusting taste and emptiness; persistent nausea, and accumulation of water and mucus in mouth with slight chill. After 7 a.m., sudden, violent, repeated vomiting of whitish-yellow frothy fluid with great straining of stomach; he had to lean against the washing-stand to resist the spasmodic retching; cramp in stomach and epigastrium; heaviness and weariness in both arms and itching of the places rubbed; shooting in l. side of chest; rumbling of bowels on l. side; slight forcing towards anus; he was unable to take his usual milk-soup on account of confusion of head, loathing, and nausea; general malaise. 9 a.m., after frequent straining at anus a pappy, bright brown stool covered with mucus; thereafter rumbling in l. side of belly. 10 a.m., very soft, pappy, mucous and hurried stool of greyish-green and dirty brown colour, and coming out like a shot; pain in anus as from a plug that was sticking in and tried to force itself out; painful sensitiveness of penis with red glans and shooting in urethra; great flow of urine. 4 p.m., a semi-fluid stool of dirty brown colour; all d. searching, rumbling, and gurgling in bowels. (*Ibid.*, 129.)

21. H., a man æt. 27, Aug. 31st, 10 a.m., $\frac{1}{2}$ dr. dissolved in ether. All forenoon scraping in fauces, then burning, afterwards tickling in larynx; sudden chocking in region of aorta; excoriation pains and burning in anus after moving.—Sept. 1st, 9 a.m., $\frac{3}{4}$ dr. M., 2 soft stools. After 1 h. scrapy feeling in throat still there; after a light yellow diarrhetic stool at noon, perspiration, creeping in occiput, pressure in larynx, especially l. side.—2nd, 10 a.m., $\frac{1}{2}$ dr. Aching in l. ear; confusion of sinu-pituitary; shooting in l. side of navel; head as from taking alcohol; urging to urinate; increased saliva; frequent hawking, coughing, and irritation to cough; no stool till e.—3rd, 10 a.m., $\frac{1}{2}$ dr. After 1 h. rough feeling in fauces and throat; later, scraping in oesophagus; frequent yawning; confusion of head with pressure in temples; tearing in l. forearm; straining in r. lower eye-tooth. After smelling at oil increased secretion in nasal m.m. 2 p.m., violent stitches through middle of l. side of chest, recurring in e.; throbbing posteriorly in r. thoracic cavity.—4th, 11 a.m., $\frac{1}{2}$ dr. Creeping heat in abdominal integuments; full feeling up into throat with pressure in oesophagus; no stool till e.; nasal m.m. and conjunctiva always somewhat irritated by vapour of oil; frequent discharge of malodorous flatus.—5th, 8 a.m., $\frac{1}{8}$ gr. rubbed up with sugar. Tickling, then scraping, then burning at junction of soft with hard palate; vertigo, especially on r. side, with pressing in r. eye; during afternoon æstia dreams of what happened during d.; 3 stools before e.—7th and 8th, 8 a.m., $\frac{1}{2}$ dr. Redness and elongation of uvula; voice hollow as though he had a severe catarrh; burning and swelling on nates where

they come together at anus, after walking; mucus collects and rattles in larynx, e.; burning in fauces during expiration, diminished during inspiration; urine cloudy; pressive pain in l. half of sinuiput; no pleasure in work, prefers dawdling to working seriously.—9th, 10th, and 12th, 7 a.m., $\frac{1}{2}$ dr. in syrup. While washing, m., gums bleed, increased heat in fauces; weight and pressure in ankle-joint, e.; urine with a cloudy sediment, which gradually disappears and after 24 h. is replaced by brownish crystals which float in the places where the cloud was and adhere to sides of glass; yawning almost all forenoon; feeling of hollowiness in chest; voice hollow, must always hawk; stitches in l. side of chest; pressure in chest when breathing deeply; pressure in stomach, heartburn; pressure deep in middle of chest; much urine. In m., frequent cough with mucous expectoration; head confused, r. side especially, with pressure down from crown, often shooting out below ear, hears worse with r. ear; feels as though the lung did not expand properly when he inspires; always some mucus in bronchial tubes which he cannot get up; oppression of chest; very cross and unhappy; shooting in middle of l. eye, forenoon, less in r. eye.—14th, 15th, and 16th, 8 a.m., $\frac{1}{2}$ dr. Sensitiveness of stomach to touch. E., transient colic pain below navel, with distended abdomen, followed by urging to stool, after stool dyspnoea; soreness of abdomen when coughing; tension between navel and scrob. cordis; flatulent colic, e.; much yellow urine passed; burning in glans when urinating, urging to urinate; some mucus in lungs, which he cannot get up by hawking; dyspnoea and slight wheezing when he inspires deeply and expires; immediately after rising confused head. About noon, drowsiness so that he would like to lie down, but when he does so cannot sleep; palpitation of heart; crossness and irritability, no pleasure in anything; when walking he has 3 times shooting and tearing dislocation pain, especially in l. os metatarsi pollicis, so that he cannot tread properly; cough in e. with expectoration of white mucus and pressure in chest; taste of almonds.—17th, m., $\frac{3}{4}$ dr. Besides previous symptoms has gouty tearing in l. foot, burning in cheeks, some pimples in face; urine copious; at midnight when he was still up he felt fulness and aching in stomach followed by nausea, then slight vomiting of his supper, thereafter sweat on face and well feeling; $\frac{1}{4}$ h. later repetition of vomiting which tasted bitter, then fell asleep till m. In afternoon violent shooting in l. renal region hindering respiration.—21st, 22nd, 23rd, and 24th, 8 a.m., $\frac{3}{4}$ dr. Violent shooting in under part of l. big toe; $\frac{1}{2}$ h. later, in r. In e., stitches in spleen; feels as though the air did not penetrate deep enough into air-cells and the lung did not properly expand. Afternoon, palpitation of heart, twitching in l. foot when sitting. E., oppression of chest; urine passed in m. is frothy; burning in glans when urinating; voice rough and hoarse; short breath, increased by going upstairs; forgetfulness.—25th and 26th, 8 a.m., $\frac{1}{2}$ dr. On r. lower lid $\frac{1}{4}$ inch below caruncula a cutaneous gland is swollen size of a hemp seed; skin red; this went off in 4 d.; itching in l. lid; forcing pain in sinuiput; after eating pain in abdomen; pressive pain in r. shoulder-joint; prickling in lowest third of l. leg; urine passed during d. is pale and has a white sediment; coldness of feet up to calves;

eruption in r. side of septum narium, painful when touched, size of a pea, red; some small elevated yellow vesicles appeared same d. on navel; on 4th d. there is a light brown scab, which fell off on 6th, the skin then remained red and tender, and desquamated again; frequent pinching in belly and cold feeling there; cramp pain in r. eyelids, especially towards external canthus; prickling, itching, and burning in front part of r. sole; burning in anus so that he could hardly sit still. N., disturbed by dreams of a very anxious character; for several d. past sore pain in penultimate lower l. molar when chewing.—30th and 31st, 7 a.m., $\frac{1}{2}$ dr. Feeling of a crumb in throat, not increased by swallowing. Noon, boring pain in l. elbow-joint; burning in corners of mouth with slight swelling on their outer border for several d.; confusion of occiput; on expiration, stitches in cardiac region, repeated 1 h. later; gouty tearing in r. big toe; in e. bilious eructation; prickling in scalp of crown; frequent shooting in cardiac region. E., drawing in r. wrist; frequent throbbing in lower part of r. side of chest between 6th and 7th ribs, also the following e. Twitching in l. middle fingers and r. ring finger.—Nov. 2nd, 3rd, 4th, 7 a.m., $\frac{1}{2}$ dr. Shooting in l. eyeball; eructation, nausea, weakness; heat proceeding from lumbar vertebræ; colic pains about navel. Prickling in r. big toe; shooting between nape and occiput; tension of corners of mouth; shooting in cæcum; drawing in r. forearm; drawing and tearing in l. middle finger; weight and confusion of whole head with formication in eyes; shooting under l. ear; sensitiveness of chest when touched.—7th, 8th, 9th, 7 a.m., $\frac{1}{2}$ dr. Pinching in epigastrium; palpitation of heart after dinner, especially when lying; twitching in thigh during siesta; shooting in l. temple; shooting twitching in head; vertigo and confusion of head till supper-time. Shooting in r. outer ankle; formication in r. little toe; confusion in l. side of occiput; jerking formication in r. big toe; searing in r. upper arm, later in r. shoulder-joint; itching heat on upper third of r. tibia; mistiness and weakness of r. eye; pressure and drawing in cervical vertebræ; burning in urethra when urinating; aching in temples; lame feeling in l. thigh; undefined pain in l. groin; chilliness and rigor; itching in l. upper lid; itching burning in middle of l. thigh; l. testicle retracted, r. lax.—13th, 16th, 17th, 7 a.m., 1 dr. Pressure in stomach with discomfort in abdomen; pressure and aching above navel; attacks of vertigo when walking in open air; heat and burning in r. side of face from corner of mouth; painful prickling and shooting in r. big toe at root of nail; pressure in temples. Next d. drawing in l. spermatic cord hindering walking; scraping in anus immediately after stool; nausea increased, painful heat over body, thereafter cold feeling in lumbar vertebræ; shooting in sinicuput when walking; shooting in lower third of chest on inspiration; shooting in l. shoulder-joint; lips dry and tense in e. Increased heat of whole body, later prickling, burning heat, burning up the œsophagus; liquid, fœculent stool with scraping in posterior part of anus. (*Ibid.*, 138.)

22. Aug. 25th, 6 a.m., took 1 gr. and trit. C.—26th, 6 a.m., 2 gr.—27th, 6 a.m., 4 gr. Soon after taking it slight scraping in throat with warm feeling in back of mouth lasting $\frac{1}{2}$ h., went off after drinking cold water. After 1 h. empty feeling in stomach, disagreeable sen-

sation in intestinal canal with rumbling in belly for $\frac{1}{2}$ h.—28th, 6 a.m., 8 gr. Besides the scraping and warm feeling in throat, is obliged to swallow saliva; at same time, deep in œsophagus, an acute pain as if a small ball were pressed out on the l. side. This lasted $\frac{1}{2}$ h., and went off after drinking cold water. After 4 h. pain in l. nape-muscles on nodding head.—29th, 6 a.m., 16 gr. Scraping in throat; pain in nape went off gradually. After 5 h. tearing pains in finger-joints of r. hand for several h. Slight colicky pains in umbilical region, frequent rumbling and gurgling in bowels, but without stool. E., frequent discharge of fetid flatus. All d., frequent itching or, rather, biting like vermin on pubes and on glans. Some pain between l. thigh and scrotum.—30th, 6 a.m., 20 gr. The burning scraping soon after ingestion extended deep down the œsophagus, did not yield to cold water, but lasted over 2 h. Colicky pains several times during forenoon. Stool at usual time. All d., biting itching in glans and scrotum frequently. The part of l. thigh opposite scrotum shows a red, weeping spot secreting a fetid discharge; it pains like a sore when touched and also when walking, and then causes a tiresome gnawing.—31st, 6 a.m., $\frac{1}{2}$ gr. 2nd trit. The burning scraping from the tongue down œsophagus that came on after the dose, spread, after 1 h., over stomach and bowels, with frequent desire to swallow, which always caused the pain in œsophagus, like a ball being pressed through its wall. In forenoon, some stomachache, distension, and heavy feeling in abdomen, flatulence, and frequent, slight, colic pains. A liquid stool at usual time. All d., the biting in scrotum and the dark red, moist spot in thigh.—Sept. 1st and 2nd. Each d., at usual time, liquid stool. Urine brown, grew turbid soon, and deposited a copious brown sediment. The itching in scrotum and on moist, stinking spot on thigh as before; the spot is larger, but not so moist.—3rd and 4th. Scrotum itches no longer, the eczema on thigh dry and covered with fine, white scales; it is less painful, but a similar itching occurs at anus, making him rub.—5th, 6th, and 7th. No more smarting in eczema, only some pain when it is touched, redness diminished, no more scales. Itching of anus very troublesome, and it has recurred in scrotum.—8th, 9th, 10th. Itching of anus gone, the eczema of thigh is only a slight redness.—11th, 12th, 13th. Well. (HENCKE, *Archiv*, xx, 2, 183.)

23. a. Mr. N—, æt. 50, took several doses of C. 15. They caused some colic, nausea, dulness of head, and slight pain in forehead. Also itching on scrotum. A week afterwards he had a burning, itching eruption around neck, composed of small, hard, red, elevated spots, which went off in 4 or 5 d.

b. Another time he took 12 dr. of C. 4, which caused a feeling as if diarrhœa were coming on. For 7 d. he took the same dilution, commencing with 5 dr. and taking an additional dr. every d. On 5th and 6th d., e., some colic and flatulent symptoms, with discharge of flatus. Four d. after last dose several itching vesicles appeared on chin, which coalesced and became covered with a moist scab. Five d. later the scab fell off and a red mark remained some time.

c. He then took C. 15 for 5 successive m. 1st d., 1 dr. After 5 m. rumbling in bowels. After 2 h. sinking in stomach and feeling of

weariness. Empty eructation, slight tensive pain over r. orbit, and pressure on r. side of occiput. In afternoon, discharge of flatus, with liquid stool and then urging till e. without evacuation.—2nd d., 2 dr. After 4 h. sudden tearing pain in l. upper arm, especially deltoid muscle, lasting 2 h. Empty eructation, especially p.m., disagreeable feeling in abdomen as if diarrhoea would occur, hiccup, yawning, and peculiar feeling of anxiety, as if some misfortune would happen.—3rd d., 4 dr. After 10 m. the rheumatic pain in l. upper arm woke him, but it went off during d. Transient cramp-pain in r. knee-joint; after ½ h. disagreeable empty and hungry feeling with rumbling in bowels; inside of prepuce slightly inflamed, with secretion. Cough from collection of mucus in trachea.—4th d., 8 dr. M., liquid stool, empty eructation. After dinner heartburn with nausea, tired feeling, eructation, flatus.—5th d., inflammation of prepuce gone, but instead itching in scrotum.—6th d., 2 dr. C. 4. Pressure in pit of stomach, transient; headache as from deranged stomach, hunger without appetite, some vesicles in mouth and palate, wakes frequently.—7th d., 4 dr.—8th d., 8 dr.—9th d., 16 dr. C. 4. Laryngeal cararrh. Throbbing in splenic region. Sinking and feeling of hunger, pressive pain in hypogastrium and bladder, itching in scrotum, pains on inner side of l. upper arm, frequent sprained pain in l. foot, diarrhetic stool with urging.—10th d., 32 dr. Pressive pain on the posterior end of l. crista ili, frequent cramp in l. sole and inside of foot, itching on scrotum, copious stool with rumbling in belly, great discharge of flatus, e.—Four weeks later, 15 dr. Feeling as if diarrhoea would come on, sensation of insects creeping on face, itching on scrotum; e., sinking and unnatural hunger, irritable, peevish, sad. Next d. sad, anxious humour, great weariness, and emptiness. (*Ibid.*, 186.)

24. (External). CONWELL rubbed 5 dr. into arm of a girl of 15. This caused nausea, perspiration, and increase of urine. (*Froriep's Notiz.*, vii, 13.)

25. C. oil got accidentally into the eye. Though soon washed out, it caused violent pain, and in less than ½ h. inflammation of eye and face, roaring in ears and a kind of vertigo, he could not stand from fear of falling. After 4 weeks the eye was still weak. (*COMMENSURY, Jour. de Pharmacie*, xiii, 394.)

26. Four dr. of the oil rubbed around navel caused, in ½ h., itching, then painful burning till e. Next d. erythema with pustules which formed scabs the d. after. At same time painful febrile state and a herpetic eruption on scrotum. (*LANDSBERG, loc. cit.*)

27. TAVERNIER poured 4 dr. on hand and rubbed this in around navel. After 2 h. the whole abdomen, without previous itching, was covered with innumerable small, lentil-shaped, elevated pustules, which were bright red and caused local irritation, but no itching. At n. such violent itching came on he could not sleep and felt quite ill. Next m. the redness had declined, but the pustules were paler on their apices than on their circumferences. The skin where the eruption was was tender to touch. The pustules gradually paled, but formed no scabs or scales. The 8th d., only some pale red spots were to be seen. (*Froriep's Notiz.*, xii, 287.)

28. a. C. M.—, medical student, Nov. 12th, 10 p.m., rubbed the suppler of a bottle moistened with the oil twice over the l. deltoid muscle. Slight redness of skin with cold feeling, then warmth. Sleep restless, full of dreams.—13th. Some itching on rubbed place. Neighbouring skin reddened even where oil had not come. Many discrete, larger and smaller, lentil-shaped but yet pointed, dark red, little pustules. On moving arm, burning and itching. All forenoon, prostration of whole body and nausea; head confused. On touching and uncovering the rubbed place the pain, burning and itching increased. The whole place was elevated, nodulated, and rough to the feel; drowsiness, and prostration. Slight slumber, followed by chilliness over back. Confusion of sinciput. The small pustules disappeared after some d., and changed to small, bright elevations of skin, the larger pustules remained for 5 d.

b. 14th. Rubbed 2 dr. on skin of l. arm, below deltoid muscle. Slight redness of the whole part rubbed. The smell from the rubbed place caused giddiness in sinciput, and drawing pains through nose to its root and thence into brain; slight dimness of vision. Pressure in stomach with tickling sensation and slight spasmodic movement as though he should vomit. In external canthus of r. eye twitching and shooting, with contraction and twitching of whole eye. Pressure in r. side of forehead and temples. Heaviness, weakness, and loss of sight of eyes. Soon afterwards burning of rubbed place. Feeling and taste at tip of tongue like electricity and bitter-sweetish; great confusion of whole head, pressure towards forehead, and nausea. Cross humour; pressure in pit of stomach; slight chill; loathing and heaving to vomit, 2 p.m., pinching and gripping in belly about navel and on l. side of bowels; much urine. On the rubbed spot, besides the redness, the skin was rough.—15th., m., when lying on l. side, throbbing, tension and frequent twitching in l. upper arm, extending to fingers, so that he felt compelled to close the fingers involuntarily. A large number of large and small discrete, but thickly set red, pointed, and roundish pustules on the part rubbed and elsewhere. Touching, moving and rubbing caused itching and burning; heaviness of upper arm at shoulder. Skin slightly reddened, the pustules feel rough and elevated. The smaller ones declined into white, shining elevations of the skin. The whole place on the skin again became whitish, but the larger pustules remained red for 5 d., when they gradually lessened, and only a few of them got whitish desquamation; as to the others, rubbing with the hand only brought out a few small scales. Both places on the skin of the l. upper arm, which had been rubbed, gradually lost all the pustules, but itching remained for upwards of a fortnight, and also a feeling of weight and tension in the l. upper arm.

c. 19th, 8 p.m., rubbed 4 dr. on skin above navel. Warm feeling and slight burning of skin. Next m. pressure in stomach and full feeling, with tightness of chest; heaviness and slight lameness of l. upper arm. The pustules appeared just like those on l. upper arm, but were broader, rounder, softer, and more elevated. They went off in precisely the same way. (*Buchner, Archiv, xix, i, 148.*)

29. When separating an acid from the croton, he was exposed to the vapour it emitted. Next m. face, lips, eyelids were swollen, red,

inflamed; round eyes a broad ring of small vesicles, followed by weakness and heaviness in upper and lower extremities, burning in throat and bowels, then great drowsiness and weariness. (BRANDES, *Huffst. Journ.*, lvi, 2, 120.)

30. A chemist who had rubbed up some seeds in a mortar, and whose hands, smeared with the oil, had touched his face, was next d. affected with swelling and redness of hands and face which lasted 3 d. (*Russ's Mag.*, xix, 526.)

31. Two to four dr. rubbed into skin cause erythema, studded with small, round or cylindrical pustules, which dry up and fall off in from 12 to 24 h. Rubbed on trochanter it caused redness and pustules on scrotum, attended with pain and fever. In one case the rubbing in of 3 dr. on throat caused erysipelas bullosum on neck, nape, and chest, with swelling of eyelids, nose, and mouth. Desquamation occurred in 4 d. (ROMBERG, *Casper's Wochensch.*, 1835, No. 15, p. 225.)

32. After 2 or 3 rubbings in of the oil, the whole part becomes erythematous and burning hot; small vesicles like miliaria also appear, which seem to contain no serum. Before the eruption appears, the patient complains of burning pain in skin, which subsides after their appearance. The eruption and redness of skin go off in 2 d. (OTTO, *Ibid.*, 269.)

33. After rubbing in 2ss oil in r. groin, not only the whole scrotum but the face also was covered with closely-set pustules. When seen the pustules on one side of the scrotum had burst and formed a suppurating ulcer. In the face, which was unrecognisable, the pustules dried and rubbed off. The eruption consisted of vesicles which became filled with pus, and had a depression on their apex. (MIZNERL, *Deutsche Klinik*, 1851, No. 41, p. 437.)

34. HESCKZ rubbed 2 dr. of the oil in e. on umbilical region. After ½ h. rumbling and loud gurgling in bowels. After 6 h. disturbed in sleep by flatulent colic, the pains lasted about ½ h., and went off gradually with noisy discharge of flatus. After 9 h. ordinary stool. Two d. later repeated the rubbing in of the oil in e. At n. violent colicky pains, and discharge of noisy fetid flatus. Next d., in afternoon, while walking, very tiresome gnawing itching in scrotum. 6 p.m., flatulence and soon afterwards hurried call to stool, which came out quickly with flatus, motion thin and scanty. 8 p.m., immediately after supper colicky pains with rumbling in bowels, and feeling as in diarrhœa, lasting ½ h. and going off in discharge of flatus. Next d. sleep disturbed by the itching on scrotum; rubbing the part allayed the itching, but caused erections. The usual stool did not occur, but in e. there was an insufficient slowly discharged soft stool. The itching in scrotum lasted all d., and was aggravated by walking. No eruption to be seen. 9 p.m., rubbed in 3 dr. Next d. sleep at n. disturbed by the itching of scrotum. M., at usual time, a liquid stool with flatus. When the oil had been rubbed on abdomen, there appeared an eruption of small millet-sized papules which itched and gnawed, and when touched caused sore pain. The eruption disappeared in 5 d., the itching in scrotum in 2 d. (*Loc. cit.*)

11. *Poisonings.*—t. JANET W—, æt. 19, having tubercular con-

densation of apex of l. lung, took by mistake teaspoonful of liniment composed of equal parts of croton and olive oil. In $\frac{1}{2}$ h. she complained of intense burning in throat and all down gullet; no pain in stomach, and pulse and temp. unaltered. She was made to drink large quantities of warm water, and vomiting soon occurred. An emetic of sulphate of zinc caused vomiting to be very severe and continuous; the ejecta contained bile and the remains of a scanty meal, and they tasted strongly of croton oil. After vomiting had lasted 15 m. she complained of violent pain in stomach, not increased by pressure. After an enema of starch and opium vomiting and pain in stomach abated, but pain became very severe in lower part of bowels. Next d. all symptoms had abated, and bowels, which had been costive, again became so. (J. BRIDON, M.D., *Ed. Med. Journ.*, vii, 135.)

2. A young Mohammedan took an overdose of croton oil, which occasioned hypercatharsis. Evacuations after a time consisted only of mucus and serum, pulse was scarcely perceptible, extremities cold, and features contracted. When first seen I thought he was suffering from cholera.* (CHRISTIE, *On Cholera*, pp. 14, 15.)

3. Man, æt. 31, having been occupied about 8 h. in emptying packages of croton seeds, by which he was exposed to their dust, was brought into St. Thomas's Hospital with symptoms of poisoning. The first ill effects observed were loss of appetite, then burning sensation in nose and mouth, tightness at chest, and copious lachrymation, followed by epigastric pain. Feeling himself getting worse he left the warehouse, but became very giddy, and fell down insensible. An emetic was administered, stimulants exhibited, and he was wrapped in warm blankets. When he became sensible he complained that his mouth was parched and his throat swelling. On admission to hospital he appeared in a state of collapse, complaining of burning pain at stomach, in throat, and in head. Epigastrium felt hot and tense, pupils were dilated, breathing short and hurried, countenance distressed, pulse 85, surface cold. He stated that his tongue felt too large for his mouth, and appeared to be without feeling; he had bitten it two or three times to ascertain if there was any sensation in it. On examination, however, no change could be observed in size or appearance of tongue or parts about mouth. Hot brandy and water were given to him, and he was put into the hot bath with evident relief. He continued in hospital several d., during which time he continued to improve, but still complained of epigastric pain. It deserves notice that his bowels were not acted on, and on the d. following his admission several doses of castor-oil were given to him. (PEREIRA, *op. cit.*, sub voce.)

4. A young man, æt. 25, affected with severe typhoid fever, swallowed by mistake ʒiiss of croton oil. At end of $\frac{1}{2}$ h. skin was cold and covered with cold sweat, pulse and action of heart scarcely perceptible, respiration difficult; points of toes and fingers, and parts around eyes and lips blue, as in malignant cholera; abdomen sensitive to touch; but no vomiting. In $\frac{1}{4}$ h. there were excessive and involuntary

* Mr. C. H. Bell says that he has seen a patient attacked with cramps like those of cholera under the action of a medicinal dose of croton tiglium. (*Brit. Med. Journ.*, 1854, p. 393.)

alvine evacuations, sense of burning in œsophagus, acute sensibility of abdomen, skin colder, respiration and circulation difficult; the cyanosis extended over whole body; skin became insensible; and death occurred, with some of the symptoms of asphyxia, 4 h. after poison was swallowed. No lesion was found in gastric membrane; and intestines presented only those of typhoid fever. (*Ibid.*)

5. A. C., æt. 4, took ʒj by mistake just after a meal. He complained almost immediately of pain in throat; in 5 m. severe vomiting came on, and in 3 m. more violent purging, with great pain in bowels. Thirst was intense, and he drank large quantities of water. After ½ h. Dr. Keith found patient almost completely exhausted; countenance pale and rather shrunk, pulse small and rapid, extremities rather cold; vomiting had for some m. ceased, but purging still continued, though not so severely, passage being without pain and apparently involuntary; no complaint made on compression of abdomen; fæces had numerous streaks of a white slimy, emulsion-like substance, mixed with large quantities of clear glairy fluid, which kind of matter was also vomited; thirst continued unabated. At 4.30 he was found in a very restless state, tossing convulsively about, as if in pain; feet cold, pulse 130. At 5.30 pulse had risen to 150, and was very weak; feet and legs cold; he generally lay quietly on belly, but occasionally tossed about. At 5.45 pulse was so quick and weak it could not be counted; he lay in a lethargic state, sometimes drawing himself up as if in pain; disinclined to speak, and uttering no complaints. At 6.30 pulse was stronger but still very rapid, extremities warmer, vomiting had ceased, and he seemed more lively. At 8.15 he was found hot and perspiring, with pulse as high as 190. At 9.30 pulse was down to 120 and stronger; otherwise better. When seen next m. he was found to have had a good night's rest; pulse 116 and of moderate strength; countenance pale, though natural; tongue red, smooth, glistening, and dry in centre; throat red and sore, and voice husky. Next d. almost well. (*Edin. Monthly Journ. of Med. Science*, 1843.)

III. *Experiments on animals.*—1. a. The experiments of Landsberg and others upon horses show that these animals are but slowly affected by croton seeds, although the symptoms ultimately developed are severe and even fatal. The most striking of them are these: loss of appetite, frequency of pulse, debility, signs of abdominal pain, foaming or unusual dryness of mouth, grinding of teeth, short, quick, and laborious breathing, flatulent distension of abdomen, diarrœa, tenesmus, followed by paralysis of rectum, cold sweating, and death. The gastro-intestinal mucous membrane is found injected and softened, and the bowels are filled with a bloody liquid. In these experiments 10—40 seeds were given, but latter quantity only was fatal.

b. Orfila gave a dog ʒij of seeds, which had been beaten to a paste, and then tied œsophagus. In ½ h. animal made strong efforts to vomit, and in 1½ h. more lay insensible on his side. In another h. he was dead. Whole intestinal canal was highly injected, and mucous membrane of stomach had dark red colour. When paste was introduced into subcutaneous cellular tissue, it produced same general symptoms, but neither vomiting nor purging, and intestine was not found inflamed.

c. The action of the oil on dogs is very speedy and decided. Conwell found that a single drop caused a discharge from bowels within 40 m.; 12 dr. caused vomiting, and, on the animal being sacrificed, the whole intestinal canal was found inflamed. Five dr. injected into a vein produced vomiting, purging, debility, and—in 2 h.—death. The gastro-intestinal m.m. was highly inflamed.

d. In three instances Hestwig injected 3 or 4 dr. of oil into jugular vein of a horse. Immediately respiration became rapid and irregular, pulse almost imperceptible, muscles very feeble, and animal showed signs of pain, followed by apparent insensibility. After $\frac{1}{2}$ h. symptoms remitted, but in course of 3 h. more returned again. Death took place in 8 h. without there having been any disturbance of bowels. On dissection, alimentary tube presented no alteration, but heart was spotted with ecchymoses, and pericardium contained a large quantity of bloody serum. Lungs also were much congested.

e. The more recent experiments of Bucheim (*Virchow's Archiv*, xii, 1) correspond in their results with these. In no instance after injecting croton oil, either pure or from which the free acrid principle had been removed by alcohol, into the veins of an animal, was diarrhoea produced, or inflammation of the intestinal canal excited. Vomiting and the discharge of natural fæces were observed. (STILLÉ, *op. cit.*, sub voce "Oleum tigli.")

CUNDURANGO.

Gonolobus Cundurango, Triana. Condur plant of Ecuador. Nat. Ord., *Asclepiadaceæ*.

1. *Preparings*.—2. J. C. BURNETT, M.D., Dec., 1874, took ʒ dr. of tinct. several times a d. for 5 to 6 d. About 3rd d. appeared very painful crack in r. corner of mouth. As it got worse he left off drug, and crack healed in 2—3 d. A week later he repeated experiment with same result.

3. Feb. 12th, 1875, took in e. ʒiv of a fresh infusion, and repeated dose twice next m. In e. discharge of a good deal of glairy mucus from nostrils, alternating with unusual feeling of dryness in Schneiderian membrane. Took another ʒiv. 14th.—Repeated dose 3 times. 15th.—Has had restless dreamy sleep, urine scanty. Took ʒj twice. 16th.—Has had a very bad dull headache all d. along top part of brow, and front of hairy scalp. Last n. there appeared two large pimples, like incipient boils, on front of l. thigh; they are withering to-day. 17th.—Headache went off early last e.; on rising begins this m. slight sharp distinct pain in heart, no anxious feeling with it, lasting only 2 m. or so, and followed by passage of flatus. At 10.30 a.m. took ʒj. 18th.—Felt a little nausea yesterday; was uneasy in n. and slept badly. Slight headache at top of forehead for 2nd 2d h. At 11.10 a.m. took ʒij. 19th.—A poor n., much sneezing; a little nausea; urine high coloured, and loaded with phosphates; dull pains across small of back; a few erythematous blotches in face. Feels miserable, and does not care to take any more of drug to-day. 20th.—Feeling well again, took ʒiv at 10.30 a.m. 21.23, slight vertigo, with touch of headache as before, full and prurive feeling at bridge of nose. P.m., besides this pain in l. then r. scapula, dull and continuous, and constrictive pain at heart. 22st.—In m. headache; slight nausea as from r. hypochondrium; urine thick; is told he does not look well. At 11 took ʒv, and at 12.40 remainder (about ʒiiss) of infusion. 23rd.—A very bad n., much sneezing about, yet feels rested in m.; lips unusually red; dull feeling in forehead; dull, heavy, continuous pain in l. scapula; does not feel well. At 11 a.m. took ʒj of a fresh and apparently stronger infusion. In e. noticed a

large pimple on scalp. 23rd.—Bad n., especially towards m.; sense as if forehead were very hot and high, with dull feeling there. At 10.30 a.m. took ℥ij. P.m., small painful pustule at tip of tongue. 24th.—Pustule has broken and discharged, spot slightly painful; three small ones on face this m., and many on thighs. Schneiderian membrane at times very dry, nose stuffed up, and then great discharge of mucus; almost constant dull sensation across forehead; urine scanty, sexual appetite depressed. At noon ℥ij. No symptom.

25th.—Feeling quite well, took ℥j of tinct. at 12 m., and ℥ij at 10.30 p.m. P.m., painful foul-smelling catarrh. 26th.—Pustule on tongue, and several on various parts of body. About noon, several times, quite severe pain in r. hypochondrium lasting for several m., similar but transient pain in l. scapula and tongue. At 5.50 p.m., ℥ij, at 7.50, ℥ij. At 7.10, pain in r. hypochondrium; 4.5, heaviness in l. forehead. Several blotches on anus appeared on 28th, and on March 5th several small pustules on face and upper chest. 28th.—Blotches and pustules still present, but fading. Feeling quite well, began fresh intrusion with ℥ij jom. In 10 m. stuffed feeling in nose. 28th.—Sound slumery sleep; nose slightly uncomfortable; lips unusually red; slight transient pain in l. scapula. Took ℥ij twice a.m. 2.40.—While lying in m., once or twice felt sharp pain behind l. shoulder, and now while writing peculiar tingling in l. fingers for 10 m. 24th.—Rather had frontal headache all d. 25th.—Some small conical warts unusually large, and seem fresh and red; blotches on arms still visible, and a new one on riivicle; dreamy n.; slight headache. 26th and 29th.—Two dewdrops full of fresh intrusion. 30th.—Dreamy n.; urine scanty; slight frontal headache; blotches, which had faded, now red again, and two new ones have appeared. Drug very repugnant to him, and could take no more. April 24th.—Blotches on anus gradually getting pale, but still visible; has had a good many indolent pimples; throat sore for weeks past, tonsils slightly enlarged, but no redness; peculiar stiffness in nose for some time. (*Brit. Journ. of Hom.*, xxviii, 401).

1. Sept. 15th, 1877, I commenced taking gr. j of 3rd trit. of C. 3 times a d. for 3 d. On 5th d., at 10 a.m., I was seized with violent pain in l. temple, which spread over upper part of brain for side of head, feeling as if someone was pulling up upper part of skull with one half of brain; very great dizziness on stooping or turning head; pain increased up to 6 p.m., at which time it abated; after which I visited a patient, and returned to my office. At this time there were objects before my r. eye resembling black serpents, jumping in all directions. On closing l. eye found I could not see; it seemed as though I was looking through a dense fog. At 7.45 p.m., I had my eye examined by two physicians, who could not discover anything wrong. At this time the appearance before the eye was like two black horns, with large black hairs on the upper ends, and a mound of reptiles between them, their tips tapering off and tipped with black. Oct. 1st.—When I awoke in m. obstruction in front of the eye appeared of shape of a pear with the large end up. Looking towards the light it appeared red, and on looking from the light it appeared purple. and.—Black spots have nearly disappeared; had the appearance of curled hair before r. eye, and a blur before the l. eye which made letters run together. 1st.—I had my eye examined by an oculist, who found my retina very much congested. But before eye continued to diminish in size from 11 to 4, until Jan. 1st, 1878, so that I could see tolerably clear; up to which time I was not able to recognize anyone in the street with my l. eye closed. The drug also produced itching in throat, which extended to stomach, with great burning in stomach; feeling of soreness all over body like rheumatism, and especially through l. shoulder, and under l. scapula. (J. R. DINSMORE, M.D., *Med. Mon.*, viii, 65.)

3. Oct. 11th, 1875, 10 a.m. Took 3 dr. of tinct. in ½ oz. water. 3 p.m., pulse slightly accelerated; took 3 dr. 3 p.m., feeling of fullness of stomach, pain in r. scapular region as if in bone, also pain about 4th dorsal vertebra. Took 3 dr. 5 p.m., no pain in spinal or scapular region; slight creeping pain along peristernum of r. humerus. Took 4 dr. 8 p.m., headache, frontal; rigors; tongue feels as if burned; pulse slower than natural. Took 4 dr. 12th.—Had n. of intermittent sleep; no fever or nervous excitement; when awake, languid, with pulse slower than natural. Urinated several times during n. with urging. 13th.—At 11 a.m., stool, small, papaceous, without any sense of aid from sphincter muscles; some mucus mingled. There is now urinary feeling, not quite a pain, in (I should judge) the iliac region. (I notice several chronic blotches on my skin are no longer visible. Also a puffiness

of hands and feet, that I ascribe to various causes, without knowing the real one, has subsided.) Took 5 dr. 5 p.m., no noticeable symptoms other than a weary ache in l. kidney. Urinate frequently. At 9 p.m., 4 dr., itching of both legs along anterior and outer tibial region; pain under apex of scapula. At 10 p.m., 4 dr. Dull headache in frontal region; increased pain in l. scapular region; cardialgia, flatulæcæ; rigors; pain in ball of left eye. Took 5 dr. 14th, 6 a.m., slept last n. as if narcotised, and awoke about 5 a.m. with severe cardialgia, which continues. Took 4 dr. 9 a.m., great itching in scapular region and on legs. Stomach-ache less. Apparent increased strength of legs when walking. Urinate frequently. Took 5 dr. 4 p.m., pain in stomach so intolerable that I took $\frac{1}{2}$ gr. sulphate of morphia. 15th, 9 a.m., had a narcotised sleep last n. from the alkaloid; pains gone; there is stranguary (imputed also to the morphia). Took 5 dr. 11 a.m., much itching of skin on shoulders, over sternum, and on anterior surface of tibiae. Took 5 dr. 9 p.m., have urinated frequently. There is dizziness and confusion of mind, much itching of skin; an acrid burned feeling of tongue; uneasiness of bowels; constipation; occasional starts of pain through kidneys; great stiffness of muscular system. Took 5 dr. 16th, 9 a.m., no appreciable effect from last dose. Took 10 dr. 17th, 8 a.m., since about an h. after taking last dose, severe gastric pains, mostly at cul-de-sac of stomach; pulse small and slow; tongue coated brown; skin tinted brown; sight much dimmed; still urinate frequently, at times with unusual quantity. (H. E. DIXON, M.D., *N. Engl. Med. Gaz.*, 2, 435.)

CUPRUM.

Including *C. metallicum* (precipitated from solution of sulphate); *C. arsenicum*, $Cu(C_2H_3O_2)_2$, H_2O , verdigris; and *C. sulphuricum*, $CuSO_4 \cdot 5H_2O$, blue vitriol.

I. *Provinge*s.—1. HAHNEMANN, *Fragm. de Viribus*. Contains 29 symptoms obtained by self from sulphate, and 38 from authors mainly from acetate.

2. ILM., *Chronic Diseases*, 2nd ed., part iii of original, vol. of translation. Contains also symptoms from a pathogenesis of acetate published in *Archiv*, iii, and from patients taking triturated metal; while 154 of the total 397 are from authors, recording effects of various salts.

II. *Poisonings*.—1. Five children ate of confectionery in which a considerable amount of copper was detected. The following symptoms appeared:—Unquenchable thirst, headache and giddiness, nausea, dryness of mouth, frequent vomiting of a fluid partly yellow-brown, partly blackish-green, severe tormina at region of navel, suppression of urine, slight tension of abdomen, which was tender on pressure, obstinate costiveness with constant tenesmus, pain in small of back, cold extremities, cold sweat. After vomiting had somewhat subsided, nervous symptoms were superadded, of which the chief were,—very severe headache, slight delirium, tearing pain in upper and convulsive movement in lower extremities (particularly calves), great exhaustion and somnolence (in 3 approaching to coma); countenance at parts red, at parts very pale. Pulse in 4 was very small, contracted, and slow; in 1, a plethoric boy, it was hard, full, and quick, with red face and dry skin. One had 6 attacks of diarrhœa, another 1 attack of vomiting of blood and mucus. All recovered, but 3 weeks later one had jaundice, and another a tertian intermittent, with periodic diarrhœa. (BERG, *Oest. Med. Woch.*, 1842.)

2. A girl, æt. 24, swallowed 2 oz. of verdigris. After severe vomiting, colic, and convulsions, she died 60 h. afterwards. *P.M.* showed yellow colour of skin, body stiff, mouth firmly closed, eyes half shut, nails blue. In abdomen omentum inflamed, bowels coloured green, distended with air, in some places gangrenous; stomach, especially towards pylorus, green, and much inflamed, gangrenous in one spot near pylorus size of half a crown, cartilaginously contracted. Intestines filled with green excrement, here and there inflamed and gangrenous; this extended to rectum; liver in its upper thin border slightly inflamed. In thoracic cavity, diaphragm near œsophagus inflamed; lungs in their upper part posteriorly inflamed, full of blood; heart and large vessels full of clotted blood. (*Præf. Somm. v. Aufs. a. d. Staats-Arzt.*, viii; from Wihmer.)

3. A soldier swallowed at 4 p.m. 1½ oz. verdigris in 4 oz. water. Soon violent tearing pain in scrob. cordis. Brought into hospital he was delirious, had weakness and convulsions, limbs and body stiff, jaws closed. After *emetic* vomited stuff mingled with verdigris, thereafter the bad symptoms disappeared; after 3 h. complained of dysphagia, thirst, and pain in abdomen. Next d. fever, distended abdomen, constipation. 2nd d., belly still distended, headache, heat, hard pulse, and dysphagia. 3rd d., sweat, passed urine and fæces, and was then well. (*M. DUVAL, Diss. sur la Toxicol.*, 1806; from *Ibid.*)

4. A man, æt. 44, swallowed at midnight 4 drachms verdigris in water. After ½ h. violent pain in belly, copious vomiting and diarrhœa lasting till 5 a.m. Brought into hospital he got gum, milk, and clysters. After 3 h. expression sad, eyes deep set, tongue moist, mouth doughy, anorexia, hawking, coppery eructations, violent thirst, small regular pulse, 80. At 2.30 p.m. vomited green mass, at 4 p.m. jaundice. All n. colic and vomiting, 3 stools, followed by relief and sleep. Next d. skin very yellow, countenance calm, tongue grey, mouth doughy, taste coppery; abdomen retracted, little sensitive to pressure, pulse regular, stronger, temperature normal, head heavy, slight deafness. He got Vichy water and whey and emollient clysters; during d. 4 greyish stools. 3rd d., same symptoms, general malaise, intense thirst, turbid, dark red urine, with yellow sediment. 4th d., all symptoms relieved, appetite returned, only general weakness remained. Next d. jaundice gone, and he recovered. (*ORFILA, Toxicologie*, sub voce.)

5. A soldier, æt. 29, swallowed a quantity of paint containing verdigris, lay down and fell asleep, soon woke with violent pains in belly. He lay on his back with head drawn back, very restless; cried out often, but could not speak in consequence of trismus and spasm of throat; abdomen distended, painful to touch; stomach occasionally contracted; pulse small, contracted, but regular, expression anxious. Recovered after mucilaginous drinks. (*R. PARISSE, Gaz. de Santé*, 1820.)

6. A man, æt. 30, swallowed ½ oz. verdigris. He vomited green stuff. Complained of violent bellyache, frequent urging to stool, stomach very sensitive to touch, violent thirst. Pulse small, quick, contracted, respiration accelerated, face expressed much pain. Then there came on violent cramp in calves, both big toes were drawn tetanically towards sole with the most violent pains. He got the whites

of 10 eggs and warm water. This caused renewed vomiting. In 1 h. all the symptoms had declined; there remained only great exhaustion and tendency to cramp in toes. After a restless n. he was sufficiently recovered to be able to walk 6 miles. (WITTCKE, *Med. Zeit. v. Ver. f. Heilk. in Preussen*, vii Jahrg., No. 25, 179. 1838.)

7. A man, æt. 54, took at 1 a.m. 3 to 4 gr. verdigris in coffee. After 1 h. dull pain in umbilical region, followed by nausea and vomiting of green stuff. One h. later came into hospital. Very violent pain in umbilical region, not affected by pressure, tongue green, pulse contracted, respiration accelerated. From 11 a.m. till 2 p.m., voluntary, green and fetid, liquid stools. 2nd d., free from pain, only quick pulse and red cheeks. 3rd d., bruised pain in limbs and constipation, which went off in 3 d. (RENAULDIN, *Jour. univ. des sc. mèd.*, xvii, part 1, 118. 1810.)

8. A lady, æt. 67, her daughter, æt. 39, a maidservant, æt. 22, ate a fricassee of fowls that had been cooked in a badly-tinned copper pan with water boiled in a copper pot. E. and n., mother and daughter had violent retching, contraction and dryness of mouth, thirst, violent pains in epigastrium, and colic followed by several watery whitish stools. Next m. these symptoms continued, and, in the case of the daughter, became so bad that she had continued anxiety, general convulsions, painful and hard swelling of abdominal parietes, and repeated faintings. The mother had coppery eructations, violent colic with urging to stool, and liquid greenish stools.—Feb. 2nd, e., mother had much heat and dryness of mouth and intestines, metallic styptic taste, painful feeling in epigastrium, frequent colics and repeated greenish diarrhoeic stools, painful distension of abdomen, anxiety, general prostration, palpitation of heart, weak and irregular pulse. The maidservant had the same symptoms, but stronger pulse, more violent colics and more frequent diarrhoea of the same character. The daughter suffered in the same way; she had coppery eructations, intolerable pains in epigastrium and abdomen without diarrhoea, bad headache, faintings, cold sweat and a contracted, small, irregular pulse. They all recovered by taking walnut-wood charcoal. (BERTRAND, *Rec. périod. de la Soc. de Méd.*, lii, pt. 4, 363. 1815.)

9. A large party (50) became ill after taking sausages fried in lard that had acquired a green colour from having been kept for 2 d. in a copper vessel. Thirty-one of these cases were observed. Traces of copper were found in their urine. Three of them were taken ill in the n. with extremely violent colicky, cutting pains, which caused constriction of abdomen, severe headache, cold skin; soon afterwards violent vomiting of green, bilious masses, and from 10 to 20 loose stools. Next d. weakness, prostration, 3 to 5 diarrhoeic stools; the following d. they were well. The remaining 28 were attacked 2, 3, or 4 d. later. Those first affected showed chiefly symptoms of the digestive organs; those later affected had more symptoms of the nervous system. In the former the symptoms commenced with colicky pains across abdomen, not much aggravated by pressure; many had great sensitiveness of epigastrium and a constant burning pain, or feeling of internal heat, nausea, in some repeated vomiting of yellowish-green mucus;

most had constipation; tongue in some red, in others moist with white or yellow fur, great thirst, no appetite, severe pain in frontal region, with pale, collapsed features; skin warm and dry; pulse moderately quick, or normal, soft. After 1 to 2 d.—generally after taking medicine—diarrhoea with remission of the colic, the abdomen became lax, the vomiting ceased, and the nervous symptoms appeared. Those later attacked were in the first days quite well, and then they gradually complained of increasing weakness and prostration in limbs, with vertigo, heaviness and pain in head, anorexia, constipation; occasional transient slight drawing pains in abdomen, collapsed features, staggering. In this period the symptoms assumed a typhoid character; great confusion of head, such intense vertigo they could not sit up in bed, sometimes headache, restless sleep disturbed by dreams, sometimes slight delirium or constant stupor, in some increased to a completely comatose state; in others complete sleeplessness, pale face, with expression of great prostration or stupidity, eyes deep set and dull, pupils dilated, feeling of extreme prostration and weakness, in some amounting to fainting; tongue in the milder cases moist and pale, or only red at borders, in most red, dry, rough, pupils dilated, thirst great, no appetite, even loathing of food; abdomen soft, painless, only a few slight colicky pains; stools—generally after medicine—diarrhoeic, skin warm, often covered with profuse sweat, pulse slightly accelerated, small and weak, urine turbid and jumentous. These symptoms lasted from 6 to 10 d., and went off gradually. The last symptoms to leave were the vertigo and confusion, the weakness continued still longer. One case terminated fatally; this was a girl, æt. 4. On the 3rd e. after the dinner she complained of headache, and looked weak and dejected. That n. and the next she had constant vomiting, first of what she had eaten, then of a greenish-yellow slimy fluid. Next d. she was extremely weak and exhausted, face pale and fallen in, skin soft and cool, pulse small and weak but not quick, tongue moist, with white fur and red borders, abdomen soft and painless, constipation. Very frequent vomiting, generally after drinking anything. The 6th d. same state, with still greater exhaustion, pulse scarcely perceptible, cold clammy sweat, petechiæ on skin, especially on chest and arms, brown furred tongue, abdomen tympanitic. On this and previous d. frequent epistaxis; intellect not disturbed. Died in e. P.M.—Cerebral membranes normal, cerebral substance somewhat drier and firmer than usual; lungs healthy, a bronchial gland swollen and tuberculous. Heart normal, in both ventricles soft coagula. Stomach empty, its m.m. very red in patches; intestines pale, the solitary and Peyer's glands rather swollen, the mesenteric glands swollen. (LANGENBECK, *Deutsche Klinik*, No. 39, 418, 1851.)

10. A lady and her 4 daughters partook of soup cooked in a copper vessel. After 2 h. all five were attacked with violent and horrible pains in stomach, followed by violent convulsions affecting chiefly the abdomen and extremities. They then screamed loudly, like howling or the croaking of frogs. They raised themselves up in bed, and their movements could not be restrained by strong attendants. Their reason was quite deranged, they appeared frightened and endeavoured to escape,

their eyes sparkled and seemed to be coming out of their head. They had a wild look. The attacks were so frequent as to be almost continuous. When one was attacked, as soon as the others heard her screams they became furious and were attacked in the same way. The mother and youngest daughter recovered nearly completely, but their abdomen remained painful, hard, and tense, their stomach remained weak, and they had constant pains between the shoulders, in elbows, houghs, &c., with relaxed state of all limbs. Their look is distraught, but their intellect and speech normal. But they are still subject to fits, which come on quite unexpectedly. (*COSMEE, Jour. de Méd.*, iii, part 4, 263. 1755.)

11. A lady partook of some food seasoned with pepper which had been pulverised in a mortar which had been used for pounding blue vitriol and not properly cleansed. She complained of colic and anxiety, woke at midnight feeling as if stiff all over, hands cold, face swollen, red, with large drops of perspiration on it, eyes staring and dim, tongue swollen, stiff, and as if paralysed, pulse full and hard, breathing short and laboured. An emetic was administered. After vomiting several times she complained of dreadful burning and cutting in abdomen, precordial anxiety and throbbing and roaring in head; extreme want of power of collecting thoughts, she spoke much nonsense. She got milk to drink. At 4 a.m. fell asleep and woke somewhat relieved and could think better, but next d. could not hold up her head nor stand on her feet, and felt burning, cutting pains in bowels. It was the 3rd d. before she could go about alone. (*WILLICH, Baldinger's neues Mag. f. Aerzte*, vii, part 2, 118.)

12. May 22nd, at 5 p.m., I was called in haste to see the family of Mr. B—. Finding 5 or 6 patients ill, with vomiting and other violent symptoms, I at once inquired what articles had been eaten at dinner. Was informed that nothing more than usual was taken except a dessert of cream-puffs, which had been purchased of a confectioner that d. It was afterwards fully proven, as then suspected, that these cream-puffs had been cooked in a copper kettle not thoroughly cleansed. In all there were over 30 persons affected by eating them; all violently, in the same manner, and with no perceptible difference in those who had eaten but a part of one. Mr. B—'s family dined at 2 p.m. The poison manifested itself in the younger children as early as 3.30, but by 6 p.m. all were suffering violently, except 2 young ladies who had eaten the dessert, and who escaped with only a taste of copper in the mouth and some pain in the limbs. The symptoms of the other 12 were as follows:—Violent vomiting of greenish water, coming on suddenly, and attended by copious greenish diarrhoea, and violent pain in bowels; feeling as if intestines were drawn into knots, in most cases continuous, in some paroxysmal, with inclination to draw knees up, and press hard upon bowels. With 3 of them this vomiting and diarrhoea became bloody, excessively bloody in one instance, though these 3 had but little pain in bowels, and much more cramping in limbs. In 2 cases (children) stools were involuntary during collapse; one of them bloody, the other not. The majority of them had involuntary passage of urine. The vomiting was attended in each case by burning nausea arising from

stomach to throat. Even the children complained of this. After the above symptoms had continued for from 30 to 60 m., they sank into a semi-unconscious state, voice very faint, eyes half open, fixed, glassy, not sensitive to light, pulse very weak, in some quickened, in others slow, difficult to arouse, and when aroused, complaining of cold and of violent pain in the abdomen, the older being aroused by nausea to vomit, the younger vomiting without arousing, frequent singultus, often loud enough to be heard all over the house, the patients being unconscious. In one case the vomiting was followed immediately by a succession of sharp cramping spasms in the chest, causing the young lady to scream out. During this collapse the patients were covered with a cold clammy sweat, especially on the forehead, but would lie quietly, only moaning—cheeks and eyes sunken, bluish hue of face, and lower jaw hanging down. This stage lasted from 1 to 3 h., and was followed by reaction; the patients still complaining, however, of occasional severe pain in bowels, and vomiting. Now thirst appeared, and as I permitted ice, they ate it continually without any bad effects, though the stomach ejected everything else. It did not allay the vomiting, however. As the pulse rose and they became warm, violent cramping, paroxysmally, in the calves appeared—in two cases drawing one limb sideways and backwards, but always relieved by rubbing. They opened their eyes, the body became warm, and they rested quietly, but not asleep. Throughout the whole attack, with the exception of the lady who had the spasms of the chest, there was not the least restlessness—they seeming too weak to move a finger. From this time the danger seemed to have passed, though some of the symptoms remained for several d., as, for example, taste of copper; occasional cramp in bowels; in one case, vomiting of what had been eaten for breakfast, though at no other time; weakness and pain (aching) in limbs; no movement of bowels (in any) for 6 or 7 d.; very great desire for acids, they want nothing else; and, of course, great exhaustion. There was one characteristic symptom experienced by every one, from commencement of attack to time of collapse, namely, severe pressing pain from temples in a straight line to angles of lower jaw, as if a stick or splint were on each side, crushing face inwards. Equally marked was the burning and nausea arising from stomach to throat. One adult lady had, when first attacked, an uncontrollable desire for camphor, to which she has always, heretofore, been peculiarly averse. The collapse in this same lady lasted for several h., and she says that the only thing she remembers during that time is an imaginary slight of her physician. The severe symptoms seem to have all passed off in about 10 d., leaving the patients in their usual health again. (C. W. BREYFOGLE, M.D., *Med. Inv.*, viii, 481.)

13. Woman, æt. 18, was brought into hospital Jan. 24th, having swallowed solution of sulphate on 18th. In 5 m. she had vomited, and then took salt and water, which promoted the vomiting considerably; throat became very painful and felt burnt, and abdomen was swollen, tender, and painful. She passed a good n., but next d. had constant pain in region of stomach, and vomited everything, solid and liquid; there was also some diarrhoea. The vomiting, diarrhoea and abdominal

pain continued till d. of admission, when she was suffering chiefly from exhaustion; she had some pain in abdomen, and unpleasant coppery taste in mouth, nausea without vomiting, and diarrhoea; tongue white and furred; general exsanguined state of surface; pulse 150. After treatment, she lost by 27th all pain save headache, and recovered appetite. (TODD, *Lancet*, 1841-2, ii, 145.)

14. Woman, æt. 28, swallowed, Oct. 20th, large dose of verdigris. Very shortly afterwards she was seized with great anxiety, vomiting, acute pains and swelling of abdomen, sensation of burning heat in throat, coldness and severe cramp in extremities, oppressed pulse, swelling of face, sparkling eyes. Had an emetic. On 21st, at 2 a.m., deglutition very painful; hardness and swelling of neck; abdomen tympanitic, and painful on least pressure; countenance heavy; face flushed, pulse oppressed. Deglutition became more painful during d.; mucous membrane of mouth altered in appearance in several places; stiffness and swelling of neck notably increased; face and eyelids swollen and red, eyes prominent; abdomen flattened, but extremely sensitive, and rectum so painful that she could not bear an injection. On 22nd, tendency to coma was observed. Face was pale; lips swollen; gums ulcerated; copious discharge of viscid saliva. Neck had become softer, and many ecchymosed spots were observed on it. Copious stool, first since poisoning; some blood which was drawn showed inflammatory coat. She had several spasmodic fits. On 23rd, a quantity of viscid glairy matter was vomited, of greenish colour and tinged with blood; she suffered also occasionally from spasmodic attacks. On 24th, epistaxis and general cramps came on, and stool and urine were completely suppressed. P.m., whole body became cold, and convulsions supervened, which lasted till e., but abated on occurrence of free evacuations by stool and urine. On 25th, she was somewhat better and able to pronounce a few words. On 26th, ulcers of mouth began to heal. On 27th, she vomited some greenish, glairy matters, but from this date gradually amended, though complaining occasionally of epigastric uneasiness. (GUILLO, *Journ. des Conn. Méd.-Chir.*, 1843.)

15. *a.* Aug. 25th, 1783, a lady, æt. 17, ate 3 or 4 oz. of pickled sapphire which had become impregnated with copper. Being very thirsty soon after, she drank about $\frac{1}{2}$ pint of vinegar. In e. she complained of pain in stomach, and perceived a rash upon hands and chest. She went to bed early, feeling indisposed, and slept little during n. Rash almost entirely disappeared before noon of 26th. She was troubled at times with shooting pains over whole body, particularly on r. side, and was dejected, restless, and very thirsty. On 27th, pain and thirst continued; she had longing for acids, and was much troubled with flatulence. Pulse was frequent and small; tongue covered with white fur; and she passed several d. without a stool. During operation of a laxative pain removed from r. side to l., and she felt a great and universal soreness. On 28th, symptoms continued without abatement. On 29th, pain in side became extremely violent; in e., however, it was alleviated, and never afterwards returned with much severity. On 30th (m.) sickness came on; she vomited at intervals during d., a hiccup usually preceding retchings. The vomit was not offensive, con-

sisting chiefly of the liquids swallowed. Retchings were incessant on m. of 31st; a quantity of sapphire was thrown up; all discharges were of green colour, very offensive, and tasting of copper to patient. Hiccup was frequent, and always occasioned vomiting.

8. The above history was given by her medical attendant. When Dr. Percival saw her the discharges by stool and vomiting were extremely offensive, latter of dusky green colour, and acid to patient's taste, though not perceptibly so to nostrils of bystanders. Stomach was enormously distended with wind, and exquisitely tender to touch; hiccupping almost incessant; pulse quick, tremulous, and irregular. After treatment symptoms abated, but in 24 h. vomiting recurred, with great inquietude; extremities became cold; pulse weak and fluttering; countenance ghastly; and she expired early on m. of Sept. 3rd. Body was opened same d. There was about a quart of brown, fetid liquor in stomach; internal coat was inflamed and gangrenous, particularly about cardia and pylorus; and this appearance extended some way down duodenum. (PERCIVAL, *Trans. Roy. Coll. of Phys.*, lii, 80.)

16. Five persons partook of a pudding containing verdigris. Two women became sick in 15 m. The most prominent symptoms were severe headache, and (subsequently) vomiting and purging. After these had in a measure subsided tympanites supervened, which in one woman was very distressing, her abdomen becoming tense as a drum, but it soon subsided. Associated with the above was coppery taste in mouth; and they were followed by severe numbness of legs and arms, accompanied with great trembling, especially of hands, which incapacitated them from holding anything with safety. A girl of ten was not attacked till next d., when similar symptoms came on but less severely. The nurse, an old person, was not affected till 3rd d.; but her convalescence was slower than that of the others. (ARMSTRONG, *Medical Times*, x, 495.)

17. A lady drank water from a copper kettle, in which analysis proved presence of metal. She came under treatment Dec. 20th, 1858, suffering from slight sore-throat, total loss of appetite, restlessness, great thirst and other feverish symptoms, sickness, and considerable enlargement and hardness of r. cervical glands. Had observed the swellings for some d. Treatment seemed useless and symptoms increased; she took to her bed, vomited every kind of food about 20 m. after taking it, suffered greatly with tenesmus, with scanty, dark, pulpy motions, urine scanty, skin clammy, pale, and doughy-looking. Pulse was quick and thready; abdomen slightly tender over its whole surface; mouth sore, with little blisters on mucous membrane; face swelled and pasty; expression anxious and state of exhaustion extreme. The cause of the mischief (the poisoned water) being removed, she vomited but once after; the tenesmus ceased; the swelling of the glands, which had levelled the neck with the jaw, slowly subsided, as did the soreness of mouth and other symptoms; and by beginning of February recovery was complete, though she remained weak until the middle of March. During recovery stomach remained sensitive and impatient of any but the most bland and simple milk diet; and the effects of some articles of food were curious, acids of any sort, fruit,

fec., giving the tingling sensation of a galvanic current to the mouth and teeth. (*Amvor, Med. Times and Gaz.*, 1859, i, 265.)

18. A man, æt. 26, placed some copper coins in vinegar, and allowed them to remain there for a week. He drank the vinegar about 4 p.m. Oct. 25th, 1828. At 7 he was found stretched senseless on floor, and was immediately brought to the Hôtel Dieu. On admission all muscles were agitated with violent convulsions, limbs remaining rigid in intervals. There was much difficulty in supporting patient. Teeth were firmly closed; breathing short; pulse hard, small, and very slow; stomach tender on pressure, which produced violent convulsions. Warm water forced down throat, and tickling pharynx and uvula with a feather, had no effect. He drank in intervals between convulsions, and in $\frac{1}{2}$ h. came to himself in some degree, and explained cause of poisoning. White of eggs in water was given; convulsions ceased at once, but hiccup continued during part of n. In m., pulse was large, slow, intermitting; belly contracted, hard, and very sensitive all over to slightest pressure; slight convulsions in limbs; general lowness, taciturnity, and pallor; pupils dilated; tongue soft, moist and pale. In e., worse; extreme agitation, with colic, dyspnoea, hiccup, and a hard and contracted pulse. Urine scanty and scalding; hard stool after a third clyster. N. bad. 27th.—Much better; pulse soft; no abdominal pain; urine free, and a liquid stool passed with clyster. In 10 d. digestive functions were re-established, and all bad symptoms disappeared. His moral condition, however, had not improved; he still continued taciturn, immobile, with pale countenance and dry hot skin, sleeping but little. (*Land. Med. Gaz.*, iv, 155.)

19. A lady was in the habit of using injections from a brass syringe which proved to be coated internally with verdigris. She suffered on one occasion from vomiting and purging, attended with some griping and colicky pains in stomach and bowels, and sense of constriction in throat. Stools were copious, watery, and dark; urine scanty; thirst urgent; pulse small and irregular; surface cold and bathed in perspiration; great prostration of strength. She suffered more or less in the same way every time she used the instrument. (*Lancet*, 1869, ii, 426.)

20. Dr. J. P. SIMON inhaled vapour of a hot aqueous solution of sulphate, and dipped hands in it. "I began," he writes, "to feel uneasiness between shoulders, with headache, shivering, and occasional pain in epigastric region. I became pale, and had vertigo with prostration of strength and dim sight; papillæ of tongue became tumefied and horribly annoying. I first thought I had scalded my tongue with hot broth; but the symptoms increased, tongue became ulcerated in centre and considerably swollen on each side, and it was furred as if spermaceti ointment had been spread over it; fauces also became tumefied and inflamed, while roof of mouth was studded with spots as in measles, with swollen gums and slight ptyalism.

8. "I was obliged to discontinue my experiments. After a time I renewed them, though I had often had a copperish, cold, subacid taste, particularly on opening my mouth to inhale fresh air, and although after having washed my hands the water would become blue from the sulphate absorbed into the system. I dissolved 2 or 3 lbs. of the sulphate

in the usual way, and on the 2nd d. of experiment began to feel headache and uneasiness about fauces and soft palate. There was considerable itching and sudden feeling as if I was going to faint. I looked in my mouth, and saw as well as felt that the symptoms were fast returning." (*The Chemist*, 1840, p. 380.)

27. Mr. B.— placed $\frac{1}{2}$ oz. of verdigris in a pot, and two leaves of false goldleaf (copper in leaf) in another, poured upon each about a spoonful of nitric acid, and stirred very assiduously. Soon afterwards he felt burning pain in r. ring finger; this increased every moment, and affected whole hand with burning pain and swelling, which soon subsided, but then flew into l. hand, and a few m. afterwards into insides of legs, as if scalding water had been thrown on them. His stockings being immediately pulled off, there appeared a great many red spots, as large as sixpences, somewhat raised above skin, and all covered with very small blisters. In about 2 h. after accident I first saw him; he was very uneasy, complaining of pain and great anxiety at pit of stomach, as if a burning hot iron were laid upon it. Pulse was regular but slower and weaker than natural; he had nausea, and complained of a very coppery taste and smell. I ordered some alkaline volatile medicine, and to drink small suck whey. He vomited once and had 4 or 5 stools, and then his stomach grew easy; but the scene soon began again with lancinating pain in l. eye. He was kept in a sweat, by which he found some ease at n.; but whenever the sweating lessened the burning pains returned in broad flakes, changing from one part of the body to the other, with shootings, sometimes in eye, sometimes along penis. Pulse same. In several places spots similar to those of legs came out. On 3rd d., after sleeping well, pulse was better, and he continued easy till about 11 a.m., when the burning pains returned, shooting from place to place, but always superficial. Rubbing part affected gave ease; and when sweating ceased, and burnings and shootings became insufferable, I put him into a bath of hot water with some wood ashes, which gave him great relief. This p.m. he felt violent burning pain in his great toes, and sometimes in his l. hand, with shootings up to the shoulder. Once he cried out in great pain that his shoulder was burst, for he felt something fly out with a sort of explosion; but I found nothing particular on examining the part. He observed when the staky burnings began they were as if they kindled from a point, and flashed like lightning. He was very often tormented with such pains at pit of stomach; and this evening had shootings through back with pain in belly. He complained of a strong sulphurous suffocating smell, though his breathing seemed easy, and his lungs in no way affected. In n. he was seized with great pain about heart, and cried out violently that his heart was on fire; but after taking a dose of nervine medicine, and being put into the bath, he was soon easy. Pulse was not disturbed during the attack, but remained slower and softer than usual. 4th d., he complained most of toes, and now and then of burning pains in forehead. 5th and 6th d., same as regards toes (l.); but in e. pains in stomach returned, which lanced to l. side, with dartings inwardly. 7th d., nothing particular except his feeling, with sharp pains, a spark (as he called it) to fly out of his r. cheek, as on shoulder

previously, but less sharply. No pain there before it, but after it a soreness lasting some d. 9th d., he began to get out of bed, but was often seized with glowing pains, suddenly, affecting different parts of body, seldom continuing an h. in one part. He continued to be troubled with these in less degree for a long time.

Patient recovered health and strength, yet after this was often subject to nervous ailments, and became sensibly affected not only by smell of paints, but even handling of some kinds of metallic inodorous bodies gave him anxiety, tremors, faintings, and many other uneasy symptoms. (MOUNSEY, *Phil. Trans.*, l, 19.)

22. C. S.—, æt. 18, a copper-plate printer, was admitted July 3rd, complaining of severe colic. He stated that while sitting reading on the previous e. he was suddenly attacked with acute pain in abdomen; he felt "just as if someone had struck him violently in the belly." The pain, which he described as a "dead pain, increasing every now and then," had lasted 14 h.; it was increased by pressure; bowels acting; felt very sick. Had peculiar sallow, almost clay-coloured complexion, and anxious expression; lips livid and eyes sunken; tongue tolerably clean, but round gums is characteristic purple line of copper poisoning. He has been a copper-plate printer for 2 years; in cleaning the plates he inhaled a good deal of greenish dust-like verdigris. He had two similar attacks before this; the 1st, in October, lasted a fortnight, the other, a month ago, lasted 3 d. 7th.—Better; no more colic, only a little pain when bowels act (from medicine); face less sallow and anxious looking; purple line well marked. 10th.—Looks still better. On 14th dismissed cured, but line on gums still distinct. (HARLEY, *Lancet*, 1863, ii, 129.)

23. A patient came under my care with a dark green line on edge of gums, and a similar stain along at least half of each tooth. He was a coppersmith. His general symptoms, which were of a chronic character, were vertigo, gastrodynia, flatulence, dyspnoea, frequent vomiting, some degree of wasting, and a peculiar coppery taste; tongue moist and flabby, pulse hard and full. The workmen in the factory (15 besides himself) all complained of lassitude and giddiness, and a disinclination when not at work to take exercise or to go about. Some were exceedingly thin and pallid. All had a greenish stain on their teeth, varying from a light bright green to a dark greenish brown. Their perspiration had a bluish green tinge. (CLAPTON, *Med. Times and Gaz.*, 1868, i, 658.)

24. A man, æt. 33, employed at copper-smelting works, was admitted Sept. 7th with circumscribed pain in epigastric region, frequent vomiting (especially after food); occasional hæmatemesis, loss of appetite, soreness of gums (which had a slight blue line apparent), and looseness of teeth. Had been ill for 6 months, and this was 2nd attack within 15 months. Has got much thinner, looks haggard, and feels very depressed. Under treatment he gradually improved, and was discharged convalescent in a fortnight. [Two other precisely similar cases follow.] (CAMERON, *Ibid.*, 1870, i, 581.)

25. A man, æt. 27, arrived in Boston Nov., 1855, and engaged himself to a coppersmith. About middle of March, 1856, he first

noticed deviation from his uniformly good state of health; but some time previously he had occasionally noticed peculiarly sweetish taste in mouth, and slight constriction in fauces, with sense of nausea. Symptoms of which he now complained were, peculiar sense of weight, weakness and oppression in epigastric region, disagreeable and nauseous taste in mouth, failure of appetite, constipation, ultimately becoming very obstinate, general languor and prostration. These symptoms were soon followed by cardialgia, morbid sensibility of epigastrium and hypochondria, sinking, disposition to remove some offending substance from stomach (without nausea), and epigastric palpitation. These were soon followed by neuralgic pains in various parts of body, paroxysms varying in intensity and duration, more persistent in head and hips than elsewhere; great weakness of hips and lower extremities; giddiness; numbness of different parts of arms and legs, which under certain circumstances was attended by intense pricking pains in various parts of body; peculiar sensation of r. hand and forearm, consisting in sense of constriction and of great increase of size, it seeming to him at times to be larger than his whole body, and its motions not fully under the control of his will; also a difficulty in urinating, consisting in a painful inability, requiring considerable time and effort to relieve the bladder; shortness of breath; occasional paroxysms of coughing unattended with any physical signs of disease of lungs; great wakefulness; profuse night-sweats; rapid emaciation; and great depression of spirits. When first seen (May 17th) he presented no striking indications of illness except some pallor and thinness of face, but he detailed the above symptoms. Tongue was coated with a light brown or cream-coloured fur, except edges and tip, which were clean and of pale red colour, whole tongue being moist. Gums were lax and spongy for about $\frac{1}{8}$ in. from teeth through nearly whole extent; he had occasionally spit blood from mouth, especially on rising in m. Pupils abnormally dilated, insensible to strong light. Pulse 58—62, moderately full and regular, but weak. The spongy gums were so retracted from teeth as to leave a narrow bevelled surface through their whole extent, and on this was a delicate shade of red purple. (SALTER, *Bost. Med. and Surg. Journ.*, lv, 121.)

26. The watch manufacturers at Besançon, who continually handle gold and copper, are very liable to phthisis. The symptoms the men suffer from are,—paroxysms of fear, pulse frequent, skin hot, throat dry; most of them complain of pain in epigastrium, in region of kidneys, and in head; many suffer from indigestion and diarrhoea; and others have feeling of constriction and acute pain in throat. Teeth are in all such cases coloured more or less green and almost bronzed. These symptoms are especially striking in the apprentices, who are almost exclusively occupied in filing copper. In many cases the symptoms take a severe form; acute colics, fever, burning thirst, vomiting, diarrhoea or obstinate costiveness, are observed. Nutrition also is mostly impaired, muscles are badly developed, complexion haggard, look miserable.

The continual absorption of small doses of C., and its local and direct action, the frequent repetition of toxic and febrile symptoms, and the cachexia at last produced by it, are the causes of the prevalence

of consumption among these men. (PERRON, *Med. Times and Gaz.*, 1861, li, 488.)

27. Copper produces in the workers in it a form of enteritis, of which the chief symptom is a colic with remissions. The workman beads himself double to relieve it; the belly is tender on pressure; there is headache and inclination to vomit, diarrhoea or constipation; vomit consists of bilious fluid, first stools are often green; fever is frequent, there is often lassitude. (BLANDET, *Gaz. Méd.*, 1845.)

28. J. M'D—, æt. 17, had been employed for 2½ years in a Venetian blind manufactory to mix "Olympian green"—which is carbonate of copper—with turpentine, and to remove the paint from old blinds with sand-paper. His skin has a pale chlorotic look, and the gums round the incisors, canines, and bicuspids, especially of lower jaw, are a bright maroon colour. The gums are somewhat retracted and slightly ulcerated. There is great emaciation and weakness but no local palsy. For last 6 mos. he has only had one stool a week, and has been seized every 3 or 4 d. with fits of fierce pain round navel, relieved by pressure and disappearing by stool. With the pain is loathing of food and occasional vomiting. He is distressed with a constant cough, but there is no evidence of tubercular or other disease in lungs. He suffers much from chilliness, almost amounting to ague fits, which sitting by the fire does not relieve, but it brings on weakening sweats. (MAPOTHER, *Med. Press and Circular*, 1870, i, 465.)

29. MAISONNEUVE states that working in pure metallic copper without heat causes no bad symptoms; but in heated rooms particles of oxide and cupric salts in the air may cause disturbance. The symptoms he has observed are,—very intense dyspnoea with laryngeal and bronchial spasm; colic, which may be accompanied by vomiting or diarrhoea; pain in upper and middle abdominal region increased by pressure, sometimes limited to pit of stomach, sometimes a little lower down; occasionally some fever. The attack is generally over by the next m., rarely extending over 2 or 3 d. (*Arch. de Médecine Navale*, Jan., 1865.)

30. From chronic poisoning with C. SCHOLTZER reports complete lameness of r. hand; r. arm in constant pronation, hand bent at r. angle to arm, thumbs drawn into palm, fingers flexed; motion of elbow remains good, but in hand, especially in joints of fingers, extension is impossible and flexion only partial; upper extremities much emaciated, r. more than l., r. hand nothing but skin and bone. (*Deutsche Klin.*, 1859, p. 194.)

31. Some people on board the "Vestal" had been taken suddenly ill. On 6th one man was seized in an instant with a dulness, stupidity, and headache; he fell down and struggled so hard that it required six men to hold him; he shortly became delirious and behaved in the most extravagant manner. On 7th several more men were seized, and on 8th to the number of 16 more. They are all at times outrageous and mad, they snap with their teeth at those who hold them and struggle very much. One fancies himself a captain and gives orders accordingly; a second calls out, "Ground ivy to sell;" a third, "Old chairs to mend;" one spits in your face and laughs; one is very merry and sings; his neighbour is surly and ill-natured; and another mopes in a corner,

stupid and insensible. They all have their lucid intervals, and they complain of pains in the bones and of headache. Pulse during the fit is full, quick, and strong; then sweat breaks out and it becomes soft; their eyes appear red and inflamed; their looks are wild, their speech incoherent; they sleep little. None complain of gripes and few of nausea. At the first several vomited, but no immediate relief followed. The people are chiefly seized after dinner. The whole recovered in 2 or 3 d. Dr. R— attributes these attacks to the copper vessels used in cooking their food. A few months afterwards the like malady prevailed in the "Adventure" and was attended by the same odd symptoms. The copper vessels were found to be very foul, and on remedying that fault the disease stopped and about 15 who were seized with it recovered. (RAMSAY, *Mrd. Obs. and Exp.*, ii, 1.)

III. *Experiments on animals.*—1. Having tied the œsophagus of a healthy pigeon I injected 0.1 gm. of neutral acetate into crop, dissolved in 2 gm. of water. In few m. began violent oft-repeated retchings, and shivering all over body; soon after greenish-grey fœces passed; next straining to vomit, then more green fœces, quick respiration, growing constantly louder; violent shivering and wavering of whole body, till, in a few m. more, bird collapsed; opened and shut mouth continually, with very laborious breathing; then died. *P.M.*—The crop, which contained some grains of tartar, had a blue fluid in it; a thin membrane of a greenish blue was easily drawn off from the underlying muscular coat; œsophagus coloured blue outside, and in glandular stomach there was a bluish-green greasy mass; intestines much reddened, vessels strongly injected, showing themselves dichotomous, on some spots red is dark; lower intestines filled up with white greasy mass; kidneys distended with blood; liver brownish-red, very full of blood, as also lungs; spinal cord was affected,—at least hyperæmia of its sheath is unmistakable. A second pigeon, which had 0.5 gm., exhibited similar symptoms. (KOCK, *N. Z. f. h. M.*, xvii, Nos. 20, 21.)

2. Into another pigeon 1 gm. of same was injected in 15 gm. of water. Shortly commenced efforts at vomiting and convulsions, soon followed by actual vomiting. Breathing was quickened and distressed, audible; fœces as before; bird shivered, sat on ground, and jerked wings (apparently in convulsions); eyes were fixed, and head often quivered; 2 h. after administration, quite exhausted from want of breath, and shivering, it let its head sink and died. *P.M.*—Crop, œsophagus, and stomach as in 1st case; m.m. of intestines quite eroded and softened, peeling off in bluish-green bits, especially in duodenum. Kidneys and liver hyperæmic; peritoneal coat of both greenish. Bronchial tubes look green, as well as their continuations in the lungs; inner surface of larynx much eroded, with bluish membrane sticking to walls. Blood-vessels of brain exhibited much blood, brain itself normal. Investing membrane of cord less full of blood than in others. Fluid dark red blood in heart. (*Ibid.*)

3. Another pigeon had 2 gm. in 18 gm. of water. After 5 m. breathing at once became difficult, so that whole body began to shiver; this grew worse and worse, and bird seemed anxious to vomit, but did not succeed. Hard fœces then passed. It seemed catching at air,

eyelids opened wide, with pupils fixed and motionless. The whole body shivered; convulsive twitching of muscles was perceptible, and also alternate dilatation and contraction of pupils; respiration kept getting weaker, muscles seemed quite paralysed. Pigeon fell on its side, and soon died. *P.M.*—Throat somewhat reddened, contained mucus; no alteration of m.m. of alimentary canal, but intestines covered externally with numerous dichotomised vessels. Kidneys, spleen, and liver full of dark blood, as also heart and lungs. Membranes of brain covered with vessels tolerably full; on cutting through brain specks of blood are seen, and sheaths of cord also contain much blood. (*Ibid.*)

4. *s.* A rabbit received subcutaneously 0.06 grm. in 6 grm. of water for 5 d., and 1½ cgrm. for 6 d. more, without any symptoms. From 12th to 15th d. 3 cgrm. Animal has lost its sprightliness; it steps slowly and with difficulty, generally remaining sitting in one place, and seems to have lost appetite, while it drinks more. From 16th—22nd d. 6 cgrm. Its pace becomes still more difficult, almost dragging hind feet; daily amount of urine diminished, and traces of copper discovered in it by testing; much thirst and sleepiness; sudden starting and shivering all over. For 2 d. 12 cgrm. daily. Extreme languor and emaciation; 2 boils; r. hind foot drawn up spasmodically, l. dragging behind; traces of albumen in urine, which is scanty. On 25th d. 18 cgrm. Walking very wearisome; l. fore foot drawn inwards and disabled; total loss of appetite; shivering all over; head always moving from before backwards; breathing very quick; feces no longer compact and globular, but soft and long; albuminous urine. On 26th d. 24 cgrm. Animal lay prone; head sinks, but is raised now and then, only to fall back again; respiration very rapid, mechanical convulsive gasping; constant jerking and shivering of whole body; eyes closed; no urine. On 27th d. I found it lying dead in same position, only rather turned to r., in a semi-fluid green pus, which it had probably thrown up, whilst hind legs and belly were wet with liquid feces.

6. *P.M.*—Muscles anæmic and thin; lungs hyperæmic in slight degree; heart full of clotted blood, with septum of l. ventricle four times as thick as r.; liver very large, full of blood, and very firm; gall-bladder full and dark green; scalpel, in dividing liver, gave sensation as of being met with some resistance, with crackling feeling as if it were cutting through a number of slender threads. Stomach and intestines natural. Spleen small, very hyperæmic, and shaped like a leech; kidneys externally pretty large, not particularly full of blood when cut; under microscope urinary canals were filled with immense quantity of small granules, which was fattily-degenerated epithelium detached from canals. Membranes of cord somewhat hyperæmic, those of brain normal. (*Ibid.*)

5. A second rabbit was treated similarly, receiving on 20th d. 24 cgrm. Symptoms as before; want of breath now clearly indicated; thorax rises and falls so fast that it looks like a shivering of the whole body; head is raised and falls again to ground; r. fore foot is stretched forwards; animal falls prone, rocks from side to side, and dies on l. amidst frequent jerkings. *P.M.*—Muscles as in first case; lungs in

lower lobes normal, in upper externally dark red, almost brown; when cut through a little blood issued, but more froth and serous fluid; heart, in both ventricles and auricles, contained congested black blood, septum of l. ventricle notably thicker than that of r. Vessels of retina much injected. Stomach and intestines normal; liver, not particularly large or hyperæmic, showed as in first case, scalpel meeting with resistance in cutting it, with crepitation, so that organ must be considered "granulated;" spleen somewhat larger than in first case. Membranes of cord were here also hyperæmic, and cord itself on section showed insignificant specks of blood. Kidneys somewhat larger, but on section not so pale as in former case; still there was some evidence of fatty degeneration of cells in urinary canals. (*Ibid.*)

6. *a.* The general effect of C. is, as Orfila, Blake and Neebe found, especially exerted upon the muscles of the trunk and heart. Harnack obtained the following results from the introduction into the body of a double salt, the nitrate of copper oxide and of sodium,—this salt being chosen because it does not produce clotting of the blood in the vessels. In frogs subcutaneous injection of 0.0005 to 0.007 gram. was followed in a few h. by muscular paralysis preceded by trembling. Muscular irritability was entirely lost without rigor mortis setting in. In warm-blooded animals there is unsteadiness in gait, weakness, and finally complete paralysis. The pulsations of the heart and the respiratory movements become extraordinarily weak and slow, as if about to cease entirely; the pupils become dilated. Although direct muscular irritability is destroyed, yet sensation and the functions of the central nervous system remain undiminished until death. Rabbits die after the subcutaneous injection of 0.5 gram., dogs from 0.4 gram.; but when injected direct into blood, former die from 0.01 to 0.015 gram., latter from 0.025 gram. It is a curious fact, that whether the double salt or the albuminate were used, it was observed that even when injected directly into the (jugular) vein it was hours before the physiological effect manifested itself.

6. Since the direct introduction of this drug into the blood of dogs caused no vomiting, while the introduction of even small doses by the stomach did excite it (Dalezky, Harnack), it seems probable that the emesis is the reflex result of the irritation of the nerves of the m.m. of the stomach. (NOTHNAGEL and ROSSBACH, *op. cit.*, sub voce.)

7. Lauder Brunton and West (*Barth. Hosp. Reports*, 1876) have experimented to ascertain whether cupric salts cause vomiting by irritation of the stomach or of the vomitive centre in the medulla. Into the jugular vein of cats they injected a neutral albuminate (which would not cause coagulation of blood), and retching and vomiting followed. Previous section of the vagi did not prevent the retching, but it did prevent evacuation of the stomach, and after section of the vagi and the splanchnic nerves neither retching nor vomiting occurred; hence they concluded that these symptoms depend upon gastro-intestinal irritation, not upon a direct excitement of the central organs. (PHILLIPS, *op. cit.*, sub voce.)

Cuprum arsenicosum. — Arsenic of copper, $CuHASO_2$, Scheele's green.

1. *Proving.*—1. a. Dr. Gao. S. FOSTER took gr. $\frac{1}{2}$ of 2x trit., March 26th, 1868. On 27th, tongue heavily coated brownish-white; feels irritable and peevish; constipated; dark spots before eyes; dizziness; dull heavy aching in occiput; general feeling of dulness in head; debility; no appetite.

8. On April 5th repeated dose. Twitching and jerking of facial muscles of l. side, between eye and corner of mouth, which was quite violent. 6th.—Two similar doses. Tongue much coated; dizziness; black specks before eyes; much flatulent eructation. 7th.—Very restless; nervous (or rather, nerveless). 8th.—Tongue coated white; breath bad; much itching of scalp last n. At 12 a.m. repeated dose. Peculiar tremulousness of tongue, with coolness of same, metallic taste; tongue white; itching of scalp in e. 9th.—Took $\frac{1}{4}$ gr. Tongue still white, at back very thickly coated; fullness of head, slight darting pains in temples. 10th.—Tongue same; rumbling in bowels, with sharp quick pains low down. 13th.—Severe pain under lower angle of l. scapula, worse when moving or breathing, cannot take full breath without aggravating it; tongue same. Pain lasted till 15th, with oppressed feeling about chest, as if constricted. (Dr. BLACKLEY'S provings, *Hahn. Monthly*, iii, 519.)

2. Dr. R. C. SMYDLEY took, Jan. 1st—5th, 3—30 gr. of 12th trit., with only feeling of weakness (once), cutting pain in stomach while eating (once), and distensive rolling sensation in brain, as if he would fall forward, after reading, going off in open air (once). From 10th—12th took (in all) 75 gr. of 9th trit. without effect, save aggravation of a chronic itching on arms and legs. From 14th—17th took (in all) 245 gr. of 6th trit. P.m. on 17th urine had strong odour, like that of garlic. At 5 p.m. 6 gr. of 3rd trit. Nausea in e., with lameness of back. 18th.—Woke with nausea and bitter taste; stiff lameness in back, returned while sitting after exercise. Took 26 gr. in 3 doses today. Besides these symptoms, sense as of gentle rotary motion in head after study; further aggravation of itching, made worse by scratching, and accompanied by small thickly studded elevations; in e. boring pain in r. ear; sharp pain in temples, worse in l.; pain in r. lumbar region and anterior portion of r. thigh; chilly feeling over entire body, skin sensitive to contact with clothing, which produces chilly creeping sensation. Slight garlicy odour of urine. 19th.—Felt better on waking; unusual thirst, easily satisfied; cold food relished more than warm; lumbar lameness still continues. At 10 a.m. took 15 gr. of 3x trit. At 2.30 p.m. twitches of pain in r. upper and l. lower posterior molars. On 26th took 15 gr. of 6th, on 27th 60 gr., on 28th 190 gr., on 29th 80 gr. without effect, save slight nausea, and a little unsteadiness in head after studying. Thirst and itching remained unabated for several weeks after last medicine was taken. Itching had never been more than slight previously; now it was intolerable, requiring "raking," so as to convert it into a soreness. (*Ibid.*)

3. Dr. BLACKLEY himself proved 12th, 11th, and 10th potencies;

and seemed to have from all considerable temporo-frontal headache, with soreness of bones of head and face. (*Ibid.*)

II. *Poisonings*.—1. Two children, a girl, æt. 4, and a boy, æt. 2½, were suddenly seized in m. with violent sickness and vomiting of a light green substance, like bile diluted with water. The second time they vomited the mother observed amidst ejected matters some hard particles, which proved to be portions of an ornament containing arsenite of copper, which they had eaten that m. Both continued vomiting same green fluid every 10 or 15 m. during d., apparently returning copious draughts of water which intense thirst caused them to ask for continually. About noon they complained of pain in bowels, followed by copious but natural stools, after which pains abated. About 5 p.m. ipecacuanha was given, with draughts of tepid water. This increased vomiting for a time, same bilious fluid being more copiously ejected. Hydrated peroxide of iron was given, after which they were sick a few times only. For some time prior to this feet and legs of both were gradually becoming cold, pulse faltering at wrists, faces deadly pale. Hot-water bottles were applied to feet, and they were wrapped in blankets; shortly after this they sank into a quiet and easy sleep, vomiting having entirely ceased. They suffered much from thirst the following n., with slight flushings of face, but next m. seemed well, save that girl complained of headache, and boy had trifling reactive fever. (*BALLEY, Med. Times, xix, 507.*)

2. A boy, æt. 3½, refused his breakfast, felt chilly, and was sick. At 10 a.m. he was seized with convulsions, for which he was put into a warm bath, and they soon passed off. At 11 he was in a semi-comatose state, face placid, skin warm; bowels had acted several times, stools passing involuntarily, watery, bilious, and very offensive; no abdominal tenderness. In e. it was reported that slight convulsive twitchings of facial muscles had been observed; he had been more feverish but now was less so; had not been sick; bowels less freely open. Next d., 7 a.m., another child (a girl) had been seized with convulsions with violent shrieks, and some dysentery. First child was almost in state of asphyxia, skin cold, pulse feeble, face livid. He improved under stimulants, but p.m. was again seized with a severe tetanic convulsion, and from that time alternations of repose and convulsion (amounting sometimes to perfect opisthotonos) continued till he died at midnight, 38 h. from commencement of attack. P.M. Dejections from boy in napkin were deeply tinged with bile; those from girl were of deep yellow colour. On inner surface of stomach, at cardiac end, there were small red patches. Contents of stomach were 3v of chocolate brown fluid, of consistence of gruel. A patch of large intestine was redder than usual. (*METCALFE, Lancet, 1860, ii, 535—536.*)

3. A girl, æt. 14, took ¼ oz. She was seized with severe symptoms, and brought to the hospital after 1½ h. On Dr. Schaefer's arrival, vomiting had set in, vomit depositing a green sediment. She had sunken eyes, trembling of limbs, great thirst, burning sensation about throat, malaise; spat up mucus streaked with blood; gastric region tender, and touching it gave great pain; pulse 132. Later, there was pain in calves. Vomiting was encouraged by warm water and hydrated

oxide of iron given, of which the first doses were vomited. After 2 h. she was no worse. As she had not urinated for 4½ h., the urine was drawn off. Except headache, no other symptoms occurred on 1st d. She gradually improved, and on 4th d. had regained her appetite, but on taking food she had a sensation of pressure in region of stomach. Dismissed well on 9th d. (*Zeitschr. der k. k. Ges. der Aerzte zu Wien*, March 8th, 1858.)

CURARE.

Indian arrow-poison (composition unknown).

I. *Proving*.—1*. ANNIE B. TAYLOR, in perfect health, normal pulse 72, temp. 98½°. *o.* Proved 3x trit. Aug. 6th, 1883, at 10 p.m. took 2 gr., and repeated dose at 7 a.m. and 7 p.m. next d. At 4 p.m. pulse was 90 and temp. 99°. Repeated dose on following d. at 7 a.m., 12 m., and 7 p.m., and so continued daily till m. of 15th. On 8th at 2 p.m., pulse 90; eyes very heavy, can hardly keep them open; yawning; cough in paroxysms, dry, harsh and hollow, irritation seems deep in chest, at base of lungs, no expectoration; cough makes face red, and causes shattered, torn feeling in head, as if parts would fly to pieces. At 3 so drowsy she could not keep awake, and slept for 3 h. At 8 headache over r. eye, extending to vertex, sharp and darting, came on after eating, remained for 1 h., then suddenly disappeared. 9th.—Very restless n., head hot and confused. Pulse this m. 88. At noon, head feels large and confused; darting pain through temples, worse on r.; coughing causes shattered, torn feeling, sides of head must be held together; moving head, unless very gently, causes same sensation. Very pale all d., with dark circles round eyes. At 6.30 p.m. very chilly, teeth chattered, chills running up back and then into extremities; chill came on after eating, lasting ½ h., followed by high fever—she was burning up with heat, face purple, eyes very red, hot, and sensitive to light, could not keep them open; headache very severe all over, all vessels seem throbbing. At 8, pulse 110, temp. 101°; on trying to walk, limbs felt unsteady, gait as of one intoxicated. Fever lasted till nearly midnight; no thirst with it, and appetite good; headache was congestive, worse after eating, and from motion, light or noise, better from pressure and quiet. Slept only from 12 till 4. 10th.—In m. pulse 86, temp. 99°. Weak, tired feeling all d.; no desire to do anything; limbs, especially lower, feel weak; l. foot and leg go to sleep when sitting still. Frequent sneezing; several paroxysms of coughing p.m., with usual effect on head. 11th.—Dry, harsh, hollow cough, worse after 3 p.m. till midnight, violent, shaking whole body, but head most; lungs feel dry. 12th.—Woke at 4 a.m., cough as on previous days, and in e. sharp darting pain through chest, now at

* The ladies who took part in these provings (conducted under the superintendence of Dr. C. Wenschhoef) were all students of medicine in Boston University, and did not know what drug they were taking. The drug employed was obtained from Merck, of Darmstadt.

base. 13th.—At 8 p.m. pulse 98, temp. 100°. Cough very troublesome in afternoon and e. Continues to wake every m. at 4. 14th.—Weak tired feeling all over; no appetite, bitter taste, tongue white; eyes dull, pupils contracted. At 3 p.m. head confused, heavy and dull, difficult to hold it up, it feels better when lying down; there is dull heavy pain in it, with sense of great weight on vertex; mouth tastes insipid; half-nausea constantly; great aversion to bread; stomach feels collapsed. At 8, pulse 90, temp. 99½°. Great depression of spirits, inclination to tears, wants to be let alone; occasional temporary pain in bowels, causing faint sinking feeling; no strength in limbs, legs tremble when walking. Sick all n., pain in bowels every few m., restless and weary. Took no more medicine. Diarrhoea after 1 p.m., preceded by pain, causing faint sinking sensation, stools milky white, sometimes like half-beaten eggs. No appetite, great aversion to bread; feels weak, tired, depressed, cannot sit up; great weight on vertex; eyes look dull, pupils contracted, dark circles under eyes; tongue thickly coated yellow, mouth tastes bitter. Had 20 discharges during d.; no thirst; pulse in e. 68, temp. 98°; bowels feel sore and bruised, and must be held during coughing and walking. 16th.—Had 8 discharges during n.; less pain, but feeling of faintness during and after stool; stomach still feels collapsed; empty feeling in head; great effort to talk; eyes feel better closed; pale, sallow face; no hunger or thirst, no strength to sit up; bowels feels sore, bruised, and trembling. Had 8 more stools during d., without pain; in e. weak, collapsed feeling, could not sit up, dizzy when trying to hold head up; frequent sighing, great depression, do not care to talk or think, wish to keep perfectly quiet. 17th.—Had 5 stools in n. Weak to-day, but no pain, cough better, and more appetite. 18th.—All symptoms better. She has lost 4 lbs. since taking drug. Menses came on a week too early, with pain—gripping in r. ovary, bearing down in uterus, dragging, tired, in all pelvic organs, severe (causing faintness) in lumbo-sacral spine, running down thighs. Flow scant and very dark, lasting 3 d. only, instead of 5; headache—as from weight on vertex—and dull, dragging pain in pelvic organs all the time, with at first loss of appetite, nausea and giddiness, and frequent micturition, and very weary feeling for several d. after flow ceased.

b. Oct. 29th, having been well in interval, resumed proving with same potency, taking 2 gr. m. and e. up till m. of Nov. 3rd. On 1st d. nothing but violent sneezing (6 times). 30th.—At 3 p.m., eyes heavy, great drowsiness; at 6, sore bruised feeling in l. lumbar region; throat full of white mucus, difficult to detach, and causing suffocative feeling by its presence. 31st.—At 3 p.m., pulse 92, temp. 100°. Headache over r. eye, sharp darting pain, at times very severe, lasting 20–30 m., leaving confused feeling; worse from motion, better in open air. At 8, still headache, worse after eating; very sensitive, least annoyance brings tears. Nov. 1st.—Bowels uneasy, rumbling and loose in early m. At 1-30 p.m., headache on r. side, half dizzy feeling, face red; tongue white; dry, hacking cough, causing shattered sensation in brain. 2nd.—Awoke at 4 a.m. At 1 p.m. great drowsiness. 3rd, 2 p.m., cannot study, head feels confused, dullness of intel-

lect, weak memory, thoroughly discouraged, feels cross, least thing irritates, does not wish to talk or have anyone talk to her; longs feel as if she had taken a hard cold. 7, severe neuralgic pain in r. temple, running through head to spine; head painful all over, feels throbbing, congested, large, strained, confused, and so heavy that she cannot hold it up; pain extends down spine, hot burning sensation between scapulæ; deep sighing; eyes feel hot and sore, hurt on movement, sensitive to light; face very red, with dark circles under eyes; darting pain through lungs; feels weak and exhausted all over, stomach as if collapsed, limbs nerveless; nausea and vertigo; urine scanty, brickdust sediment. 4th.—Sleep restless and troubled; head still feels confused and large, with darting pain through r. temple to base of brain; eyes feel badly, with wish to keep them closed; weak all over, and inability for mental or physical exertion; coughing affects head as before. 5th.—Dull, heavy headache, with great pressure on vertex; eyes sensitive to light, and with difficulty kept open; no appetite; weak, trembling feeling all over. 6th.—All symptoms less severe to-day.

c. In Dec., began proving 2x trit., taking 2 gr. twice daily from 2nd—6th inclusive. 4th.—P.m., tired feeling all over, with heaviness of eyes. 5th.—No sleep till after midnight, and awoke before 4. Head confused, great weight on vertex; felt too tired and ill to go to college. 3 p.m., headache severe, with throbbing of vessels; frequent, anxious desire to urinate. 7, headache harder through r. temple, and pain runs down spine; head very heavy, and weak, tired, languid feeling all over. 6th.—4 p.m., very low-spirited; head so confused she cannot study, memory weak; eyes sensitive to light; neuralgic pain in head extending down spine; hot sensation between scapulæ; no strength. 7th.—Same weakness, depression, inability to study. 8th.—Same; no appetite, stomach feels empty, craving for acids. Menses again 7 d. too soon; character, duration and concomitants as before (Aug. 18th).

d. Jan. 8th, 1884. Renewed proving of same trit., taking 2 gr. once on 11th, twice 12th—14th, 4 times daily 15th—17th inclusive. 12th.—No sleep after 4 a.m., in m. very sleepy and yawning for 1 h., with eyelids drooping. 3 p.m., dull, heavy headache, beginning over r. temple, gradually spreading over whole r. side, with feeling of weight on vertex; moving head hurts it, and causes shattered confused feeling; congested feeling, as if all blood was in head and face; at times darting pain shocking from temple to temple; lasted about 2 h. In e. for 10 m., chills running up back, with chattering, followed by heat and congestion to head with aching, lasting 1 h. 13th.—Sneezed several times. Weight on vertex; ptosis as before; tongue coated yellowish-white. 6 p.m., thoroughly discouraged and disheartened, sick of living, tired at everything, irritable, despondent; changeable disposition, jesting and laughing, then shedding tears. 9-30, chest feels constricted, and throat sore, as if she had taken a heavy cold; itching of skin; restless feeling. 14th.—Same catarrhal symptoms; eyes feel as though full of sticks; hands and feet cold; head large, later painful through r. temple to occiput, with heat on vertex; dry cough, shortness of breath. 15th.—Chest as yesterday. 8 p.m., eyes weak; tired, languid feeling; no ability for mental work; great weight on vertex;

bronchial tubes sore, as if inflamed; r. cheek very red, l. pale; dark circles under eyes; all blood seems to be in head; hands and feet cold. 9.30, pain between scapulae; hot sensation in cervical region; restless, uneasy, nervous feeling; stomach "collapsed." 10.30, hoarseness and tightness of chest has rapidly increased; dry, hacking cough; lungs feel raw, smarting sensation down bronchi; violent headache, throbbing all over, head feels enlarged. 16th.—Chest still constricted; tight dry cough; in e., hoarseness almost to aphonia; eyes feel strained, head enlarged; face very red; itching of skin, especially at n., on arms smarting also. 17th.—Breath short; a little excitement causes palpitation; dry, hard cough, lungs feel dry and sore, darting pains through chest; sighing; tired feeling all over, and inability to study; "fidgets" in feet; itching on arms; bloating about waist, especially r. side; urine scanty and full of sediment. 18th.—General lassitude of mind and body, as before; limbs go to sleep; eyes feel strained; hoarseness, short breath, sneezing. 19th.—Severe headache, pain in every part, great weight and pressure on vertex; nausea and vertigo. 6 p.m., faintness, even to blindness, coming on suddenly, lasting but a few moments, but leaving pain and "gone" feeling in stomach. Hoarseness; hands and feet icy cold, all blood seems in head; very restless feeling; itching all over; limbs go to sleep. Next period as last. (*Publ. of Mass. Ann. Med. Soc., viii.*)

2. Mrs. NUTTER, æt. 32, blonde, 2 children, in excellent health. e. Proved 3x str., taking 1 gr. twice daily for 5 d., once for 2 d. more (Nov. 7th—13th, 1883). 7th.—At 11.30 a.m. (drug having been taken at 7), dull pain along infra-orbital ridge, through temples, and about ears; ears felt as if filled with compressed air. Sensation as if atlas and axis had been prised apart; on rising to feet this feeling changed to sharp pain lasting but a few m. Headache all afternoon and e.; pain, at first shifting, finally fixed, in small spot in front of l. parietal eminence, where it was continuous and quite severe. 8th.—Soon after m. dose, and again at noon, severe attack of strong palpitation on going upstairs,—second time with great dyspnoea. P.m., on walking out in open air the same; and again, also, while ascending stairs in e., so breathless then for several m. that she could not speak. No real headache to-day but vague pain in r. temple; while walking severe pain in l. hypochondrium, and a few fine stitches there at n. in bed. 9th.—Soon after waking, similar stitches through middle of chest and about heart; slight l. headache. While walking fast pain in chest; and after doing so pain at 7th cervical vertebra for few m. Is becoming unusually forgetful. Epidermis above ankles becoming chapped (unwonted). 10th.—A most unbearable headache all d., beginning soon after breakfast in central and upper forehead and front of vertex, depriving her of all power of thought, aggravated by vigorous movement and by stooping. Dyspnoea and pressive pain in chest on going upstairs or bending forwards. During afternoon, while sitting, very strong pulsations in back, from neck to loins, for few m. Forgetfulness still marked. 11th.—Headache continues, but not quite so severe, but with general malaise. Dyspnoea on ascending increases, and a little palpitation is experienced. 12th.—Headache still, less severe;

frequent but not violent palpitation while walking on level ground; dryness of nasal mucous membrane and of cuticle; still forgetfulness. Menses anticipated by 8 d., flow profuse. 13th.—Heart pains now slight and wandering; pulse at 9 p.m. 55, and irregularly intermittent; after retiring felt strange sensation at heart with feeling of faintness. 14th.—Headache all d., but not severely; palpitation in walking also frequent but not strong; pulse 60 and more regular. 15th.—Palpitation, breathlessness, and fine needle-like pains in chest, of short duration, while walking uphill; pulse 50, irregular but not intermittent. 16th.—Same symptoms of head and heart, but slighter.

b. On Dec. 13th—symptoms having quite subsided, save that pulse has continued 48—55, and occasionally intermittent—began same dose m and e., continuing it till m. of 20th. 14th.—Empty and faint feeling at stomach 3 h. after m. dose; wandering pains in head during d., after meals decided headache, increased by motion. In e. (pulse 64) fine stitching pains for an h. in middle and lower sternum, thence penetrating whole lower chest. 15th.—Some palpitation and constant (temporo-frontal) headache, with nausea while travelling by rail. 16th.—Awoke free from headache but it set in again soon after breakfast. 17th.—Headache throughout d., worse immediately after eating, at times nausea with it. Feeling as of combined numbness and tingling, first in r. arm, then more general; noticed occasionally before, but now quite annoying; always accompanied by pain in basilar region. 18th.—Headache began during breakfast, from base of brain upwards, very severe, increased by mastication. Momentary attack of dyspnoea and pain about heart. 19th.—Constant headache, aggravated by eating; radiating from base to vertex and ears. 20th.—Some headache after eating, in all parts of brain. Numb-tingling feeling of 17th in all parts of body, especially r. arm and cervical region.

c. Took 2 gr. once on March 23rd and 27th, 1884, and twice on intermediate days. 23rd.—Bitterness of drug caused (now and subsequently) nausea for some little time, followed by empty faint feeling at stomach. 24th.—On waking pain in l., afterwards whole forehead, more severe at noon; at 3, occipital pulsations, strong throbbing of carotids, and confused dazzling feeling. In e., pulse (unaffected in 2nd proving) 54 and intermittent; slight temporo-frontal headache. Shortly after retiring, involuntary and uncontrollable rush of disconnected thoughts. 25th.—Woke at 7 a.m., with sick headache, faintness, weakness and general malaise, all so aggravated by motion that she had to get back to bed. Throbbing in head and body; headache sharp in temporo-frontal region, dull elsewhere, but more intense in occiput, and thence extending down between shoulders. Later, managed to get up; pulse 56, weak and lagging; temp. 98°; no appetite for breakfast, but after it gastric symptoms were relieved to a great extent, though not head, which was especially sore on movement; it was easier about 10, worse at noon, and quite bad for rest of d. After e. dose pulsations in all parts of body save feet. 26th.—Symptoms of yesterday m. repeated to-day, but less severely. First dose not taken till 2 p.m.; headache became more severe 1 h. later. In e. temp. 97½°, pulse 60. For last 3 m. unnatural dryness of nasal mucous membrane; and chap-

ping of ankles, as in 1st proving, has occurred. 17th.—Began d. with violent headache, situated as before, but sharp everywhere; pressure in epigastrium, also penetrating pricks there. Pulse 54, temp. 97½°; sick and weak all d.; some palpitation.

d. Since last proving entire lack of strength, wearied from least exertion. Menses occurred 6 d. before time. April 13th.—18th took 2 gr. twice daily. 13th.—After e. dose a transient headache (l. temple). 14th.—1½ h. after m. dose headache set in, with weakness and trembling of limbs; at first confusion and great tension in head, then sharp pains in forehead and l. temple, occasionally in r. temple and vertex, worse from stooping and motion; also sensation as if ears were filled with compressed air, and dull tingling pain along malar bones to temples (this lasted till e.). Headache reached climax at 11 a.m., and was worse again at 4 p.m. (with confusion of thought, weakness of joints, pulsation through whole body, inability to study or think, stupidity and sleepiness), and after e. dose (with weak tingling in arms). 15th.—Slight dull headache on waking, more severe 1 h. after breakfast (m. dose taken at 7); varied during d. and e., at times occipital pain would shoot down into neck; weakness and pulsations as yesterday; marked tenderness of feet. 16th.—Same history; also slight palpitation while walking, and several times fluttering in chest. 17th.—The same. 18th.—Did not take 1st dose till headache on waking had ceased (3 p.m.). After 1½ h. tingling of zygomatic processes, then dull pain crept through them, then pain and pressure in temples, and finally in occiput, vertex, and upper forehead. Weakness, pulsations, &c., as before; dryness of nasal m.m. and tenderness of feet (these every e.). 19th.—Behaved in same manner with final dose of 3 gr. In less than 1 h. steady keen pains in every bone of face, especially in zygomatic arch; then headache as usual but more severe; frequent quivering tremors; at times dyspnoea and precordial distress (noticed previously also); at n. sharp, steady pains 2 in. to l. of sternum, from 2nd to 5th intercostal space; heavy, uneasy, nervous feeling in arms and weakness of wrists. Pulse and temp. were throughout somewhat below normal standard. (*Ibid.*)

3. Miss C. F. Brooks, æt. 31, liable to attacks of throbbing headache, with sensitiveness to light and sound, otherwise in good health. a. Nov. 6th—12th, 1883, took 2 gr. of 3x trit. m. and e. No symptoms till 8th, when she felt very tired all d., with heavy headache, especially in forehead and eyes; had sudden hunger a short time before meals. 9th.—Same headache (till e.), tired feeling and sudden hunger; itching on arms and thighs m. and e. 10th.—Same symptoms, but hunger less and itching more severe; occasional swift needle-like pains through abdomen. 11th.—Itching intense, and hunger increased almost to faintness; menses anticipated. 12th.—Hunger same, itching less; unusual feeling of well-being.

b. Took same m. and e. Nov. 19th—27th. 19th.—In e. slight dull pains, shifting from chest to abdomen, and in latter on changing sides in bed, keeping on opposite side from that on which she lay. 20th.—Same palpitation and pulsation; had only to direct attention to any spot to feel latter there. 21st.—Uneasy dreams all n., woke several times, feeling as if someone were trying to arouse her; dull headache

in e., also fleeting pains in hypogastrium, with pressure and fulness in vagina. 22nd.—Neuralgic-like pains in temporal, cardiac, and hypogastric region at various times, with heavy pressure in vagina. 23rd.—Same, with itching on arms and thighs. 24th.—Same as yesterday; before dinner excessive hunger. 25th.—Sharp fleeting pains through chest and abdomen; muscles of l. thigh sore to touch; during e. almost constant pain in stomach and upper abdomen; itching as before. 26th.—Nervous hurried feeling all d.; forgetfulness; p.m., feeling as if severe headache were coming on, took long walk to prevent it, but after walking briskly for 15 m. became very dizzy when looking at near objects or at water, had to look far ahead to prevent reeling. Same sensations as before. 29th.—Same sensations. Felt excited and hurried all d.; made to laugh easily; all feelings, as of liking and disliking, intensified, so that their manifestation must be restrained.

c. Jan. 2nd, 1884, began again taking drug in same way, but was obliged to discontinue it on 6th d., because of the intense itching developed. This was felt chiefly on lower extremities, but somewhat on abdomen, head, and back. No other symptoms noticed.

d. Jan. 24th, itching having entirely subsided, began taking 2 gr. of 2x trit. m. and e., and continued this for 10 d. 25th.—Slight inability to fix thoughts, soon overcome by will; great appetite; slight itching. 26th.—Woke in m. unrefreshed, from laborious dreams. Some return of previous pains, fulness in vagina, and hunger. Burning spot on l. sole when shoe was removed at n., also for a little while next m. 27th.—Some pains and itchings. 28th.—General malaise, tired and stupid feeling, wearing off towards e. Again burning spots on feet and tenderness of callouses. 29th.—Woke with dull headache, which continued all d.; irritable, stupid, forgetful, unable to comprehend; tongue yellowish at base, papillæ raised, and bright pink anteriorly, with bitter or bloody taste in mouth; itching and hunger as before. 30th.—Woke tired, and continued so all d.; tongue same; occasional pains; burning spots and itchings as before. 31st.—Same in all respects; easily moved to tears or laughter; itching intense. Feb. 2nd.—Sharp stitches in various parts, especially l. temple; itching almost unendurable on thighs; felt hurried and energetic all d. 3rd.—Same.

e. March 17th, took same for 6 d. It brought back similar symptoms to those of former occasion, viz. some headache and backache; tired feeling; burning spots on feet and itching there and elsewhere; sharp pains at various parts, especially temples; pressure and fulness in vagina; dulness of mind; shortness of breath on slight exertion; intense hunger about 1 h. before meals; uneasy unrefreshing sleep; sore or "lame" spots in flexors of l. forearm. (*Ibid.*)

4. Mrs. R. A. LAWRENCE. a. Sept. 1st, 1884, began in e. course of 8 powders of 4x trit., one n. and m. 2nd.—On rising slight stiffness of muscles of r. neck and shoulder, lasting till 6 p.m. 3rd.—Nausea after e. dose for 1 h. Broken sleep during n. No other symptoms. 6th.—Began this e. course of 9 powders of 3x. 7th.—Sleepless after 2 a.m. After 3 p.m. dull frontal headache with feeling as of weight over eyes. Till 6 p.m. temp. 99°, pulse 76; later both normal.—8th.

—After breakfast sense as if band were about head, and heavy tired feeling from hips to knees. Former better by 10, but latter remained all d. 9th.—Languor and heaviness in legs when in motion for 3 h. 10th.—Pain in r. abdomen near hip while walking; pulse and temp. somewhat above normal height.

b. 22nd.—Began course of 10 powders of 3x, 2 gr. each, one n. and m. No effect save dull frontal headache and heaviness of limbs on 1st d., and occasional slight nausea on 3rd. On 30th began course of 9 powders of 2x, 3 gr. each, as before. Oct. 1st.—Slight pain in l. head, extending to forehead; pain in stomach, quite severe for a time. 2nd.—Early in m. stiffness and drawing of muscles of r. neck; later, fulness and distensive pain in stomach; occasional flushes of heat during d. 3rd.—In m. darting pains in abdomen; slight nausea. At 10 a.m. pain in l. shoulder, running down to elbow; heaviness of legs, r. feeling almost useless; at n. pain in l. head extending over both eyes, with weight at occiput; pain in abdomen near r. hip; could not sleep till 1.30 a.m.; following n. also very restless. Flushes increased on 4th, and lasted till 6th. 7th.—Took 7 doses of 5 gr. each at 3 h. intervals. Flushes increased in frequency, and persisted up to 9th. 12th.—Took similar doses every 4 h. Drawing pains in back of head, and stiffness of muscles of back of neck came on in n.; nausea and salivation next m., head feeling large and confused, with oppressive pains on its l. side, slight pain in l. leg, aching between shoulders up to neck. Dull pains through top of head, relieved by pressure. 19th.—Began at 7 a.m. to take 6 gr. every h. After 4 doses slight pains began in l. head and dull pain in forehead, with nausea and increased saliva; aching of thighs from hips downwards; puffiness under eyes. P.m., after an interval of 3 h. took 5 more doses hourly. Dull heavy headache, nausea increased; palpitation on lying down at 4; pain in both shoulder-joints; on lying down in bed heart-beats quickened immediately; at same time head felt full and large, and as if band were about it, with aching and pressure at vertex. On rising next m. weak heavy feeling of limbs, relieved by exercise. Nov. 1st.—Took during d. 7 powders, each containing gr. $\frac{1}{2}$ of C. Heaviness of head with sleepiness all forenoon; p.m., sharp pains in r. hand and arm, and over r. shoulder and hip; pain in l. head and temple; great increase in urine. 2nd.—Took similar powder at 6.30 a.m. During m. looseness of bowels, with slight pain at time of stool; urine copious and urgent, bladder feeling distended. 16th.—Menses having appeared on 13th, took powders containing each $\frac{1}{2}$ gr. every 3 h. till 2 p.m., then every h. till 10. Flushes came on in m.; sleepiness; pain and heaviness of legs; pain in l. head, extending over top, with dullness and heaviness at back; discomfort in abdomen with pain in r. side near neck; catamenial flow scanty during d., profuse and bright at n. 17th.—On rising, muscles of r. neck stiff. Menses as yesterday. Dec. 30th.—Received 10 powders (each containing $\frac{1}{2}$ gr.) to be taken twice on 1st d., 3 times on 2nd, and so on till used up. 31st.—Pain in groin low down, with heaviness in limbs while walking. Jan. 1st.—Stiffness of r. cervical muscles all d.; frontal headache; pain in r. iliac region as before; nausea after retiring. 3rd.—Dull headache in forehead and eyes in m.; uneasy feeling in

bowels; at 5 p.m. nausea and headache, heaviness at occiput; flushing in e. 10th.—Took powder, gr. $\frac{3}{8}$, every 3 h. Nothing but nausea, heaviness of limbs, and slight headache as before. (*Ibid.*) [It is noted that this prover was less sensitive than the others, less imaginative also, of calm and strong mind, and sturdy physique.—Eds.]

5. a. During Aug., 1884, I experimented with C. I commenced with the 3x tit., 2 gr. 3 times a d., continuing this for one week. The only symptom noticed was a ringing in the ears; this occurred several times, at different hours, and was at times prolonged and metallic. The dose was increased to 5 gr. 4 times a d.; but, as no other symptoms showed themselves, after a few d. I took the 2x in same way. Once or twice again I noticed the ringing, sometimes only in one ear, and this was the only symptom produced. At the time I was extremely fatigued from long-continued overwork.

b. After a season of rest, during which my health greatly improved, I made fresh experiments. Feb. 5th, 1885, took 5 gr. of 3x, without effect. 12th.—Three doses of 10 gr. each; no result. 13th.—One dose of same, 3 to 10 gr. of 2x. Two h. after 1st of these ringing in r. ear. 14th.—Three 10 gr. doses of 2x. Ringing in r. ear noticed once; about 5 p.m. slight dyspnoea (not worse for running) for 15—20 m. 15th.—Took one dose of 10 gr., and 2 of 15 gr. each without effect. 16th.—Took in one dose all he had left, about 31 gr. About an h. after sharp pain in front of l. ankle, as if joint had been wrenched or "turned" (which it was not). No other symptoms. (J. P. SUTHERLAND, M.D., *Ibid.*)

6. At leisure hours I took C. from the 4x trit. down to $\frac{1}{4}$ gr. doses, repeating each trit. 5—7 times before proceeding to the next in strength, and always allowing an interval to elapse to make sure of the expiration of drug-effect before taking the drug again. During all these weeks of proving and watching for effects, I am quite sure that none whatever occurred except after doses of $\frac{1}{4}$ gr., after which there was—twice only—a feeling of constriction of head, and of occipital pressure, lasting about 20 m. None of the functions were disturbed at other times; in fact, I never was reminded, by any ill-feeling whatever, of having taken a medicine. (C. WESSELHOEFT, M.D., *Ibid.*)

II. *Poisonings.*—1. PRYER has observed, as effects of triturating the poison, rush of blood to head, with transient but very violent headache; increased secretion of nasal mucus and saliva; bitter taste; remarkable weariness. From getting a few drops of solution into a cut on the finger, lachrymation; constant flowing of nasal mucus; mouth unable to hold saliva; a very unusual secretion of urine; the whole body covered with sweat. As effects of emanations while evaporating a solution, headache.

III. *Experiments on animals.*—1. a. When small quantities are injected into veins, subcutaneous tissue, or lymph-sacs, or applied to a wound, certain uniform effects are produced. The animals sink down and die without convulsions. First the head falls, and then the limbs give way. Respiration grows weaker, and soon ceases. The animal is incapable of voluntary motion, and does not react upon painful irritation. The heart continues to beat vigorously in frogs even for d.,

while in warm-blooded animals it ceases somewhat sooner, the mucous membranes becoming livid, and dark colour of blood indicating death by asphyxia.

b. Bernard and Kolliker have explained the chief effects of C. It does not paralyse the central motor organs; but the seat of paralysis is to be sought in the intramuscular terminations of the motor nerves. Interrupted communication between motor nerves and muscular fibre, by C. circulating in the blood, renders all voluntary or reflex motion impossible. Frogs are simply paralysed, while warm-blooded animals die of suspended respiration. As the heart does not suffer from the poison, asphyxia and death can be prevented by means of artificial respiration.

c. The heart's action is increased by paralysis of the terminal fibres of the vagi, hence it cannot be arrested by irritation of these nerves. The pupil does not dilate, nor is the saliva increased. The peristaltic motion of the intestines is undisturbed, and not arrested by irritation of the splanchnic plexus. The lymph-hearts of the frog are arrested in diastole. C. has no effect on muscular fibre itself; nor does it affect organs controlled by ganglia within their parenchyma.

d. Besides the motor fibres, the secretory nerve-fibres are affected, as shown by profuse lachrymation, salivation and urinary secretion in warm-blooded animals maintained alive by artificial respiration. The urine contains much sugar, which appears as well in starving animals, whose liver contains no glycogen, as in those well nourished. The temperature is not increased, but, according to some observers, considerably diminished. (HERMANN; from Wesselhoef, *loc. cit.*)

2. a. C. paralyzes peripheral ends of motor nerves, even when given in very small doses. Larger doses paralyze vagus and ends of sensory nerves. As poisoning progresses, spinal cord is paralysed, and finally heart. Voluntary muscles appear to be little affected, yet their contractility is somewhat diminished, and this diminution begins even before the motor nerves themselves are paralysed. The vessels of the surface become dilated, and sometimes a peculiar erythematous rash appears on the skin in dogs. The blood pressure is little affected by small doses, but is much lowered by large ones. When injected into salivary glands it causes intense salivation, which appears to be paralytic. Large doses produce death by paralysis of muscles of respiration, but, motor nerves of extremities being paralysed, no convulsions occur. Although the motor nerves are paralysed to such an extent that they will not excite muscular contractions, even when the nerve-centres are powerfully stimulated by asphyxial blood, they still cause muscular contractions when irritated by an interrupted current in a warm-blooded animal poisoned by C. In frogs the poisoning may be so complete that no irritation of the trunk of a nerve will excite contraction in the muscles supplied by it.

b. C. is rapidly eliminated by the kidneys, and if artificial respiration be kept up, complete recovery occurs. I have succeeded in restoring an animal completely by this means after it had been apparently dead for 4 h. When given internally, C. is so rapidly eliminated that it usually produces no symptoms. When given in a very large dose on

an empty stomach, symptoms of poisoning may occur.* If elimination be prevented, in excision of kidneys or ligation of renal vessels, poisoning occurs, and in this case death is usually preceded by convulsions. (BRUNTON, *op. cit.*)

CYCLAMEN.

Cyclamen europæum, L. Sowbread. Nat. Ord., Primulaceæ.

1. *Proving*.—1. HAHNEMANN, *Mat. Med. Puræ*, vol. v of original, vol. i of translation. *Contains 5 symptoms from self, and 197 from 4 fellow-observers.

2. D—, medical student, æt. 22, January 27th, 7.50 p.m., 4 dr. tinct. Confusion in l. side of forehead, gradually spreading all over head, prickling in scalp, going off in a few m., then slight pains in abdomen, frequent eructations tasting of the drug, with acrid taste in pharynx; drawing pains in flexor muscles of both legs, from hough to tips of toes; upper extremities heavy; pressure in canthus of l. eye; jerking and drawing pain from l. temple to crown, with confusion of head, especially in forehead, and stiff feeling in nape; urging to urinate and pressure in anus; stitches in apex of heart; tearing in l. maxillary joint and in l. forearm; rumbling and pinching in abdomen; sneezing. At n. frequent erections without exciting dreams; frequent waking with pressure on eyelids and stitches in heart; slept long in m.; urine much diminished.—2Bth, 6.22 a.m., 6 dr. Immediately throbbing in upper part of abdomen; saliva diminished, spits yellowish-white, consistent lumps the size of lentils or beans (this always occurred, for 5 or 6 d.); no appetite for breakfast; after breakfast rumbling, then pains in abdomen, urging to stool; pressure in eyelids as if they stuck together; confusion of nape and itching of scalp; stool forcibly ejected, first lumpy, then soft, with palpitation of heart; heat in head and belly; stools inodorous, brownish-yellow, mixed with mucus; cross without cause; vertigo; pressure in stomach, pulse and respiration quickened; pulse strong, gradually getting calmer; violent sneezing; itching in ear, much ear-wax; contractive pain and empty feeling in temporal region; great internal heat; frequent sneezing and yawning; jerking-shooting pains in r. temple, gradually spreading to face, worse when moving; pulse scarcely perceptible and very quick, as also respiration; itching in eyelids and elbow; weak voice when reading; hiccup; shooting in urethra and urging to urinate; urine dark reddish-yellow; drawing pain in hough when standing; scraping and dry feeling in trachea in open air, causing suffocative cough; light-coloured urine; expectoration of mucus; dryness of nose; feeling of emptiness in head passing into prickling on scalp and skin of face; a lump the size of a lentil above parotid with painful itching; itching on scalp, neck,

* "A dog was made to swallow 4 σgrm. of a concentrated solution while fasting. After ½ h. it fell, and gradually lost sensibility; respiratory movements became feeble, and then ceased; cornea lost its sensibility; and heart, which still continued to beat very well, and some slight convulsive movements, alone showed that life was not extinct" (CL. BERNARD, *Léçons sur les tubt. sup.*, p. 338).

shoulders and axillæ; drawing pain in r. hough changing into formication; tearing in left leg; shooting in urethra; dislocation pain in shoulder-joint; heat and full feeling in r. side of head; twitching, cutting pain along inguinal canal; tearing, shooting, jerking in two of the front r. upper molars; chilliness in open air; much urine coming away in a large stream; hiccup; great appetite. 8.40 p.m., 8 dr. Constrictive pain in throat from smell of drug; pressive pain over nasal bones; eructation; severe palpitation; some stitches in r. side of chest above 5th rib; tearing pain on outer side of r. thigh; veins of back of hand swollen; sore sensation on glans penis and prepuce; pressure in middle of sternum; shooting in both sides of head, worst in coronal suture; shooting in hepatic region, l. inguinal canal and anus; sneezing; pain from bladder to urethra when urinating; frightful dreams; dryness and painfulness of throat.—29th, 5.26 a.m., 10 dr. Frequent expectoration of above-described substance; itching in l. inguinal canal; beats of heart and pulse scarcely perceptible; stool like yesterday; dislocation pain in l. foot; pulse dicrotic, very quick; respiration very quiet; fluttering in l. side of chest; pains in stomach and abdomen; heart's beats slower; contraction of eyelids as from intense light; frequent yawning; giddy fulness and heat in head; sore pain in both heels hindering walking; loss of smelling power; great thirst when eating dinner; great hunger; restless sleep; itching in lower jaw; papular eruption on scalp, face, and other parts of skin; much hawking; yawning; renewed straining after stool.—31st, 4.50 p.m., 2 drachms 1st dil. Stitches in l. side of chest increased by inspiration. Confusion in forehead and itching of scalp. Numb feeling in r. hand; some stitches in stomach; squeezing together of jaws; sore pain in r. upper incisors, especially in their crowns and thence over buccal lining; drawing pain in r. knee-joint, in acromion and hough; pressure in stomach ending in eructation; pulse nearly imperceptible; some coughing; joints painful on movement; itching under shoulders; excited action of heart; vibration in cardiac region; yawning; eyelids seem contracted.—Feb. 1st, 9 a.m., some dr. of 1st dil. introduced into eye. Immediately pupils contracted but soon dilated, the vessels of iris could be seen; contraction and dilatation alternated every second, and connected with respiration in this way, that they occur only after each in- or ex-piration. This phenomenon lasts $\frac{1}{2}$ h. in diminishing degree. 9.45, the drops again instilled; great contraction of pupil followed in 3 or 4 seconds by dilatation and so on, till at last great contraction of pupils remains; many pimples appear on face, which fill with yellowish-white lymph, and then shrivel up. The cicatrices of former varicella reappear, of a dark red colour; the forehead thickly studded with similarly coloured spots the size of lentils; uvula and tonsils very contracted and white; eructation; pulse scarcely perceptible; confusion of forehead; dislocation pain in l. hough. 2 p.m., 3ss of 1st dil., eructation; confusion of head; bowels painful to touch; some pain in abdomen; pressive pain in forehead; abdominal pain increased; yawning; blood-vessels visible in white of l. eye; tinnitus aurium; contraction of frontal muscles as if angry; weakness of memory; out of spirits; distension of abdomen with flatulence; vision sharper, can distinguish colours at a great dis-

tance; pressive pain in pit of stomach; painfulness of abdomen on pressure; stitches in umbilical region; buccal and faucial cavity redder; quivering of r. upper eyelid; sharp stitches in coronal suture; urine dark coloured and many flakes in it; the pains in belly persist; itching in r. inner canthus; whole head confused; noise in ears.—2nd, 12.30 p.m., ʒj of 1st dil. Pressive pain in l. temple; heat in head; confusion of r. side of head; eructation with greasy odour; exhaustion; quivering of eyelids; chilliness, then after crossness attacks of heat and throbbing in head; nearly complete loss of appetite and thirst; pressive-tearing pain in r. upper jaw and crown of r. canine tooth; much expectoration; pupils very contracted; tongue covered with yellowish-white fur; shooting in coronal suture and pulsation of temporal arteries; itching in hairy scalp; stool delayed 9 h.; pain in r. lower row of teeth; constriction in throat; shooting in stomach; tearing pains in elbows and wrists; quivering in eyelids when pressed or rubbed; many pimples on jaw, rapidly filling with white lymph; stool of hard lumps, thereafter confusion of head, great forgetfulness, makes mistakes in words; pressure on sternum; pressive-tearing pain in l. upper row of teeth; starting out of sleep; liquid stool; boring pain first in r. metatarsal bones and r. temple, thence into r. upper row of teeth, then in l. temple; burning in r. eye; thirst after 5 d. absence of thirst; retracted prepuce in open air.—4th, 4 p.m., ʒj of 4th dil.—5th, m., stool at first normal, then quite liquid, of light yellow colour; urine light coloured, containing many epithelial cells, 9 a.m., shooting in l. temple, then in whole sinciput with vertigo; later, pressure in forehead, yawning. 11.44 a.m., ʒij, eructation. 3 p.m., drawing pain in l. nough.—8th. After inhaling vapour of tinct. 2 p.m., pressive, stupefying, frontal pain.—9th, 3 p.m., transient sore pain in l. acromion, especially when taking off coat.—10th. Pressure in l. inner canthus; pressive stupefying pain in r. side of sinciput, then nausea and eructation; retraction of prepuce; much sediment in urine, which is acid and contains much chloride.—11th. Slimy stool, which passes unobserved.—15th and 16th. From inhaling vapour of tinct., pressure, later shooting in r. coronal suture, with general confusion of head; quivering of r. upper eyelid every 4 or 5 m., also when he rubs eyes or forehead; this symptom lasted several d. In face and forehead reddish spots and some large pustules; pulse ranged during proving from 60 to 108, resp. from 6 to 19 (normal resp. 15). (HAMPB, *Zeitsch. des Vereins d. hom. Aerzte Oesterr.*, 1857, ii, 445.)

3. Dr. EIDMARR, æt. 29, took on Oct. 21st, 5, 22nd, 7, 23rd, 9, 24th, 11, 25th, 13, 26th, 15, 27th, 20 dr. About 2 h. after taking drug there always occurred slight headache lasting some h., and after the 2 last doses also nausea and inclination to vomit; no other symptoms. (*Ibid*, 444.)

4. A girl, æt. 17, regularly menstruated since æt. 15. Oct. 27th, 6 p.m., 5 dr. 1st dil. 8 p.m., felt very unwell, vertigo for 5 m., objects seemed to go round in a circle, must go to bed; repeated eructation, then fell quietly asleep, and woke next m. quite well.—28th. 6 dr. 11.30 p.m., felt anxious, head felt bound up, objects seemed to have a swinging movement, all gone in 15 m. except confusion of head.

After several cold compresses on forehead, head became free and she could read. After 45 m. she had a sort of faint, all objects flew round her in a circle, darkness before eyes; violent vomiting ended the scene. N. restless, frequent attacks of anxiety and nausea disturbed rest. Next d. exhausted, face pale, eyes sunken, pulse 108, appetite gone, great thirst. Next n. the menses, that had only stopped 14 d., returned.—30th. Gastric symptoms, such as very furred tongue, frequent eructation, very distended stomach and inclination to vomit. Could only take lemonade, everything else made her sick.—31st. Menses stopped, same symptoms, but slighter.—Nov. 4th. Quite well.—7th. Menses returned, and ran regular course. (*Ibid.*, 455.)

5. A girl, æt. 17, of melancholy temperament, but in good health, took on Oct. 27th 5 dr. 1st dil.; no effect.—28th. 6 dr., after 2 h. slight confusion of head that soon passed off.—29th. 10 dr., same as yesterday.—30th. 15 dr., deep sleep, with confused, fright-inspiring dreams. Next d. more melancholy than ever, complained of feeling like to weep and of heaviness in feet.—31st. 20 dr., menses came on 4 d. too soon, with relief to above symptoms. E., observed a ring round candle, on account of which she had to leave off her sewing several times.—Nov. 1st. 25 dr., slight confusion of head and dimness of vision, so that she could not work; could not see distinctly the outline of fingers held before her. Menses ceased.—2nd. No med.; a little flickering before eyes. 4 p.m., menses again came on, and ran a regular course. At n. some griping in belly. Till 9th without med. E., 5 dr. tinct. Slight flickering before eyes and confusion of head. Went on increasing dose by 2 dr. every d. till she took 15 dr. Confusion of head and dimness of vision always ensued.—30th. Menses came on and were regular and painless. (*Ibid.*, 456.)

6. A girl, æt. 16, had menstruated 14 times. In June took a cold bath. Menses came on immediately afterwards, but ceased same n., and had not since reappeared. Of late had been lethargic and cross.—Oct. 23rd. 5 dr. 1st dil.; after 4 h. confusion of head and noise in ears.—24th. 8 dr., after 2 h. severe headache and transient nausea. Restless at n.—28th. 10 dr., after 2 h. headache which lasted till e., constant nausea. Restless n.—26th. 12 dr., after 2 h. severe headache; after 3¼ h. vomiting, followed by great confusion of head. Sleepless at n. and pressing down in abdomen.—27th. No med. In the n. menses came on, with great pain in abdomen, went on for 6 d. without more pain. Menses again occurred on Nov. 23rd, and were quite normal. (*Ibid.*, 457.)

7. Dr. v. KACSKOWSKI, Oct. 22nd, 9.30 a.m., 1 dr. tinct. Burning in throat immediately. After dinner frequent micturition, increased heat of head, much flatulence. Fell asleep before 10 p.m. as if from fatigue, confused dreams.—23rd. Looks more tired than when he went to bed; stool with much straining. 9.30 a.m., 20 dr. Burning in œsophagus, frequent discharge of flatus upwards and downwards; frequent discharge of watery urine. After dinner great exhaustion, cold feeling all over; confusion and heat of head; flow of saliva. After 10 p.m. profound sleep with confused dreams.—24th. Woke tired, depressed; sudden call to stool, which was liquid, and attended with

burning and straining, some blood passed; head hot, confused; taste flat, cold feeling in body, frequent micturition, with pains in bladder and rectum; frequent discharge of wind upwards and downwards. 10 a.m., 3 dr. Immediately burning in œsophagus for 15 m.; watery mouth, with pasty taste; flatus and frequent micturition continued. After dinner cold feeling in body, head warm and confused. E., great exhaustion, profound sleep and confused dreams.—25th. Woke tired, cross, confusion of head, pasty taste; after breakfast, frequent micturition, with pressure in stomach; consistent stool, with burning in rectum. 10 a.m., 4 dr. After dinner general coldness and congestion of brain; exhaustion, crossness, discharge of wind upwards and downwards, frequent micturition with straining. E., exhaustion, sleep restless, confused dreams.—26th. Woke tired, with sticky mouth and excited humour; frequent eructation, with disagreeable feeling in stomach. 10 a.m., 5 dr. Burning in œsophagus and secretion of saliva and mucus in mouth; eructation, with pressure in stomach increased; no stool; much flatus; head hot. After dinner general coldness and congestion of head. Towards e. hot head, distension of abdomen; later, discharge of flatus; cold feeling continued. At 10 p.m. took tea with a tablespoonful of rum, the body became warm. At 11.30 deep sleep, with lascivious dreams.—27th. Woke tired, cross, with pasty taste. After breakfast confusion of head, watery mouth, eructation and pressure in stomach. 9.30 a.m., 6 dr. Immediately burning in œsophagus for ½ h., much saliva and mucus in mouth, eructation with disagreeable feeling in stomach. After siesta crossness, tension in abdomen, discharge of wind up and down, great flow of urine, with pressing on bladder and rectum, heat of head and chilliness over back. E., exhaustion and prostration; confused dreams.—28th. On waking, great laziness, mouth pasty, head hot, pressure in stomach, wind up and down. 10 a.m., 7 dr. Burning in œsophagus for ½ h.; much saliva and mucus in mouth, with frequent hawking, tension in hypochondria, eructations, heat of head, stretching of limbs as before a febrile attack. After siesta coldness over back, great heat in head and eyes, frequent urging to urinate, with pressure on rectum. E., great exhaustion; n., many dreams.—29th, 10 a.m., same symptoms, and in addition tension in inguinal region.—30th. Woke with usual symptoms and pressure in temples. 1 p.m., 9 dr. Same symptoms.—Oct. 31st. Usual m. symptoms. 11 a.m., 10 dr. Usual symptoms, and in addition swelling of hæmorrhoidal vessels.—Nov. 1st. More tired on waking than when went to bed, flow of saliva, head hot, pressure in forehead, tight feeling in chest, tension in hypochondrium, pressure on bladder and rectum. 10 a.m., 11 dr. Burning in œsophagus for ½ h., tension in hypochondria. After dinner coldness over back, pressure on bladder, heat in rectum, with swelling in hæmorrhoidal vessels.—2nd, m., exhausted, cross. 9 a.m., 10 dr. The same symptoms repeated. (*Ibid.*, 458.)

6. Dr. W. Löw, Oct. 22nd to 27th, took daily 4 dr. of tinct. The first 4 d. no effect.—26th. Feeling as if objects turned round in a circle.—27th. Vertigo repeated and more persistent, worse when walking in open, better when sitting in room.—28th. 8 dr., intoxicated con-

fusion and heaviness of head, transient.—29th. 12 dr., soon general discomfort, no appetite for breakfast, which was followed by nausea and vomiting. All d. felt unwell, periodical vertigo, loss of appetite, and fulness of stomach. After a very restless n., often waking up with a start from disagreeable dreams, woke on 30th exhausted and dejected. All d. no appetite; after a cup of coffee in e. inclination to vomit and belching up of acidity. To-day and yesterday distaste for beer, which he usually relished. Discontinued medicine. The discomfort, heat in face, and coldness of extremities lasted till midnight, and caused restless sleep. After midnight feeling of great comfort, slept profoundly, awoke late refreshed and well.—31st. Only constipation and scanty urine.—Nov. 1st. 12 dr., the former symptoms recurred, vertigo and derangement of digestion, and stool with violent tenesmus, and discharge of drops of blood; also slight epistaxis. (*Ibid.*, 462.)

9. K. MAYRHOFER took from Oct. 13th to 31st increasing doses every d., from 2 to 32 dr.—Nov. 3rd, 9 p.m., 40 dr. Left off on account of some diarrhoea.—Dec. 6th to 10th daily from 44 to 56 dr.—10th. On r. side of chest a spot of eczema 1 inch by 4 lines.—11th, 8.30 p.m., a sudden violent rigor, went to bed, but had a sleepless n., with febrile heat. Next d. felt very unwell, forenoon moderate fever with headache, lasting till afternoon. A more intense fever in e., lasting till 2 a.m. (*Ibid.*, 463.)

10. Dr. S. SCHWARTZ, æt. 23, is subject to attacks of a peculiar headache in front of head, otherwise well.—Oct. 22nd. 6 dr. tinct., m. and e., no symptoms.—23rd, m. and e., 6 dr.—24th. 10 dr., nothing observed but scraping feeling in throat on swallowing dose.—26th, m., 20 dr. After breakfast and after dinner eructations of wind. An attack of his usual headache, along with heaviness of head, and irrepressible yawning. Slept all through n., an unusual circumstance.—27th, m., 30 dr. Before and after breakfast, after griping in bowels, 2 diarrhetic stools. Same symptoms as yesterday, only the headache was limited to l. side, and was of a dazed and heavy character. Great yawning in e., tired and sleepy, went to bed at 8 p.m., but could not read as usual, on account of burning and flickering of eyes. Slept soundly for 12 h., never sleeps more than 7. The next 3 d. he increased the dose by 10 dr. daily, till he took 60 dr. on 30th, but had no new symptoms; the former ones continued in the same intensity. Further trials of the 3rd dd. caused no new symptoms. The tired feeling, sleepiness and yawning lasted 14 d. after ceasing the proving. (*Ibid.*, 464.)

11. Dr. A. v. SZONTAGH, æt. 26. Began on Oct. 6th with 3 dr. tinct., increased the dose every d. by 1 dr. till 9th. Then increased every d. by 5 dr. Finally, on 20th, took 60, on 21st 70, on 22nd, 90 dr. The only symptoms he observed were burning scraping in œsophagus for 1 h. after the dose, later passing into a feeling of swelling of palate; increase of stools, 2 on some d., disturbed sleep, and noise in ears while walking after the last dose. (*Ibid.*, 465.)

12. Dr. RUD. VIVENOT, æt. 23.—Nov. 22nd. 5 dr. tinct., immediately persistent scraping in œsophagus, and eructation with taste of drug.—10 and 15 dr. on next d. caused same effect.—26th 25 dr., 27th 30 dr., 28th 40 dr. In all these d. the scraping and eructation as before,

also confusion of head, pressure in temples, general prostration, weariness of legs and drowsiness, with yawning. Throughout proving burning in eyes, especially when reading, injection of conjunctiva.—29th. At n. awoke with violent pinching in umbilical region, relieved by kneading and removed by stool; full feeling and slight distension of abdomen remained. During d. 2 loose motions, frequent rumbling in bowels and flatus.—Dec. 4th 50 dr., 5th 60 dr., 6th 80 dr.; precisely similar symptoms occurred.—7th., forenoon, 2 liquid stools, then took 100 dr., which caused diarrhoea for 5 d. (*Ibid.*, 466.)

13. A maidservant, æt. 35, menses had been delayed a week.—Dec. 4th, 6 dr., 5th, 8 dr. tinct., each time in $\frac{1}{2}$ a wineglassful of water, a teaspoonful every 2 h. The 1st. d., e., great confusion of head, vertigo as if all objects were swaying around her, a stupid feeling in head, which was hot, eyes sparkling, alternation of heat and cold, pulse hard, more than 100, then nausea, rumbling and cutting in bowels followed by watery diarrhoea. Long of falling asleep, many dreams, often woke suddenly, woke up completely at 4 a.m. and went to sleep at 6.30 a.m., great disinclination to rise in m. when she had violent coryza, which was most likely the cause of the febrile symptoms. The second d. the same symptoms continued. The diarrhoea continued. Shooting pain in r. forehead and temple for $\frac{1}{2}$ h., stitches in brain on stooping; flickering before eyes, as from many-coloured glittering needles, vision as through smoke or mist; eyes deeply sunk, surrounded with blue circles; great weariness and prostration of whole body, paralytic heaviness of feet rendering walking difficult; felt as if everything would drop out of her hands; cross and low-spirited, no inclination to work; anxiety as if some misfortune were about to happen. The following n. menses came on with violent labour-like pains, all d. abdomen so distended she could scarcely stoop; the blood came away in large black clots, usually her menses were painless and the discharge bright red and fluid. Having gained her object, which was the restoration of menses, she would not continue the medicine, as she felt very poorly. After 8 d. she returned complaining that she was not right, thought she must be pregnant, as she had the same symptoms as during her former pregnancy 13 years previously. She had sour eructations, flow of water into mouth, sometimes great hunger, then again complete anorexia. Abdomen and stomach constantly swollen, felt in bowels under liver a ball-like swelling which could be distinctly felt by others; also moving about there as if something alive were in it. The sensation extended to breasts with a feeling as wind streamed out of nipples; the breasts felt enlarged and she had tension and stitches in them; the breasts were in fact enlarged, hard, and painful; milk exuded from nipples; it was watery milk like what occurs in the first days after delivery; it flowed out of itself and could also be pressed out. This continued off and on for 14 d. and the disagreeable feelings in the breasts went off. Examination did not show pregnancy, and as the symptoms continued though the drug had not been taken for 2 weeks she got pulsatilla, which soon made her quite well. Since then the menses have occurred regularly without any discomfort. (*Ibid.*, 468.)

14. F—, a working girl, æt. 27, subject to palpitation of heart, regularly menstruated; at present copious menses for 10 d.—Sept. 28th. 5 dr. tinct., vertigo as if going down a hill; sleep restless; menses increased; palpitation.—29th. 10 dr., menses ceased; great palpitation; exhaustion; restless sleep disturbed by dreams.—30th. 15 dr., violent palpitation; burning in l. side of chest; sea objects double; n. very restless as though big bears were running over her body; constipation for 3 d. (before that had diarrhoea), general exhaustion.—Oct. 1st. 24 dr., contraction in throat, constipation, sleeplessness, sweat at n.; trembling of hands and feet; great inclination to vomit, at last vomiting; dimness of vision; vertigo and exhaustion.—2nd. 28 dr., great palpitation; went to bed and perspired profusely.—3rd. 24 dr., constipation continues; less palpitation and vertigo; e. inclination to vomit.—4th. 30 dr., vertigo, constipation and exhaustion. (*Ibid.*, 470.)

15. M. R—, a girl, æt. 17, menses regular, until last 6 m., when they have remained suppressed.—Sept. 28th. 5 dr. tinct., immediately vomiting, vertigo, later, weariness in legs; sleeplessness.—29th. 10 dr., after 6 h. vomiting; vertigo, exhaustion; no sleep, great restlessness at n.—30th. 5 dr., no symptoms.—Oct. 1st. 15 dr., frontal headache; sleeplessness part of n., then restless sleep with disagreeable dreams.—2nd. 20 dr., only frontal headache, less than yesterday. (*Ibid.*, 471.)

16. J. B—, a girl, æt. 17, in good health, menses regular, has them copiously at present.—Sept. 28th. 5 dr. tinct., immediately vomited twice, then drowsy.—29th. 10 dr., vomited twice watery slime, then became giddy, went to bed, had alternately heat and cold, after which profuse sweat, menses unaffected.—30th. 5 dr., must lie down on account of vertigo, restless sleep, often cried out; sees green and yellow before eyes.—Oct. 1st. 5 dr., immediately vomiting of a slimy mass; this was followed by sleep which was restless and broken by staring up and disagreeable dreams; all objects seen double; heat of head; e., rigor followed by sweat. Exhaustion and prostration. The proving had to be interrupted as she had an attack of erysipelas of the face with high fever.—26th. 30 dr., m., cutting pain in belly, pains in sacrum; sudden sore-throat.—27th. 5 dr., pains in belly and back less, some diarrhoea.—28th. 2 dr., repeated diarrhoea; pains less. (*Ibid.*, 472.)

17. W. T—, a girl, æt. 19, always regular in menses from her sixteenth year, but no menses for nine weeks.—Sept. 28th. 5 dr. tinct., after 4 h., headache and vertigo.—29th. 10 dr., roaring in ears, shooting in forehead.—30th. 15 dr., restless at n., shooting in belly, roaring in ears.—Oct. 1st. 20 dr., only roaring in ears, and, 25 dr., sometimes black, sometimes yellow before eyes, sometimes diplopia; traces of menses.—2nd. 30 dr., roaring in ears, dimness of vision; traces of menses.—3rd. 2 dr., vertigo greater than before, dim vision, spots before eyes.—4th. 2 dr., spots before eyes, vertigo, especially when walking; loose stool.—5th. 5 dr., same symptoms.—6th. 8 dr., violent frontal headache, spots before eyes.—7th. 6 dr., only roaring in ears.—8th. 15 dr., some roaring in ears.—9th. 25 dr., increased secretion of urine, e., roaring in ears.—10th. 30 dr., violent frontal headache which lasted all n. (*Ibid.*, 473.)

18. D. T—, girl, æt. 16, had her menses 3 d. previously.—Sept. 28th. 5 dr. tinct., shooting frontal pain; exhaustion.—29th. 20 dr., stabbing in both temples, as if with a pointed knife.—30th. 15 dr., menses came on after 10 d.—Oct. 1st. 20 dr., heat of head, feeling as if head turned round in bed; great inclination to vomit; menses increased.—2nd. 24 dr., in e., heat of head, restlessness and exhaustion.—3rd. 26 dr., menses continue.—4th. 1 dr., only heat of head.—5th. 2 dr.—6th. 10 dr., same symptoms.—7th. 15 dr., heat of whole body, violent frontal headache, all d., diplopia; no appetite.—8th. 16 dr., immediately violent headache in temple, then heat, thirst; n. sleepless.—9th. 20 dr., some frontal headache and vertigo; n. sleepless; appetite diminished, no stool for 2 d.—10th. 20 dr., headache, vertigo, thirst, drank 3 glasses of water.—11th. 5 dr., same symptoms. (*Ibid.*, 474.)

19. S. F—, girl, æt. 21, menses regular since 14th year, none for 2½ year.—Sept. 27th. 5 dr. tinct., no effect.—28th. 10 dr., immediately vertigo.—29th. 10 dr., no effect.—30th. 15 dr., vertigo all afternoon; occasional dim vision.—Oct. 1st. 20 dr., heat of head, till e.; slight vertigo, dimness of vision less.—2nd. 25 dr., vertigo,

* Cases 14 to 27 inclusive were girls in a Lock Hospital who had been under treatment for gonorrhoea, condylomata or excoriations of vagina. They had mostly some derangement of menstrual function, but were otherwise well.

beat of head, some perspiration. Since yesterday papular eruption on forehead.—3rd. 26 dr., beat of head; bellyache at n. (*Ibid.*, 475.)

20. L.—, girl, menses always regular, but none for 7 weeks.—Oct. 18th. 3 dr. tinct., headache in e., disgusting taste, much thirst at n.—19th. 6 dr., at n. sleepless, thirst, heat and headache; great exhaustion.—21st. 8 dr., sleep restless; beat of body and sweat; headache with great exhaustion and disgusting taste.—14th. 10 dr., only bitter taste.—15th. 25 dr., frontal headache, then heat of all body, no sleep at n.—16th. 25 dr., felt occasionally as if bed turned round; dark before eyes.—17th. 25 dr., in afternoon attack of vertigo and dim vision. (*Ibid.*, 475.)

21. H. F.—, girl, æt. 26, miscarriage 3 months ago.—Oct. 10th. 3 dr. tinct., no effect.—11th. 10 dr., pains in belly.—12th. 25 dr., low spirits for 2 h., inclination to vomit, for 2 h. headache.—13th. 20 dr., pains in belly.—14th. 25 dr., nausea all afternoon, weak and disinclined for work; drawing in sacrum; stool loose.—15th. 30 dr., inclination to vomit; disinclination for work. In e., spasmodic pain in belly.—16th. 35 dr., immediately pains in belly, and headache; n. very restless.—17th. All forenoon pains in belly made him keep his bed. (*Ibid.*, 476.)

22. H. E.—, girl, always healthy except that menses often stop for ½ year; the last menses 6 weeks ago.—Oct. 10th. 3 dr. tinct., slept better than usual.—11th. 20 dr., afternoon, pain before eyes.—12th. 25 dr., all afternoon and n. troubled with pains in belly, stool loose.—13th. 20 dr., restless at n. owing to frontal headache.—14th. 30 dr., all afternoon spasmodic pains in belly and headache, especially in forehead.—16th. 35 dr., violent pains in belly all d., mist before eyes; shooting pains in forehead; very restless n.—17th. 2 dr., violent spasm in abdomen, frontal headache. (*Ibid.*, 476.)

23. R. A.—, girl, æt. 25, always healthy, except subject to violent spasms in abdomen, and irregularity of menses; has had none for 3 months.—Sept. 28th. 5 dr. tinct., violent spasm in abdomen, headache and vertigo all afternoon.—19th. 10 dr., heaviness of head.—20th. 25 dr., great ebullition of blood in head, violent headache, anxiety, dim vision.—Oct. 1st. 20 dr., immediately vomiting, again in n.; pretty soon diarrhoea; towards m. vomited again, then sound sleep.—3rd. 20 dr., in e., inclination to vomit; dim vision, diplopia; at n. profuse sweat, headache; in m. very exhausted and prostrated.—4th. 24 dr., menses appeared. (*Ibid.*, 477.)

24. S. M.—, girl, æt. 18, healthy, menses regular, the last 3 d. ago.—Oct. 10th. 3 dr. tinct., after pains in abdomen, menses reappeared.—11th. 20 dr., after 1 h. vertigo and dim vision; later vomited mucus twice.—12th. 25 dr., immediately vomited twice food and mucus, with vertigo, exhaustion, vision of colours, diplopia; restless at n.—13th. 1 dr., no symptoms.—14th. 6 dr., vomiting, followed by exhaustion, vertigo, dim vision, frontal headache; restless n.—15th. 7 dr., vomited twice greenish fluid, preceded by headache, vertigo, dim vision; feels weak and perspires much; restless n., disturbed by great heat. Has had nausea 4 d.—16th. 6 dr., vomiting of green fluid. (*Ibid.*, 478.)

25. K. P.—, girl, æt. 25, always healthy, no menses for 3 months.—Oct. 10th. 3 dr. tinct., some nausea with headache; vertigo in e.—11th. 20 dr., towards e. vertigo, then headache, drawing in sacrum.—12th. 25 dr., towards e. inclination to vomit; vertigo, exhaustion; low spirits; n. restless, loose stool.—13th. 26 dr., loose stool; towards e. headache; n., sleeplessness on account of violent pains in belly. In m., great inclination to vomit, exhaustion, vertigo, dim vision.—14th. 20 dr., pain in belly, especially n.; nausea, anorexia.—15th. 25 dr., all n. nausea, inclination to vomit, drawing in sacrum, vertigo, headache. (*Ibid.*, 478.)

26. E. R.—, strong healthy girl, menses always regular, but the last has continued 4 weeks.—Oct. 10th. 1 dr. tinct., in e. headache.—11th. 2 dr., m. and e. headache.—12th. 3 dr., ringing and shooting in ears, especially at n., with headache.—14th. 4 dr., ringing and shooting in ears, eructations.—15th. 20 dr., spasmodic pain in abdomen.—16th. 20 dr., very violent frontal headache, vertigo, roaring in ears.—17th. 21 dr., headache continues.—18th. 25 dr., same report. (*Ibid.*, 479.)

27. E. F.—, robust girl, the menses, usually regular, have not appeared for 3 months.—Oct. 10th. 2 dr. tinct., in e. headache.—11th. 4 dr., same symptoms.—12th. 6 dr., headache slight; stitches in l. side.—14th. 20 dr., stitches in side continue.—15th. 15 dr., spasmodic pains in belly for some m., they suddenly cease and recur.—16th. 20 dr., stitches in r. side.—17th. 25 dr., no symptoms.—18th. 20 dr., same report. (*Ibid.*, 479.)

19. N. N.—suffers from weak sight, can only read by d. for 1 h., in e. will less.—Oct. 13th. 5 dr., 1st dil.—15th. 10 dr., no symptoms.—14th. On rising in m. great headache and sickening before eyes. The headache lasted all d., and next d. in equal severity, diminished 3rd d., and ceased 4th d. The flickering before r. eye lasted 6 d., and went off entirely on 7th d. It was still observed in l. eye to a slight degree for 1 week. The sight inclined to get worse every d. Objects seemed veiled. On 7th d., the outlines of even large objects were indistinct, and he could not read by d. or n. The candle flame appeared like a luminous ball. This went off in r. eye after 8 d., but in the l. eye it continued till Nov. 3rd. He noticed, when eyes were open or shut, at a distance of about 2 feet a dark disc about the size of sixpence, which was often traversed by flashes as of lightning. This symptom went off after 8 d. After this the l. eye seemed to be looking through a dark blue glass. This phenomenon continued till Nov. 3rd. At first the stools were more frequent for 1 d. Urine also increased. (*Ibid.*, 480.)

20. s. LEMAKE.—Oct 3rd, 7 a.m., 10 dr. tinct. 8 a.m., continued pressure in stomach with distension and fulness. Frequent urination and much clear urine.—6th, 7 a.m., 20 dr. No effect.—10th, 8 a.m., 30 dr. 7.30 p.m., without griping a sudden copious liquid stool.—12th, 7 a.m., 40 dr. Severe drawing in l. leg from 10 to 12 a.m. 1 p.m., violent cutting at back of l. inner ankle when walking; pulsating tearing on under aspect of r. toes for a few m. Scraping in fauces all d. Burning and fancied eructation of air, very frequent, eating has no effect on it, almost all d. 2 p.m., burning and shooting on l. side of tongue, repeatedly. In l. some pressure and painfulness as after a blow or great fatigue, whilst walking, lasts some m.; drawing in l. big toe. No stool at usual time. E., burning in tip of tongue.—13th. Increased redness of tip of tongue with several small vesicles, frequent burning in it, making speech and chewing painful; flow of saliva; fluent coryza.—14th. Coryza gone; the symptoms of tip of tongue continue in undiminished intensity; saliva tastes salt and so does all food; tongue white. Frequent tickling in larynx and dry cough.—15th. Much slime in mouth; fauces red; tongue symptoms unaltered; sudden scraping in larynx; sudden severe tearing in r. frontal bone; slight jerking through upper teeth.—16th. Much mucus in fauces; tip of tongue red, burning, studded with small yellow vesicles; sudden violent boring in l. parietal bone; repeated tickling and scraping in larynx, with dry cough; lachrymation of eyes and accumulation of watery saliva; violent scraping in fauces and pain there when swallowing.—17th. Fauces very red, painful when swallowing, much viscid mucus there; tongue better; frequent coughing; violent sharp stitches in region of l. nipple, lasting some m., twice repeated at 4 p.m. when walking. At n. violent cough, much scraping in larynx; pain and thick mucus in fauces; salt taste of all food.—18th. Same state; especially repeated sudden attacks of violent tickling in larynx with some fits of coughing; pain and much mucus in fauces; rough voice; slight burning in tip of tongue. At n. severe cough and tickling in larynx.—19th. Same state, but especially at n. violent tickling in larynx with severe dry cough and pain in throat. Several times at n. sudden discharge from nose of a large quantity of clear watery-looking mucus without sneezing (his coryzas are generally attended with marked sneezing). Much speaking or walking even against cold wind never caused or excited the fits of coughing, which usually were worse in sleep.

For several n. has passed much clear urine which bears no relation to the quantity drunk. The quantity did not vary whether the room was warm or cool.—20th. All symptoms gone.

6. 29th, 9 a.m., 40 dr. Liquid stools at 10 and 10.30 a.m. Repeated shooting in rectum at 12 and 4 p.m. Much scraping in larynx and dry cough. On same d. coryza with much sneezing, cough, and expectoration of mucus, scraping in larynx, rough voice.—Nov. 1st. Slight fever, some heat, and confused head. The cough, which was at first, especially at n., violent and dry, with much tickling and scraping in larynx, was afterwards accompanied by white, yellow, and green expectoration. By the 12th it had nearly ceased. The coryza lasted till the 20th.—20th, 7 a.m., 40 dr. Confusion and heat of sinciput at 7.30 a.m., lasting several h. Soon after taking med. scraping in fauces all d.—Dec. 19th, 7.30 a.m., 50 dr. Head confused; pressure in lumbar vertebræ, aggravated by bending and pressure, lasts all d. with intermissions.—30th, 6.30 a.m., 60 dr. 7 a.m., sinciput confused and heat for 2 h. No other symptoms. (LEMBKE, *N. Z. f. A. Kl.*, lii, 65.)

DIGITALIS.

Digitalis purpurea, L. Purple foxglove. Nat. Ord., *Scrophulariaceæ*.

1. *Proving*.—1. HAHNEMANN, *Fragmenta de Viribus*. Contains 23 symptoms obtained by self and 33 from authors.

2. ISID., *Mat. Med. Pura*, vol. iv of original, vol. i of translation. Contains 73 symptoms from self, 224 from ten fellow-provers, and 131 from authors.

3. ISID., *Chronic Diseases*, part iii of original, vol. of translation. Contains 300 fresh symptoms, from 3 new observers and from Jörg (see i, 7—14 here).

[The proving in the *Fragmenta* was made with the expressed juice of the leaves. In the *Mat. Med. Pura* Hahnemann directs the seeds to be used for making the tincture, in the *Chronic Diseases* the entire plant.]

4. To know what my pulse was in my normal state of health and manner of living, I kept a table of the number of pulsations, counted daily for many weeks, before breakfast and before supper. In m., before I took any exercise, pulse was uniformly 60, feeble; and at n., after sitting for about 2 h., it was 56, feeble. I began May 24th, 1805, to take 15 dr. of tinct. in a wineglassful of water n. and m. The first 3 d. my pulse was about 70 in m. and 66 in e., during which time I felt myself uncommonly well except that I thought I sometimes felt shifting pains in heart. On 27th I took 25 dr. 28th.—Passed restless n., being hot and feverish; pain at heart more severe than ever this m., and from ensiform cartilage upwards chest was sore to touch. Pulse in m. 76, strong; in e. about 70. 29th.—Harassed with tormina last n. after going to bed, which did not abate before 3 a.m. Sense of weight in head and uneasiness at heart all d. Pulse as yesterday,

30th.—Slept but little during n. and mind had somewhat of the restless activity I have experienced after taking too much wine, but particularly after laudanum; pulse 80 in m. and 90 in e. During this d. took 50 dr. 3rd.—Very drowsy when I went to bed, but did not sleep soundly; troublesome sense of weight in head, relieved during forenoon by attack of epistaxis. Continued drowsy and incapable of study till e. Appetite still impaired; pulse same. Gave up taking drug. June 1st.—Slept during n.; headache continues; appetite, mind, and pulse the same. 2nd.—Symptoms diminishing. Pulse 78 and pretty full; it was not till the 9th that it returned to its natural state. (J. SANDERS, M.D., *Treatise on Pulmonary Consumption, &c.*, Edin., 1808. Dr. Sanders also relates or refers to numerous experiments with single doses of 10—30 dr., made to determine effects on pulse, which was uniformly increased in force and frequency. He prints also a communication from Mr. de Courcy Laffan, President of the Royal Philos. Soc. of Edinburgh, who obtained similar results; but notes that the action did not increase in the direct ratio of the quantity of medicine taken, and that in many instances a sedative effect was produced, apparently greater than what could have been expected from the previous excitement.)

5. a. "On February 2nd, at 8 a.m., I took 60 dr. of the alcoholic tinct. of D., which is nearly equivalent to 5 gr. of the powder of the dried leaves. At 2 a.m. there was not any apparent effect; I took 60 dr. more (120 dr.). At 8 p.m. I felt a slight heat of the skin and nausea. I experienced the painful feelings of hunger, and there was an increase of the salivary and urinary secretions. The pulse was 90, strong, and full. The med. had not produced any very marked effect upon the heart. The brain did not appear affected. I took 60 dr. (180). 2 a.m.: I had experienced during the e. a considerable degree of heat at surface of body, especially towards head, nausea and a painful feeling at stomach, analogous to hunger, although I had taken as much food as usual. My mouth was moist and pasty. The quantity of urine excreted was much greater than the quantity of fluid drunk. The pulse was 100, strong and full; action of heart was more violent, and was more easily felt internally and could be seen externally. There was increase of energy of intellectual faculties, imagination particularly was much more active than usual. I took 60 dr. (240) and went to bed.—3rd, 8 a.m., n. had been very restless. The light sleep which I had several times was troubled with dreams, which were remarkable for excessive imagination. I had much thirst, nausea, and uneasiness at the stomach. Urine was very abundant; there was a slight fecal evacuation. Tongue was covered with a white coat and slightly swollen; pulse was 120, strong and hard. Action of heart was strong and somewhat jerky. Respirations 26, but without any difficulty. Eyes were somewhat red and more sensible than usual to the impression of light. I felt slight pain and fulness in frontal region. My intellectual faculties had undergone a slight change, I was in a state bordering on drunkenness. I took 60 dr. (300). 2 p.m.: during last 2 h. I vomited twice a large quantity of mucus. I felt much nausea, which was accompanied with painful sensation at stomach. I had several

fluid stools, and after the last vomiting I felt a chill, which was followed by considerable heat and dryness of surface of body, to which succeeded slight pain of inferior extremities, especially in calves and knees. I felt somewhat weak; pulse was 125, strong and wiry. Contractions of heart were strong and jerky, and accompanied with palpitations when I walked in my room. I took 60 dr. (360). At 8 p.m. symptoms were almost the same as those already described; vomiting and shivering had not reappeared. I took 60 dr. (420).—4th, 8 p.m.: I slept during n. I again felt great uneasiness at stomach and very violent pain during vomiting, which recurred frequently and produced an evacuation of a large quantity of mucous matter. I felt besides intestinal pains, and had several mucous and bilious stools; tongue was covered with a yellow coating and considerably swollen, mouth was full of mucus, urine was less abundant and of a deep colour; skin was hot, dry, and a little rough; abdomen was strongly contracted upon intestines, and was also very hot, dry, and rough to touch. I experienced in my legs a feeling of great fatigue, my intellectual faculties were in a state bordering on delirium; my pulse was 150, small, hard, and wiry; the action of the heart was more feeble, and constantly accompanied with palpitations. I stopped the D.—5th, noon, the last 24 h. passed amidst violent suffering, all the symptoms already mentioned were aggravated. I frequently felt shivering, and my strength was extremely weakened; my pulse was 60, small and feeble, but regular; my intellectual faculties were in a state approaching stupor and delirium; one could observe, in a word, all the symptoms of a violent inflammation of the gastro-intestinal mucous membrane, as well as of the brain, resulting from the peculiar effects of the D. Dr. Cooper attended me on this occasion. Two weeks elapsed before it was possible for me to leave my bed, and nearly two months before my health was re-established."

8. On April 14th Dr. H.— resumed the D., taking for 2 d. 10 dr., and for 4 d. more 15 dr., 4 times a d. 18th.—Felt slight increase of appetite, and at times flushes of heat in head; pulse 80, after gentle exercise. From 20th—23rd increased dose to 25 dr. 21st.—At short intervals painful sense of hunger; slight increase of heat at surface of body; pulse 80 at rest, 85—90 after walking a few m.; urine more copious; skin inclined to be moist; mind a little more active. After this effects gradually diminished, and from 24th—27th he took 35 dr. doses with same results, to which were added some uneasiness after food and stronger beating of heart. On 27th slight nausea along with good appetite, bowels rather relaxed, urine much more copious; pulse 100, full, and strong; heart's action also stronger than usual; moisture of skin had increased. Till 29th took 45 dr. doses. Nights sleepless, but did not feel depressed in consequence; head felt as if he had taken more wine than usual, there was dull pain in it, and he could not connect ideas; stools copious, and seemed to contain a good deal of bilious matter; urine more abundant and deeper in colour. He felt at times slight shiverings, followed by increase of heat of skin. Pulse 85 at rest, but rose to 100 after gentle exercise. Action of heart irregular, increasing in force soon after taking dose, but shortly returning

towards normal state. From 29th took 55 dr. Dyspepsia and headache increased, dreamful sleep, also weak and tired state of body and dulness of mind, slight cough. After 2 d. or two of 70 dr. doses suspended medicine. May 31st.—Felt a good deal of nausea and of uneasiness and weight at stomach; easy stools, bilious and mucous; no wish for food, and indigestion after taking any; urine copious, depositing mucous sediment; surface alternately hot and cold; pulse 85, rather weak and irregular, especially after exercise; systole of heart seemed rapid, but diastole slow, with uneasiness there and palpitation on movement; at times cold sweats. Was extremely listless and weak; but though at times in a state of stupor could with difficulty sleep. 3rd.—Slight decrease of symptoms; pulse 70, softer and fuller; movements of heart a little more feeble, and it seemed to act with difficulty. 4th.—Pulse softer and fuller, 60 at rest, 75 on slight exertion. Otherwise improving; urine less, clear and pale. Shivered readily. 5th.—Pulse 50—55 at rest. It fell no lower, and a week after had resumed natural rhythm; but irregular action of heart continued 10—12 d. under influence of most trifling causes, or exercise of mind or body, and it was a month ere he regained his usual health.

c. July 12th, resumed experiment, taking increasing doses (12—25 dr.) 3 times a d. up to 15th. On 16th urine and saliva increased. At times heat in head; pulse 80, full and strong. In these and other respects as in former provings. Up to 20th continued 25 dr. 3 times a d. 20th.—Pulse 60, but action of heart remarkably strong. From 21st—23rd 30 dr. doses were taken, and from 24th—26th 40 dr. On 26th, pulse strong and full, 46 beats only, their impulses rapid, separated by a considerable interval. Action of heart very energetic, but strength somewhat diminished.

d. July 26th, took 200 dr. at 2 p.m. 3 p.m., nausea, uneasiness of stomach, followed by vomiting of mucus, vertigo, headache, mental faculties disordered, heat of skin, pulse 65, hard and full; heart's beats strong and jerky. 8 p.m., pulse 28, soft and irregular; prostration and weakness; heart's beats very irregular and hurried, but sometimes 10—12 beats in succession of moderate strength. Disposition dejected; intellectual faculties affected.—27th. Took 50 dr. every 8 h.—28th. In same state as on 26th. (*W. HUTCHINSON, Jour. des prog. d. sc. et instit. méd., 1827, vi, 218.*)

6. Dr. SCHÄÖN, Sept. 2nd, early in m. took 1 gr. of powdered D. in water. An h. after felt pressure in stomach, and p.m. pain in r. frontal region. 3rd.—Early he took, fasting, 2 gr., and soon experienced great nausea, confusion in head, and frontal headache as on 2nd; slight pain, apparently in cardiac region, and $\frac{1}{2}$ h. after pulse is softer, smaller, yet quicker. Nausea continued several h., then came dryness of gums and pharynx. On getting up after sitting giddiness and marked weakness of legs. Pulsation of heart softer and weaker than usual. Two hours after giddiness passed away had pressure at stomach and copious salivation. At noon saw bright sparks before r. eye. In afternoon unusual perversion of vision, with anxiety and sense as if finger pressed on eyeball. In e. took 3 gr. Same symptoms occurred, but there was now much greater dryness of mouth and pharynx, with thirst so

great that he had frequently to drink during n. Pressive pain in eyeballs with dilatation of pupils, especially r. 4th—7th.—He took daily $\frac{1}{2}$ gr. m., noon, and e. Scarcely any of the former symptoms were experienced, but he had considerable disturbance of the circulatory organs, so much so that on n. of the 3rd and 4th d. he had, on account of palpitation and anxiety, to get out of bed, to walk about, and open window. Pulse was 100 and strong. Head congested, with rushing and tinkling sounds in ears. Lasted several d. Palpitation less severe on the n. of 5th, but frightening him out of sleep. No action was experienced on urinary or genital organs. (WIBMER, *op. cit.*)

7. Dr. JÖRG, æt. 45, middle sized, constitution robust, temperament sanguineous choleric, took Aug. 19th, 8 a.m., $\frac{1}{2}$ gr. of powdered D. with sugar and water. At 11 a. after he felt his head affected, also pressure over occipital region, which continued at intervals till noon; at same time he observed that he saw objects in a false light. From 10—11 he felt increased motion in digestive canal; this passed into slight griping pains in bowels, extending from hypogastrium to testicles. At 11 a.m. the pain disappeared, but a desire to urinate, with itching excitement of glans penis, continued until afternoon. 20th.—Took at 8 a.m. $\frac{1}{2}$ gr.; soon experienced scraping in throat with hoarseness; former soon disappeared, the latter continued all d. At 9 felt headache as on 19th, but more severe; it disappeared at 12, but recurred several times p.m. From 10—11 borborygmi and griping pains which lasted an h.; urine passed in greater quantities than natural, without pain, but with peculiar irritation of glans penis as on 19th. This continued until noon of 21st; appetite and pulse not affected. 22nd, 8 a.m., took $\frac{1}{2}$ gr. of D. and 3 gr. of magnesia in \mathfrak{ss} of water. Experienced rawness in œsophagus and windpipe, griping pains and desire to go to stool. At 10 a.m. had a motion which contained faecal matter. From 9 a.m. affection of head commenced, which J— compares to a spiritual intoxication, describing it as an apparent expansion of the nervous life beyond the usual limits. This state of mind passed away without leaving any headache. In afternoon flatulence, heartburn, and sensation as if throat were compressed by enlarged tonsils. Until m. of 23rd there was much and even painful excitement of genital organs; after this excitement ceased urine flowed abundantly. 23rd.—Took 1 gr. in \mathfrak{ss} of water; experienced much the same symptoms as on 22nd, relaxation and weakness, bodily and mental. At 11 a.m. headache at vertex lasting an h.; 11—3 sharp burning and scratching in œsophagus. Appetite was unaffected throughout proving. On 22nd and 23rd pulse was smaller and weaker, never slower, but occasionally quicker than usual. (*Materialen*, 1825, sub voce.)

8. Frau Ch—, æt. 45, short, slender frame, but healthy and of sanguineous temperament. On Aug. 18th, 8 a.m., took $\frac{1}{2}$ gr. with $\frac{1}{2}$ gr. of sugar. Shortly after felt pain in hypogastrium, lasting $\frac{1}{2}$ h., followed by more or less heat in stomach, extending to œsophagus. This continued till e. 20th, 8 a.m., took $\frac{1}{2}$ gr. with 7 gr. of sugar in \mathfrak{ss} of water, and shortly after experienced scraping in œsophagus. After $\frac{1}{2}$ h. felt slight cutting pains in stomach, and from 9 o'clock slight affection of head with pressive headache. At 10 desire to make

water, which was not relieved by micturition. In afternoon suffered from pressive pain over crown and back part of head; also from sharp burning pain extending from stomach to throat; secretion of urine increased until bedtime. 21st.—After a restless n., had headache, as on 20th, but less severe; desire to micturate ceased at 3 p.m., and increased secretion of urine was much diminished by e. Burning in stomach lasted until e. 22nd, 8 p.m., repeated dose, as on 20th, with addition of $1\frac{1}{2}$ gr. of magnesia. She soon experienced slight headache, griping in abdomen, followed by increased warmth of whole body; desire to urinate. From 10 to 11, pain in region of kidneys; the urine increased to such a degree that she passed every 2 h. more than she usually did in 24; no increase of thirst. Headache disappeared on 23rd; increased secretion of urine continued until e. of 24th, and was very troublesome, especially at n. Besides these symptoms, she felt weak and exhausted. From 22nd to 24th vision was weak and dim; pulse kept small, weak, and a little quicker than usual. (*Ibid.*)

9. Otto, æt. 22, tall, slender, and of lymphatic constitution, took, Aug. 11th, $\frac{1}{2}$ gr., which caused giddiness, lasting $\frac{1}{2}$ h. On 12th, took $\frac{1}{2}$ gr., with 2 gr. of magnesia, in \mathfrak{ss} of water; scraping and heat in pharynx, and longer-lasting giddiness. On 13th, took gr. $1\frac{1}{2}$ with 5 gr. of magnesia in \mathfrak{ss} of water. Same sensations; p.m., copious urination. On 16th, gr. $1\frac{1}{2}$ at 8 a.m. At 9, pressure on head for $\frac{1}{2}$ h., diminishing power of thinking. After dinner (eaten with great appetite) giddiness with sudden dazzling of eyes, followed by sparks as if around eyes, for $\frac{1}{2}$ h. From 3—10 p.m. passed urine copiously 6 times; after standing it deposited thin brownish sediment. Genital organs excited; pulse smaller and weaker. On 15th, at 11 a.m., he took 2 gr., feeling soon scratching in pharynx. Towards noon he experienced confusion in head; this became more and more a pressive pain, which from vertex extended over whole head. As it passed away, he felt peculiar sensation in eyes he had experienced after previous doses, sight suddenly confused as when one passes from darkness into a bright light, then as if sparks were floating in air; these symptoms and attending giddiness did not last above $\frac{1}{2}$ h. There was slight increase of urine, and for $\frac{1}{2}$ h. great excitement of genital organs; pulse small and slow. Prover slept well, but woke on m. of 16th with same headache, increasing during whole d. Had not before or since suffered from a similar headache. Pulse was weak, soft, varying frequently in tension; urine became much diminished. On n. of 17th again slept well, and headache of previous d. was nearly gone. 17th, 8 a.m., took 2 gr. in \mathfrak{ss} of water; soon after felt scratching in pharynx, lasting $\frac{1}{2}$ h.; an h. later confused feeling in head, affecting thought, and passing into formerly reported pressive headache. Diminution of pulse and excitement of kidneys and genitals as on 15th. Appetite slightly diminished. Slept well on n. of 17th and 18th, but woke with same headache as before. This headache continued throughout d. so severe that prover was unable for any work, and obliged to go early to bed. Pulse was very weak, with varying tension. (*Ibid.*)

10. **SIEBENHAAR**, æt. 22, middle sized, constitution robust, temperament melancholic, on Aug. 9th, 8 a.m., took $\frac{1}{2}$ gr. of powdered *D.* mixed with 3 gr. of magnesia in $\frac{1}{2}$ oz. of water, and on 10th at same h. $\frac{1}{2}$ gr. in same mixture. He experienced burning and scraping in pharynx, followed at 8.30 by giddiness, sparkling before eyes, double vision, and acceleration of pulse. These symptoms entirely disappeared in $\frac{1}{2}$ h. 11th.—Took 1 gr. with 3 gr. of magnesia. Scraping in throat was a constant symptom; sparks before eyes and giddiness appeared about 8.30, and disappeared in $\frac{1}{2}$ h. Pulse was a little quicker than usual, but after effects of medicine had passed away it became slower and smaller. Genital organs were much excited; no increase of urine. 13th, 8 a.m., took $1\frac{1}{2}$ gr. with magnesia as before. He immediately experienced scraping in œsophagus, dizziness, and sparks before eyes, which did not last long; but irritation of the genital organs was so very troublesome, as to induce him to suspend med. for a few d. 17th, 8 a.m., took $1\frac{1}{2}$ gr., but without magnesia; it tasted more bitter than before, and produced scraping and burning in pharynx; pulse and digestive organs not affected; urine normal, genital organs much excited. 18th, 8 a.m., took 2 gr. in $\frac{1}{2}$ oz. of water. Same symptoms were experienced as on 17th; towards afternoon secretion of urine was increased. 19th.—Took 2 $\frac{1}{2}$ gr. Same symptoms appeared as on 18th, and disappeared by afternoon. 20th, 8 a.m., took 3 gr.; symptoms as on 18th. By 10 a.m. secretion of urine was increased and forced him to pass water every 2 h., and twice during n. Genital organs were much affected; the pulse remained undisturbed. (*ibid.*)

11. **GÖRTZ**, after 1 gr. of powdered leaves, felt, after $\frac{1}{2}$ h., slight frontal headache lasting 1 h. On repeating same dose, one morning, besides the above symptoms, had increased secretion of watery urine with frequent desire to pass during afternoon. Took 2 gr. After 20 m. slight vertigo set in and lasted 20 m. Urination became frequent, urine was watery and clear and total quantity more than he was accustomed to pass in same time. Pulse after both doses remained unaffected. (*ibid.*)

12. **HEISTERBERG**, after 1 gr. of powdered leaves taken in $\frac{1}{2}$ oz. of water, felt trifling pressure in vertex. Pulse was unaffected. On repeating same dose one morning at 9 a.m., in addition to above symptoms noticed at 10.30 pressing feeling in right parietal bone lasting $\frac{1}{2}$ h. After drinking 16 oz. of beer at midday passed during 12 h. about 32 oz. of dark-coloured urine. Next d. all effects had vanished. After dose of $1\frac{1}{2}$ gr. had some belching, but unaccompanied by nausea or inclination to vomit. Towards midday became ravenous. Between 1 and 11 p.m. bowels acted twice, fæces being thin. Pulse and urine were unaffected. Next d. bowels acted only once, but fæces were still thin. Nov. 24th, 1823, at 9 a.m., took 2 gr. and noticed following symptoms: Between 9 and 9.30, belched wind 10 or 12 times; towards 11 slight headache in vertex lasting $\frac{1}{2}$ h.; at noon ravenous hunger persisting after dinner, accompanied by much rumbling in abdomen, and at 5 p.m. evacuation of thin fæces. Urine was unaffected. Pulse between 11 a.m. and noon beat small and soft but not more slowly than usual. Next d. had another loose stool. Four d. later,

also at 9 a.m., took 2½ gr. Belching was again present, but without headache. Towards 11 a.m. much rumbling in bowels, and at 12.30 feeling of ravenous hunger, both symptoms accompanied by small but not slow pulse. During next 24 h. two loose motions occurred. (*Ibid.*)

13. *α.* KNECHKE on Nov. 12th, 1823, at 9 a.m., took ½ gr.; a few minutes later had feeling of pressure in occiput going from right to left and spreading upwards towards vertex; slight confusion of head and traces of vertigo were present until about 1 p.m. Urination during p.m. somewhat increased in frequency, especially between 3 and 6, urine being pale yellow in colour. After dose of 1 gr. experienced same effects, only that head-symptoms lasted 2 h. longer and urine remained unaffected until following d., when he was obliged to empty bladder every hour, urine being watery and copious. On repeating same dose same effects followed, but head-symptoms lasted until evening; increased flow of urine also occurred during afternoon of same d. Pulse during afternoon was smaller than usual, but normal in frequency. On Nov. 24th, at 9 a.m., took 1½ gr. of powdered herb in water. Head-symptoms came on at once, increasing at noon to acute stabbing pain, chiefly in occiput and vertex and to less degree in forehead (received a letter containing unpleasant news at midday). During p.m., especially from 2 till 7, urine was more abundant, light coloured and dilute; pulse was meanwhile smaller than usual. After dose of 2 gr. same effects followed except that headache did not reach frontal region, and no stabbing was noticed; pulse was also unaffected.

β. A 2 dr. dose of infusion (gr. xx to ʒiv) caused only confusion of head; after ½ oz. same effects; during p.m., from 2 till 6, was obliged to pass water every hour, urine each time being copious and watery. On repeating same dose experienced same acute head-symptoms as after large doses of powder, urine being also in this case voided every h.; pulse was unaffected. After 25 drops of tincture (1 to 6) felt from 1 p.m. till evening severe pressure in r. half of occiput, and from 2 p.m. till evening increased secretion of urine. (*Ibid.*)

14. SEYFFERT, after taking ¼ gr. fasting, felt immediately slight transient vertigo; ½ gr. caused, in addition, increased secretion of urine lasting till next d. After ¾ gr. felt, soon, confusion of head, somewhat like feeling of intoxication, and soon passing off, with increased voiding of urine lasting 24 h. Pulse during p.m. was smaller, but not slower than usual. Infusion (ʒj to ʒiv) in dose of ʒss caused only slight transient giddiness, and did not affect kidneys. Of tincture (1 to 6) 12 drops taken in ½ oz. water caused only slight transient giddiness; 30 drops caused same symptoms, but acted more powerfully upon urinary organs, for he was obliged to pass water constantly all afternoon, quantity passed each time being small, but large in aggregate. This condition lasted, though to a less extent, during next d. (*Ibid.*)

15. Dr. BLACK commenced, Oct. 21st, 1845, to prove tinct. on himself, pulse averaging in forenoon when sitting 68, and in e. 75. "At 10 p.m., after sitting quietly for an h., felt my pulse, which was 68, and took 10 gr. tinct.; continued to sit quietly reading. In ½ h. felt dull frontal headache; pulse 68. Headache continued to increase; on

going to bed felt momentary nausea. 22nd.—While dressing, took 10 grt., sat down shortly after, and in 20 m. (9 o'clock) felt my pulse, which was 66; no headache. At 11 pulse 76, of natural strength; after walking slowly four or five times up and down my room, pulse 83; experienced uneasy sensation across chest to l. side. 2 p.m., pulse 75; took 10 grt.; dull, disagreeable sensation in region of heart. 2.30, pulse 80; feeling of slight confusion in head, especially on moving, with painful sensation of weakness in wrists and forearms. At 3 pulse was felt by a medical friend; it was now 76; counted several times, it gave the first $\frac{1}{4}$ m. 36, the second 40, and three beats failed to be felt. 11 p.m., have all e. been feeling dull, uneasiness in various parts of head, with sensation of weakness in forearms; pulse 80; bowels moved naturally in m., and again at 9 p.m. 12, pulse 78, but weak, beating strong from 12 to 20 times, and then very weak for 4 to 5 times. 23rd.—Passed restless n., starting often in my sleep; woke with feeling of great lassitude and depression; pulse while lying in bed 62, small and weak; on getting up, depression and languor increased; occasional faintness, which, on moving, was attended with nausea; appetite good; pulse in e. 72; felt very well. 24th.—Slept well and experienced no symptoms. 11 a.m., pulse 80; full and regular; took 20 grt. Quarter to 12, pulse 90, weak; 3 or 4 pulsations in the m. hardly felt. Throughout d. experienced uneasiness in mammary regions, especially l., extending to l. shoulder and upper part of arm; frequent griping pains in bowels; palpitations of heart easily excited on going up even a slight ascent, which in health would produce no effect. 11 p.m., pulse 82, nearly natural strength, but not steadily so. 25th.—Slept well; woke with dull frontal headache and nausea. 11.30 p.m., pulse 76, took 25 grt. At noon, pulse 84; frequent griping pains in bowels, and uneasiness at heart. In e., pulse 76, rather weak. 26th.—With exception of slight uneasiness in region of heart, experienced no symptoms. Towards e., seized with very violent colicky pains, immediately followed by sudden evacuation of liquid stools. 27th, 10.30 a.m., pulse 72; took 30 dr. 11.30, pulse 88, irregular. 12.30, pulse 84, less irregular. 3, pulse 72, regular. Throughout d. experienced dull frontal headache, with frequent uneasiness in region of heart. 28th, 10.30 a.m., pulse 72, regular, have felt well all d.; towards e. experienced dull, disagreeable pressure outwards in chest and epigastrium, relieved by beating on chest. This lasted 3 h. 29th.—In m. pulse 73; dull frontal headache, increased much by movement. 30th, 6.33 p.m., pulse 78. Nov. 4th.—Having been much occupied, and suffering from the D., I suspended med. until to-day. 11 a.m., pulse 73, natural; took 25 dr. 12.30, pulse 80; 2, pulse 76; 4, pulse 62. Suffered much after dinner from severe bruised pain in epigastrium and over sternum, with feeling of languor and indigestion, going off after a little weak tea. Throughout d. frequent uneasiness, amounting sometimes to pain in region of heart; occasional nausea; seldom free from dull frontal headache; feeling of great fulness in ears, as if they were suddenly stopped, attended with flush of heat over face, lasting 2 or 3 m., recurring frequently, especially after excitement. Before going to bed took 15 dr. 5th.—In m. pulse 72. During early

part of c. of 4th suffered from pains, now to be reported as being felt more on 5th, viz. bruised pain in nape of neck, between shoulders, and extending forwards over anterior part of chest, where flesh was painful when pressed, especially over sternum. These were attended with dull frontal headache, bruised pain in epigastrium, with feeling of distension in stomach. Appetite good. After dinner dull pain and distension of stomach, felt as if I had eaten too much. In e. bruised feeling over sternum and epigastrium was very distressing, preventing any mental enjoyment. 6th.—Passed a wakeful night, suffering from palpitation and uneasiness, especially when lying on l. side, together with pulsations in ear, especially l. 11 a.m., after walking, pulse 75, a little irregular; took 36 dr. At 12 pulse 84; at 12.30, 86, slightly irregular; palpitation and uneasy feeling at heart, readily excited even by moderate exercise. In e. took 20 dr., shortly after suffered from frontal headache, with pressure on temples; pulse 100, irregular, but full; increase of bruised pain in epigastrium. 10th.—Since the 6th I have not taken D., as I continued to suffer much from uneasiness in heart, headache, and disorder of stomach; pulse was normal but easily excited. I still suffer from bruised feeling and weight in epigastrium with flatulence. These symptoms continued until about the 14th. During all the time of the experiment the condition of bowels, genital organs, and urine was not sensibly affected. (*Brit. Journ. of Hom.*, iv, 77.)

16. Dr. K—, æt. 24, of bilious temperament and average health, took under Dr. Black's directions tincture of D. He began by taking 10 dr. twice a d., then 15, then 20, increasing it by 10 dr. until the dose reached 60 dr. twice a d. No effect on pulse was noticed, only possible symptom being the urine assuming a brownish colour, and a heavy, disagreeable smell; with this exception K— felt remarkably well. (*Ibid.*, p. 76.)

17. Dr. Q—, after ascertaining that his pulse generally averaged 48—55, took 10—36 drops daily for 6 d., in all 172 dr. No effect whatever on pulse, only symptoms experienced being headache over vertex, with temporary giddiness, on 6th and 7th d. (*Ibid.*)

18. A medical friend happening to talk of D. I asked him to take a dose. He had been walking 2—3 h. After allowing him to sit down for about 5 m., I felt his pulse, which was 72. He then took 20 dr. In ¼ h., continuing to sit still, pulse was 84, and in ½ h. more 74. (*Ibid.*, p. 80.)

19. Dr. SHARP, Aug. 21, 1872, pulse 80, took at 7.30 a.m. 1 dr. of 1st cent. No change for 5 m. Took another dr. Next m. pulse was 76, rising gradually till at 16th m. it had reached 80 again. A similar fall happened after 3rd dose taken at 21st m.; but after returning to 80 at 30th m., pulse rose to 85 by 36th, returning to 80 by 63rd. At this time there was "decided action on kidneys, shown by increased secretion."

b. Dec. 2nd, at 12.30 p.m., pulse 64, took 2 dr. of tinct. At 5th m. pulse was 68, at 10th 72, at 15th 68, at 50th 64, at which it remained.

c. June 11th, 1873, at 7.35 a.m., pulse 66, took 6 dr. of tinct.

From 2nd to 15th m. pulse varied from 66 to 68, but at 20th had fallen to 63; at 25th, 64.

d. June 16th, at 7.50 p.m., pulse 72, took 8 dr. of tinct. Up to 6th m. pulse rose, reaching 76; thence to 8oth fell, reaching 64; at 10oth was 72 again. (*Essays in Medicine*, p. 717.)

19. I made a series of observations on the effect produced by D. when administered to healthy persons, and to patients free from heart-mischief. Giving it in moderate doses, ʒj—ʒij of infusion three times a d., I obtained results agreeing with those of other observers. The pulse traces showed first a diminution in the frequency of the heart's beats; second, an increase in the force of each beat; third, an increase in cardiac tension. (B. FOSTER, *B. and F. M. Ch. Rev.*, xlviii, 214.)

20. HOMOLLE and QUEYENNE experimented on themselves with full medicinal doses of digitalis and digitaline at different intervals during 1842, 1843, 1848, and 1850. They give as the average results on circulatory organs a slight retardation of pulse, in a few experiments first acceleration then retardation, the latter more marked whenever the system is fully under the influence of the drug, and attended by irregularity and intermittence. The following experiments illustrate the general action of the drug:

a. Prover's pulse for an average of 18 d. observation is 68, maximum 73, minimum 62. Eight doses of powdered D. were taken, during the first 3 d. of 20 centigrammes, and on the following of 30. During this time average pulse was 65, maximum 70, minimum 63. On the last 2 d. of taking these doses he experienced on first pain in stomach and disordered digestion, without any real nausea; on second there was on standing up vomiting of yellow slimy mucus, great prostration which obliged him to lie down, and more vomiting. During 10 following d., though no more D. was taken, he felt considerable intoxication, sight was disordered, and pupils dilated; no decided headache; pulse was in average 60, maximum 72, minimum 53. For first 5 d. stomach was so irritable that all food was vomited. Urine was much diminished. For 24 d. after this sense of intoxication ceased pulse was slow, the average being 63, maximum 72, minimum 55.

b. Homolle, after taking about 7½ gr. of substance taken up by ether from an alcoholic solution of D., had no vomiting for 8 h.; he was then seized with great nausea, faintness, and vomiting, which continued at intervals of 15 m. for 30 h. Next d. his pulse had fallen, and on 4th d. was as low as 48. Vision was impaired, and he could not look steadily at a bright object. Urine was abundant, but bladder's contractility was impaired, and external pressure was required to expel the urine. He had pulsation of the abdominal aorta, anxiety, epigastric constriction, and cough with pneumonic expectoration lasting for a week, but these, he thought, were caused by the continuous vomiting. (*Arch. Gén.*, July, 1861, p. 5.)

21. Dr. BÄHR's experiments on himself lasted from Feb. 27th to May 17th, 1857. During this time weather was very changeable, in February and March unusually mild and dry, in April and to commencement of May dry and inclement, but during last days of experi-

ment fine and warm. During winter up to May he suffered from catarrh of nose and fauces, but no cough. The experiment was directed principally towards the action of *D.* on the heart and kidneys; he took special care to ascertain the average action of these organs for several *d.* and 5 times a *d.* Quantity of urine was, maximum 1265 c.c., minimum 875 c.c.; average in *d.*, 1075 c.c. Pulse is habitually regular, full and strong. Average in *m.* was, in bed, 56, on sitting 61, on standing 66; pulsations of the heart are scarcely felt. The diet was carefully regulated, and maintained the same by weight before and during experiment.

a. Feb 26th.—Took 10 dr. of tinct.; then occurrence of acute rheumatic pains in *r.* shoulder after exposure to cold delayed experiments until March 3rd, when he took in *e.* 10 dr., the pulse then being 60. 4th.—Pulse in bed 58, in *e.* sitting 62; took 10 dr. 5th.—During *n.* had seminal emissions, which had not occurred for a year; pulse in bed 54. 10th, 11th, and 12th.—On each day 18 dr. were taken. On 13th and 14th no doses were taken; urine 900 c.c., sp. gr. 1025, urine depositing a thick white sediment.

b. On 19th the experiment was resumed with $\frac{1}{2}$ gr. of powdered leaves, pulse being 57. In $\frac{1}{2}$ h. it was 54, and in an h. 51; in *e.* 66. Urine 1150 c.c., sp. gr. 1023; emissions during *n.* 20th, 10 a.m., pulse 59. 10.30, took $\frac{1}{2}$ gr. 1 p.m., sudden severe tearing cutting pain in *r.* frontal region from eyebrow upwards, lasting a short time, but returning quickly 3 different times. P.m., 3 $\frac{1}{2}$ h. after dinner, sensation as if food were rising up in œsophagus, but no nausea. 11 p.m., pulse 58, urine 870 c.c., sp. gr. 1023. 21st.—Passed restless *n.* 10.30 a.m., took 1 gr. 11 a.m., pulse 58, urine 1145 c.c., sp. gr. 1017. 22nd.—Took 1 gr.; urine 975 c.c., sp. gr. 1025. 23rd.—Took 1 gr.; urine 1100 c.c., sp. gr. 1018. 24th, 10.30 a.m., 1 gr. After dinner sudden feeling as if heart stood still, with sense of anxiety and need to hold breath, lasting about a m. Urine 1200 c.c., sp. gr. 1024. 25th.—No dose; 10 a.m., pulse sitting 68, standing 81, recumbent 62; distinctly irregular, three to four quicker pulses, then smaller and slower, then stronger and fuller. During whole *d.* felt irritable and out of humour, whereas in general he was cheerful. Appetite diminished. P.m., same pain as on 25th, but not so severe. In *e.*, while walking slowly felt quick pulsating pain in region of *r.* nipple, lasting a m., attended with taking away of breath, with anxiety. Sleepless restless *n.*; about 1 a.m. severe palpitation of heart with rapid pulse; urine 825 c.c., sp. gr. 1026. No doses after this. 26th.—Urine 1110 c.c., sp. gr. 1026. 27th.—Urine 1105 c.c., sp. gr. 1026. Towards the end of March severe nasal catarrh, and during 4 consecutive *n.* seminal emissions, with strong erections before rising and on getting up (a very unusual circumstance with the prover).

c. April 22nd, 10 a.m., took $\frac{1}{2}$ gr. of powder; pulse before taking, sitting 59, standing 61; 3 h. after dinner pulse 73 sitting, 78 standing. 11 p.m., pulse 82 sitting, 94 standing; took after this another gr. Wakened towards 3 a.m. with desire to pass water, which was passed in trifling quantities. 23rd.—Pulse in bed 59. Coffee and bread taste bitter. 9 a.m., pulse 72 sitting, 79 standing. Feet pulse much

quickened when he walks; after sitting an h., pulse 66 sitting, standing 85; while in former position it is full and irregular, in the latter it is small, weak, and irregular. At 10.30 a.m. 1½ gr.; in an h. slight giddiness with difficulty of fixing eyes on an object. Sense of emptiness in stomach; noon, pulse 65 sitting, 81 standing, with the same character as in forenoon. 11 p.m., pulse 68 sitting, 84 standing, and irregular as before. Urine 1430 c.c., sp. gr. 1030. 24th, 11 a.m., pulse 60 sitting, 72 standing, very slight movement increases frequency and weakness of pulse. Urine 950 c.c., sp. gr. 1022. 25th.—Seminal emissions towards 1 a.m. On following n., unusual erections.

d. May 5th, 20 a.m., resumed taking 1½ gr.; previous to this pulse 61 sitting, 68 standing. 11 a.m., squeezing pressure on stomach; later while visiting a patient sense of giddiness as if he might swoon away. 6 p.m., pulse 68 sitting, 85 standing; again giddiness and faintness. 6th, 9 a.m., pulse 69 sitting, 75 standing. 7 p.m., pulse 67, 75 standing; no other symptoms noticed. Urine 1460 c.c., sp. gr. 1018. 8th, 10 a.m., took 30 gr. tinct. Little variation in pulse during d. 10 a.m., pulse 70 sitting, 82 standing. A similar report and dose may be given to 9th. 10th.—Pulse in bed 70. After passing a much diminished quantity of water, sp. gr. 1031, felt pressure in bladder and burning in urethra, lasting ½ h. The complexion was so bad as to attract attention. On getting up in m. continued erections, more marked than on 8th, and becoming painful and unpleasant. In e. in bed throbbing toothache in l. lower incisors, lasting ½ h.; proverbs teeth are sound, and he never suffers from toothache. Wakes at n. with painful erections like chordee; sleep very restless, disturbed by dreams. 15th.—Took 2½ gr.; n. again restless, with return of the toothache of 10th, but not so severe. Sp. gr. of urine in m. was 1033; quantity during d. c.c. 1050, reaction neutral, average sp. gr. 1026. During all the proving there was rather a tendency to costiveness, which is unusual with the prover. On 18th motions became natural; he complained all d. of troublesome dyspnoea, which had been observed in a slighter degree on 14th and 17th, but to-day felt more urgent, increasing towards e.; sense as if clothes over chest were too tight. Pulse, 11 p.m., 82 sitting, 90 standing, small, weak, and somewhat irregular. Heart-beat is strong, and much more perceptible than usual. No observations regarding urine taken. 19th.—Erections towards the m. had ceased for some d. Pulse 58 sitting. Dyspnoea shown lately in less degree, but accompanied by sense of uneasiness and exhaustion in the chest, and repeated dry cough. P.m., dyspnoea increases; not worse in e. than during previous n., worse on writing. Pulse, 7 p.m., 74 sitting, 86 standing, rising soon to 94, but without any noticeable irregularity; it gradually became slower. 20th, 9.30 a.m., pulse 52 sitting, 60 standing, full and regular. Sense of oppressed breathing continued, slight in m., increased in afternoon and e.; some palpitation of heart. All n., deep under r. mammary region, drawing pressive pain prevented him a long time from going to sleep; restless n. The sense of oppressed breathing continued in a less degree throughout May, and did not entirely cease until the commencement of June. (*Dig. purp.*, Leipzig, 1859.)

22. LEMRKE.—April 11th, 9 a.m., $\frac{1}{4}$ gr. of *D.* leaves. Taste acrid, bitter. 9.30 a.m., marked heat and redness of face, lasting $\frac{1}{2}$ h. Head heavy at vertex; pupils contracted. 10 a.m., chill over back, cold hands for some m.—16th, 8.30 a.m., $\frac{1}{4}$ gr. After $\frac{1}{2}$ h. heat in head and face; pupils dilated; pulse slow, full, and large, soon afterwards small, quicker; pupils after 10 m. contracted, afterwards repeated alternation of dilatation and contraction of pupils. 9.30 a.m., head heavy, pressure on vertex and forehead. Pupils contracted, but sight stronger, clearer. 10 a.m., at first heat on back, then chill over it, with cold hands, rigor over back lasting several m. Drawing in toes. The heat of head lasts till noon, heaviness and confusion with pressure on vertex some h. longer.—23rd, 7.30 a.m., $\frac{1}{4}$ gr. 7.45 a.m., forehead and vertex hot and heavy, pulse 60 to 65. Pressure on vertex, pupils contracted. These symptoms lasted till 10 a.m. Pulse varies quickly from 65 to 75 or 80.—May 2nd, 8.30 a.m., $\frac{1}{4}$ gr. 9 a.m., pupils dilated, slight drawing in fingers, white spots and black rings hover before eyes for more than 1 h. 9.15, head heavy, confused, as if full, for some h. Painful drawing in r. lower extremity, especially thigh, when sitting, then in r. knee and ankle. Dryness and scraping in fauces, drawing in toes repeatedly. 10 a.m., pressure in r. elbow, severe boring in r. wrist towards thumb continued. Pulse between 65 and 75. Urine normal. 4 p.m., drawing in bones of head.—8th, 8.30 a.m., $\frac{1}{4}$ gr. Flickering and black rings and spots hover before eyes, pupils contracted, head confused, heavy, pressure in some parts of it; pressure in l. knee and bones of foot. 9 a.m., heat of head; drawing in toes; great general heat; distended veins; pulse 85. Many spots, stripes, white specks hovering before eyes; pressure and weight in forehead. The general heat and quick pulse last $\frac{1}{2}$ h. The other symptoms longer. Scraping in fauces. 9.45 a.m., chilliness in back, cold hands, rush of cold through limbs, pulse 60 to 65, frequent rigor, lasting nearly $\frac{1}{2}$ h. Head, especially in frontal region, very heavy, confused, painful, especially when walking, stooping, getting heated; lasts several h.—27th, 8 a.m., $\frac{1}{4}$ gr. 8.30 a.m., drawing in elbows and knees. 8.45 a.m., scraping in fauces; sinciput heavy, hot; tearing in stomach; uneasiness in lower extremities and knees; rings, spots, flickerings before eyes; frequent chilliness over back, cold hands. 9.30 a.m., suddenly a peculiar feeling in chest as if the heart stood still, several strong, slow heart's beats, sudden heat in occiput, and momentary loss of consciousness with cold sweat on forehead, all lasting but a moment. Pulse 60 to 65.—June 25th, 7 a.m., $\frac{1}{4}$ gr. 7.30 a.m., head confused, dryness of mouth. 8 a.m., heat all over body, especially of head; hot skin, swollen veins; pulse 80, small. Pressure in toes and on various parts of skull; dryness and scraping in fauces till 3 p.m.—27th, 7 a.m., 1 gr. Continued pressure in stomach. 7.30 a.m., head confused, hot, pressure in sinciput. 8.15 a.m., extreme heat of head, pupils dilated; bright stripes hovering before eyes; burning heat in hands; pulse 75, small; single, strong, slow heart's beats when sitting. General heat of body; pressure in bones of feet; black rings and spots before eyes; oppressed feeling in heart and obligation to breathe deeply, repeated at noon. 9.30 a.m., very severe cutting at intervals in abdomen, also later. Noon, pressure in r.

shoulder repeatedly, and in l. knee. Urine more frequently passed, and increased in quantity, also at n., colour normal.—29th, 8 a.m., 1 gr. 9 a.m., black rings and spots before eyes, pressure in toes; pulse slow, large and full; oppressed feeling at heart, and often laboured breathing; pressure and weight in sinciput. 9.30 a.m., scraping in throat, drawing in fingers. Noon, pressure and boring in pectoral muscles, in l. side superiorly; dryness and scraping in throat; urine scanty, dark. 6 p.m., stiffness and pain in r. nuchal muscles, especially on bending head, continues till he goes to sleep, and only goes off in forenoon of next d. (*N. Z. f. h. Kl.*, ii, 171.)

23. a. PURKINJE took daily for 4 d. 3 gr. of aqueous extr. Without any general disturbance, there occurred on 2nd d. a very slight flickering before l. eye, but therewith he was unable to recognise a distinct conformation in the distribution of light and shade. It was as if at each glance the crystalline lens trembled, and thereby altered refraction, producing transient breaking up of lights and shadows on objects. Next d. flickering was more noticeable, and not only on winking, but as often as he looked from a light to a dark portion of the field of vision; this led him to suppose it not a mechanical movement, as he was at first disposed to think, but one more due to the sudden change from light to shade. He now directed his eye to the bright sky, and suddenly covered it, without closing eye or moving it in the least, with the flat hand, when flickering was noticed quite as distinctly as before. On succeeding d. this condition also occurred in r. eye; repeated observations sharpened the vision, and he was able to discern a definite conformation; there seemed to be in middle of visual field an alternately disappearing and reappearing roundish spot of dim light, and about this concentrically several waves of light and shade in similar motion. This flickering continued for 7 d. after taking drug; but at last intermitted, appearing (for short time only) when going into room from open air, after moderate exercise, or after going upstairs.

b. Some weeks later P— took at 8 a.m. a decoction of $\frac{3ij}{\text{Oj}}$ of leaves to Oj of water. At 10 nausea; pulse fell from 60—70 to 50, sometimes intermittent, and with each intermission oppression of heart as if grasped by hand. No appetite at meals. At 8.30 p.m. paroxysm of the peculiar sensation in heart, with intermittent pulse and congestion of head, especially in l. occiput, with urging to vomit. This he favoured mechanically, ejecting a quantity of saliva, mucus, and acid food. Woke 3 times in n. from quiet dreamless sleep with a violent sneezing, irritation to which seemed to mount upwards from cardiac orifice of stomach. Next m., at 5, vomited spontaneously a quantity of decoction, unaltered. Now came flickering before l. eye; nausea, oppression at heart, feeling of weakness and trembling in muscles lasted all d. He was disinclined to leave bed; and took only a little soup. Towards noon flickering came on in r. eye also, the figures of which had 3 distinct outlines. Closing eye and rubbing it gently caused clouds of phosphorescence to pass before it. Eye very sensitive to light, but pupil not dilated. Several times this d. he had to excite vomiting, when the nausea and urging were at their worst. On 3rd d. all symptoms the same. On 4th d. he felt very unstrung; calves especially ached;

slight diarrhoea came on; urine was very red and burning; on the border of the cornea of r. eye, near inner angle, after burning came a small pustule with a little inflamed areola. General symptoms did not disappear till 7th, flickering not till 15th day.

c. The figures formed by the flickering in these experiments P—describes as "Flimmerosen," because the outline of the rose is their type. In place of the round spots in the middle of the field of vision observed in the first experiment there now occurred a space bounded by four deep oval circular lines, forming four large round indentations, and the waves of light and shade surrounding it show the same indented form but less pronounced. These figures, which first appeared on the 2nd d., were formed when they reached their height on the 3rd by curved (but flatter) lines having 5 indentations, and were surrounded by waves of light and shade exhibiting a similarly fivefold but not deep indentation. During the later days, when the flickering decreased, there was noticed only a lateral fragment of the rose shape, as it were a small segment of a much larger but much less deeply indented circle than that seen heretofore. (*Phys. der Sinne*, ii, 120; from *Frank's Magazin*, iv, 154.)

24. Man, æt. 25, in good health. For 3 d. preceding experiment average daily quantity of urine excreted was 1474.5 c.c., sp. gr. 1024.30, solid matter 75.31 grm., of which 30.17 grm. were inorganic, and 45.14 organic. Tinct. was now given, 20 min. 3 times daily for 2 d. Urine passed on 1st d. was of pale straw colour, and feeble acid reaction; quantity 1950 c.c., sp. gr. 1013.25; total solids 69.98 grm., 31.27 inorganic, 38.71 organic. No other effects. On 2nd d. urine presented similar physical characters; quantity was 1873.6 c.c., sp. gr. 1014.32; total solids 63.74 grm., inorganic 30.15, organic 33.59. Pulse slower and fuller. On 3rd d. quantity was 1624.9 c.c.; sp. gr. 1020.04; solid matter 67.29 grm., 33.19 inorganic, 34.10 organic. Urine otherwise same. On this d. characteristic cardiac effects of drug were manifest. (HAMMOND, *Amer. Journ. of Med. Sciences*, N. S., xxxvii, 276.)

II. *Poisonings*.—1. A healthy, robust young man, affected with sore-throat, was advised to take "throat-wort tea." Having filled a quart pitcher with the fresh leaves of D., he poured upon them as much boiling water as the pitcher would hold. Of this strong infusion he took a teacupful on going to bed, which caused him to sleep soundly. In m. he took a second cupful (the infusion being much stronger), and then went to his employment. He soon felt dizzy and heavy, began to stagger, lost his consciousness, and at length fell down in a state of syncope. On being conveyed home he vomited severely, and suffered extreme pain in abdomen. When visited he was conscious, complained of great pain in head; pupils were dilated, and the surface was cold, pallid, and covered with a copious perspiration. Pulse was low, about 40, three or four feeble pulsations being succeeded by a complete intermission of several seconds; and each stroke, though weak, was given with a peculiar explosive shock. There was still great pain in abdomen, with incessant and violent vomiting; no diarrhoea; suppression of urine and abundant flow of saliva. Brandy and ammonia with warmth were employed, and after reaction had commenced purgatives were admin-

intered. The man slowly recovered, but the pulse presented its peculiar beat and weakness for several d., and during this time the man could not bear the upright position. (TAYLOR, *Poisons*, p. 747.)

2. A peasant, *æt.* 55, took by the advice of a neighbour half a glassful of the juice of *D.* for the cure of an intermittent fever. Severe pain in epigastrium soon set in, followed by constant evacuations, both by vomiting and stool, of dark yellow colour and offensive smell, confusion of ideas, giddiness, contracted pupil, cold sweat, universal and partial trembling and likewise stiffening of body, bending forward of body attended with violent tearing pain in the abdomen, sighing respiration, difficulty of swallowing, small irregular pulse, and scanty, very painful expulsion of red urine. These symptoms continued 6 d.; on 7th pain subsided, but patient was stupefied, face livid, body covered with cold sweat, respiration more rapid. He died on 8th d. On dissection stomach was found empty and inflamed at larger curvature, but more so at pylorus. Duodenum was in same state, and a gangrenous spot at its larger curvature. Whole of the intestines were inflamed, and partially gangrenous. Liver and spleen were swollen, and bladder full of urine. (*Oppenheim's Zeitschrift*, 1843, May, p. 51.)

3. A man suffering from asthma took by mistake 4 grammes instead of 5 centigrammes of powdered leaves. He was soon attacked by vomiting, vertigo, and dazzling; he could not sit up or distinguish objects. The vomiting was violent, attended by abdominal pains, and continued for 2 d.; on 3rd d. these were less, pulse remaining slow and slightly irregular. On 5th d. pulse was still slow, pains less, asthma decidedly relieved. Weakness and slowness of pulse continued during the 6th and 7th d., and these symptoms disappeared on 9th, but at this date vision was still confused, and the fire appeared to the patient of a blue colour. It was not until the 14th d. that vision became normal. (*ORFILA, Toxicologie*, 1845, ii, 418.)

4. Victoire Z—, servant with an apothecary, generally of good health, sent for me on March 10th, 1863, about 5 p.m. She complained of lassitude, violent headache, and pain in the pit of the stomach. Since the previous evening she had vomited a great deal and felt herself much worse. She attributed her malaise and the vomiting to indigestion owing to eating chestnuts. I found skin cold; pulse 52, of fair strength, but irregular, and with frequent intermissions; face was pale, pupils dilated; tongue slightly coated, thirst considerable; epigastric pain was increased by pressure; abdomen painless, no diarrhoea. Sinapisms and infusions of lime flowers were the remedies. On the 11th, 3rd d. of her illness, she had not slept at all; vomiting recurred as often as she took anything. Pulse 52, irregular, and intermittent; temperature of skin subnormal; pupils still dilated. The cause of her illness was obscure until the apothecary exclaimed, "The cause has been discovered; the unfortunate girl has been poisoned with infusion of digitalis." She had taken it by mistake; the infusion contained about 50 grains of the leaves. From this moment all was explained, the slowness and irregularity of pulse, the vomiting, the muscular debility. For 3 h. she had experienced no uneasiness, soon after felt desire to vomit, then vomited alimentary matters of a greenish-yellow colour.

She felt cold all over, and had vertigo and dimness of sight to such an extent that she could not come downstairs the whole e. Since taking to bed she had not urinated; no movement of bowels. She felt bruised all over, felt as if drunk, and vision was still indistinct; soft blowing murmur with first sound of the heart. Thursday, 4th d. of illness, found patient had passed water during n. and also towards m.; bowels not opened. Vomiting continues, pulse 42, respiration embarrassed (16); still vertigo, felt as if drunk and much fatigued. Evening, pulse 46, stronger; vomiting less frequent. Friday, 5th d., pulse 58, less irregular, vomiting less frequent, patient's feelings as before, menstruation has come on. In afternoon pulse 60 and quite regular. The first part of the night she passed comfortably; at 2 a.m. she got up alone to make water; on returning to bed she suddenly fainted, the attendant rushed to her but she was dead. No *post-mortem* examination was obtained. (*Gazette des Hôpitaux*, June, 1864.)

5. Poisoning of two healthy recruits by long-continued use of D. taken to save them from military service; as reported by Dr. CONRAD KÜHNHOHN.

a. The symptoms of one on Dec. 18th (4 d. after enrolment) were complete loss of appetite, nausea, heartburn, occasional vomiting, constipation, great tenderness over stomach, headache, and dizziness. He presented a miserable appearance, tongue was thickly coated, and breath foetid; temp. 98°6', pulse 56. These symptoms continued until end of December, strength failing, and aspect becoming more pitiable. Jan. 1st.—Skin pale and ashy grey, parchment-like; lips, conjunctivæ and guma anæmic, tongue moist, with greyish-white coating, breath offensive. No disturbance of motor power, sensorium free; temp. 97°8', pulse 52. These symptoms remained stationary until Jan. 9th, with increase of headache and vertigo; also noise in ears, dimness of vision and hiccough. On 9th he stood up to have his throat examined and fell down in a faint. At 1 a.m., wishing to go to the closet, he was helped by an assistant to dress; scarcely had he risen when he fainted, became convulsed, and died. *P. M.*—All the organs were healthy; blood nowhere coagulated, but fluid, and of dark cherry-red colour; r. side of heart full, l. contained no blood. Brain was very anæmic; mucous membrane of stomach and duodenum presented some isolated spots of congestion upon which the capillaries had ruptured, and ecchymoses were found. The deceased, it was calculated, had 246 gr. of powdered D. in shape of pills during a period of four to five weeks.

b. The other recruit, alarmed by this result, confessed to having taken some of these pills, but for a shorter time. He complained of loss of appetite, loathing of food, nausea, vomiting, constipation for 3 or 4 d., tinnitus aurium and vertigo, and the sense of a thick cloud before his eyes. (*Lancet*, 1876, i, 582.)

6. A servant-maid, æt. 22, took at 7 a.m., Feb. 4th, a tablespoonful of tinct. of D.; she took her usual meal at 8, and felt no effect until 12.30, when she had malaise, followed in an h. by vomiting. At 8 p.m. she was admitted into the Hôtel Dieu, Paris. She had had frequent and violent vomiting, first of food, then of greenish-brown viscid

liquid; very violent epigastric pain, intense pain over r. orbit, disordered vision, noise in ears, and great weakness. Towards 5 p.m. there had been some spasmodic movements of thighs, then occasional shivering followed by sweats, at the same time flushings of heat towards ears, and from thence spreading all over body. Pulse was scarcely to be felt. The n. passed without sleep, frequent vomiting of greenish thick matter; throughout the n. general numbness. 5th, m., face very pale, greenish and livid, with redness over malar bones; look of extreme exhaustion; more headache; vertigo and noise in ears; sight disordered, scarcely able to see surrounding objects, pupils dilated and inactive; intelligence clear; extreme malaise referred especially to epigastrium, causing frequent sighing; continual nausea, occasional vomiting; the tongue pale, not coated; no appetite, great thirst, desire for cold drinks; no action of bowels since yesterday; she has passed no urine, bladder feels distended; respiration deep and unequal, 3 or 4 inspirations are followed by a deep and moaning expiration; the action of the heart most violent, affecting the head of the auscultator, no bruit, the first sound deep and dull, the second very sharp; the pulse is irregular, intermittent, and 44. Skin cold, especially on extremities. At n. urine was drawn off by catheter. 6th.—No sleep, occasional vomiting of greenish matter, slight delirium with agitation. Face is less livid, great thirst, intense frontal headache, vision clear; pulsations of heart still very violent, heard all over chest; pulse hard and resistant, 48. 7th.—No sleep, violent delirium during n., no vomiting, still the violent headache. This m. one vomiting; acute pain at epigastrium and in abdomen; pulse 38. No urine passed. 8th.—Violent delirium, no sleep; continued whining, acute epigastric and abdominal pain; no vomiting, no action of bowels for 2 d., intense thirst. Face pale and expressing great prostration, eyes fixed, pupils less dilated. Heart-beats weaker, more frequent, and always intermittent; the pulse easily compressed, irregular, intermittent, 48—60. She has passed urine, thick, and holding in suspension whitish matter, which was not examined. On 9th no delirium, less anxiety, abdomen painful; she has passed urine once, pulse 52. On 10th a little sleep; headache, and heat of the extremities; general aching; the pulse very unequal, 60. 11th and 12th.—Continued improvement, but on the last date a soft bellows murmur is audible at base of heart, and up aorta towards carotids. 13th.—Ten loose motions. More calmness, but heart's action violent and continuance of murmur with first sound; pulse strong, a little unequal, intermittent, 68—84. It ceased to be irregular after 21st, but preserved its strength. (TARDIEU, *de l'Empoisonnement*, p. 685.)

7. A servant-maid, æt. 27, who was pregnant, took for edema of the legs a large quantity of the fresh juice. After taking it she frequently vomited and lost a considerable quantity of blood from the uterus, which led the attendants to suppose abortion had taken place. On the 5th d. she was seen by a medical man; she was then in a state of complete prostration and quite comatose; face pale; the tongue swollen, red at edges, white in centre; pulse very slow; epigastrium tender; frequent hiccough and diarrhoea. She grew worse, and urine and stools passed involuntarily. She died on 12th d. Autopsy showed

partial inflammation of stomach and a little serum in pericardium. (*Ibid.*, p. 687.)

8. I was called, Sept. 16th, 1870, to see Mrs. H—, who complained of a very distressing nausea, together with a heavy headache, and flashes of light before her eyes. There had also been great commotion of heart—"a great throbbing and pounding," as she expressed it. It was found she had been drinking for a cough a tea made from foxglove instead of mullein. On leaving this off symptoms promptly subsided. (P. K. GUILD, M.D., *Publ. of Mass. Hom. Soc.*, iv, 30.)

9. The effect of too large or long-continued doses of D. is manifested by the disordered condition of the alimentary canal, of the circulating organs, and of the cerebro-spinal system. The more ordinary symptoms are nausea and actual vomiting, slow and often irregular pulse, coldness of extremities, syncope or tendency thereto, giddiness, and confusion of vision. Sometimes the sickness is attended with purging, or even with diuresis; at other times the patient is neither vomited nor purged, and the principal disorder of system is observed in the altered condition of the nervous and vascular organs. External objects appear of a green or yellow colour; the patient fancies there is a mist, or sparks before his eyes; a sensation of weight, pain, or throbbing of the head, especially in the frontal region, is experienced; giddiness, weakness of the limbs, loss of sleep, and occasionally stupor or delirium, or even convulsions, may also be present. The pulse becomes feeble, sometimes frequent, sometimes slow; and there may be profuse cold sweats. Salivation is sometimes produced by poisonous doses, and has been known to last three weeks. (PÉREIRA, *op. cit.*)

10. *a.* D., in common with only a small number of other drugs, possesses the peculiar faculty (which is probably due solely to an unusually slow elimination through the kidneys) of unfolding its action in the body during a relatively long period, and therefore of developing cumulative effects when repeated doses are administered. These may, under certain circumstances, produce threatening phenomena, or even symptoms of poisoning, among which are headache, dryness of throat, nausea, sensation of choking, and—in well-marked cases—buzzing in ears, disturbances of vision (manifested by appearance of sparks before eyes, amblyopia, or diplopia), also dizziness, swooning, vomiting, diarrhoea, sleeplessness, a thready, scarcely appreciable, and sometimes arrhythmical pulse, and a very great fall in the bodily temperature, a result of the slowing of the circulation. A headache, which appeared after even 0.03—0.09 grm., was a prominent symptom in many cases.

b. Traube has observed an affection of the skin after the use of D. In a case of pleuritis and pericarditis, the patient took from 4th—6th d. of his illness 3.75 grms. in infusion. Four d. after last dose there appeared, while bodily temperature was normal, an erysipelatoid affection of the face, which resulted, 5 d. later, in an excessive ragged desquamation. In a second case, of pleuro-pneumonia, 4.08 grms. were taken in 5 d. Four d. after last dose, patient—then free from fever—experienced a rise in temperature; and on 5th d. there appeared on body, supinator surfaces of forearms, and backs of hands, a papular exanthema, made up of quite prominent, carmine-red, rounded spots

disappearing on pressure, the majority of which united to form large patches elevated above surface of skin. Next d. desquamation began on face in tolerably large masses, whilst new eruptions showed themselves on upper arms and neck. Four d. later still, exanthem had almost entirely disappeared; and not until some time afterwards, during the course of a newly-developed typhoid affection, did desquamation, in large flakes, occur on the body and extremities. A similar exanthema, spreading over the whole body, was observed by Schuchardt in the case of a young man who had taken D. for a long time for the relief of endocarditis. When same patient took D. again, one year later, same eruption appeared with equal intensity. (LEWIN, *op. cit.*)

11. In the case of a man, æt. 50, the tinct. taken in medicinal doses for about 20 d. produced the following symptoms:—The pulse, which during a former use of the medicine had lessened by 10 or 15 beats, sank almost to half its usual number. The patient was tormented with the most painful disquietude, so that, even in n., he left the bed every moment, could not sleep, and with his eyes open conversed with persons who were not present. At same time pupils were dilated, and conjunctiva both of eyes and lids red; he had but little appetite, with great nausea, violent thirst and dryness of mouth; alvine evacuations were scanty; secretion of urine increased. These phenomena lasted 6 d., when restlessness diminished, sleep returned, and dilatation of pupils disappeared. (*Med. Times*, xxi, 275.)

12. A man, æt. 52, having pleural effusion, but otherwise (save for furred tongue) fairly well, heart and urine quite normal, pulse 70, was ordered infusion of D. 3 times a d. He at first measured dose, but soon began to guess it, and gradually increased amount. Shortly after doing this, appetite began to fail, he had bad taste in mouth, and tongue felt very dry. He felt also dull sickening pain over stomach, rising up line of sternum to throat. He felt weaker every d. This was about middle of Nov., about 3 weeks before symptoms attracted attention. He went on gradually increasing dose. When he lost his appetite he also got occasional headache; and along with the pain in epigastrium he had palpitation. Bowels were costive. About 3rd week in Nov. he vomited once or twice after meals when seized with severe fit of coughing. Symptoms grew worse; he felt weaker and weaker, and less able to walk. About 1st or 2nd Dec. he noticed his sight becoming dim; and when he looked at his own hands, or another's face, they seemed blue. Pain in stomach was now almost constant, but headache was not much worse—most felt p.m. On m. of Dec. 5th he complained of weakness and want of appetite. His pulse was found weak and very irregular. At midday visit cardiac action was found increased, and pulse distinctly dicrotic; the general rhythm was about 2 beats in 2 second, and then an interval of about two seconds; pulse was 58, and somewhat feeble. Pupils were natural and skin moist; urine depositing lithates freely, otherwise normal. He got ℥ij of brandy before I saw him, which I did about 5.20 p.m. At that time cardiac impulse was very abrupt and felt strong; pulse was 66, and very irregular. He omitted the D., and took brandy and sp. amm. arom., under which dimness of vision and pain at epigastrium gradually diminished up to

8th, when he had (p.m.) rigors, and went to bed complaining of intense frontal headache. This better next d., but continued to some extent up to 19th, when record ceases. It was over r. or l. parietal and frontal bones, chiefly about parietal protuberances, never in vertex or occiput. Pulse was regular by 13th. (BRUNTON, *On Digitalis*, 1868.)

III. *Experiments on animals.*—1. a. In 6 or 8 h. after giving a large dose of D. to horses they stand at the stretch of their halter, sad, dejected, and without appetite, and their coats lustreless and rough. Then signs of general excitement appear. Conjunctivæ are injected and of a bright red; eyes brilliant and fixed; face pinched; nostrils dilated and quivering; respiration hurried, number being 15 to 20 or 25 in m.; circulation more rapid, beats of heart being abrupt, their energy much increased, and accompanied after a certain time by a vibratory thrill, with a decided metallic tinkling, and as poisoning goes on a distinct bellows murmur becomes audible, and is rendered louder by any exertion; beats then show decided intermitence, and pulse is small, thready, and intermittent; heat of body is increased; hot sweats appear on ears, nose, shoulders, and flanks; mouth is hot and filled with saliva, which is sticky and scanty; tongue is of purplish red at its tips and edges, and is covered on dorsum by a thick coat, which gives it a leaden hue; feces are of their normal form and colour. During the first 12 h. the animals often show signs of transitory intestinal pain.

b. At the end of 24 or 36 h. stage of excitement has passed and animals become comatose, their heavy heads hanging down towards litter or kept at bottom of manger, completely insensible to external poises or stimuli, their eyes fixed, without movement or expression, sometimes half covered by the fading lids, and at other times haggard and ready to start from their orbits, pupils greatly dilated, and conjunctivæ, previously of a light red, are now of a violet brown, and their secretion dried up. The previous acceleration of the respirations is now succeeded by great slowness, their number descending to 8, 7, or even 6 per m., and being deep, broken, and trembling. The heat of the body is diminished, the sweats stop, and the skin becomes cold. The feces are now of a browner character, and covered with a layer of mucus more or less thick. The urine is at first suppressed but at the end of 36 or 48 h. is passed in abundance, pale, clear, and inodorous, voided very frequently, and in small quantity at a time. There is great muscular weakness, staggering gait, oscillation of posterior extremities, and a kind of paralysis which slows their movements. In some cases there are slight vertigoes, in others spasmodic fibrillary contractions of muscles of face and of *alæ nasi*. Severity of symptoms rapidly increases. Muscular weakness becomes extreme, the legs are no longer able to support the body, and the animal falls *ex masse*. The respiration becomes more disturbed, sometimes jerking, difficult, and plaintive, more frequently very slow but in some cases slightly accelerated. In some it presents remarkable intermitency, and its time of stoppage coincides with that of heart when latter also intermits. In some cases 24 to 36 h. before death there has been noticed a paralysis of lips, chiefly upper, and a thick and stringy saliva flows from mouth. Diarrhœa appears, and quantities of a very fetid, soft, blackish

paste are discharged, and when intestinal canal is completely emptied diarrhœa becomes serous, expelled matters being liquid, blackish, and of repulsive odour. Skin becomes icy cold; thermometer introduced into mouth, rectum, or subcutaneous cellular tissue standing in some cases at 31.5° , or even, before death, 25° C. Death generally comes on quietly but is sometimes accompanied by unconnected movements.

c. When given in doses less rapidly fatal, so that each dose would only produce slight symptoms which would soon pass away if dose were not carefully repeated, influence which it exerts on circulation is by far the most prominent phenomenon. At first there is slight excitement of heart and its pulsations are a little quickened, then later on they undergo a remarkable diminution, falling to 25 or even 20 per m. If dose be still repeated beats become quicker and more energetic, rising to 55, 60, 65, and 70. The cardiac sounds are more clearly heard, more distinct from each other than normally, and following a different rhythm, there being occasional intermittences, usually after same number of beats, but this number varying in different subjects, and in the same subject according to date of poisoning. There may be 5 or 6 pulsations between intervals in some, 15 or 16 in others, and in yet others intermissions are completely irregular. As poisoning goes on metallic ringing appears and becomes more and more distinct and sonorous. Still later a vibratory thrill appears and is followed by a bellows murmur. As death approaches beats of heart become more and more rapid, being 92, 100, or even 114. Beats of pulse correspond in time to those of heart, but as the latter increase in energy in same ratio the former become more and more feeble, and less and less perceptible, till at last when poisoning is complete it becomes completely imperceptible. In doses so small as to have no poisonous effect its action is shown first on the urine, and secondly on circulation. To show this Messrs. Bouley and Reynal give following typical case:

d. A Hungarian horse, of an excellent constitution, employed in the service of the Veterinary School of Alfort, aged 10 years. Normal state at time of experiment: Respirations 16, pulse 37, full, mucous membranes rosy, digestive functions intact; all the signs of health. Jan. 1st, 1849, 11 a.m., 6 grm. of D. powder were given in electuary when animal was completely fasting. 2 p.m., respirations 14; passed water, which was clear and plentiful. 6 p.m., respirations 13, pulse 35; water always passed in abundance and with same limpidity. Next d. effects had disappeared. 4th, 10 a.m., 6 grm. given as before. At time of giving respirations 16, pulse 37. 3 p.m., respirations 14; urine clear, abundant, and odourless. 6, respiration, circulation, and urinary secretion same. 8, respirations 13; cardiac beats a little diminished in intensity, otherwise quite healthy. 5th.—7 a.m., conjunctivæ pale, pulse 22, small, and not well felt; beats of heart diminished in intensity, remain quite distinct, marked intermittence after each beat; respirations 6 to 7. Noon, same state. 2 p.m., pulse 25; intermittence less sensible; respirations 11; urine always clear, less abundant. 7 p.m., lying down quietly; litter much soaked with urine; pulse 30; intermittence disappeared; respirations 15. 6, all symptoms of med. disappeared and functions return to their normal state. 8th.—Six grm. of

D. At moment of administration pulse 30, respirations 10 to 11, thermometer in rectum 38.75° C. and 31.25° C. in nasal cavities; all signs of health. 1 p.m., nothing particular. 4, pulse 28; no change in rhythm of heart; respirations 10; urine clear and in considerable quantity; temp. 36.25° C. in rectum; a little tenderness of abdomen. 8 p.m., appetite good; pulse 26; cardiac pulsations ringing; respirations 14; urine always abundant. 9th.—Conjunctivæ pale; pulse 24, small, hardly sensible; beats of heart enfeebled; respirations 6; temperature 36.25° C. 2 p.m., mucous membranes more coloured; pulse 30; beats of heart more intense; respirations 12; urine less abundant and less limpid; functions now began to return little by little to their normal state. In almost every case which they experimented on the history was exactly the same. (BRUNTON, *op. cit.*)

Digitalinum.—A glucoside obtained from *Digitalis purpurea*.
C₁₂H₂₂O₁₁.

I. *Proving*.—1. a. HOMOLLE, in good health, with average pulse of 64, having on previous e. blistered a small surface on inside of l. arm, applied, July 12th, 1841, at 11 a.m. over this abraded spot 1 cgrm. of D. 12, dazzlings, painful numbness of arms, slight headache; pulse 64. 2. 30 p.m., continued headache, yawnings, general muscular weakness; pulse 70. 5, headache had disappeared; dined with appetite. 7, pulse 72, regular; bowels moved. 9, raw surface looks irritable; another cgrm. applied. 10, pulse 60, less regular, and now and then intermittent; headache, dazlings, muscular weakness. Slept well. 13th.—Abraded surface covered with a little muco-pus. Two more cgrm. applied at 7 a.m. 8, pulse 64—68, slight headache and fleeting dazlings. Same kind of symptoms continued till e.; urine diminished; appetite good. At 8, pulse 68—72, soft, very irregular as to force and rhythm, intermitting once in about 20 beats, then about every 5th beat one very feeble; slight shivering. 10, pulse 57, very irregular. Sleep very agitated and often interrupted; painful and unusual sense of heat in hands and feet. 14th, 8 a.m., pulse 68, regular; again applied 2 cgrm. 11, headache, dazlings, vision slightly disturbed, pulse 60, appetite good. 2 p.m., pulse 60, irregular and intermittent; arm very painful. 6, after dinner, return of headache, dazlings, great sense of fatigue. 8.30, pulse 60, unequal, irregular, intermittent; great fatigue, with aching in loins, not to be accounted for by day's occupation; urine scanty and bowels costive; great feebleness, as after violent emotion or syncope. Pain and swelling of arm obliged discontinuance of experiments. He thought appetite rather increased during their continuance.

6. July 28th.—Pulse 64—72, took at 8 a.m. 5 mgrm. No appreciable effect to 2 p.m., when 5 more were taken. 5, appetite good, slight faintness. Pulse varied from 60 to 50 and again to 56; there were frontal headache, dazlings, loss of appetite, sinking at epigastrium, intestinal flatulence, borborygmi, eructation, slight abdominal pains; urine abundant; great fatigue; painful heat in e. but no thirst. 31st.—Sleepless n.; at 6 a.m. pulse at rest 54, moving raises it at once to 66, falling immediately to 54 when at rest. Throughout this d. and next frontal headache, yawnings, dazling of sight, and disorder of

stomach continued. Urine was abundant and passed with heat. As pulse fell it became irregular and intermittent. For 2 d. after drug was discontinued pulse continued lowered, and then gradually regained its normal frequency and rhythm.* (From *Mat. Med. Phys. and Applied*, vol. i.)

2. a. BÄHR, in good health save for a chronic catarrh of nose and fauces, began May 14th, 1858, with 2x trit., taking gr. $\frac{1}{2}$. Slight confusion and heat in head and rise in pulse (86), falling in e. (71). When playing piano felt as if heart stood still. 15th.—Same dose. Increase of nasal catarrh. 16th, 10.25 a.m., pulse 58. Took same. An h. after, fleeting pulsating pain in region of heart's apex; afterwards sensation as if heart stood still, followed by much palpitation. Pulse, 10 p.m., 80 sitting, 96 standing. 17th.—Took same. 9.30 a.m., pulse sitting 74, standing 84; 10.30, 69 sitting, 78 standing; 5.30 p.m., 80 sitting; 11, 80 sitting, pulse unequal. Frequent recurrence of pressive pain in cardiac region, lasting short time. Colicky pains as if diarrhoea might come on. About an h. after dinner squeezing pains in stomach, relieved for the time by eructation and discharge of offensive flatus. 6.30 p.m., on walking slowly tightness of chest, with sensation as if heart stood still; dull cutting pains in abdomen, feeling of flow of blood to head. Sleep sound, seminal emission occurring without waking him. 18th.—Dose increased to $\frac{1}{2}$ gr. Pulse 70. 10.30, 72 sitting, 87 standing; 12.10, 68 sitting; 3.20 p.m., before eating, 86 sitting; 11, 84 sitting. In forenoon throbbing drawing pain in region of left tensor fasciæ latæ, lasting an h., increased by pressure. E., face hot and red, is usually pale. 19th.—After gr. $\frac{1}{2}$ at 9.40 a.m., when stooping over writing sudden oppression of breath. One gr. taken at 10.45, pulse being 70 sitting, 78 standing; 11, pulse 64; 9 p.m., 78 sitting. The sleep of two previous n. disturbed by dreams, an unusual circumstance with prover. Pulse rapidly increased by movement. 20th, 21st, 22nd.—No medicine. On latter d. he experienced sudden rheumatic pains in l. side of nape of neck and l. arm, hindering movement (but it is doubtful if these pains can be attributed to medicine, as Bähr caught cold at this time).

b. June 1st.—The nasal catarrh had much diminished when proving was resumed by taking $\frac{1}{2}$ gr. at 10.25 a.m., pulse being 60 sitting, 68 standing. It remained much the same all d. 6.30 p.m., 82 sitting. Noon, while walking, great weariness in limbs, they feel like lead. In e. in bed, lying on l. side, 3 or 4 violent palpitations in succession,

* Homolle also made experiments on the products obtained from the plant by various solvents. All acted like digitaline save the substance taken up from the alcoholic solution by ether, consisting chiefly of a mucous, ferid, and acid principle, resembling the "digitalic acid" of Kosman. After taking 45 mgrm. of this, he had no symptoms for 8 h., but was then seized with great nausea, faintness, and vomiting, which continued at $\frac{1}{2}$ h. intervals for 30 h. Next d. his pulse had fallen, and on 4th d. was as low as 42. Vision was impaired, and he could not look steadily at a bright object. Urine was abundant, but bladder's contractility was impaired, and external pressure was required to expel urine. He had pulsation of abdominal aorta, anxiety, epigastric constriction, and cough with pneumonic expectoration, lasting for a week, but these, he thought, were caused by the continuous vomiting. (See *Digitalis*, p. 208.)

immediately ceasing on turning to r. side. During this time pulse was slow and full, with pulsations in head like a hammer; afterwards pulse became quicker and smaller. 2nd and 3rd.—Nothing to report. 4th, 10 a.m., took 2 gr. Pulse, sitting 65, standing 73; in $\frac{1}{2}$ h., while reclining 65, on standing up 97, then 89, 84, and on lying down 62. M., violent burning itching on eyelids; rubbing does not relieve. In c. stitches in cardiac region, with palpitation. No medicine next 2 d, 7th.—At 10.45 a.m. took $2\frac{1}{2}$ gr. Return of oppression of breathing, and after long sitting cutting pain in r. breast. Appetite very small; tongue clean. Pulse not affected. 8th.—Took 2 gr. at 10 a.m. The rheumatic pain in both breasts more acute, with slight oppression of breathing. At 10.30 a.m. trembling of hands, then pulsating pressive pain in l. temporal and frontal regions, single stitches in cardiac region, dull pain in r. side of chest. Nasal catarrh again increased, and urine diminished. 9th.—Took $2\frac{1}{2}$ gr. Ten m. after felt confusion of sight and head, which increased in forehead, with throbbing pain in occiput, relieved by going into open air; giddiness when standing; legs weak and trembling. 4 p.m., sudden throbbing tearing pain in r. elbow, extending from external condyle upwards, very violent for a time, and then decreasing; oppression at chest; urine diminished. An increase of nasal catarrh here occurs, so reports are omitted until 15th. 10 a.m., pulse 68 sitting, 82 standing. Took 2 gr. 10.50, pulse 72 sitting, 82 standing. After this pulse unaffected. Soon after taking dose felt weak and faint sitting or standing; also frequent recurring attacks of pinching pains in stomach and abdomen as if diarrhoea might come, but motion is natural. In $\frac{1}{2}$ h. general malaise, with trembling and weakness of legs. In afternoon throbbing pain in l. shoulder-joint on walking; arm feels weak. After dinner shooting in epigastrium; at same time throbbing shooting pain in middle joint of r. index finger. Dyspnoea afternoon and e. 16th.—Took 2 gr. at 10 a.m. Much the same as on 15th. In e., lying in bed on l. side, violent shooting throbbing pain in l. side between nipple and axilla. Pulse, sitting 68, standing 90, very unequal. 18th.—Took at 10.30 2 gr. In 5 m., pulse rose from 66 sitting to 78, falling in 10 m. to 66, at which it remained. Drawing pain in r. thigh, as if radiating from sacrum. Sense of powerlessness in legs, also throbbing pain in r. side of chest. Gripping pain, but no diarrhoea; in e. return of oppressed breathing; n. quite quiet. 19th.—Took 3 gr. at 10 a.m. Soon throbbing pain in r. chest. After $\frac{1}{2}$ h. frequent stitches through cardiac region, with persistent pressive stabbing pain; at same time feeling of looseness with pinching and digging in bowels. After $1\frac{1}{2}$ h. faint feeling, weakness in limbs, jerking throbbing frontal pain, throbbing in r. chest and increasing pain in limbs; slight nausea. At noon on walking severe dull stitches in cardiac region; great weariness, and dislike to professional visits; irritability about trifles. In e. more severe palpitation of heart than he has yet experienced; the r. pupil is somewhat larger than the l. 21st, 10.10 a.m., took 3 gr. and at 10.30 p.m. 1 gr. No marked effect on pulse. On leaving bed gripping pain in abdomen, with frequent passing of flatus; then diarrhoea. Soon after first dose, while sitting, giddiness and confused vision; it seemed

as if he could not fix distant objects; weakness of legs and trembling of hands, rendering writing difficult. Urine in m. very abundant, though he had drunk very little on previous e. After e. dose return of confusion in head, with shooting frontal headache. Pains in abdomen as if diarrhoea was coming on; pains as before in chest and l. shoulder-joint. 22nd.—No med. N. rather restless. M., great hunger; after rising, griping in belly and discharge of foetid flatus. Later, when walking, colicky pains in bowels with nausea as if breakfast remained in upper part of œsophagus. After $\frac{1}{2}$ h., sudden call to stool, with violent jerking pain in abdomen; off and on same pain as yesterday in r. chest and shoulder. E., another soft stool. 23rd.—The experiment was carried on from this date until the 28th in 3 gr. doses once or twice a d. The symptoms were much the same as have been reported; the most prominent were violent palpitations of the heart when lying on l. side, shortness of breath, sense of oppression at chest, with increase of pain in both sides of thorax; severe throbbing pain in r. pectoral muscle, increased by pressure; great weakness, with ebullition of blood and vertigo. On 24th some muscæ volitantes; and in e. upper part of visual field seemed shaded by a dark cloud. On 26th he complained of violent shootings through r. eye lasting some m.; a little later violent cramp-like drawing pains from toes through l. leg, with pain in forehead, shivering and pinching pain in bowels. No more D. was taken after 26th, but after this date n. were restless and disturbed by diuresis and crections, and long-continued throbbing tearing extending upwards from inner condyle to r. thigh. On July 6th an acute smart attack of coryza, which he attributes to D., as it was different from his ordinary attacks; he complained of dull pain in arms until 13th. (*Op. cit.*)

3. Mrs. BANA, æt. 28, sanguineous temperament.—June 16th, 10 a.m., 1 gr. 2x crit. Previously pulse 72 when sitting, 92 when standing. After $\frac{1}{2}$ h. cold feeling followed by rigors, and feeling of goose-skin. This is frequently repeated during following hours. Noon, menses came on a day or two too soon, and without the usual pain.—17th. Slept ill. M., great exhaustion and very violent sacral pains; pulse, when standing, 104. E., greater menstrual flow than usual. Sacral pains increased, and extend to anus and thighs. Belly painful as if it would be torn asunder in places. No more symptoms the following d.—June 23rd, 11 a.m., 2 gr. Pulse 72 sitting, 92 standing. No alteration in it after 1 h. P.m., frequent chilliness and rigor, and painful feeling as if shoulders were drawn together. All d. feeling of fulness and nausea as if contents of stomach stuck in throat. E., more severe chills. N., cannot sleep on account of drawing and uneasiness in arms. In first half-sleep nightmare, with great internal chilliness.—24th, m., boring pain in r. side of chest from scapula to scrob. cordis, aggravated by deep breathing; pulse, standing, 90. P.m., pain in middle of sternum, connecting itself with pain in scapula by sundry shootings. 5 p.m., 1 gr.—25th, 10 a.m., 2 gr. Previously pulse 72 sitting, 88 standing. Pain in heart continues; pressure in scrob. cordis increased; great weariness all d.; frequent tasteless eructations. E., pains in scrob. cordis and chest increased, and accompanied by dyspnoea both when sitting and moving. Pulse, 11 p.m., when sitting 72. Signs of com-

mencing catarrh.—26th, m., acute pains between scapulae. 11.30 a.m., 3 gr. A.m., chilliness and increased chest pains, feeling of general drawing and great impatience. 2 h. after dinner hot red face, feeling as if blood rushed in behind eyes. Pulse when seated 82. The feeling of general ebullition of blood lasts all e. Pains in chest become very severe in e., and are so much increased by walking that the breathing is affected. The coryza, which had ceased in the m., returns with great anxiety, nose completely stopped up. Head confused. Pulse when seated 78, when standing 102. In afternoon transient digging toothache in r. lower molars.—27th. No med. Noon, when walking suddenly very violent pains between scapulae, with oppression of chest like spasm, relieved by eructation. Several severe rigors. Headache, already slight in m., becomes a regular migraine in e. (Her usual headaches are always worse in m. on rising). After eating little, nausea and full feeling.—28th, m., still headache. 10.15 a.m., 2 gr. Noon, chest pains more severe, with pressive pain in r. side, which was hitherto free. These pains came in fits, and also, but independently, a desire to draw a long breath very frequently. All d. frequent rigors and general chilliness. M., severe pinching in bowels. Pulse, p.m., when sitting 92, e. 96, when standing 108. All d. nausea, with pressure in stomach, p.m.; appetite bad.—29th. No med. M., on l. side of chest violent pressive shooting pains near axilla. Nausea, full feeling. Pulse when seated 96, when standing 116.—30th. P.m., when sitting for $\frac{1}{2}$ h. violent bearing-down pains from sacrum into bowels, as though the menses were coming on. Pains in chest gone, but shortness of breath continues. Then there came on a catarrhal affection of eyes, with soreness of both external canthi, much pain when reading and sewing, slight redness (she had the same thing 8 weeks previously). Up to July 2nd she had occasionally a very violent stitch through chest from before backwards when walking. (BÄHR, *op. cit.*, 195.)

4. A man (no description given) took, July 6th, 9 a.m., $\frac{1}{2}$ gr. 2x trit. Pulse, which was ordinarily 60 when seated, rose in 3 m. to 64. The pulse-beats were unequal in force; heart's beats unaltered. Noon, feeling in forehead and upper part of nose as if coryza were coming on.—8th. The pulse, which was 60 at 9 a.m., rises to 62 5 m. after 1 gr. 2x trit., and remains at that till noon.—10th. 1 $\frac{1}{2}$ gr. causes an increase of 3 to 4 beats in pulse. After all 3 doses has for a whole d. pressure in supra-orbital region towards frontal sinus and when walking a feeling as if the ground gave way under his feet. (BÄHR, *op. cit.*, 197.)

5. STADTUN, after a series of observations to determine the effects of a uniformly weighed quantity of milk, eggs, bread and butter on his urine, commenced experiments with D., following the same diet. He commenced by taking 2 mgrm. Next d. dose was increased to 3, and so on to 18th d., increasing dose for 18 d. daily by 1 mgrm. On 21st d. he experienced dull indistinct transient cutting pain in cardiac region and in l. hip-joint. By 26th d. nausea was added; up to 12th nausea, anorexia, and muscular debility steadily increased; he felt severe articular pains like rheumatism, and finally coryza. From

14th rapidly increasing emaciation, dirty greyish colour of face and suffering features. On 15th flickering before eyes came on, and on 18th vertigo, headache, and extreme muscular debility—his debility attended by severe pains in joints. Respiration unchanged. Pulse during first 8 d. showed constant increase in frequency by several beats; from 9th d. constant decided decrease in frequency by 6 to 7 beats; at same time pulse was very excitable, so that least motion increased in an extraordinary way its frequency from 12 to 20 beats. S— notes that digitaline produces violent catarrhal affection of nose, but affects intestinal canal less than digitalis. Sexual power diminished or quite abolished, temporarily. He found diminution of water, urea, chloride of sodium, phosphates, and sulphates of urine. Amount of uric acid increased, sp. gr. falls, degree of acidity remains unchanged. He considers the most important action of digitaline to be its power to cause rapid wasting of the body, and depression of the exchange of material. (NOTHNAGEL and RUSSEBACH, *op. cit.*)

6. Dr. LAUDER BRUNTON's very accurate experiments on himself with digitaline, continued through several months, are given in his work in fragments, so that it is difficult to present them as a continuous report. The following, however, fairly represent his results.

a. March 5th, 1865.—"After taking 12 mgrm. of Morson's digitaline, I experienced a remarkable sleepiness at night, which continued till 12th, when symptoms of abdominal irritation began to manifest themselves, and these increased till vomiting occurred. On 14th I felt great languor and prostration, and either on this d. or at least while languor continued mental faculties seemed enfeebled; while reading for an examination eye glanced over words, but mind refused to receive or retain their import. The derangement of sight which I noticed was of two kinds: 1st, a general mistiness of objects, such as is seen before fainting; and, 2nd, a large bright spot advancing before me, and sometimes resembling a ring showing prismatic colours faintly, and similar in character to, though less distinct than, that seen round a light when digitaline has been introduced into the eye.* I found that for some days before vomiting came on, clear drops of water were always gathering at my nose. 17th.—Took 30 mgrm. at two different times. At 4 a.m. I awoke, and vomited at intervals for about $\frac{1}{2}$ h.; vomited matter yellow and liquid, somewhat like yolk of egg; vomiting violent and painful. Vomited again on rising at 9 a.m.; again at 9.30. Frequent epigastric uneasiness and pain. In forenoon my sight occasionally not quite clear (just as one sees when about to faint, but somewhat slighter), and a large bright spot occasionally seen, such as is seen after looking at the sun, and then looking away at a dark object. Languor and discomfort all d. Occasional nausea. No more vomiting.

* When digitaline is introduced into the eye it causes smarting and profuse lachrymation, which passes off in a short time, and nothing more is felt except perhaps an occasional rough feeling of the conjunctiva till 4 or 5 h. after, when on looking at a light you see it surrounded by a halo presenting the prismatic colours, and not quite close round the light but with a dark space between. This halo increases in diameter the farther you move from the light, and becomes smaller and narrower as you approach. I have noticed an appearance exactly similar when light cirrhi were crossing the mount. I did not notice any particular difference in the pupil, and the appearance is not due to its dilatation, for I found it quite distinct on looking through a pin-hole in a card

Pain in chest on drawing breath, from soreness of diaphragm from vomiting. Bowels open in m.; stool copious, quite loose; in e. very scanty. A good deal of flatus. 18th.—Appetite improved, though not very good. Sight somewhat dim, especially after rising up or walking, and bright spots occasionally seen, chiefly after rising or walking. Bowels open. 19th.—Appetite better to-day. Sight dim, and I see a large bright spot, especially after exertion. This not so bad in afternoon. Slight pain in epigastrium occasionally, lasting some time when it occurs. After dinner constant pain in l. side, apparently in descending colon. Much flatus at n. Bowels open once; stool copious, somewhat soft. 20th.—Sight clear. After looking at a bright sky and on looking away I see a spot as if I had been looking at the sun. Appetite much better to-day. Pain in l. side still there on rising, and continued for some hours. Bowels open once, stool extremely scanty. Pain in side again to-night. A slight threatening of headache before going to bed. 21st.—Appetite good. Still occasionally see a bright spot like a large bright soap-bubble, or like the halo that is seen round a light when digitaline is put into the eye (without the central light, which is the cause of the halo in the latter case). It seems to come more after exertion, or after long writing, as in taking notes. I am not sure whether it is the attention, or looking at the white paper, or the stooping, that causes it. Bowels open once, stool scanty; partly from large, partly from small intestines. 22nd.—Still see a bright spot occasionally. Bowels open once, stool copious, well formed.

b. Second set of experiments commence Dec. 13th, 1865, and extend to March 25th, 1866. They are presented very accurately in a tabular form, so as to show the effects, especially on the urine; a record is also given of the pulse. Remarking on the pulse, he says:—"I have occasionally found my pulse increased (in frequency) after taking digitaline, but sometimes not." He places little value on this, and adds—"I have found that my pulse was sometimes quicker, sometimes slower, while I took small doses of digitaline; but that under larger doses there was marked lowering of the pulsations." Again, remarking on the urine, he says:—"In my own case I found that with small doses the urine varied just as my pulse had done, being generally increased to a slight extent while I took the digitaline, but sometimes not; while with large doses the diuretic effect was marked. The urinary constituents also vary considerably with small doses; but when dose was large, sp. gr. was diminished, urea increased, and phosphoric acid and chlorine diminished." (*Op. cit.*, 1866.)

7. LEMCKE, August 17th, 1859, 9.30 a.m.—Took $\frac{1}{16}$ gr. He experienced drawing pain in l. wrist and fingers, often severe; in l. foot similar pain as if numb, especially when at rest; same drawing pain in toes of l. foot, relieved by walking; soon a similar pain in fingers. Sharp pain in r. knee. Behind upper cartilages of r. ribs cutting pain affecting breathing; some h. after similar pain in l. ribs. Confusion in occiput; heat over whole body, especially back; pulse normal, quickened easily by walking. 21st.—Took same dose, with return of same symptoms, drawing pains extending to occiput and vertex. 23rd.—Took same, and experienced similar pains. Had also

quickened pulse, heat of skin, muscæ volitantes, circles floating before the eyes, pupils contracted. The pains shift their position, and are worse when at rest than in motion. Sept. 7th.—Took $\frac{1}{4}$ gr. Similar pains, only more severe and lasting longer; heavy headache, and constant jerking of upper lip. On 8th, he felt on waking great vertigo, objects seem to turn horizontally, lessened on closing eyes, increased by stooping or movement; nausea, with coldness down back, cold hands, yawning, occasional short dry cough. These symptoms continued for an h., when violent vomiting of whitish sour mucus, with much retching, occurred, partially relieving head. Vertigo continued, with great sensitiveness of eyes to light and nose to smell; again vomiting; still great weight in head, confusion, coldness; nausea abated in 4 h., so that food could be taken, but headache continued severe all next d. (*N. Zeit. für Hom. M.*, iv, 177.)

8. Dr. KOFFA took at 10 a.m. 2 mgr. of digitoxine, the crystallised digitaline of Nativelle.* After an h. it caused sensation of faintness, nausea, discomfort, and slight vertigo. Pulse remained as usual 80—84, and was regular. "Notwithstanding the unpleasant sensations I continued my work in the laboratory till 1, after which I took a walk instead of going to dinner, for I had an aversion to every kind of food. The sensation of nausea gradually increased to such a degree that I was forced to make an effort to reach the house in order to avoid vomiting in the street; the decided sensation of weakness and loss of power rapidly increased, and forced me to take a carriage in order to gain my residence, some distance away. Having reached the house I immediately went to bed. Pulse at this time (2 p.m.) was 58, and intermitted once in 30—50 beats; in other respects it was regular. After an h. passed in bed, with constantly increasing discomfort, I vomited a large quantity of dark greenish masses of mucus. Immediately after I experienced decided relief, which, however, lasted only $\frac{1}{2}$ h., and gave place to the most excessive sensation of nausea. Pulse at this time was very intermittent, and only 40; an intermission occurred after every 2 or rarely 3 beats. About 5.15 there were several very violent attacks of vomiting, with much distressing retching, great paleness, and collapsed appearance of the face. About 6 the pulse showed a frequency of 40 to 42, and a tracing in marked contrast to the normal. In the latter, which shows the usual ectopic pulse, the second elevation is unusually great, and exceeds more than double the height of the first. The digitoxin curve shows an intermission after every two beats; and every second elevation of a couple is noticeably smaller than the first, and makes a gradation to the following intermission. Pulse continued of same frequency and of same character into the n. The beat was felt by me in the chest, so that I could readily count it. Every intermission was recognised by the sensation of oppression and anxiety in the chest which it caused. With these symptoms the prostration and loss of power had so far progressed towards c. that I was not able to leave the bed without the support of another person. With these

* This is not quite correct, in the light of recent research; but it is equally clear that three of the alkaloids of digitalis—those called by Schmiedeberg "digitalin," "digitalein," and "digitoxin"—are practically identical in action.—Eos.

symptoms remarkable weakness of sight developed, so that the features of my friends seemed to swim and become indistinct, and I could only recognise them by their voices. All the objects in the room seemed to run together without any outlines, so that I could only distinguish some very dark, or bright, or large, or small images in the field of vision. Therewith all objects, especially all bright ones, seemed in a slightly yellow light. Above all, the constant and excessive nausea made my condition exceedingly distressing. This continued the whole n. with equal intensity, and allowed me not a moment's rest. By m. there had been four attacks of vomiting, about 11, 1, 5, and 8, associated with persistent efforts to vomit and evacuation of mucus coloured with bile. Immediately after an attack of vomiting there was always relative relief for a short time. The same condition continued the whole of next d. The pulse, whose every beat I was still able to feel and count in my thorax, and whose every intermission I was conscious of, from the sensation of uneasiness and a kind of slight præcordial anxiety which it caused, was very easily excited by the slightest excitement or physical exertion. During complete physical and mental rest it was 54, and intermitted every few beats. Second n. was very restless, with partial sleep, which was interrupted 4 times in one h. by confused anxious dreams and frightful fantasies. The 3rd d., which I still passed in bed, was much more tolerable than the preceding, since the distressing nausea had moderated and I was able to drink a little water. The weakness of vision, however, still continued, and the yellow vision was in nowise diminished. Pulse continued through whole d. about 60, still very irregular, and intermitted every 40 to 50 beats. On the 4th d. pulse had regained its rhythm, was weak and soft, and very seldom intermitted. After a sound sleep that n. I began, on the 5th d., to take short walks leaning on the arm of another. My power of vision had not yet returned, and all objects seemed in a yellow light. The symptoms gradually disappeared during the three succeeding d." (*Arch. für Exp. Path. and Pharm.*, iii, 275.)

9. SKROVY made numerous experiments with D. and digitalin. In all preparations taste was intensely bitter, most so in alcoholic extract, so that it caused nausea and shuddering. Larger doses always caused nausea, and largest doses violent vomiting. When taken for a long time it caused lasting indigestion, pains in stomach, frequent eructations, anorexia, white furred tongue. Large doses caused dryness of fauces, rumbling in bowels, colic, and sometimes diarrhoea. Diminished activity of heart, usually after several h., attained its maximum after 12—16 h., rarely preceded by increased frequency of heart's beats and pulse. The diminution of the pulse was always proportionate to the size of the dose. In one person who took 0.2 gram. of alcoholic extract of seeds there was great dilatation of pupils, confusion of head, drowsiness, retardation of pulse after 2 h. by 20 beats, and after 2 h. sleep the retardation amounted to 30 beats; he woke with violent pains in head and face, great heat of head, rigor over the rest of body, great prostration, weakness, and drowsiness. A second prover woke after 2 h. from a dream, put his hand involuntarily to his cardiac region, as he felt as if the heart and arteries would burst. His pulse was only 38. In

large doses the pulse was small, weak, intermittent, always irregular, sometimes full and apparently strong. Temperature of skin lowered, only forehead felt hot, alternations of rigor and heat. Urine never increased, in some cases diminished, though there was always urging to urinate. Large doses caused prostration, weariness, weakness, and drowsiness; but sleep in first n. was often disturbed and restless; the following nights it was very profound. Confusion of head occurred after small doses, larger doses caused headache and feeling of weight, as though there was not room for bones in skull, feeling of pressure on eyelids, in eyeball, and above eye, vertigo, noise in ears, indistinct vision with very dilated pupils, inability to fix attention, increased irritability, sometimes dejection, sometimes hilariousness. (*Pharmakologia*, 604.)*

11. *Passings.*—1. A married lady, æt. 34, fair complexion, nervous temperament, had been ordered 2 or 3 granules of Homolle's digitaline (1 mgm. each) for palpitation and other hysterical symptoms. On April 25th, about 3 p.m., she took 57 granules. She felt no inconvenience till 6, when at dinner she had giddiness and desire to vomit, and vomited several times. A medical friend prescribed a mixture of tartar emetic and sulphate of soda, of which she only took 2 spoonfuls. At 8 p.m. face was dusky, pupils dilated, extremities cold; pulse 48, weak and irregular; great præcordial oppression and increasing gastric pain; breathing slow, inspiration deep and prolonged. Retching continued at every h. during n.; no sleep; and temperature only sustained by stimulants, hot baths, &c. Next m. very weak; pulse 44, feeble and intermittent; sighing respiration; face almost livid; pupils dilated; mind clear. No action of bowels; urine abundant; great irritability of stomach; great præcordial oppression, as though heavy stone lay on chest. At noon, symptoms same, save less vomiting; pulse 42, intermittent. Besides other stimulants, 2 gr. of musk were now given every h. At midnight pulse rose to 60, though still intermittent once in every 4 beats; but warmth had returned, and improvement now steadily continued. (*Lancet*, 1880, i, 166.)

2. ROUSS DE CORSENY, æt. 72, complained of stitch in side and œdema of lower limbs. Pulse 68—70. He was treated with granules of digitaline. On June 5th, at 6 a.m., he took a strong dose of granules. At 10 a.m., beginning of headache and sickness. At 10.30, however, he took another dose of about 35 granules. At 5 p.m. he felt for $\frac{1}{4}$ or $\frac{1}{2}$ h. difficulty of seeing, rushes of blood—as he says. Præcordial anxiety extreme; he says continually his last hour has come. Intelligence clear. On coming to him at 6 p.m., I find the above symptoms more marked, and further note: tongue rather contracted than large, with slight yellow coating on sides, dryness and redness at point. No thirst; refusal of drinks, which bring on frequent sickness, distressing by reason of violent straining. Pain in r. epigastric region; abdomen retracted; urine scanty, of a red-brown colour, with much brick-dust deposit; a little greater quickness in breathing. Limbs cool without being cold; no sweats; rushes of heat to face; pulse full, throbbing under the finger, irregular, as low as

* This should properly have come in under Digitalis.—EOL.

48—50; sounds of heart strong and impulse lifting chest. Headache is lancinating. Swimming in head on rising, and giddiness which obliges him to lie down again; neither buzzing in ears nor deafness. General sensibility not altered, only some cramp in legs; general weakness. Twenty-four hours after, pain in head same, but anxiety less; pulse 54, always full and regular; sickness less frequent; urine less scanty, but still some cramps and convulsive movements. 7th.—Pretty good n., headache persists; no cramp, heart-beats irregular, first sound is dull and prolonged as a murmur, second loud. He tries to get up, but is again troubled with sickness and giddiness; some colic, but no stools. 8th.—72 h. after taking drug. He has had relief of bowels 5 or 6 times; headache less; abdomen retracted, no swelling or pain on pressure; pulse 68—70. High-coloured urine, still depositing sediment, but of normal quantity. No appetite; no thirst; sleepiness and (once) sickness continue. 9th.—Headache persistent; a little general aching; tongue dry, coated in centre; pulse 60, regular. 10th.—Good n., pulse 56. 11th.—Same state. 12th.—Patient feels severe pain in dorsal and epigastric regions, so violent on 13th that it makes him cry out. At 4 a.m., limbs still cool, pulse 50. Sickness again. 14th.—Head still a little heavy; abdomen painful on pressure, and gurgling is heard in iliac fossa; pulse 62. 15th.—Symptoms tending to disappear, and patient discharged cured on 16th. (TARDIBO, *op. cit.*, p. 689.)

3. Madame X—, *æt.* 23, good constitution, sanguine temperament, wishing to kill herself, took, on June 26th, at 7 a.m., 16 granules of digitaline. Two h. later she is seized with violent shivering accompanied with trembling. Wishing to get up she feels giddy and is obliged to return to bed. During part of *d.* these incidents repeat themselves alternately with strange hallucinations. About 8 p.m. she conceals her indisposition and forces herself to take food which is offered to her. A few moments after, fresh shiverings, with chattering of teeth, cold perspiration, and dyspnoea. Warmth returns by degrees, violent agitation succeeds it. Complete insomnia and persistent dyspnoea. At 1 a.m. patient says she cannot breathe, rises, is seized with vertigo, and drags herself to the window, where she stays till about 3. Goes back to bed and sleeps, and wakes next *d.* at 7 a.m. without feeling slightest indisposition. Seeing that she had failed then in her attempt at suicide, she takes 40 more granules. An h. after following symptoms occur:—patient feels hallucinations, vertigo, frequent shiverings; a cold sweat covers her body. Nausea comes on, followed by excessive vomiting and colic without result. The patient feels herself growing weaker, and tries, but in vain, to feel her pulse beat. In *e.* vomiting is more frequent, followed by great weakness. No urine, no stools. Patient cannot stir; she is not able to make a sound; feels as if her eyes were much too large and would escape from their sockets. This state lasts all *n.*, and all *d.* on 28th, until 5 p.m.; at this moment the vomiting stops; patient can only speak in a low voice. During *n.* weakness increases; shivering, hallucinations, and cold sweats continue. Impossible to make the slightest movement, every minute she feels sick; burning thirst. She cannot pass water, or relieve bowels,

The n. passes thus, but towards m. she feels a wish to live and asks for a doctor. 29th.—I saw her soon after. She is stretched in her bed nearly motionless. Face very pale, and a rather curious symptom is a very considerable exophthalmos of both sides. Eyes wide open, conjunctiva of eye and lids lemon-yellow, pupils dilated. Voice inaudible, patient cannot utter a sound. Skin cold and covered with a general perspiration. Pulse small, weak, intermittent, 46—48; sometimes almost inappreciable. Tongue dry, white in the middle, a little red at point; intense thirst; nausea, not the slightest appetite. Epigastric region seat of a pretty severe pain, augmented by pressure. For 2 d. she has passed neither urine nor stools; bladder does not appear distended. 30th.—Very disturbed n.; complete insomnia; pulse a little better, 56—58; skin a little less cold; intermissions less frequent and less marked. There is a little voice; patient seems less feeble, but least movement causes giddiness. Burning thirst, tongue red at point, great pain in epigastric region; 4 stools. For 3 d. no urine, and bladder not distended. July 1st.—No more shivering or perspirations; skin less cold than on previous days. Pulse better, 60—64; still some intermissions, more marked than yesterday. Voice has returned; epigastric trouble has disappeared. Patient has passed water several times, urine red and giving forth a foetid odour. Face less pale, but exophthalmos still very pronounced; injection and coloration of conjunctiva less marked. Three d. later patient is in her normal health, but exophthalmos still persists. Pulse regular, not intermittent, 64. (*Ibid.*, p. 692.)

III. *Experiments on animals.*—1. Dyblowsky and Pelikan found that in frogs which were poisoned by digitaline (or other cardiac poisons producing an identical effect), after a few m. irregularity of heart was noticeable. This was of two kinds—(1) The ventricular contractions became peristaltic, so that ventricle did not contract as a whole, but first its upper third, whence contractions gradually passed down to apex, but before this had contracted upper third was again dilated. Two or three m. before complete paralysis, contractions became still more irregular, so that upper or r. half was dilated, while lower or l. half was contracted; and sometimes auricles did not contract simultaneously. Finally, when ventricle completely stopped, one or more palpitating points could still be observed in it. (2) The second form, which was especially notable in poisoning by digitaline and green hellebore, consisted in a notable diminution of the number of beats, the heart contracting regularly, but very slowly, just as under galvanisation of the vagi. This sometimes happened before peristaltic movements occurred, or even after their disappearance. (L. BRUNTON, *op. cit.*)

2. The cardiac action of D. on frogs was first accurately observed in 1853, by Vulpian, and he gave his evidence afterwards in the famous trial of Dr. de la Pommerais for the murder of Mad. Pauw to this effect:—In the great majority of cases, when the heart has ceased to beat, the ventricles are pale and contracted, and the auricles dilated,—this change taking place while the animal preserves the power of motion. (*Mém. de la Soc. de Biologie*, 2e série, ii, 67.) Fagge and Stephenson

confirmed Vulpian's results, showing that the "characteristic effects of these agents" (D. and similar poisons) "on frogs is the production of irregularity of the heart's action followed by complete stoppage of its pulsations, the ventricle remaining rigidly contracted and pale after it has ceased to beat, the muscular power of the animal being at the same time unimpaired. The rhythm of the heart's beats is not generally much altered, and they become peristaltic, or different parts of the muscular wall of the ventricle contract and dilate at different times, the blood forming pouches in the relaxed portion of the ventricles." (*Proc. of Roy. Soc., May, 1865.*) Nunneley (*Brit. and For. Med.-Chir. Rev., 1869*), who has made numerous observations on the the action of D. on frogs, says the ventricular systole is lengthened, but it presents a very different appearance from the systole in health. "The ventricle seems no longer to act as a single large muscle, but as if made up of numerous small ones, which contract energetically but in an irregular and disorderly way; hence there are projected bundles of contracted muscular fibres, which give the ventricle a rough and uneven surface and an irregular outline. During the diastole the ventricle does not everywhere assume a red colour, but one or more red spots appear, as if the ventricle was so tightly compressed that only a small quantity of blood could enter it by chance." (*Med. Mid. Phys. and Applied, vol. i.*)

DIOSCOREA.

Dioscorea villosa, L. Heavy yam. Nat. Ord., *Dioscoreaceæ*.

1. *Proving*.—r. Dr. BURT took, May 5th, 1864, at 10 a.m., 30 dr. of fluid exte. After ½ h. began to have pain in whole epigastrium and region of gall-bladder, quite severe, of cutting, tearing character, at times spasmodic. At 3 p.m., distress in stomach being but slight, took 40 dr. At 5, slight dull frontal headache; some gastric pains as before, also in umbilical region (aggravated by movement); frequent drawing pain in l. shoulder and neck, also in knees and ankles—former very weak when walking, constant dull pain in lumbar region, aggravated by stooping or walking. Took 50 dr. 6th.—Woke 3 times in n. with severe cutting pains in umbilicus. This m. constant dull aching there, with occasional colic; severe frontal headache; thick, yellowish-white coating on tongue; rough, flat taste in mouth; black, dry, lumpy stool; same lumbar pain; fingers ache and are quite stiff; drawing pains in ankles and feet. Took 60 dr. At 9 a.m., all symptoms aggravated; took 100 dr. At 11, intestinal cuttings more severe; drawings also in forearms and hands and between shoulders. At 3, pains being milder, took 100 dr. At 5, great increase of abdominal suffering; bearing-down feeling in rectum; feeling very weak, hands and legs trembling constantly; can hear heart beating after waking a little; pulse 80; sharp pulsating pain at top of sternum, lasting an h.; other pains the same; very sharp cutting in soles of feet and toes. At 9, head and abdomen the same, also pains in sternum, loins, and extremities; there is constant dull pain and distress at anus, and three hæmorrhoidal tumours have made their appearance, and are partially prolapsed. Took 150 dr. 7th.—Slept soundly at first, perspiring much; but awoke at 2 a.m. with great burning distress at stomach, which is quite painful when pressed upon. Pain later is a constant ache; white tongue and pappy taste; stool in first part black, dry, and hard, in latter part mushy and white, followed by protrusion of 4 piles, like large red cherries, with great pain and distress at anus; constant dull headache; hands and feet stiff and painful, relieved after a h. exercise. At 10 a.m. took 100 dr. and at noon 100. Piles remain down, very distressing, one of a dark livid blue colour. Head pain slight, abdominal and lumbar pains constant and severe

(bedding spine caused sharp cutting). At 4, headache severe; feels very faint, weak, and giddy; hands and legs tremble constantly; he must lie down to keep from fainting; pain in abdomen and extremities as before. Took 3 doses of camphor without relief, then inhaled chloroform almost every few m., each time diminishing faintness, which finally left him at 7. Otherwise much the same all c. Very hard, dry, lumpy stool, causing much distress in hemorrhoids. 8th.—Slept well till midnight, after that restless till m.; skin dry and hot, but pulse (lying down) only 62; head, stomach, and back the same this m., also extremities, but these became easy on moving about. Easier towards middle of d., but later burning came on again in stomach with headache and lame back; piles still troublesome. Stool soft and yellow. 9th.—Slept well; woke at 3 a.m. with severe pain in umbilical and hypogastric regions, and great distress for stool; this was profuse, thin, and yellow, but did not relieve pain till a second followed at 7, and both caused much faintness of stomach. Felt well during d., but from 6 p.m. burning distress at stomach required, also severe neuralgic pain in l. groin. 10th.—Slept well, but awoke with some abdominal symptoms; hands and feet stiff; dull backache; piles free from pain and getting smaller. Backache ceased only after a week. (HALZ'S *New Remedies*, 2nd ed.)

2. Dr. THOS. NICKOL took, December 1st, 1865, at 11 a.m., a teaspoonful of ℥. i. in a little water. At 11.30, nausea and qualmsiness, with stitching pain in region of heart and uneasy feel at umbilical region. At 3 p.m., rumbling of bowels, with soreness on pressure and considerable bloating. At 9 p.m. repeated dose. All symptoms aggravated on lying down, and pain shot at intervals down to iliac regions, especially r. Confused sleep with anxious dreams, and.—At 1.30 a.m. repeated dose. Abdominal pain, continuous yesterday, is intermittent to-day. Tongue yellow, and evacuations taste of rotten eggs. A sour apple eaten at 2 p.m. dispelled all symptoms.

3. Resumed proving on 5th with 30 trit. of "dioscorein" (concentrated preparation). At 12.30 p.m. took 3 gr. At 1, rumbling of bowels and inclination for stool, with uneasy feeling in stomach, nausea, and disgust for food. 2.30, bloating of umbilical region, with soreness on pressure, and giddy confused feeling in head. 4, repeated dose. 5, unwanted drowsiness, and on waking from a half-sleep unusual languor, with disinclination to mental exertion. 6th.—Passed very restless n., and got up feeling languid and unrefreshed; head ached over eyes; and mouth was bitter and clammy. At 7 a.m., a good deal of heat in stomach, with nausea. Gradually vertigo came on, lasting an h.; head felt hot, and about 2 warm sweat broke out over forehead and there was rumbling of bowels. At noon 5 gr. At 1.55, sudden return of vertigo, with heat in head; this continued with violence for ½ h. and then diminished, but continued more or less all the e. 7th.—Early this m., while in bed, felt mild but persistent nausea, accompanied by sharp pains in umbilical and r. iliac regions. Pain was spasmodic and very sharp, uninfluenced by pressure, though this caused a rumbling. At 9.30 a.m., very sharp cutting pains along whole r. side of forehead, shooting back as far as ear, not a steady pain, but remittent, aggravated by pressure. At 5, while walking in street, was attacked with vertigo so violent that he was unable to walk and reeled as if intoxicated; at same time neuralgic pain was aggravated. 8th.—At 1.45 p.m. took 15 gr. At 3.15, return of sharp pains in temples, aggravated by exposure to cold air. Took no more med., and symptoms gradually declined. (*Ibid.*)

4. Dr. H. A. SUMNER took ½ gr. doses of dioscorein 3 times a d. till 25 doses had been taken. Soon after first he had considerable pain in abdomen, shortly followed by slight diarrhoea. Felt nothing subsequently. He then increased dose to 1 gr., when he was again seized with abdominal pains as well as diarrhoea; these soon passed off, and though he continued use of drug till he had taken 22 such doses, no other effects were perceptible. After 3 d. he began taking a gr. dose; but after 4 of such was seized with such severe gripping pains in abdomen that he was obliged to discontinue experiment. Since he commenced it appetite was very much increased. (PAINÉ, in *Ibid.*)

5. I commenced taking ½ gr. of dioscorein with the following effects:—First dose caused slight fulness in head, with increased saliva, and agreeable sweetish taste. Symptoms continued 3 h. Same dose was taken 3 times a d. on 7th and 8th with like effects. On 9th dose was doubled in m., which caused slight continuous pain in abdomen, as if point of finger was placed upon umbilicus and pressed upward and backward.

At noon dose tripled, with increase in severity of symptoms, and defecation, which is unusual at this time. In e. dose was quadrupled, but I fell asleep before its action commenced and lay undisturbed about 4 h., when I awoke from a horrible dream, feeling much pain in abdomen. It soon subsided and I fell asleep again, but awoke soon and found myself sore on pressure. I now took 5 doses of *r.*, increasing to 3 gr. In $\frac{3}{4}$ h. there was fulness in head speedily followed by severe pain in abdomen, more spasmodic than heretofore. During the intermissions there was a burning sensation which lasted 3 h. I now thought it prudent to discontinue experiment. Soreness lasted 3 d. (364.)

5. Dr. O. M. Drake, well save for occasional dull, heavy pain at inferior angle of l. scapula during last 22 mo., took, Oct. 29th, 1867, at 10 a.m., 2 gr. of 1st trit. In 20 m. considerable nausea, with rumbling in cardiac portion of stomach. 1r, dull headache and nausea, both lasting till 3; at 3.30, hard, lumpy stool. At 4, all unpleasant effects having passed away, took 2 gr. In 15 m., sharp pain in l. side, about 8th rib, hindering deep inspiration; pain at base of r. and 10c, passing off on motion, but immediately returning, lasting some 6 m.; rumbling in bowels. In 40 m., cutting pain in c. lobe of liver for 5 m. 30c.—Got up with bad-tasting mouth, tongue yellowish white. At 10 a.m., 1 gr. At once considerable nausea, but not so bad as yesterday. In 30 m., dull headache returned, mostly through temples, lasting till afternoon. At 20 p.m., 1 gr. In 20 m., pain in umbilicus; in $\frac{1}{2}$ h. heaviness in head and aching over r. eye. 31st.—Awoke, after sleeping well, with a horrid headache, so severe it made him reel; spine felt weak and 10c; whitish coating on tongue, with sickening taste. 1s, feeling well, took 1 gr., producing usual feeling in head but no nausea. At 10.30 p.m., 2 gr.; unpleasant feeling through temples, no other effect. Nov. 1st.—In 20 m., coated tongue. 10 a.m., 2 gr.; no symptoms. 10 p.m., stool, first part lumpy, second loose. 10.30 p.m., 3 gr., without effect save heaviness in head. 2d.—Slept well, tongue coated, taste in mouth not so bad as yesterday. 11 a.m., 3 gr.; 10 p.m., soft stool, with considerable pain; 10.30, 3 gr., followed by some rumbling in bowels. 3rd.—Slept well; felt sick at stomach, and did not care for breakfast. 9, diarrhetic stool, with considerable pain at epigastrium and cutting in rectum; 9.30, 4 gr., rumbling in bowels. 4th.—No symptoms since last dose. At 9 a.m., 6 gr.; in 15 m. pains in region of gall-bladder; in 20 m. heaviness of head returned, 10.45, head symptoms grew worse; great salivation, with peculiar prickly feeling at end of tongue, as though it had been scalded; eructations from stomach, with taste as of bile. 5th.—Restless 2; awoke at midnight with severe pain in r. lobe of liver, also in l. side (8th rib), so severe he could not sleep; spine feels bruised in whole length. 3 p.m., have had pain off and on all d. in l. side and lumbar region, also in liver; took 14 gr. 10, severe headache since taking last dose; took 7 gr., producing pain in l. head. For a number of d. after this would occasionally feel pains in l. side and in liver. (*Publ. of Mass. Hom. Med. Soc.*, iv, 575.)

6. Dr. A. M. Clark proved, Nov. and Dec., 1867, the first three dec. triturations, and the 4x, 5x, and 6x dilutions, of dioscorein (the "concentrated preparation" of the plant). During Jan. and Feb., 1868, and again in Aug. and Sept., he proved the fincture and attenuations of *D.* itself. A long catalogue of symptoms were produced, whose record occupies some thirty closely-printed pages. They consisted, at first, of pains of no special character, felt at various times in nearly every part of the body, without any persistent or noteworthy alteration in the general health. They were (especially in the early part of the proving) relieved by motion, save the headache. There was much bloating, and at times copious emission of flatus. Towards the end of the proving, there was much lowering of strength and spirits; and the sexual function was depressed from the first. (*On Dioscorea Villosa*, 1869.)

DROSERA.

Drosera rotundifolia, L. *Sandw.* Nat. Oid., *Droseraceæ*.

I. *Proving*s.—1. HAHNEMANN, *Mat. Med. Pura*, vol. vi of original, vol. i of translation. Contains 132 symptoms from self, 152 from 3 fellow-observers, and 3 from authors.

III. *Experiments on animals*.—1. *a*. I chose for the subject of my experiment the cat, as that is of all our domestic animals the one least liable to exhibit spontaneous tubercular lesions; indeed, it is not certain that tubercles have ever been found in them, for I am informed by competent authorities that in this class of animals lobular pneumonia has been mistaken for phthisis. Thus the results should be all the more conclusive, and the quality of the subjects experimented on will in some measure make up for their small number—three only.

b. The first I killed (by means of ether) at the end of six weeks, having made him swallow daily 15 ctgrm. of *D.* triturated with sugar of milk. The second I killed after one year of treatment; he took at first 1 dr., gradually increased till dose reached 1600 dr. daily, of alcoholic tinct. The third is still alive, and has been under the drug for 6 months. As he presents the same symptoms as the two others there is every probability that the same lesions will be found *post mortem*. As regards functional symptoms, all three had diarrhoea at commencement, and very marked weakness of voice was observed after 6 weeks of treatment, although in the two animals dissected there was no perceptible lesion in trachea. The first, on being opened, showed beneath pleura some almost gelatinous deposits, surrounded by an anomalous redness; on the whole there was but little to be seen, and the characters detectable by the naked eye were not sufficient to prove the existence of tubercle, had not the microscope removed all doubt about the matter. Dr. Gratiolet kindly verified my examination, and satisfied himself that these deposits were of tubercular nature. Besides the pulmonary lesion I found in this cat a very considerable enlargement of the mesenteric glands. The second animal showed much more characteristic lesions in the lungs, though they were not of great extent. These lesions consisted of small white granules, the size of a pin's head, situated beneath the pleura, and surrounded by a very red injection of the neighbouring tissue, to the extent of several millimetres—an injection that penetrated into the pulmonary tissue, but was unaccompanied by induration. I only found these granulations under the pleura; if there were others in the middle of the pulmonary parenchyma they completely escaped my observation. They were moderately hard, could be crushed on the glass; and showed under microscope as irregular corpuscles, granular internally and externally—latter brilliant. Most of the corpuscles were $\frac{1}{1000}$ of a millimetre in diameter. They were almost unaffected by acetic acid. Besides this pulmonary lesion I may mention the enormous development of the submaxillary glands, and the hypertrophy of the glands of Peyot, and of the shut vesicles of the large intestine, containing an opaque fluid that showed under the

microscope glandular corpuscles. In conclusion I may allude particularly to the development of the acini in the spleen. They were so enlarged that they could be seen through the exterior covering; and the spleen, when cut into, seemed to be formed entirely of them. They were larger than a large pin's head, and contained in the interior a mass of glandular corpuscles. But, unlike what I had observed in the first cat, the mesenteric glands were not appreciably enlarged. (EUG. CURIE, *Bull. de la Soc. Méd. Hom. de Paris*, Nov., 1861.)

DULCAMARA.

Solanum Dulcamara, L. Woody nightshade, bitter-sweet. Nat. Ord., *Solanaceæ*.

1. *Provingt.*—I, HAHNEMANN, *Mat. Méd. Pura*, vol. i of original and translation. Contains 318 symptoms from self and 10 fellow-provers, and 83 from authors.

2. LEIZ, *Chronic Diseases*, part iii of original, vol. of translation. Contains only 8 additional symptoms.

3. Five dr. of tinct., taken at 9 a.m., caused me to waken next m. with violent pain in l. wrist, developing what a number of physicians called an "inflammatory rheumatism." Anatomically, the centre of pain seemed to emanate from the pisiform bone, extending forwards along the branchings of the ulnar nerve to the end of the little finger, and again upward along the main tract of that nerve until it became lost near the inferior origin of the flexor carpi ulnaris muscle. The pain increased until 9 or 10 next e. There was redness and swelling of integuments; little finger was flexed, and more or less involved in the inflammatory process. Symptoms subsided 48 h. after first incursion of pain. Concomitants were great cardiac excitement and restlessness of mind. (F. A. ROCKWORTH, M.D., *A. J. of H. M. M.*, N. S., i, 289.)

4. A young woman took 10 gl. saturated with tinct. in a wine-glassful of water. After a few h. vertigo, she staggers and reels; nausea with inability to bring up anything; sharp shooting pains in l. toes and thumb; fearfully confused dreams; she has to get up at n. and walk about the room; sinking sensation all over; she fancied she would sink through the bed. (ROBINSON, *Brit. Journ of Hom.*, xxiv, 513.)

5. One dr. of the juice caused yellow watery diarrhœa, with tearing cutting pain in belly before each stool, as if after a chill. (KNORR, *A. d. Z.*, vi, 35.)

6. One dr. of 1st dil. caused in a child eruption of nettlerash all over body, without other symptoms. (*Ibid.*)

7. A stout lady, æt. 35, took in 3 d. an infusion of ʒj of the herb. This caused general itching of body, which increased to intolerability; itching worst on the nates, and the skin was reddened there, partly from scratching, and showed long swollen wheals. On inner surface of forearms, red points were early perceived; no other eruption—except the wheals on nates—was perceived on the rest of the body, though it

itched all over, before the 6th d. She felt less itching when out of bed, but on going to bed even in daytime the itching returned, and perspiration broke out all over skin. N. very disturbed; she rarely got to sleep before 2 to 3 a.m., and then only slept 3 or 4 h. After the 6th d. an eruption broke out all over body. It attained its maximum on the 10th d., and she had chills and heats with tendency to sweat, therefore she remained in bed, when she sweated profusely and the eruption came out more. It was especially thick over the back, less so on arms and legs. The appearance of the rash, and the sensations attending it, were different on different parts of body. On the back the skin was studded with red points the size of a pin's head, and the sensation there was as if 1000 fine needles were sticking under and betwixt scapulae. On the arms there were spots where the epidermis was detached in fine scales; the red spots which were there at first had gone, and the patient felt there a smarting itching. On the legs there were red stripes, and she felt as if she was lying up to her hips in nettles. She remained 2 d. in bed, perspiring freely. The eruption was visible on the 20th d. It remained at its height 10 d. and decreased 10 d., so that it lasted altogether fully 4 weeks. The cooler the patient kept herself, the better she felt; bed always aggravated the itching and eruption. The heat and itching of body increased after each meal. (HOPPE, *A. h. Z.*, ii, *M. B.* 14.)

II. *Poisonings*.—1. A strong healthy boy, æt. 14, ate a quantity of the berries of *D.* He immediately became unwell, and the 2nd d. the doctor found the following symptoms:—frequent but ineffectual inclination to vomit, inability to swallow, indistinct utterance, though he spoke constantly. He always put his fingers to his mouth, as though he would take something out, spat about him, took no notice of those around him, would not reply to any question, or obey any directions, he scratched his father, was very restless, and could scarcely be held. Had suddenly jerkings, as from electricity, through the whole body, and cried piteously. The cause of the jerkings seemed to be the abdominal pains, but they did not last long, and then the child began again to speak in his stammering way. He could not walk or stand, and would have fallen if left to himself; he grasped at the air and at his clothes—*carphologia*. Tongue with thick white fur; moderately firm, big belly; no stool since the poisoning; quick, moderately full, pulse; increased temperature of skin, military eruption all over the body, urine passed unconsciously; pupils very dilated. *Liq. Kal. Carb.* was given, and he recovered. (BODENMÖLLER, *Med. Corresp. d. Würtemb.*, *arratl. Ver.*, xiv, No. 16, p. 128, 1844; *Frank's Mag.*, ii.)

2. A youth, æt. 19, took for a fortnight, for eczema, a strong decoction of stems of *D.*, and on the 15th d. besides *3ss* extract. He got such a severe attack of cramp in calf that his leg was forcibly flexed on the thigh. He fell asleep and slept quietly, but on waking the head felt hot, giddy, and there was dimness of vision, which changed to floating of black specks before his eyes. He then felt as if his eyes were pressed forwards out of their orbits. They were nearly motionless, and there was in them a feeling of dryness and tension; pupils very dilated. There also came in the hands such violent cramp that he

could not seize hold of or retain anything, at least anything small. The cramp in colon returned with more violence, and boring pain; pulse slow, intermittent; cold sweat covered the skin; all the limbs trembled. The patient lost his speech; tongue swelled, stiff and as if paralysed, he had to write to make himself understood. He got Liq. Kal. Carb., and after 6 doses of 10 to 15 drops was quite well. (SCHLEGEL, *Hafsland's Journal*, liv, pt. 2, p. 27. 1822.)

3. In persons of extremely delicate and sensitive nervous systems, it sometimes excites slight convulsive movements in hands, lips, and eyelids, especially in cold weather, and when patient is exposed to damp. This occurrence is very rare. Although at first terrifying, there is nothing dangerous or persistent about it; approach to the fire rapidly removes the symptoms. It also appears, in women, to act directly on the sexual organs, where it often sets up much heat, and sometimes pruritus; it further excites the venereal appetite, and sometimes (as I have seen) with violence. It sometimes causes agitation, sleeplessness, pricking and itching of surface, and sometimes (in the treatment of cutaneous diseases) these symptoms are the precursors of a fresh eruption. D. sometimes determines to the head, causing weight, more rarely swimming, dizziness. (CARRERA, *Traité de la Douce-amère*, 1789, p. 117.)

4. I have observed in several instances, when the system was under its influence, a dark purplish colour of the face and hands, and at the same time considerable languor of the circulation. (Dr. G. B. WOOD, *U. S. Disp.*, sub voce.)

Solaninum, alkaloid obtained from *Dulcamara*; $C_{20}H_{29}NO_{11}$.

I. *Proving* (made with acetate).—1. CLARUS took, December 11th, 1853, at 8 a.m. $6\frac{1}{2}$ gr., having previously taken $\frac{1}{2}$ and 1 gr. without perceptible effect. In first hours p.m. he experienced weight in head; pain in occiput; itching in neck; feeble, somewhat prolonged, but not impeded respiration, and acceleration, with feebleness of pulse—ordinary respiration of 15-16 sinking to 14, and pulse of 72-75 rising to 88. At same time pretty copious perspiration, without faintness. At 5 p.m., almost without any previous nausea, violent vomiting thrice repeated, without any pain or other intestinal symptom; this, about 6, was followed by distressed breathing, especially on inspiration (14-15); pulse 95-100, strikingly small and feeble. Great debility; sensitiveness to light, sound, and touch. At n. sleep often interrupted; but without dreams. Next m., save slight sense of weakness in lower extremities, every morbid symptom had subsided. Urine, completely neutral, coagulated on boiling. (*Journ. f. Pharm.*, 5, 245.)

2. S. was proved in doses of 0.002, 0.005, 0.007, 0.01, 0.10, 0.15, and 0.2 gram. on 4 persons. Put on the tongue it caused a slight cooling, sourish and salt taste, and when chewed a feeling of stickiness in fauces and throat, and a sensation of scraping; this latter sensation extended down to stomach, where in one person who took 0.15 gram. the feeling became of a peculiar shooting character. After small doses the following subjective symptoms occurred;—increased sensitiveness of skin, perspiration along the spine, when the skin was touched, increased

sensitiveness to tickling, frequent yawning, stupefaction without previous excitement, drowsiness, slight tonic convulsions in lower extremities, pulse rose immediately (25 beats), and with slight fluctuations maintained this height 4 h. (the following morning it sank below the normal); it was small, weak, even thready; difficult breathing, oppression of chest, constant eructations, nausea, very violent retching without result, rumbling in belly, scraping in throat, hoarseness, salivation; head hot, heavy, confused, painful, vertigo, great drowsiness, but inability to sleep; at the same time, extremities cold, skin dry, itching of it, feeling of great weakness. Stool and urine normal, pupils also normal. Very restless sleep disturbed by frightful dreams. (SCHADFF, *Pharmakologie*, 623.)

III. *Experiments on animals.*—1. CLARUS experimented on 4 rabbits with S., in doses of 3½, 6½, 13 and 19½ grs. respectively; and on 2 with dulcamara itself, one taking ʒij in decoction, the other ʒx of extract. (These animals are represented in the summary by figures, according to the order in which they have been mentioned.)

a. Digestive functions during life normal, and no p.-m. morbid appearances, save slight reddening here and there of alimentary m.m. in No. 4. In same subject liver was much congested, slightly so in No. 3.

b. Copious discharge of urine, in Nos. 1 and 3. P.M., great congestion of cortical substances of kidneys in Nos. 2, 5, and 6; great repletion of bladder, with reddening of parietes, in No. 6; moderate repletion without reddening in No. 2; emptiness in No. 3.

c. In all cases at first gasping breath, especially short in expiration, with increased working of nostrils. Respiration decreased gradually in frequency after a brief increase. Decrease stood in inverse proportion to increase of pulse, and was directly proportioned to dose of medicine, greatest in Nos. 3 (36), 6 (34), 2 (12), and 5 (11). A moist rattle during inspiration was exhibited in all these animals. In Nos. 3 and 6 there was a frequent violent outcry; this, no local pain existing, was evidently a sign of seizure of medulla oblongata and spinal cord. P.M., in all pretty considerable masses of mucus in larger air-passages.

d. A constant symptom was increase of rapidity of pulse in proportion to dose, greatest in first hours of poisoning, and in inverse proportion to frequency of breathing. Fresh doses of either S. or D. immediately raised speed of pulsation when already flagging, whilst that of breathing became slower in same ratio. Maximum of increase was in No. 6 (148); then in No. 3 (130); then No. 2 (128); then No. 5 (93). As frequency advanced, strength diminished. In No. 3 heart's pulsation intermitted. P.M., constant symptoms were, rigidity of muscular tissue of heart, and repletion of all its cavities with dark, cherry-red coagulated blood, clots extending into venæ cavæ (ascendens and descendens).

e. From 4—8 h. after poisoning, convulsions of muscles of thorax set in, with which were soon associated tonic spasms of extremities— at first gentle, then gradually increasing, and a short time before death suddenly attaining an enormous height. These spasms were aggravated by touch. In No. 3 there was a pendulum-like swinging of head, and

in almost all a snapping with the mouth. *P.M.*, in all the animals that died was exhibited intense redness and injection of vessels of membranes of cerebellum, of cord, but especially of medulla oblongata. Substance of centres seemed healthy.

f. Pupils were in all cases slightly contracted during full medicinal action. Animal heat was rather decreased. Death ensued in 3 cases, —after 6 h. in No. 6, later (during n.) in Nos. 2 and 3. (*Loc. cit.*)*

2. a. According to Sobernheim, a single grain of S., made soluble in water by means of sulphuric acid, killed a small rabbit in 6, and a larger one in 8 h. About an h. after taking the poison the animals became incapable of moving their hinder feet forward; the hind legs of the smaller ones were also quite stiff, and the toes stretched out; then followed great dejection, retching, and signs of pain. No evidences of inflammation were discovered on dissection; the veins were distended with blood.

b. Caylus concludes from his experiments that S. exerts a paralyzing or depressing influence on the medulla oblongata, but acts as a stimulant to the nerves. According to him, its poisonous operation consists in its paralyzing the nerves of respiration, as conia and nicotia do. (*STILLÉ, op. cit.*)

3. Fraas and Martin, injecting 4½ gr. subcutaneously into a dog, saw death ensue in 7 m., with sudden rapidity and convulsive embarrassment of respiration, general convulsions, tetanic spasms, and strong dilatation of the pupil. Leydorf administered it to pigeons, tying the oesophagus to prevent vomiting, which otherwise occurred, and observed hurried breathing, tremors, slight convulsions, and great mydriasis. . . . As to its physiological action on the vascular system, there are cases recorded by several observers in which S. has produced congestion of the vessels of the cranial meninges; and the vessels of the kidneys and liver have been found engorged simply (Clarus), or these again have been found actually inflamed (Malik and Spatzier, after very large doses of impure S.†). (*PHILLIPS, op. cit.*)

4. Husemann shows that although the effects of solanine and solanidine are in some points identical, yet there are essential differences in their action. In general, both, when given to animals, produce first a stage of apathy, manifested by indisposition to voluntary movements and diminished susceptibility to outward impressions, not so much of mere contact as those which are painful. Slight muscular trembling, especially in the muscles of mastication, accompanies this state; respiration is at first much accelerated, afterwards much retarded; the pulse is irregular, and bears no relation to the respirations. After this stage has lasted some time, a greater or less degree of cyanosis sets in, the animal falls suddenly forward, and passes into a state of convulsions, which soon ends in death. So far the effects of both poisons coincide. But

* In the summary with which he concludes, Clarus speaks of the congestion of the kidneys as "always associated with albuminuria," and of "filling of the pulmonary tissue with a serous exudation, and emphysematous distension of isolated portions of the lung" as "observed in the rabbits killed by solanine." There is no mention, however, of these phenomena in the antecedent text.

† *L.s.* mixed with solanidine.

a difference between them soon appears in their action on the eye. Both, when directly applied to the conjunctiva, cause redness with increased secretion, solanidine causing more irritation than solanine. But the effects which they produce upon the pupil are unlike, solanine leaving it unaltered, at most contracting it for a short time by local irritation, whereas a very perceptible mydriasis is one of the first effects of the action of solanidine. An essential difference is observed in the manner in which the two substances affect the temperature of the body; whereas pure solanine often lowers the temperature by 5·4° F., solanidine raises it by 3·6° or over. (Von Boeck, in *Ziemsen's Cyclopædia*, xvii, 692.)

ELATERIUM.

Echium officinarum, Richard. Squinting cucumber. Nat. Ord., *Cucurbitaceæ*.

1. *Proving*—1. "The experiments from which the following symptoms were obtained were made with pellets moistened with the undil., prepared from the extract; 20 or 30 pellets were given, and evinced the same symptoms in several individuals on whom it was tried, soon after its administration."

Increased gaping, lasting for nearly an h.; sharp fugitive or dull aching pains, now here now there; pains mostly affecting l. side, but also r.; chilliness with continued gaping, as if an attack of intermittent fever was approaching; depression of spirits; fear of some approaching disaster; dull pain in region of causality and of combativeness; pains in temples; sticking as of a splinter in inner canthus of l. eye; sticking pain near rim of cartilage of l. ear; bitter taste in mouth; feeling as if choana and upper œsophagus was enlarged; sharp pains at lower part of sternum, passing through to spine or lower angle of r. shoulder-blade; dull pains in bowels; watery discharges from bowels of frothy character; discharges of dark mucus of bilious mucus; dull olive-green discharges; costiveness; dull pain in epigastrium; feeling of stricture or oppression at epigastrium; cutting pains in bowels, like gripping of reel; dull pain in c. hypochondrium; constant nausea and disposition to vomit; eruptions of flatus; pain of a dull, aching, pricking kind over crest of r. ilium, round to back, extending deep into pelvis; bleeding of hæmorrhoidal tumours; increased flow of limpid urine; pains under r. shoulder-blade; pains in l. sterno-clavido-mastoidæus muscle, near its insertion into the sternum; fugitive sticking pains in lumbar region, more on r. side; sharp shooting pains in l. axilla, near insertion of pectoralis major muscle; pains extending from shoulder to ends of fingers and shooting back up to elbow; sharp sticking pains in muscular parts of thumb; sharp sticking pains in fingers of l. hand, r. shoulder, forearm and hand, extending to fingers; shooting and also dull aching pains in l. thigh, in course of sciatic nerve, extending down to instep, and out to extremities of toes; pain in r. knee, extending into instep and toes; pain in great toe of arthritic character. (Dr. CALVIN MATTHEWS, in *Med. Med. of Amer. Proving*.)

a. Dr. COOPER took 24 dr. of 1. dil. every m. on rising, with no perceptible effect till 5th d., when quantity of urine seemed increased. On 6th d., dirty watery stool 2 h. after breakfast. Repeated dose at 3.30 and 9.30 p.m. A stool at 8.30, first part natural, second soft. Woke next m. at 7 with desire for stool but had none. Passed more water than usual; slight aching in forehead. At 8.30 and 11 a.m., and 2.30 p.m., same dose, without effect save very slight aching in l. kidney during d.

b. Dr. C— now took a tincture prepared by treating 1 gr. of solid E. with 150 dr. of alcohol. Took 24 dr. at 6.15 p.m., without effect, and 50 at 8. Felt very weak when going to bed at 10; woke next m. with desire for stool, and had a very copious liquid motion, painless, followed by about 3 others in course of m., all painless and very liquid, of dirty colour, at irregular intervals, seeming to continue until bowels were fairly emptied. There was some soreness at anus. At 7 vomited a dark brown fluid mixed with food, without pain, flatus, or nausea, but with much prostra-

tion and feeling of great weakness about stomach. One more stool, like the others, at 10 next m. About a week later took ʒ dr. of same. About ½ h. afterwards pain in back of throat, as if sealed, and feeling of sickness. On 2nd d. same dose without effect, but on 3rd d. same made him feel sick for 1 or 2 h., had to lie down to prevent vomiting. Slight pain in region of l. kidney. Remained 1 d. without med., then repeated dose, without symptoms till e., when he had severe pain in head, not aggravated by an extra drop taken in experiment. On 5th d. same dose. Breath smells badly, tongue coated with dirty brown fur. Sp. gr. of urine 1017, high coloured, scanty; no deposit with heat. (*M. H. Rev.*, xiii, 227.)

3. Morris gave to a person in health ʒʒth gr. of elaterin,* which at end of 1 h. produced vomiting and copious dejections. Christian administered it in 4 cases in doses of ʒʒth gr. In two of them vomiting and purging were produced, in a third griping, and in one no effect. (*Ed. Med. and Surg. Journ.*, xxxv, 147.)

4. Two medical students took 0.05 gr. of crystallised elaterin. On chewing it, it felt rough under the teeth, was bitter, dissolved with difficulty in the saliva, remained long on the tongue and caused salivation. In one after 45 m. it caused nausea, inclination to vomit, and vomiting of slimy fluid; the vomiting was repeated 4 times in 1 h. and evacuated bilious matter; the salivation increased considerably; eructation of air, flatulence, rumbling in belly, scraping in throat. These symptoms went off in the heat of bed, and instead there came abdominal pain, confusion of head, later headache, and after 6 h. the 1st stool, at first liquid, brown, later yellowish white; 1 h. later along with increase of the headache and bellyache the 2nd, and some h. later the 3rd liquid stool. The head continued thereafter to be confused, belly retracted, with disagreeable empty feeling in it, anorexia. In the other prover there was tiresome eructation, great nausea, relieved by sneezing, and after 6½ h. the 1st, after 9 h. the 2nd watery stool; after 11 h. violent vomiting, profuse salivation and epistaxis, which was not repeated though the nausea continued and eructation with the smell of rotten eggs. The following d. there were seven liquid stools, and three the 3rd d., while the nausea, the ill-smelling eructations and great weakness and prostration lasted through both d. (*SCHROFF, Pharmakologie*, 369.)

II. *Poisonings*.—1. Dr. Dickson carried a specimen of the plant in his hat. After ½ h. he had violent headache with feeling of constriction at the temples and forehead. At same time pains in aërob. cordis, and violent colic. Soon vomited a small quantity of clear fluid. The vomiting was repeated at short intervals. After 3 h. had copious exhausting vomiting of all contents of stomach, together with green bilious matter. These symptoms, which commenced at 5 p.m., were attended by pain and lasted till next d. The vomiting continued nearly all n., and recurred 3 to 10 times. When it ceased towards m., great weakness supervened. (*A. A. Z.*, lxxiii, quoted from *Froniep's Nov.*, xxi, No. 455.)

III. *Experiments on animals*.—1. On the lower animals its action is much less certain than on man. Viborg asserts that a horse was unaffected by a pound of the fruit; and I have given 1 and even 2 gr. of a presumably active elaterium to a dog, without producing very obvious results. If the dose be sufficiently large, however, all animals are probably affected fatally by E., perishing by progressive depression. Stillé asserts that death is not rarely preceded by violent vomiting and purging; and even when these are absent during life, *post-mortem* examination reveals congestion and inflammation of the gastric and intestinal mucous membranes. In none of my own experiments (which have not been very numerous) has any purging been present; further, in Dr. Köhler's elaborate investigation (*Pflüger's Archiv*, 1, 287), E. dissolved in alcohol was injected under the skin, powdered E. put into the rectum and given by the mouth after the gall-duct had been tied so as to prevent the flow

* Elatrinum, C₁₂H₂₂O₆, an alkaloid found in E.

of bile into the intestine, and in neither case was there any purging, but prostration spathy, disturbed respiration, salivation, and violent convulsions, ending in death. From these experiments Köbler draws the conclusion that *E.* exerts a general action upon the system, for which its introduction into the blood is all that is requisite, and also a purgative influence, for which it is necessary that there be bile in the duodenum to dissolve the *E.* and cause it to act locally on the intestine. The objection to the latter conclusion is that our present lights seem to indicate that *E.* does not purge dogs and rabbits, even when given under ordinary circumstances. (H. C. WOOD, *op. cit.*)

EPIPHEGUS.

Epiphegus virginiana, Michaux (*Orobancha virginiana*, L.). Beech drops. Nat. Ord., *Orobanchaceae*.

I. Proving.—1. RALPH MORDEN, M.D., April 25, 1881, at 5.30 p.m., took ʒj of tinct. At 6 some pain in r. and (slighter) in l. temple, lasting until he went to bed. May 15th.—Took ʒss. No marked effect for 1 h.; took ʒss more. In 15 m. decided pain in r. temple, slight in l., lasting 3 h. and leaving dull heavy aching behind. Also viscid saliva, and almost constant desire to spit. No marked change in pulse. June 13rd.—Took 60 dr. No symptoms for an h.; then repeated dose. Almost immediately felt slight pain in l. temple, sense of fulness in fore part of head, and peculiar sticky viscid taste in mouth. At 3.30 p.m. marked pain in both temples as if from pressure of finger-tips in temporal fossae; worse l. side and lasting till 8. Feb. 11, 1883, at 1.30 p.m. took ʒj of ʒ, dil. In 10 m. slight pain in l. temporal region; viscid taste. At 2.30 repeated dose. In 15 m. sense of fulness in head, scalp felt tight; could not read because words seemed blurred, and when he went to write could not form the letters he wished; also found himself using wrong words. Occasionally piercing pain in r. temple. By 8 p.m. had taken two more such doses. Headache in r. temple, full feeling in fore part of head, eyes smarting, saliva viscid, and.—Headache in l. temple during n., especially on sitting up in bed. Better this m.; no pain in head, but sensation as if something was wrong there, especially in fore part; very bitter taste in mouth. At 11 a.m. took ʒss of same. 2.30 p.m., severe pain in middle of forehead, coming suddenly and lasting only a few m. At 2.45 took ʒss more. From that time till retiring severe headache in front part of head, worse in r. temple. 7th.—At 8.40 a.m. took ʒss of tinct. In 5 m. severe pain in middle of forehead; at 9 severest in r. temple, walking in open air makes it worse. At 9.45 repeated dose. 10.30, severe continuous pain in r. temple. 11, same pain still severe, some nausea, general languor. 11h.—Headache occurred occasionally all d., with pain in l. shoulder and knee. For several d. uneasy feeling in fore part of head; also difficulty in passing stool, though feces were soft. (BORRICKS and TAYLOR'S *Bulletin*, Jan., 1884.)

2. I induced a young friend of mine to take some of the drug; but as soon as the head pained he desisted, and could not be induced to go on with the proving. He described his head pain as a pressing in the temples from without inwards, worse on l. side. He also had the peculiar condition of the saliva I have attempted to describe. (*Ibid.*)

EQUISETUM.

Equisetum hyemale, L. Scouring rush, rough horsetail. Nat. Ord., *Equisetaceae*.

I. Proving.—1. a. Dr. HUGH M. SMITH took, August 24th, 26th, and 30th, repeated doses of ʒss dil. He experienced on first 2 d. frequent sharp stitches in temples, with sense of constriction there and across forehead; and p.m. of 25th had some pain in region of sacro-lumbar articulation and through l. hip, extending down outer side of l. leg, terminating in front about 3 in. above knee, relieved by lying still, increased at first by exertion, but subsequently diminishing. Pain seemed deep-

scatol. Urine was on this d. high coloured and scanty, and there was considerable smarting and pricking in urethra on urinating; since commencement of proving there had been soreness of l. testicle and cord, with pain from least pressure.

6. Sept. 10th.—Took doses of 3rd dil. at intervals of 15 m. from 9.30 a.m. to 11.45 p.m. 11.45, boring pain in l. temple. 12.45, consecutive pain through temples, and occasional sharp pain through l. hip and in lumbar region. Frequent desire to urinate, p.m., with biting sensation in urethra during and after passage of urine. Took a dose at 7.30 and 8 p.m. Great restlessness all e.; sensation of constriction of whole scalp, as if drawn tightly over skull, with continued inclination to raise and wrinkle brow, which when wrinkled requires quite an effort to smooth it out again; pricking sensation also in forehead, and while rubbing is very similar feeling to that caused by electricity. 11th.—Took dose at 9.45 a.m. Dull heavy headache all afternoon, with inability to study; soreness of both testicles and spermatic cords, worse in l. 12th.—At 8.30, 11.45, and 9.10 p.m., took 5 dr. At 9, slight pain in r., then in l., kidney, extending down l. side of sacrum. Slept well through n., but woke with dull heavy pain in lumbar region, and passed large quantity of pale urine.

7. Sept. 11th, 9.30 a.m.—Took 10 dr. of tinct. At 9.45, dull pain in region of r. kidney, with urgent desire to urinate. He had done so only a few m. before, but now passed 3iv of clear light urine. 10, took 10 dr. more. 10.15, passed 3v of urine, with pricking in urethra during and after urination, and feeling in bladder as after great distension; constant desire to urinate, and large quantities of clear, light-coloured urine passed without relief. 11.7, pain in back and pricking in urethra increased. At 12 m., repeated dose. 12.30, very severe pain in lumbar region, increased by sitting still; dull heavy feeling at top of head, with pain through temples. 1.10, passed 3iv of urine. 1.25, face flushed, with slight feeling of heat. 1.40, great burning in face, neck, and r. ear, without much redness. Desire to urinate continues, but he passes smaller quantity and of darker colour. Dull pain in back all afternoon, with throbbing pain in temples, first l. then r., with sense of constriction of whole scalp. Dull drawing pain in back of head and neck in e. Very irritable and easily fatigued. 14th.—Slept well, but woke unrefreshed; head feels heavy and dull; pain in back continues; soreness in r. side of abdomen and region of bladder; urine profuse. At 9.15 a.m., took 15 dr., and repeated dose at 10.15. Urgent desire to micturate, with pricking and soreness of meatus from contact or pressure. At 11, took 10 dr. 11.30, severe pain in roof of r. orbit; same feeling in back, just below lower angle of scapula, increased by least motion or deep breathing. 11.50, took 15 dr. 1.10, heat in face, without redness, for 1 h. 1.30, sharp stitch in l. breast. 1.50, took 10 dr. Urine very profuse, and passed at short intervals, with biting and pricking sensation in urethra. 15th.—At 9 a.m., 30 dr. Tenderness over hypogastric and iliac regions, most on r.; pain and soreness of back and l. hip continue. At 11.30, 40 dr. Soon after, dull, deep-seated pain in forehead, with pricking of skin on rubbing; pain in bladder, as from distension; distended feeling of whole abdomen; less urine this m. than usual. Pain in back, especially while sitting, and soreness of testicles and cords (more in l.) still continue. 12.20 p.m., excessive burning in urethra while urinating. 12.35, creeping running up back. 1.15, stool, with itching in anus and feeling as if rectum would protrude, followed by smarting in anus and sensation as though some fibres still remained. 1.55, 50 dr. Same hypogastric pain and tenderness, and constant desire to micturate, which is not relieved by passing urine; also soreness of testicles and cord. Urine, when allowed to stand for some time, deposited much mucus. 16th.—Woke with sharp pain in inner side of l. knee, which passed off after moving about a short time. Still pain in back and hypogastric. Smarting of anus during and after stool. 9.10 a.m., 50 dr. 9.40, sense of fullness in fore part of head, as if all contents of cranium were packed in front. 10.30, 50 dr. 10.45, pressing pain in both temples, with heat in face and forehead; sharp pain in r. side, just above crease of ilium. 11.10, 30 dr. Same feeling in head. 11.55, small quantity of urine, with burning and smarting in urethra.

Feeling of distension of bladder continued for some d. after stopping drug. Appetite very much increased all through proving, at times excessive. (*Trans. of N. Y. State Hom. Med. Soc.*, 1876—7, p. 104.)

2. F. L. DE KORTER, man of 31, Sept. 14th, 9 a.m., took 10 dr. of tinct. 9.25, pain in r. temple. 9.30 and 10, repeated dose. 9.55, frontal headache, with severe

of tightness of scalp and pain in roof of r. orbit. 10—11, pain in upper part of shoulders and in vertebra prominens, increased by least motion or contact. 10.35, passed large quantity of urine, with burning in fore part of urethra. 12.30 and 1.30, took 50 dr. 12.35, sharp cutting pain in urethra. 2.30, took 40 dr. 2.45, passed large quantity of urine, with burning in urethra and tenderness in region of bladder, as from distension. 3—5.15 and 6—6.35, violent erections. 6.30, passed large quantity of urine. 9.30, sharp pain in l. temple, extending to supra-orbital region, with redness and burning of face. 15th.—Many confused dreams of crowds of people who had no relation with each other; was obliged to get up several times in n. to urinate. At 30 a.m., 20 dr. 10.15, sharp pricking pains in urethra; pain in r. shoulder, extending to middle of upper arm. 10.25, dull, heavy feeling of head, as if it would fall forwards; pain through temples and across forehead and upper part of eyes. 10.30, took 40 dr. 10.45, headache increased, accompanied by feeling of drowsiness; pain under sternum on taking deep breath; pains in neck, which on motion extend to shoulders. 10.50, pain in testicles and urethra. 10.55, sharp pain in region of heart, also in lower abdomen, with sticking like pins in anus. 11, took 60 dr. 11.5, intense pain in lower abdomen, with passage of flatus. 11.30, passed small amount of urine, but felt as though he had not urinated for hours; pricking pain in urethra, a short distance back from meatus, while urinating. 11.45, sharp pain in l. shoulder, with shivering over whole body and great heat in head. 11.50, took 120 dr. 11.55, very severe headache, with intense pain in upper part of eyes or roof of orbits; pain in region of heart, more intense than before. 11.55, sharp pain in l. side, just above crest of ilium, lasting about 5 m. 12.50, severe pain in lower abdomen, with passage of much fecal flatus; pains in centre of chest on any movement forward. 1.30 p.m., 70 dr.; sharp sticking pain in throat. 1.35, sharp pain in region of heart. 1.40, pain in l. side, above crest of ilium, extending forward to median line of body. 1.50, sharp pain in region of heart, increased from inspiration. 3.15, passed large amount of urine, attended with burning in urethra and sharp pain in roof of penis. 4.8, sharp pain in outer angle of r. eye. 5, violent erections. Sleep as last n.; woke unrefreshed, with some headache, and had heavy feeling in head all d., with sense of great prostration. Larrea lasted through morning also, with sexual impotence; pain and tenderness in region of bladder, with soreness of vesicles extending to cords; appetite very much increased, so much so that he hardly knew when he had had enough. (*Ibid.*)

3. EDWARD CHAPIN, *æt.* 37. *a.* July 29th and 30th, 1875, took pellets of 3000 dil. 3 or 4 times a d. In $\frac{3}{4}$ h. after first dose, head felt heavy, with pains directly above r. temple, and confusion of sounds in ears, so that they were barely distinguishable; symptoms worse from moving head. After 2nd dose, pain in both temples, more severe in l., also in l. occiput and near two lower lumbar vertebrae. After 3rd dose head felt light, with wave-like pains through it; others continuing. After 4th dose, lumbar pain very marked, extending along coccyx. After first two doses on 30th (\$1.15 and \$1.50) sticking again in l. temple, proceeding in straight line across forehead to r., with confusion of noises in ears as before, sharp dartings in various parts of head and dull heavy sensation of whole brain. After 3rd dose, lumbar pains as before. Took similar doses with similar effect Aug. 3rd and 6th. Felt excessive appetite all through proving.

4. Commenced August 30th to take pellets of 3rd dil. After 4 doses at short intervals fearful rumbling sensation in ears, with dullness and heaviness in head. After 5 doses Sept. 2nd, numbing in l. ear, followed by confusion of noises in same, and slight boring pain from l. to r. in temporal and occipital regions. After a 3rd dose at 9.45 a.m., pains in head continued all forenoon. 7th.—Continued with 3rd dil. Pain in r. hip-joint, also near knee-joint; severe frontal headache; heavy weight on top of head; itching pain near lambdoidal suture, also darting pain in each temple; stupefying headache about 4 p.m.

5. Sept 12th.—At 1.30 and 1.45 p.m. took 30 dr. of lixiv. Severe pain in r. lumbar region. 24th.—Took 15 dr. at 1.30 p.m. About 2.15 severe pain directly over r. temple. Heavy sensation, as of a lump, in r. lumbar region, directly over hip-joint; severe vertigo; skin over frontal bone very tight, and feeling as if continuing to contract; great desire to urinate, but only a small quantity passed each time; some pain in penis while micturating. 27th.—Took 15 dr. at 8.45 a.m.; 25 dr. at 9.45; 50 dr. at 11.30; 55 dr. at 12.30. During 24 h. after taking drug passed 45 oz. of

urine, sp. gr. 1028; great desire to micturate about 11.30, and quite a large amount passed; in a short time again great desire, but while this increased, amount passed grew less each time; severe burning and aching in penis while urinating, also severe dull pain in bladder, not relieved immediately by emptying it; urine had very cloudy appearance after standing in a vessel a short time. Bladder pain continued for 2 d. after taking drug, to such extent as to make him fear impending inflammation. (*Ibid.*)

4. C. C. P., female, took repeated doses of 30th, with same action as displayed in former cases in tempora-frontal region—headache there and contractive feeling of integument, also heaviness of eyelids and sleepiness; sleep disturbed by confused dreams of many people present together, but quite unconnected, as in No. 7. (*Ibid.*)

5. A. J. H. CARMICHAEL, M.D., Jan. 3rd, 1876, at 2.30 p.m. took 6 dr. of vires., 10 dr. at 5.30 and 12 at 10.30. After taking 2nd dose slight uneasiness in epigastrium and r. hypochondrium, more decided after 3rd; much wind in stomach, constantly changing position; slight neuralgic pains in head, most frequent in l. temporal regions. During n. fitful sleep; increased saliva, causing frequent desire to swallow; pain in both scapular regions, worse in l. and great soreness over kidneys, worse on r. 4th.—At 7 a.m., 5 dr. More or less stiffness in muscles of neck; l. scapular pain continues; pain about pyloric orifice of stomach; decided heavy pain over r. kidney; urine diminished; pulse quicker by 20 beats per m.; general feeling of malaise. At 3 p.m., 10 dr. Pain in l. pectoral muscles; dull, heavy headache; epigastric and umbilical regions painful; pain in l. kidney still. At 9 p.m., 10 dr. Very severe pain in r. lung between 4th and 5th ribs. 5th.—Pain still in r. lung, but not so severe as last p.; frequent calls to urinate; urine has ammoniacal smell; decided stiffness of all muscles of trunk; soreness still on pressure over r. kidney; l. scapular region very sore on movement of arm. Very severe pain in r. pectoral region all d., worse in e., cannot fill lung with air for pain; pulse 100, but do not feel feverish. Later, both lungs feeling as if becoming congested, and respiration difficult, took veratrum viride with relief. 6th.—Restless n., could only lie on back till midnight, after that on affected side; it felt as if a spot beneath l. nipple were inflamed, worse on inhaling, stopping to r. or elevating r. arm. 7th.—Pain continues, but not as bad as yesterday. In e. frequent desire to pass water, with severe cramp-like pain in hypogastric region, somewhat relieved on micturition, but recurring,—for about 2 h.

6. April 24th.—Took 4 doses of 10 to 15 dr. each, and on 25th 4 doses of 30 dr. The drug had a decided diuretic effect, with slight pressure in vesical region, decided burning over epigastrium, and more or less uneasiness in different parts of the body also (on 25th) dull heavy aching over l. kidney with sharp pain in l. hypochondrium. 26th.—At noon, 10 dr. Diuretic action of remedy continues; l. kidney has been more painful during last 6 h.; soreness in r. subscapular region, also uneasiness in r. kidney. 27th.—Could not sleep first part of n. on account of dull, heavy pain over both kidneys, which is still severe this m.; occasional sharp shooting pains through both lungs; great acidity of stomach for last 2 d. On pressing hypogastric region, much soreness; in forenoon much uneasiness about stomach, bowels feeling as though diarrhoea were about to set in. 28th.—Kidneys still feel sore; frequent calls to urinate, quite a large quantity passed each time; heavy pressing pain in stomach commencing about 1 h. after each meal and continuing about 2 h.; much soreness about thorax. 29th.—Feeling somewhat better, but often reminded of back by pain on movement. (*U. St. Med. Investigator*, Aug. 15th, 1876.)

EUCALYPTUS.

Eucalyptus globularis, Labill. Australian gum tree. Nat. Ord., Myrtaceae.

1. *Præparatio*.—1. Dr. D—, man of 26, took, May 10th, 1873, 10 dr. in half a glass of water. In ½ h. sensation in stomach as if too full, more much pain, lasting about 1 h. During whole c. evacuations tasting of drug. At 9.30 p.m. repeated dose; no new symptoms save uneasy sensation in umbilical region. 11th.—At 1.30 a.m., 10 dr.; in ½ h. same sensations as before, but extending farther through bowels; skirmishing aching pains in upper bowels, with feeling as if diarrhoea was impending; dull feeling in head; eyes hot, burning and smarting; some stiffness of nose. Repeated dose 3 times in d. without new symptoms, save that after last he felt some

fullness and soreness in throat on swallowing, and burning there; eyes same; feels as though he had taken cold. 13th.—Took 10 dr. at 7.30 a.m. and 12.30 p.m., 20 dr. at 6.30 p.m. On getting up in m. (still catarrhal), sharp aching pains in lower bowels, with thin, watery, yellow diarrhoea. In e. fulness and pressure in stomach. During afternoon constant sensation as of phlegm in throat, and expectoration of moderate quantity of slightly thick white frothy mucus; examination showed relaxed, aphthous condition. 14th.—No medicine; catarrhal symptoms disappear. 15th.—At noon, 30 dr. Same full, uncomfortable sensation in stomach as if too much had been taken; burning in eyes begins again. At 6.30 p.m., and again at 7 and 12 next m. repeated dose. Same feeling in stomach, and no stool this m. After dinner, considerable sharp aching pain in hypogastric region; eructations as before; some burning in stomach. Doses repeated at 4 and 11 p.m. produced nothing fresh. 17th.—30 dr. at 7, 11, and 6.30. Cold returns again, some coryza, burning of eyes, general full feeling of head, dull and sleepy, dull frontal headache, eyelids heavy. About 10 m. after dinner, peculiar sensation of faintness and "goneness" in stomach, with distinct sensation of beating, synchronous with heart. This feeling continued at times all afternoon and next forenoon. Proving now discontinued. Since then some irregularity of bowels and lack of prompt digestion. (*Trans. of Am. Inst. of Hom.*, 1873, p. 370.)

2. Mrs. D.—took tinct. in 5 dr. doses at different times, taking it 3 and 4 t. each time. Did not think it had any effect; but inquiry ascertained that each time she had cold in head, and a thin diarrhoea, accompanied by aching (rather sharp) pain running through bowels, particularly in m. (*Ibid.*)

3. Eucalyptol depresses temperature of healthy body more than quinine. A dose of 200 dr. reduced that of a man by 2° F., and that 100 in e., when it would naturally have risen. Four doses of 20 dr. taken at intervals of 1 h. did not impair appetite but produced a sort of drunkenness, which in 1½ h. passed into mental depression and exhaustion lasting for several h. (*STEIN, Lond. Med. Record*, ii, 71.)

4. Eucalyptus and its oil have a warm camphoraceous taste, and increase the salivary and intestinal secretion, producing copious and soft motions, while larger doses excite diarrhoea, and stools smell of eucalyptol. The active principles are readily dissolved; they increase the heart's action, accelerate the respiratory movements, and lower arterial tension. E. excites perspiration. In large doses eucalyptol acts on the kidneys like turpentine, copaiba and cubeba. (*RINGER, op. cit.*)

5. Dr. FAWCETT, of Australia, put 20 leaves into a pint of water, and allowed it to simmer until the quantity was reduced to one half; of this he took a tablespoonful 3 or 4 times a d. After using it regularly for several d., its influence showed itself in eruptions on the skin of a herpetic character, in glandular enlargement, and in the development of foul and indolent ulcers. Next in order was felt tenderness and burning sensation in stomach and bowels, with great heat in rectum, followed by tenesmus with discharge of mucus and great prostration. Violent purgation and hæmorrhage from the bowels ensued, and a suspension of the experiments became necessary. Having recruited his strength, he repeated his daily doses of a decoction of the leaves, and soon experienced pains of a stitching, jerking, tearing character, worse at n. He also again felt the burning sensation in the epigastric and umbilical regions which he had previously noticed, together with tormenting thirst, faintness, vertigo, dimness of vision, sense of fulness in head with dull frontal headache, and tightness across bridge of nose as if profuse epistaxis would set in. In both upper and lower extremities prickling sensations were first noticed, followed by painful aching, with sense of fulness in veins, and a stiff, weary sensation as if too lazy to move. Experiment was again discontinued. On renewing it 4 months later, similar eruptions again recurred, together with swellings in different parts of body. One, below r. nipple, about size of filbert, was seat of stabbing and darting pains. It remained upwards of 2 months, and phytolacca had to be taken to remove it.

6. Dr. F.—was requested to see a lad of 13, who appeared to be suffering from rheumatic fever. The usual remedies were of no service. On more closely examining the boy's condition, he found many nodular swellings over the metatarsal and metatarsal joints. He could neither walk nor carry anything without great pain. Noticing a similarity to the symptoms the eucalyptus had produced on himself, he found that the lad had eaten largely of the gum and had chewed many leaves. Dr. F.—believes that his symptoms were entirely due to the action of the E. (*Monthly Hom. Rev.*, xviii, 90.)

EUPATORIUM.

Including *E. perfoliatum*, L., and *E. purpureum*, L. Nat. Ord., *Compositæ*.

Eupatorium perfoliatum, bone-set, ague-weed, thorough-worm.

I. Proving.—J. WILLIAMSON. (No information given.) Headache, with sense of soreness internally, better in house, aggravated on first going into open air, relieved by conversation; pain extending from forehead into occiput, greatest in l. side; brating pain in nape and occiput, better on rising; darting pains through temples, with sensation of blood rushing across head; heat on top of head, with pain, which is relieved by pressure; soreness of eyeballs; redness of margins of lids, with glaucous secretion from meibomian glands; increased lachrymation; flushed face; redness of cheeks, with dry skin; paleness of mucous membrane of mouth; tongue covered with white fur; dryness of throat; insipid taste in mouth; loss of appetite; distaste for food; nocturnal thirst for something cold; thirst for cold water; desire for ice-cream; belching of tasteless wind, with feeling of obstruction at pit of stomach; sensation of something in stomach that ought to come up, without ability to raise it; general shuddering, proceeding from stomach; sense of fulness in stomach; beating at epigastrium in m.; heat in stomach; nausea and vomiting of food; vomiting preceded by thirst; disagreeing disposition to vomit; nausea and vomiting, with free perspiration and copious expectoration; qualmsiness from odours, as smell of food cooking; tight clothing is oppressive; soreness and fulness in region of liver; tightness in l. hypochondrium; purging stools, with smarting and heat in anus; tenesmus, with a small loose evacuation; 4 or 5 watery stools in d.; urine scanty and high coloured; copious evacuation of limpid urine; dark-coloured clear urine. Hacking cough in s.; cough, with soreness and heat in bronchiae; cough, aggravated in e.; aching pain under l. breast; inability to lie on l. side; soreness in chest, from taking a full inspiration; grating sensation in chest at every full inspiration; weakness in small of back; deep-seated pain in loins, with soreness from motion; pain in back, as from a bruise; beating pain in nape; stiffness of arms; painful soreness in both wrists, as if broken or dislocated; stiffness of fingers, with obtuseness of sense of touch; pain with extreme sensitiveness in l. glutei muscles, passing round in front of trochanter major; pain (increased by standing) and soreness of upper part of l. foot, with increased sensibility of l. big toe; stiffness and general soreness of lower extremities when rising to walk; pain in first joint of l. great toe, which suddenly moves to corresponding joint of r. one; pricking in soles of feet; aching in r. hip, while sitting; heat in soles in m.; chilliness through n., and in m. with nausea, from least motion; aching pain and soreness, as from having been beaten, in calves of legs, small of back, and in arms above and below elbows; aching in bones of extremities, with soreness of flesh; chilliness, with excessive trembling and nausea; chilliness in m.; heat through rest of d., but no perspiration; nocturnal sweat, with chilliness from movement or removal of covering; alternate chilliness and flashes of heat. (*Mat. Med. of Amer. Proving*.)

Eupatorium purpureum, gravel-root, queen of the meadow, trumpet-weed.

I. Proving.—J. M. DRISSEB, blonde, very susceptible to medicinal action, took five. for 10 d., a dose 3 times a d., increasing from 70 to 100 dr. Results.—Persistent sensation as of falling towards l. side; head feels light; dull and stupid, great effort required in order to move about; unusual wakefulness, with staring look in eyes, also lightness and dizziness as if flying round and round, with hard thumping pain on l. occipital bone, and sensation as if head was moving in all directions; dizzy, with dull deep aching in l. temporal region; head feels as though she had a bad cold; dull, heavy pain in head, most in forehead, with sense as if vertex were pressed up; soreness, itching, tenderness of scalp, fine pricking sensation, rather pleasurable than otherwise. Copious lachrymation; cannot see as far as usual. Feeling as if ears were filled up; reports in them, squeaking, crackling—much aggravated on swallowing anything. Much thin discharge from nose, with soreness. Rush of blood to face, which is burning, red, dry, hot to touch, and itching. Abundant saliva; gums red and hot; pricking and stinging in tongue, with numb feeling (as from arsenite). During entire proving, continued smarting and burning in throat, most severe at back, with yawning and sighing; choking fulness, compelling frequent swallowing;

roughness, dryness, fulness; fluttering in throat-pit. Continued exertation; much wind in stomach; sickness, nigh to vomiting; fulness, mostly on l. side; crampy pain. Fulness and pain in bowels; rolling, tumbling, twisting pain; pain and soreness of whole abdomen, much worse l. side; bowels hard as a rock; tense cutting pain a in. above l. ovary. Heavy pressure all d. upon rectum; feeling as if bowels must be moved continually, without power to effect action; pain and suffering as from diarrhoea, though passages were not much altered.

4. In ½ h. after m. dose (6 a.m.) experienced sharp, quick, jerking motion in region of l. ovary, also immediately above it; and there was deep dull pain in l. kidney. In 2 h. experienced desire to void urine, which lasted all d., in spite of frequent micturition; she passed twice as much urine as usual during d. All d. heavy, dull pressure just above l. ovary. P.m., took 40 dr.; severe cutting pain over whole abdomen after urinating; cutting, as well as dull deep pain, in kidneys. Had to micturate still more frequently; with desire to do so, causing aching pain in bladder; deep dull pain in ossa innominata; sense of fulness of bladder. At 5 p.m., scalding, smarting, and burning on passing water; unnatural desire to strain urine on, stream does not appear so large as natural; external generative organs feel as though wet (effluvy); most severe cutting pain in urethra, coming and going in 5 or 10 m., lasting many h.; dull, heavy pain in urethra, and dull aching in bladder. These symptoms of urethra began to be experienced on 3rd d., of proving, and after that were continuous; smarting and burning so intense that she could not stand; therewith weak, tired, wearied, faint feeling, which was almost insupportable.

c. Abundant leucorrhœa throughout proving, but leaving no stain on linen. Fluttering of heart and throat; immediately after each dose violent palpitation; pulse 80—100, full and bounding; strong desire to inflate lungs. Mind affected with several delusions; depression and sighing. Neuralgia-like pains from below upwards, mostly up l. side of back and hip; wet pain directly within spine, along whole length, from below upwards; dull aching in sacrum, running upward into kidneys; lame, weak feeling in neck; stiff, wry neck; cutting pain in neck, from l. shoulder to occiput. Tired, weak, uneasy feeling in limbs, with gnawing, disagreeable pain; feet feel as though she had over-walked, heels as if they were crowding through boots; rheumatic pain changing from place to place, always from below upward; gnawing in hip-bone; l. leg feels weaker than r., but in latter there is a severe numbness, worst at groin.

d. Same another time took large single doses to observe effects on urinary organs. Jan. 1st, at noon, took 60 dr. of tinct. In ½ h., 14 oz. of urine passed; sp. gr. 1025. At 2 p.m. 10 oz., of more aromatic smell. At 2.50 passed 10 oz., of pale colour, sp. gr. as before. At this examination first noticed a white, flaky, flocculent substance, which, when collected on a filter, proved to be mucus. At 4 p.m. passed 12 oz., at 6 p.m. 7 oz., at 6.45 p.m. 5 oz. Up to this time about ½ oz. of mucus had been passed to the 18 oz. of urine. Urgency increased as day went on. 2nd.—At 9 a.m. took 60 dr. Desire to-day to void urine was almost unintermitting, but quantity small—not more than 1½ or 2 oz. at a time, but this once an hour or oftener. Urine of lighter colour, and of sp. gr. averaging 1026; it contained more mucus, but its chemical constitution was unchanged. 3rd.—Took 60 dr. more, with similar results; urine neutral, of sp. gr. averaging 1026.

"During the 3 d. the frequent and tormenting desire to pass urine, with occasional spasmodic action of the bladder, could not long be borne." (HALL, *New Remedies*, 2nd ed.)

EUPHORBIA.

Including several varieties of spurge. Nat. Ord., *Euphorbiaceæ*.

1. *Proving*.—c. HANREMAN, *Chronic Diseases*, part 3 of original, vol. of translation. Contains all symptoms from self and two others, obtained from "euphorbium," gum-resin of *E. resinifera* (Berg), *affinaram* (L.)

2. Leaves, bark, succulent portions of stem, and thinnest portions of root with bark of thicker portions of *E. amygdaloides* (L.) were macerated in alcohol for 5 months, and pressed. A. Aug. 16th, 1869, Dr. CROKER took 1 dr. of resulting

tinct. with only local effect. On 19th took 20, 30 and 40 dr. In 10 m. after last dose slight throbbings were felt in region of heart for 5 m.; afterwards, feeling of warmth, which seemed to radiate from stomach through chest, gradually subsiding in 10—15 m. About noon (dose taken at 10) feeling of qualmsiness when walking, lasting some time. At 7 p.m. difficult stool, arising from painful spasm of anus, both before and after evacuation; faces small, lumpy, shmy. (Thinks he noticed same on 19th.) When walking in c., perspired much more than usual. 23rd.—Rheumatic pains in r. elbow, just above insertion of triceps, worse on motion. 24th.—Took 40 dr. in ½ of water at 8.30 a.m. In 10 m. warm feeling in pharynx, œsophagus, and stomach, passing off in ½ h., ending in feeling as if liver were excited, and then as if bowels would act. 10, slight stitch in splenic region when rising from sitting, followed by some uneasiness there. 3, dinner being delayed, sick feeling. 8.30, throbbing in r. groin for ¼ m. Pain as on 23rd, in both arms; urine hot in passing. 12, small, lumpy stool, with prolapsus for 10 m., though there had been no straining. In e. two hard, white, itching, vesicular pimples on r. foot; throbbing in both groins, and seething sensation in lymphatics of legs—chiefly from feet to knees; acute of fulness in lower third of r. radius. 25th.—50 dr. Symptoms of yesterday remain, when walking uphill in e. violent stitch in liver. 26th.—60 dr. Fulness of chest only continues. (Thinks the boiled onions taken for supper on 25th may have dissipated other symptoms.) 27th.—Pimples are red, one has red areola. 10.40, 50 dr. Same symptoms followed as before, with occasional stitches in liver, up to 31st. Between 9 and 10 of latter d. offensive diarrœa, which recurred several times during next few d. Sept. 1st.—Boxing pain in l. antrum, extending to floor of orbit, thence round to supra-orbital canal and up into head (for ¼ h.)

b. Same prover later took 1 dr. of 3rd, and perceived a strong odour as of mice, which he had noticed in former experiment. A lady who took same dose in afternoon woke at n. with similar odour—which in each instance was subjective only (*M. H. Rev.*, xiv, 194.)

3. Dr. HARRISON took 3 dr. of same tinct., Aug. 14th, at 2.10. There was slight burning at back of throat soon after, and in c. while riding in open carriage, sense of heat in chest. At n. took 1 dr., 12 on 17th, 16 and 25 on 18th. On 20th, prickings in back during stooping and when rising therefrom. 22nd.—30 dr., with only slight local effect. 23rd.—40 dr., same result. 24th and 27th.—60 dr., same result. At 7.15 took 80 dr., and a meal being taken immediately after, no burning was felt; but at 7.55, while writing, pressing pain at irregular intervals just above r. nipple, worse on stooping, lasting 1 h. In c. similar sensation slightly in l. chest. 28th.—100 dr., followed only by local burning and heatiness. 29th.—130 dr. Same heat soon after, and occasional qualmsiness later in d. On 30th and 31st, and on Sept. 1st. took 3ij. Similar local effects followed, and he felt tired unusually early from exercise for some d. There were also occasional sharp pains in lumbar region. (*Ibid.*)

4. Dr. BROWN, who has tested the effects on his own person of the root of the *E. corollata* (L.), thus describes its action:—After taking 25 gr. no effects were noticed for about 14 h., when suddenly, with no premonitory symptoms of pain, a distressing sense of deathly nausea set in, accompanied in a few m. by faintness; then sudden and powerful vomiting, first of the food, &c., in the stomach, then of large quantities of water mixed with mucus, then of clear fluid like rice-water. In less than a m. after the vomiting commenced, great commotion in the bowels, followed immediately by copious watery evacuations, set in. This simultaneous vomiting and diarrœa continued for nearly an h. at short intervals, all the while accompanied by great anxiety, a death-like sense of faintness and exhaustion, cool skin covered with beaded sweat, cold hands, feet, and nose, and great weakness. In about 2 or 3 h. all these symptoms passed away, leaving only weakness as from hunger, no pain or distress, only a peculiar languor. During height of action pulse sank to 40. After taking 50 gr. effects were more intense, but lasted only a little longer. Taken in doses of 2 or 3 gr., every 2 or 3 h., it causes languor, perspiration, and softness of pulse. (*MATE, New Remedies*, 2nd ed.)

5. Dr. TRUÉ made an infusion of 3ss of dried *E. hypericifolia* (L.) to a pint of water, and drank half of it. "I experienced a sense of fulness in the frontal part of the head, and also through the lateral portions, with headache similar to that produced by *emeticus*, but not so severe; the pain seemed to centre at the crown of the

head, but there was a feeling of heat above the eyes that was very characteristic; there was no ringing in the ears or vertigo, but the head symptoms were of that degree of positiveness, that it was with difficulty I could fix my mind on anything but the headache. The maximum of the feeling was about 4 h. after taking the medicine, and it subsided in about 3½ h., and was succeeded by a feeling of languor and drowsiness, which lasted several h., but no sleep was produced by it. While the head symptoms lasted there was a feeling of unpleasant fullness and oppression at the epigastrium, and I was compelled to take physic the 2nd d. for the constipation it had caused." (He also got the same epigastric oppression from ʒij of cinet.) (*Allen's Encyclopædia*, iv, 246.)

6. Of the euphorium of the shops I took a few doses of ʒ—10 gr. during the d., and this repeatedly. It occasionally caused slight pains in the bowels, confined to a small spot, but never either any vomiting or purging; and the pain when produced soon went off. I then gave it to others, but never more than 6 gr. Some of them said it caused pain, others that it had no effect, and others that it purged. This was slight, and it did not appear to be caused by the medicine. Different specimens were tried. They were all active, when applied externally after removing the cuticle; still, having one d. taken 6 gr. of a finer and fresher specimen than the others, it caused a very severe pain at the pit of the stomach, and great tendency to faint, but no vomiting or purging. (*VAITCH, Ed. Med. and Surg. Journ.*, xlix, 487. 1838.)

II. *Psoriasis*.—3. A woman pulled the cypress sponge (*E. cyparissias*, L.), getting the juice on her hands and face. Seeing her next m., I found r. cheek much inflamed, and covered sparsely with fine vesicles filled with a thick white lymph. The erysipelatous inflammation was most marked in the malar region, being of a livid or dark-red hue, and extending along the outer and lower margin of the orbit. She complained of frequent sensations of chilliness, which induced her to put a shawl about her shoulders, though it was midsummer. Next d. only a slight roughness was felt on passing hand over cheek; but r. wrist was somewhat inflamed, and abundantly covered with a miliaary eruption. (E. H. SPOONER, M.D., *N. Eng. Med. Gaz.*, iv, 317.)

EUPHRASIA.

Euphrasia officinaris, L. Eye-bright. Nat. Ord., *Scrophulariaceæ*.

I. *Proving*.—1. HANNEMANN, *Mat. Med. Pura*, vol. v of original, vol. i of translation. Contains 37 symptoms from self, 58 from three fellow-provers, and 2 from authors.

2. Sept. 19th, 9 a.m., 20 dr. cinet. After 1 h. slight discomfort in stomach with fits of yawning. After 1½ h. weariness in limbs and general, almost febrile malaise. In room, the discomfort of stomach increased to nausea and rising up of heat, which feeling gradually involved whole body. Quite well after dinner.—20th. 40 dr., passed an unusual quantity of pale urine.—21st. 60 dr., frequent and copious discharge of urine; here and there round glans feeling of burning heat, very transient. Sleep at n. disturbed, moved much about, bed felt too hard. On rising in m. tiresome weight in sacrum increasing to dislocation pain, so that 1 h. after rising could hardly bend body forwards, and not at all to r. side, nor turn to r. without extreme pain. This pain went off during forenoon, but went to l. hip, causing there a feeling of weight and strained sensation. Better after dinner, gone by e.—22nd. 80 dr., feels nothing but forcing out at ears and noise like a cat spitting in them.—23rd. 100 dr., no symptoms. (J. O. MÖLLER, *Zeitsch. d. Ver. hom. Aerz. Oesterr.*, 1857, i, 1, 40.)

3. *a.* Dr. ADLER, Nov. 15th, 6 a.m., took 10 dr. of 3x dil. 10 a.m., itching in both eyes lasting some m. 2 p.m., feeling as if someone pressed on his eyes; after a sleep of $\frac{1}{2}$ h. this went off.—16th, m., same dose. Must frequently wink the eyes during d. with an unusual twinging feeling in eyes lasting a few m., and then repeated 3 or 4 h. later.—17th, 6 and 10 a.m., 10 dr. Quarter h. after and dose a feeling of qualmsiness attacked him—had to leave off working. In e. early drowsiness; went to bed and slept soundly.—18th. Same doses as yesterday. Frequent winking like twinging of eyes, p.m. insuperable drowsiness.—19th. 10 dr., 2x dil. 9 a.m., dull frontal headache relieved by open air; p.m., drowsiness and frequent need to wink. cigar not relished.—20th, 6 and 7 a.m., 10 dr. Soon after 2nd dose nausea and pressive frontal headache extending into eyes; this goes off in open air; during d. frequent winking as if from twinging in eyes; after dinner head heavy and dazed, drowsiness, cigar not relished.—21st. P.m. till e., burning in piles relieved by cold hip bath.—22nd. On waking m. dazedness in head, going off on driving out.—23rd, m., 15 dr. and same dose 2 h. later. 10 a.m., qualmsiness and nausea for $\frac{1}{2}$ h., thereafter pressure in both eyes, making him wink frequently; little appetite for dinner, cigar not relished, must soon lay it aside. 6 p.m., insuperable drowsiness.

4. Dec. 8th, 6 and 7 a.m., took 9 dr. 1, dil. 9 a.m., repeated yawning, followed by nausea lasting some m., removed by drinking cold water. 11 a.m., pressure in forehead and eyes with photophobia and lachrymation, must have the room darkened; these symptoms went off about noon; little appetite for dinner. 2 p.m., eructation with taste of food; cigar not relished; e. prostration of limbs; soon goes to bed but cannot sleep till midnight; slept well till 5 a.m.—9th, m., 18 dr. 10 a.m., pinching around navel with transient nausea, followed by rumbling in bowels. 4 p.m., whilst walking in open air shooting in a hollow tooth lasting some m., and going off in warm room. 6 p.m., pressive pain in both supra-orbital regions and twinging of eyes removed by lachrymation. Drowsiness sends him to bed, but he has no sleep till 11 p.m., and sleeps soundly till 5 a.m.—10th, m., dazedness and like emptiness in head. 10 a.m., 22 dr. 1, dil. After $\frac{1}{2}$ h. nausea and pinching in belly. Noon, clayey taste, no appetite; p.m., frequent belching of food. On going out, itching in eyes, causing him to wink and wipe them often; then increased secretion of tears; no relish for cigar; feels as weak as though he had fasted.—11th. After much disturbed sleep the head feels dazed in m.; eyes heavy as though had not slept enough. All this goes off after a cold sponge bath. 10 a.m., 27 dr. After $\frac{1}{2}$ h. heartburn and repeated empty eructation. 10.30 a.m., burning in eyes and lachrymation till noon. 12.30 p.m., dinner not relished, though not without appetite. 2 p.m., eructation of food. 3 p.m., shooting in hollow tooth in r. lower maxilla while walking in open air, better in warm room. 6 p.m., itching and burning of piles 1 2 d. without stool, very unusual.—12th. On waking at 5 a.m. slight fluent coryza with pressure in forehead near root of nose, going off at 6 a.m., after cold sponge bath. 10 a.m., 10 dr. of tinct. After $\frac{1}{2}$ h. pressure on stomach as if full, followed by eructations with relief. 1 p.m.

eructation of food. 2 p.m., pinching around navel, soon going off and returning, lasting all afternoon; violent burning of piles. 3 p.m., pressure in eyes and frequent winking as from twinging, better in the dark. 4 p.m., weariness till n.—13th, 6 a.m., 20 dr. tinct. 9 a.m., whilst walking in open air itching in nostrils and pressive frontal pain into eyes lasting 5 m., returning after $\frac{1}{4}$ h. 10.30 a.m., rumbling in belly with hunger, which was satisfied with a bit of bread. Till noon frequent burning smarting in eyes making him wink much, relieved by flow of tears. Noon, appetite unaltered, food has not right taste. 1.30 p.m., stomach as if blown out ending in frequent eructation of food. 3 p.m., pinching in middle belly, shooting pain in r. shoulder joint, dull pain in r. upper and forearm extending to fingers. All this lasted only $\frac{1}{2}$ h.; e. weariness in limbs, frequent yawning and drowsiness.—14th m., dazedness of head and pressive pain in sinicput on waking, removed by cold washing. (*Ibid.*, ii, 504.)

4. EMIL KOLLER, surgeon, took, from July 25th to Oct. 1st, various dilutions from the 25th to the 1st always in doses of 100 dr. While taking the 20th dil. he had various eye symptoms, dryness of eyes and nose, swelling and redness of ciliary border, photophobia, dazaling, and dimness of sight.—Aug. 25th, 100 dr. 8th dil. At 1 a.m. tiresome burning of tarsal edges, dryness of nose. 1 p.m., whilst writing eyes became so painful he must cease writing; on looking long at an object it disappears and the eyes water. 3 p.m., shooting in ball of r. foot for 3 m., frequently recurring and then turning into burning, pressive pain in forehead; cross humour; stitches in r. natis and when walking stitches in l. big toe.—27th. Same dose, no new symptoms, constipation for 2 d.—Sept. 1st. 100 dr. 6th dil., dryness of nose and photophobia. On waking in m. pressive pain in forehead, thick fur on tongue; scanty stool; dryness of skin.—3rd. Same dose, same symptoms, dryness of mouth, pressure on chest; inflammation of l. half of nose.—4th. Same dose, same symptoms; tongue thickly furred m.—From 6th to 10th 100 dr. 5th dil.; no new symptoms.—11th. 100 dr. 4th dil., dryness of nose and eyes, especially when reading or writing, compelling him to close eyes.—12th, 13th, and 14th. 100 dr. 4th dil.—15th. 100 dr. 3rd dil., no new symptoms.—16th. 100 dr. 3rd dil., 1 h. after rising the eyes are so dim that for $\frac{1}{2}$ h. he is unable to see anything distinctly,—everything seemed enveloped in a veil; after $\frac{1}{2}$ h. this went off, and there came on burning in eyes.—17th, 19th, and 20th. Same dose, same symptoms.—21st. 100 dr. 2nd dil., tarsal borders more painful and swollen, eyes seem not so open as usual.—22nd, 23rd, 24th. Same dose, no new symptoms.—25th. Same dose, three diarrhetic stools. 9 a.m., whilst sitting pricking pain in l. fingers for 3 m.—26th. Same dose, same symptoms, headache more severe and lasting.—27th to 30th. Same dose, no new symptoms.—Oct. 1st. 100 dr. 1st dil., no new symptoms. Took no more of the drug, but up to 14th, burning, dryness and swelling of tarsal borders continued, and eyes remained sensitive to light. (*Ibid.*, 509.)

5. Dr. FRANZ PUFFER, Dec. 2nd, 6.30 a.m., took 3 dr. tinct. Slight burning and itching of tarsal edges. Noon, transient pinching in abdomen after a difficult unsatisfactory stool. E., irritation in larynx

causing cough, followed by tensive pressure under sternum. Then took 4 dr. This was followed by tension in l. half of chest; could not sleep till after midnight, felt cold under bedclothes, confused dreams.—3rd. 4 dr., after 3 h. stools at first firm, then pappy. All d. slight burning in tarsal edges as if he had not slept enough.—4th, 6.30 a.m., 4 dr. No stool till e., then after much flatus and urging soft stool followed by hot feeling and slight burning in anus; weariness, urine diminished.—5th. No med., stool scanty and hard.—6th. No med., when walking quickly palpitation of heart; stool delayed, but normal.—7th, 6.30 a.m., 6 dr. After 3 h. slight itching tension, now in one eye then in the other, chiefly in upper lid, which, on scratching, changed to burning.—8th, 7 a.m., 6 dr. After 2½ h. tension in tarsal edges and burning there, dimness of vision by candle-light, more urine passed, though not more had been drunk.—9th, 6.30 a.m., 6 dr. After ¼ h. transient inclination to vomit. During forenoon an inflamed swelling pain at the side of a painful and loose molar, which goes off in afternoon. At n. frightful dreams, frequent micturition.—10th, 6.30 a.m., 6 dr. After 5 h. shooting and burning in outer canthus of eye, followed by watering of both eyes. The eyeball looked as if swimming in water, and the conj. palp. was red and swollen. Itching burning in l. canthus and tension of both eyes; forenoon, pressive pain under sternum with flying shoots here and there in chest; afternoon, burning and itching in anus; two piles as big as beans appear at anus. E., increased thirst, slight feverishness; at n. frequent micturition.—11th. No med. The piles have become smaller, but are still very painful in any position, and when moving. The tarsal borders especially of l. eye very red and swollen, with occasional burning in them, and increased secretion of tears. Voice in m. rather hoarse, the piles continue painful till e. During d. the eye symptoms go off. N., pain and feverish dreams, frequent waking and chilly feeling, frequent call to urinate, and much urine passed.—12th. No med. Piles, which in m. were the seat of shooting and burning pain, are better and smaller after an easy stool; in e. very little pain in them.—13th, 6.30 a.m., 7 dr. The piles still are slightly painful. In e. a transient but violent shoot in l. big toe. After hæmorrhoidal symptoms were quite gone, took on 17th 9 dr. After 6 h. on going upstairs sudden violent cough caused by tickling in larynx lasting a few seconds. In e., later than usual, a lumpy, hard, insufficient stool; 2 h. afterwards irresistible desire to scratch anus, which itched violently; this lasted ¼ h.—18th, 6 a.m., 5 dr. Transient inclination to vomit. Piles began again to swell and feel tense. 2 a.m., woke up with pinching and rumbling in belly, which went off after discharge of much flatus.—19th, 6.30 a.m., 10 dr. Pasty taste and no appetite for breakfast or dinner; this went off in e.—20th, 6.30 a.m., 10 dr. In e. some itching in piles, which are not yet quite gone.—21st, 6.30 a.m., 10 dr. In forenoon, burning and tensive pressure, fulness, and heat in r. eyeball. Eyelids somewhat reddened and swollen. Noon, scanty stool, isthmus faucium rather painful; tensive pain in stomach, appetite diminished; in e. thirst, long in falling asleep.—22nd, 6.30 a.m., 10 dr. No stool to-day; no symptoms.—Jan. 5th, 7.30 a.m., 5 dr. Occasional pain in molar teeth. A copious stool m. and e.—

7th and 8th. 5 dr., nothing but 2 copious stools observed.—9th. Itching in l. eye, e.—10th. No med., no symptoms till e., then (36 h. after taking med.) burning first in r. then in l. eye; eyes fatigued by reading, the letters run into one another. The burning lasted from 8.30 till 9.30 p.m. in r. eye, in l. it ceased earlier. A second stool in e. (*Ibid.*, 513.)

6. a. Dr. OTTO KLEINERT, æt. 42, sanguine temperament and apoplectic habitus. On Dec. 4th caught cold. (His colds are coryza for 4 or 5 d., followed by affection of larynx and bronchia for same period causing hoarseness and cough).—Dec. 9th, 7.45 a.m., having still coryza, he took 12 dr. tinct. 9.30 a.m., after walking in open air some violent shoots in brain under r. parietal bone (10 a.m., the fluent coryza becomes stuffed). 10.15 a.m., some violent shoots in corresponding l. side of brain. 10.45 a.m., when sitting reading in room great desire to stretch as though had not slept enough. Immediately afterwards shooting in r. side of brain. 1 p.m., violent stitches under both parietal bones as though headache were coming on, relieved by laying wet hand on head. 4 p.m., recurrence of shooting in brain. 5 p.m., repeated yawning. 7 p.m., shooting in both cerebral hemispheres.—11th (woke up at night with feeling of suffocation, probably from mucus flowing back through choana). 8 p.m., shooting in region of r. nipple lasting 10 m., can be re-excited by taking a deep breath. 11 p.m., in bed very wide awake, tiresome pressure on lids on looking at moon.—12th. 1 h. after breakfast 30 dr. $\frac{1}{4}$ h. afterwards, when walking in open air, violent shoot in r. mastoid process; for 10 h. a mixture of burning and shooting in fascia lata of l. thigh which soon passes into the orifice of the stomach, and ends in spasmodic contraction of the lower part of œsophagus. 11 a.m., shooting pulsation in l. lung and region of nipple. After 4 p.m., nausea and qualmishness, going off after drinking water, later dyspnœa. 5 p.m., return of nausea. 6.15, some shoots in r. side of brain. At n. on lying down dyspnœa; the inspiration has a bleating character, and sounds like the sobbing of children after crying.—13th (nose almost free of coryza, and the catarrh has as usual gone to larynx and bronchia, but the hawking of mucus is much less than usual, and the dyspnœa greater). During the d. several transient shoots in brain, mostly on l. side and most frequently in room. From 7 p.m. itching in piles which changes to torturing boring and shooting, lasting $1\frac{1}{4}$ h. Then when lying the dyspnœa and bleating.—14th. From 9 a.m. headache on l. side beginning with tinnitus and constantly increasing. No appetite for dinner. Cannot sleep at noon, headache not relieved, until he applies a cold water compress to the burning hot head, when it and the tinnitus cease. E., frequent micturition and copious discharge of urine. On reading aloud for a long time he does not become hoarse, but has pressure in larynx as though its lumen were contracted. At the commencement of n. the dyspnœa returns.—15th. Slight and transient shooting in l. lung. E., when reading aloud pressure in larynx. The usual symptoms at n. in bed.—16th to 18th. The same pressure in larynx when reading aloud, and the usual symptoms at n.

5. Jan. 27th, 7 a.m., \mathfrak{ij} tinct. Nothing noticed during d.; n.,

many disagreeable dreams.—28th. Soon after going out dying away of r. forefinger and numbness of r. thumb and middle finger, also of the parts involved in writers' cramp. 7 p.m., on stooping down to pick up something a violent shooting pain in r. parietal region of brain.—29th. 1 h. after breakfast 3j tinct. After $\frac{1}{2}$ h. dying away of the sprained finger. From 4 to 4.30, violent long-continued pain in heart with audible palpitation. 7 p.m., has a difficulty in reading his own writing. N., unrefreshing sleep with much tossing about and frequent micturition disproportioned to amount of fluid drunk.—30th, 10 a.m., some stitches in spleen. Afternoon, violent pain in heart and palpitation. N., increased urging to urinate. (*A. h. Z.*, lxxvi, 196, 205.)

7. *a.* HERMINZ KLEINERT, æt. 20, blonde, choleric temperament.—Dec. 10th. 1 h. after breakfast 10 dr. 9 a.m., r. eye so weak and vision so dim can hardly see to sew. After a few m. a shoot from forehead into r. eye, after which the dimness of vision goes off. 9.30 a.m., frequent sneezing (she has coryza) with much watery mucus from nose. Painless numbness of l. foot. Soon afterwards dying away of r. forefinger so that she cannot hold needle. After 3 h. passed urine 3 times, an unusual occurrence. After $3\frac{1}{2}$ h. violent shoots in l. upper part of brain. 4 p.m., formication in l. scapula for 2 m. recurring in $\frac{1}{2}$ h. 5 p.m., rheumatic drawing from top dorsal vertebra to l. clavicle, where there is great tenderness to touch. 7.30 p.m., rheumatic drawing and shooting in r. elbow, wrist, and hand, which is hotter than l. hand and shows distended veins. Then the pain extends to middle finger and thumb, and then suddenly comes into larynx more on l. side, then quickly returns to hand.—11th. Immediately after rising pain of gum of r. lower jaw, an inflamed border round r. lower canine tooth; afterwards pain in adductors of r. thigh when walking and sitting, lasting all d. 6 p.m., several times violent drawing in r. lower jaw and slight fits of earache on r. side. 7.30 p.m., pain in l. canthus, it feels swollen and cold. At same time stitches and pressure in eyeballs. 8 p.m., spasmodic yawnings in rapid succession; lachrymation, bubbling in ears and pulsation in throat. Sees not so well in l. eye for 10 m.—12th. From early m. several stitches through r. lower jaw. 9 a.m., dying away of r. index and middle finger. 11 a.m., stitches in hepatic region which extend into abdomen and end in r. lung; all d. pain in adductors of r. thigh. 3.45 p.m., weariness compelling her to lie down; heat of hands and quick pulse; upper arms heavy as lead, and both wrists feel as if forcibly squeezed. In spite of weariness and half asleep, when he closes eyes hears everything and sees big heads making grimaces. Wakes up with general chilliness, especially in thighs and knees. Afterwards pressure in stomach as if it were overloaded.—13th. As all symptoms were gone she smelt several times at the tinct. 6 p.m., violent shooting in hepatic region radiating to back. 11 p.m., in bed violent pressure in r. eye.—14th, m., pressure and great watering of r. eye; same in c. At noon while eating, griping in stomach, pain in adductors of r. thigh.—15th, 9 a.m., earache in r. ear and feeling as if hot vapour penetrated it; shootings in chin; pain in adductors; some griping in stomach. During d. frequent shoots in l. side of head, liver, and spleen attended

by warm feeling.—16th. Pain in r. adductores cruris and some shoots in head and lungs. Afternoon, much pain in r. thigh and glutæus muscle as if lighted tinder was applied there.—17th, m., lachrymation. 9 a.m., shooting in r. pectoralis muscle. During d., pain in adductors and shooting and burning pain in l. scapula, scrob. cordis, liver and diaphragm, in the latter situation removed by deep breathing. Menses, expected to-day, do not appear.—18th. Scattered shootings in muscular system, pain in adductors.—19th. Same symptoms, especially in l. glutæus muscle. Menses still delayed.—20th and 21st. Some shootings in muscular system.—22nd. Delayed menses came on, but are scanty and short.

6. Jan. 27th. 1½ h. after breakfast 30 dr. tinct. 9 a.m., violent pressure in r. eye proceeding from inner canthus, accompanied by great lachrymation. The lids seem smaller, the iris paler, the eye feels cold. This lasts 1 h. and then the same thing takes place in l. eye but slighter. 11 a.m., dying away of fingers of r. hand. During d. stitches in r. eye, stomach, r. side of chest, r. upper arm. E., incessant yawning without sleepiness. In beginning of n. for 1 h. extremely violent shooting in heel, which was frost-bitten four years previously. N. restless sleep with many dreams and frequent call to urinate.—28th, m., feeling of general prostration. Later, some stitches in various parts of body, especially adductors of r. thigh and in distal phalanx of middle finger, which she had bruised some weeks before. 11 a.m., violent irritation to sneeze, every d., all days whilst proving this drug.—29th. Weariness in m., small excoriations in corners of mouth. Other symptoms as before, and besides shooting in heart. Symptoms gradually declined and ceased on 31st.—Feb. 2nd. 1 h. after breakfast 3j tinct. 9 a.m., great pressure and lachrymation of l. eye; it appears smaller and paler. Soon afterwards single shoots in hands, spinal column, arms, thighs, and genitals. Later, sneezing and yawning. Afternoon, for a long time violent pain under eye in region of facial nerve. E., shooting in ear. N., going asleep of hands, much restlessness and urging to urinate.—3rd, m., bruised feeling, great chilliness in warm room, pale complexion. In addition to former symptoms, stomachache. Eyes water frequently.—4th. Same symptoms.—5th. Less of the wandering stitches. Lachrymation and sneezing increased.—7th. Weariness in m. and some stitches, nothing more.—9th. 6 dr. 6th dil. Single stitches in body, vision not so good as usual e. (*Ibid.*, 204, 205).

8. Dr. MORITZ KLANNIG, æt. 48, phlegmatic temperament. —Jan. 12th. 2 h. after breakfast 12 dr. tinct. No symptoms.—20th, 30 dr., no symptoms.—22nd and 23rd. 60 dr., transient stitches in head and arms, and in e. tiresome formication in anus.—27th. 60 dr., very transient stitches, increased flow of urine. (*Ibid.*, 198.)

FERRUM.

Including various preparations of iron, chiefly *F. aceticum, indatum, metallicum, and phosphoricum.*

1. *Proving.*—J. HAHNEMANN, *Mat. Med. Pura*, vol. ii of original, vol. i of translation. Contains 261 symptoms from self and 3 others, mainly obtained by the acetate, with 37 from authors.

2. The preparation (Liquor Ferris Acet.) used in the following provings was made by precipitating the oxide from a solution of the chloride by means of caustic ammonia, and dissolving the precipitate in concentrated acetic acid. Four oz. of blood were drawn from each prover before commencing his experiment and the same quantity after its conclusion.

a. T. BETRUSCHKY, æt. 21, robust, blooming complexion, from July 21h—26th, 1850, took doses increasing from 4 to 24 dr. 4 times a d. (3viss in all). The following is the result of examination of blood on 9th and 26th.

		1000 parts of blood gave	
		Before iron was taken.	Afterwards.
Serum	.	465.2	427.8
Dry residuum	.	57.9	37.9
Ashes	.	8.2	8.6
Coagulum	.	498.0	552.5
Dry residuum	.	167.7	184.2
Ashes	.	27.9	34.5
Red sediment	.	36.8	19.7
Fibrine	.	2.13	2.17
Water	.	758.4	784.6
Dry residuum	.	239.5	208.3
Fat	.	4.02	1.76
<i>In 100 parts of ashes</i>			
Salts soluble in water	.	8.1	9.5
Oxide of iron	.	0.8	0.9
Phosphate of lime	.	0.4	0.6

Before iron was taken blood was bright red, showed few and small colourless corpuscles, a very large number of elementary corpuscles; it coagulated in 5' 54"; serum was bright yellow, clear, alkaline; clot firm and dense. After proving, blood appeared dark red; red corpuscles very intensely coloured and their outlines very sharply defined; many and large colourless corpuscles perceptible, but almost no elementary bodies. Blood coagulated in 8' 54"; serum was clear, alkaline, dark yellow; clot hard and elastic.

b. On 12th and 13th, immediately after taking doses sensation of warmth and fulness in region of stomach. After 2nd dose on 13th sense of weight in head, compression of frontal region and pressure in both temples. These symptoms increased after 3rd dose, with sense of congestive fulness in head. The disagreeable pressure in temples

was diminished by lying quietly; cold had no effect. Symptoms were in full force when he went to bed. 14th.—Slept well. On waking frontal region felt freer, but pressure in temples continued. After 4 dr. at 6 a.m., feeling of fulness in head increased; all around him appeared larger and more majestic, he felt inclined to attach great importance to small things, and disposition was grave and serious. No more medicine was now taken that d., and head became much better after a siesta, and well next m. Medicine that d. produced no symptoms. On 16th, 6 dr. at 6, 10, 2, and 6. Till 7 a.m. quite well; after that head became always fuller and heavier, and every heart-beat was felt in temples. Joined to this was tickling in urethra, especially navicular fossa, and, p.m., urinary tenesmus. Otherwise quite well, indeed stronger than usual, with very great appetite. 17th.—Same doses. Sleep last n. disturbed by very lively and anxious dreams; head little relieved in m. General feeling of strength, with ravenous appetite, increased in course of d. to desire to destroy things, though heaviness in head increased; urgency to urinate, with tickling in urethra extending to neck of bladder, continued, and about noon some oppression of chest occurred. Bathing in river, &c., removed pressure in head, but it returned more violently afterwards. 18th.—8 dr., 4 times. Head and urinary symptoms stationary, but chest affection increased. Felt need to breathe deeply; slight stitches through lungs; tension in cardiac region; pulse 61, tense. Percussion and auscultation discovered nothing amiss. 19th.—10 dr. 4 times. As yesterday, only that a sense of heat was again felt in stomach. 20th.—12 dr. twice. Increased sense of energy, still felt yesterday, is no more felt on waking this m.; it is succeeded by sense of relaxation in limbs. In head feeling of pulsation continues, with slight shootings; appetite is still considerable, but after each meal, be it ever so small, pressure in stomach ensues (a symptom never had before experienced, even after the most hearty meal). 21st.—14 dr. 4 times. Slept well; after rising, head pretty free; feels well, except a little weakness, which increases in course of d.; urgency to micturate continues; after each dose fulness and warmth in stomach; pressure in stomach after every meal. 22nd.—16 dr. 4 times. Head and chest almost free; same vesical tenesmus; clean tongue, but little appetite; pressure in stomach after food and medicine, with constant sense of heat there, but no pain on touching it; the great redness of complexion and fulness of face perceptibly diminished; pulse 55, not large but full and tense. 23rd.—18 dr. 4 times. Weight in limbs, and the gastric affection as before, increasing after dinner to disagreeable drawing in stomach; no stool. 24th.—20 dr. 4 times. Appetite very much diminished; tongue furred, yellowish grey; head confused, hazy; sense of weakness and weight in limbs; no stool. 25th.—22 dr. 4 times. Same symptoms increased. 26th.—24 dr. twice. Pulse 54, small, tense; on waking in m. painful irritating sensation in larynx, causing him to cough and hawk, increased by pressure on it, towards noon going off and succeeded by similar sensation behind upper third of sternum; in hawking and coughing he expectorates frothy viscid mucus, mixed with black blood,—this often occurs till 4 p.m.; auscultation reveals nothing but a mucous r le behind manu-

brium sterni and sharper impulse of heart; head is constantly mazy; diminished strength is betrayed in deportment and countenance. 27th.—Pulse 60, somewhat fallen, but still tense; air-passages free, but some twitching in trachea, felt mainly on inspiration and causing hacking; mental and bodily depression; tongue furred; taste insipid; little appetite; firm stool; towards e. attacks of drawing pain through abdomen. 28th.—As yesterday, save that griping in bowels is greater and lasts all d.; soft stool. 29th.—Pulse 67, still tense; after rising, severe epistaxis, which relieves head; much mucous sediment in urine; general prostration; gripes moderate but constant; hard stool. 30th.—Pulse 68, less tense; gripes almost gone; head nearly free; weakness and heaviness in limbs continues; copious and soft stool. 31st.—Decrease of weakness; increase of appetite; tongue not yet clean. August 1st.—Pulse 70, pretty full and soft; feels perfectly well. 2nd.—Pulse 75, normal amount before proving.

Though call to pass urine was much more frequent, quantity was scarcely above normal. In last d. of taking medicine it became reddish; sp. gr. increased to 1025; it had always an acid reaction, less marked towards last. (*Zeitschr. f. Erfahrungsheilkunde*, 1847.)

3. a. F. LÖFFLER, æt 31, robust, healthy, save for tendency to bronchial catarrhs. June 21st—July 16th took ʒj ʒiij of Liq. Ferri Acet. Following is analysis of blood drawn June 27th and July 16th:—

Serum	465.2	...	425.4
Dry residuum	44.7	...	37.8
Ashes	5.6	...	7.3
Coagulum	510.8	...	531.2
Dry residuum	189.8	...	190.3
Ashes	29.4	...	33.3
Red sediment	66.4	...	43.4
Fibrine	2.65	...	1.9
Water	767.25	...	783.0
Dry residuum	230.10	...	215.1
Salts soluble in water	4.7	...	12.0
Oxide of iron	0.8	...	0.7
Phosphate of lime	0.4	...	0.3

Before taking iron blood was darkish red, and showed many moderately coloured red corpuscles, but few and relatively small colourless corpuscles. Serum was bright yellow, alkaline; coagulum compact and elastic. After taking iron blood deep and dark red; very deeply coloured red corpuscles, many and large colourless ones; serum dark yellow, alkaline; clot hard.

b. He began proving June 21st with 10 dr. 3 times in 24 h., and increased till 26th by 5 dr. a dose, taking thereafter for 3 d. 30 dr. 4 times a d. After 4 d. pause, on July 4th he began again with 1 dr. 4 times a d., increasing daily each dose by 1 dr. The first doses caused feeling of fulness and heat in stomach, that lasted scarcely 10 m. after taking them. But on 2nd d. this no longer occurred. Save for pres-

sing sensation in one or other temple, which occasionally occurred for a m. or so, and slight confusion of head that rapidly went off on taking exercise, his health till the 26th was not only not disturbed, but he felt mentally and corporeally more energetic, and even long walks did not fatigue him. Appetite was increased to extraordinary degree; he often ate twice as much for supper as usual without satisfying it. On 27th, however, he woke with painful pinching and rumbling in belly, along with insipid taste, dryness of fauces, and some nausea; touching abdomen did not cause pain, and symptoms disappeared later after copious evacuation of bowels; appetite that e. greater than ever. 28th.—After quiet sleep woke again with same colicky pains, which were relieved by passage of much flatus, and especially by a plentiful motion; but all d. there remained slight traces of the pain, aggravated transiently by each dose; appetite excellent notwithstanding. 29th.—After uninterrupted sleep for 5 h., woke with rumbling and pinching in abdomen, which was full and tense; similar attack every 10—15 m., each time relieved by emission of flatus; marked relief from a large stool, and bellyache was only troublesome while he was seated, but disagreeable tension and fulness remained all d. Appetite not diminished, but taste slimy, tongue furred white, and discomfort increased soon after taking any kind of food. First dose to-day excited repugnance, though medicine had never done so before; following doses made him sick, though he diluted them with much water; at same time he experienced heaviness in legs, general debility, and disinclination for bodily and mental exertion; pulse 62. He now left off medicine, and in 2 d. all symptoms went off; pulse rapidly increased in frequency, and on July 3rd was 73. On that d. also fæces, hitherto greenish black, became again brown; and nothing but great appetite remained to remind him of the action of the iron.

c. Very different was effect of smaller doses begun July 4th. Epigastrium remained free; appetite continued good; general feeling was not affected; heart and chest continued free,—pulse only fell; on 7th it was 63. On the other hand, there occurred on 6th, in e., very troublesome tenesmus vesicæ, commencing with tickling in navicular fossa, and compelling him to pass water very frequently,—on 6th, 16 times, each time 3j—3ij, in 2l 3xxvj. This symptom attained a great height, and became exceedingly troublesome; it was conjoined with accompanying tenesmus recti, latter lasting only 4 d. On 7th he had to go to stool 3 times; on 8th, 5 times; on 9th and 10th, 6 times,—never leaving quite satisfied. Fæces consisted chiefly of small hard lumps, evacuated with much effort; a more copious and softer evacuation occurred once a d. On 10th call to urinate reached its climax, and he had to pass water every 5 or 10 m. This symptom always ceased completely at n.; it continued almost uninterruptedly from 8 a.m. to 5 p.m.; was somewhat relieved by constant sitting and by lying; when he was out walking and resisted inclination it ceased at length almost entirely. This symptom persisted through 11th and 12th, though no medicine was taken. From 13th to 14th he now took 20 dr. 3 times a d., without remarking any change save slight increase of mucus in urine. After leaving off medicine symptoms rapidly declined; after

3 d. urine was again clear, and formed no sediment. But 14 d. elapsed before all traces of vesical tenesmus disappeared; its form, however, was sensibly altered, for it showed itself more distinctly as a neuralgic affection. Twice a d., generally 8—9 a.m. and 6—7 p.m., there suddenly occurred feeling of tickling and heat in glans, accompanied immediately by irresistible desire to make water; if he yielded to it, as soon as urine reached glans, there occurred very disagreeable pulsation therein, with increased tenesmus. This pulsation continued usually some m. after evacuation of urine. The attack could be removed by quickly drinking a large quantity of water, and strongly compressing glans with finger. Its last attack was on Aug. 2nd.

d. Pulse, normally 76, fell during first 8 d. to 62. In spite of great exercise and the hot weather, it became slower, but fuller and more tense. During cessation of medicine, it soon got up to 73, but remained tense; on resuming medicine it sank in 3 d. to 63. From July 7th it increased in rapidity, perhaps owing to the urinary tenesmus. Urine in first period rose in sp. gr. from 1005—10 up to 1025, and colour changed from straw-yellow to reddish. (*Ibid.*)

4. *n.* C. KOST, æt. 25, strong, ruddy, took July 1st—15th ℥j of sol., beginning with 2 and ending with 26 dr. 4 times a d. Following are analyses of his blood June 29th and July 16th respectively:

Serum	381.6	...	454.1
Dry residuum	60.5	...	42.3
Ashes	7.0	...	7.5
Coagulum	583.8	...	505.8
Dry residuum	291.9	...	185.4
Ashes	25.5	...	27.8
Red sediment	34.6	...	30.1
Fibrine	2.03	...	1.89
Water	701.9	...	763.4
Dry residuum	296.0	...	234.7
Fat	1.7	...	3.9
Salts soluble in water	11.3	...	12.0
Oxide of iron	1.3	...	0.8
Phosphate of lime	0.7	...	0.6

Before taking iron blood was bright red, with moderately coloured red corpuscles and few colourless ones; it coagulated in 5' 38", serum was yellowish, clear, alkaline; clot rather soft. After taking iron blood had dark red colour, and besides the deep-coloured red corpuscles many colourless ones were observed; it coagulated in 5' 30"; serum was yellowish, clear, alkaline; clot soft.

a. During first 3 d. of taking med. feelings were not altered save for increase of appetite; on 4th d. occurred sensation of tickling in urethra, beginning during passing of urine and lasting some seconds after emptying bladder. Along with this, which increased d. by d., and gradually involved whole urethra, there occurred urgent desire to pass water causing frequent micturition, but without diuresis or change in sp. gr. of urine, which was reddish yellow, acid, and clear.

Bowels were moved only every 2—3 d. during proving; on other days there were repeated fruitless calls to evacuation; feces after 5th d. were always dry and dark green; 3 d. after last dose again soft and brown. On 7th d., after 2nd dose, very uncomfortable pressive feeling in abdomen, especially in region of stomach; touching place caused pain. This symptom generally disappeared $\frac{1}{2}$ h. after taking med., but occurred after every new dose; it was especially severe in e., when it was accompanied by embarrassment of head; taking a walk immediately after ingestion prevented or curtailed it. Save perceptible diminution in brilliancy of complexion, no other change occurred in this prover's health. (*Ibid.*)

S. S. R. STURM, æt. 21, thin, pale, took June 29th—July 23rd ʒij of Liquor Ferr. Acet., beginning with ʒ and increasing to ʒo dr. per dose. Blood drawn June 25th and July 23rd showed following.—

Serum	448.2	...	435.2
Dry residuum	64.6	...	40.2
Ashes	6.6	...	6.7
Coagulum	519.4	...	524.5
Dry residuum	231.4	...	174.7
Ashes	17.4	...	28.3
Red sediment	32.4	...	40.3
Fibrine	2.4	...	1.7
Water	756.1	..	778.0
Dry residuum	241.5	...	220.3
Fat	1.9	...	1.8
Salts soluble in water	18.5	...	23.5
Oxide of iron	2.5	...	1.4
Phosphate of lime	1.0	...	0.9

Before taking iron blood was bright red; colour of red corpuscles light; few but extremely large colourless ones observed; coagulation in 7' 50"; serum yellowish, clear, alkaline; clot pretty firm. After, blood still unusually light; red corpuscles strongly coloured; few and small colourless ones; coagulation in 8' 20"; serum as before; clot firm and elastic.

6. No urinary symptoms were observed by this prover, and in head occurred only occasional slight confusion. There occurred in digestive organs only occasional feeling of increased warmth in abdomen, especially in stomach, along with pressure, tension, and pricking, which always went off on, or was prevented by, motion immediately after taking med. During last 2 d. of proving pricking in abdomen came on at times during d. During first 4 d. after leaving off med. he was tormented by colicky pain, with very few intervals of ease; its severity was variable; movement had very little influence on it; on satisfying the call to stool that occurred some relief was obtained; taking food increased pain. It did not disturb rest at n., and came on only after rising. Abdomen was not swollen or sensitive to touch. Tongue was laterally furred white; appetite not impaired. On 3rd d. of taking med. feces became greenish, then greenish black, at length quite black, and

at same time firmer—so hard indeed that whole force of abdominal muscles was required to expel them. On exceeding 26 dr. per dose they again became loose, indeed at length quite soft. On July 3rd, and again on 16th, hoarseness with feeling of roughness in larynx ensued; the first time it lasted 3 d., the second time 8 d. The first fortnight mental and bodily energy was increased; but during latter half of proving there occurred feeling of weakness, lassitude, disinclination for bodily and mental activity, fatigue on least exertion, especially walking. On last d. of taking med., and for 4 d. after leaving it off, he had almost insuperable inclination to sleep under all circumstances and at all times. Pulse repeatedly sank from normal 70—72 to 62—68; and in second period, even for some d. after second venesection, was extraordinarily full and tense.

6. *a.* HENZEL, æt. 20, stout and strong-limbed, pasty complexion, perspires easily, tendency to rheumatic and catarrhal affections; at this time well, save for a slight chronic bronchial catarrh. He took, July 10th—26th, ʒiiss of sol., rising from ʒ. to 40 per dose. Blood drawn on 6th and 26th July showed following composition:

Serum	397.1	...	379.2
Dry residuum	46.2	...	37.3
Ashes	7.9	...	4.6
Coagulum	569.3	...	562.0
Dry residuum	225.6	...	168.6
Ashes	32.8	...	32.9
Red sediment	36.6	...	58.8
Fibrine	2.8	...	2.1
Water	747.3	...	789.1
Dry residuum	249.8	...	208.8
Fat	1.02	...	1.32
Salts soluble in water	11.0	...	13.5
Oxide of iron	1.0	...	1.0
Phosphate of lime	0.5	...	0.6

Before taking iron blood was bright red, with light-coloured red corpuscles and few colourless ones; coagulation in 6' 75"; serum yellow, clear, alkaline; clot firm, elastic, deeply cupped, with thin buffy coat. After, blood deep-red; red corpuscles deeply coloured, and very many colourless ones; coagulation in 6' 4"; serum and clot as above.

b. Soon after taking first dose occurred tension and rumbling in stomach, increasing on 2nd d., but decreasing on 3rd and going off entirely on 4th. But on 9th d. these symptoms increased to pressure and weight with pinching, extending from stomach all over abdomen. These symptoms were worst in m. and e., and sometimes accompanied with inclination to vomit. They attained their maximum on 12th d. (112 dr. per diem). Although after this still larger quantities were taken, they gradually went off save for a slight feeling of tension in stomach. Appetite notwithstanding was increased; digestion excellent; no constipation, only transient tenesmus recti felt once or twice. In urinary apparatus there was only occasionally transient urgent call to

micturate and frequent passing, not worth mentioning. The prover's vascular system is very excitable, but not much difference was observed in the frequency of the pulse; and only after taking the iron 10 d. was a greater tension of it noticed, and an increase of the heart's beats. During the first days of the proving he had increased feeling of health and of mental and bodily energy; but on 4th d. a feeling of weakness and weight in the limbs ensued. Along with this there was remarkable alteration of the disposition,—ill-humoured, he felt inclined for nothing, was indifferent even to things that on other occasions interested him; everything appeared on the dark side, he could not be cheered up; memory seemed to fail him. This alteration of the disposition seemed to be independent of the abdominal affection; and the head remained all the time free from pain. On the 3rd d. after leaving off the medicine there occurred sediment in the urine, and a peculiar odour of the perspiration. His face lost in fatness and roundness, but it also lost its pasty bloated appearance, and looked firmer and fresher. (*Ibid.*)

7. A strong young man took at 10 a.m. 1 gr. 1st trit. of *F. metallicum*. After 10 m. discomfort in stomach with bitter eructation smelling of rotten eggs, going off after dinner. No other symptoms during d. After midnight colicky pains and one diarrhetic stool. Next d. appetite increased, face redder than usual. (*LAA, Z. d. Ver. d. hom. Actus Oesterr.*, ii, 216, 1857.)

8. A strong healthy woman took 1 gr. 1st trit. of same. Immediately discomfort in abdomen which increased to feeling of illness, accompanied by bitter purrid eructations and griping in bowels, followed by a copious stool, mostly liquid. After 1 h. such great hunger that she had to take food at an unaccustomed time. This did not cause a feeling of satiety, for though she ate several times during d., and in considerable quantities, she was unable to allay her hunger. Next d. her appetite still continued excessive. (*Ibid.*, 217.)

9. J. C. MORGAN, M.D., proved *Ferrum phosphoricum* in 2x trit. April 10th, 1876.—Took 1 gr. at 11 p.m.; in a few m., aching sticking in r. ear. A few m. later, pinching in epigastrium; still later slight carache again. Leaning, standing, over table, repeated emission of fetid flatus—continuing while undressing. In m., less tired feeling than usual, less tired aching in occipito-cervical region than usual. 11th, 10 a.m., took $\frac{1}{2}$ gr., same at 4 and 10 p.m. after meals. After last, painful smarting of r. posterior nasal passage, especially during inspiration, better in expiration. (Had been asleep.) Later, similar feeling in edges of r. eyelids, and anterior r. nasal passage. Early in e. loss of courage and hope; better since sleeping. Later (reading), headache from r. brow to r. ear; renewed sticking (slightly r. side). Doses after each meal. 12th.—Waked wearily; felt pain in neck and chest. At breakfast—bending forward, colicky in transverse colon. Repeated whilst standing, using arms moderately towards l. Dose, some time later. In a few m., colicky in transverse colon; sitting writing, palpitation. Later, dull r.-sided headache. 13th.—Several doses after meals, and at midnight. Went to bed some time later, with sticking in r. ear as if a large pointed stick were lodged deeply therein; extending as a dull headache over that side; seemed to be

sub-aponeurotic in location—(as if above periosteum). 14th.—Dull feeling on r. side of head still observable. Soft, but consistent, decidedly yellow, easy stool. Took another dose at 11. After this, constant working down of phlegm behind velum palati; also loosing from below. 15th, 2 p.m., had desire for and drank ale. At 3 p.m., no appetite for dinner, but desire for brandy; of which he took about a teaspoonful; afterwards, ate with good relish. (The same yesterday. Doses were still taken regularly after meals.) The same desire before breakfast. 16th.—After moderate tepid bathing, mostly with sponge, lips look blue. Urine, which before taking drug was yellow, became limpid, abundant, and pale after taking—weather being warmer; the past 2 d., weather being cooler, urine is darker, less copious. When pale, a few drops crystallized on glass, examined by microscope, presented several crystalline forms; the principal being hexagonal plates, answering to cystine, as figured in Frey's microscopical technology. Also, tablets answering to uric acid and chloride of sodium, but not numerous. E., sitting in church, right lumbar region felt tired; needed support. 17th.—Doses at 4 p.m. and after meals. Feeling constantly as if a stimulant were needed (none taken since last mentioned); relieves when taken; a feeling of "letting down," inertia, indifference to ordinary matters, with inward craving for brandy, and feeling as if energy would be renewed by it; yet no real muscular debility, more a feeling of indolence, as to ordinary matters only. Head feels as if sleep had been insufficient, with desire for sleep. 4.30 p.m., fell asleep at the table (not having lost sleep last night). All e., sensitiveness to cool air and malaise. (No more medicine until noon, 19th.) 18th, e., impetuous feeling, yet obstacles cause annoyance and hesitation, and trifles seem like mountains; still intolerant of hindrance and annoyance. Late in e., when riding, neuralgic ache at inner l. eyebrow, and down l. side of nose. 19th, noon, took another dose. (All m. under pressure of influences of contradictory sort, no lack of firmness; but old symptoms worse, as fatigue of brain, from long study, frequent change of position in bed on waking in m., and much of the time since, because of aching in neck, throat and occiput.) Very sensitive to cool air—65° F.; desire to be in a warm room. Top of head, aching dulness, extending towards orbits and sides of head, as a pressure; worse when holding head down in writing; not noticed when going about; but whilst walking in street, more in occiput; when rising and walking, &c., most in the top of the head; just as the force of the circulation most impinges; always dull and oppressive, without throbbing. On sitting down to supper, at 7.30 p.m., indifferent to food, but ate fairly—food tasting good. (Doses at 3.45 and 8.30 p.m. after meals.) 20th, noon, hiccough, after sitting bent toward floor. Dose at 4 p.m. At 4.30, drowsy—eyes feel it much; feeling extends upwards into head. Soon after had to lie down and take a nap. Afterwards, dry heat of palms, and accelerated pulse. Took a dose at 9.30 p.m. Soon some heat and dryness of face and palms; palpitation; all while sitting. No medicine until a dose, 21st, at 10.30 p.m. This p.m., about 6 o'clock, observed that face and hands were again heated and dry, whilst reading, also throat and upper chest. 23rd, 7.30 p.m., sharp ache at outer

edge of l. orbit, as if in bone. At 1.30, similar but slight pain on r. side, both transient. At 9.30, sitting at table bent forward, reading, most intense heartburn, with rising, so irritating it made me cough and hem for some time; irritation in throat, and behind l. of mid-sternum. Very little or no desire for stimulants since yesterday, the last taken. The later risings of fluid have a slightly greasy flavour, still provoking repeated cough—they come up with eructations of gas. (Partook, at supper, of stewed oysters, and very aromatic, good tea.) At 11, a sharp twinge over whole l. side of head. 23rd.—Dose at 8.30, before breakfast. Speedily, a general liberation of pharyngeal, tracheal and nasal mucus. All d. a dull headache, slight, mainly r. side; most on first thinking of it. Afternoon, recurrence of the intolerant feeling. Dose at 12.20 p.m. In $\frac{1}{2}$ h., irritating rising, not sour, but somewhat greasy in flavour. 24th, 1 p.m., took a dose. Hasty, intolerant feeling during afternoon. Indignation for causes followed by oppression of l. chest and stomach. Walking in a quiet part of the city after dark had a soothing, pleasant effect, ceasing on returning to the bustle of the central streets. Appetite and taste good. At one time this p.m. cross words of another party about an absent stranger created a feeling of momentary shrinking and timidity. Aggravation of an habitual aching in the dorsal spine, all d., especially when standing or sitting, better by going about, and by leaning back against chair supporting spine; these symptoms are habitual, but are more conspicuous and constant and annoying. Also, better by change of position, even by brief bending forward (when standing). Urine pale; quantity being somewhat copious; weather cool. 25th, 1 a.m., took a dose. In 20 m., after writing, rheumatic feeling in r. wrist, extending downwards in course of dorsal tendons, most when resting it; then pain seems to ebb and flow at short intervals. When writing, it occasionally extends up forearm, mostly on dorsal and ulnar aspects; on rising felt in little finger, to first phalanx. Better by external warmth and wrapping. Studying until 2, rose in m. somewhat below par; desire for brandy—took a teaspoonful with good effect. At 10 a.m., took a powder. P.m., twinge of pain from r. vertex to r. supra-orbital foramen. (*Amer. Journ. of Hom. Mat. Med.*, ix, 308.)

10. a. Dr. F. MÖLLER, when preparing the 1st dec. trit. of F. iod. on Sept. 1st, felt a great tickling and scraping in throat, oesophagus, and nose, and sense of suffocation. He had to hawk to get the mucus out of throat; headache, or rather dazed feeling, especially in forehead. After 1 h. had all the symptoms of catarrh, great secretion of mucus in nose, and frequent expectoration of mucus from larynx and trachea. At n. dreamt of meeting many of his friends, every one of whom complained of having a different disease; usually does not dream.

A. Sept. 2nd, 10 p.m. took 2 gr. of pure F. iod. Immediately a disgusting acrid taste, painful burning on tongue lasting a long time. Also smell of iodine long afterwards in nose. Constant inclination to eructate, and frequently actual eructation. After 10 to 15 m. headache and weight in sinicupit, forehead, betwixt and above eyes, lasting long and worse on lying down in bed.—3rd. Burning on tongue where medicine lay after lasting all n. continued in m., better after breakfast.

Flat, sickly taste, persisting after rinsing mouth, going off after breakfast. Rumbling in bowels in m. before stool. After eating much eructation. Nose dry, stopped up as in coryza, better about noon. 8.30 a.m., 5 gr. 1st trit. Headache, dazed feeling, weight and pressure, especially on r. side of forehead, increased by putting on hat, reading, writing, &c., relieved by open air, sitting, standing in a draught. Much eructation and sickly, flat taste. Noon, pulse 68, chilly feeling. From 3 p.m. feverish; pulse 84, at 3.30 p.m.; 80 at 4 p.m. Oppression of chest in upper part of lungs. Rumbling in bowels. Headache all d., worse in hot room, when stooping, shaking head, walking quickly, reading, writing, &c.; better in open air, in a draught, and in cold air; continues till e. All d. taste of iodine in throat and mouth. In afternoon, cough and spitting, great accumulation of mucus in throat. E., frequent urging to stool but without result. Urine clear. Pulse 72. 10 p.m., 5 gr. Disgusting taste immediately and recurrence of headache, especially in forehead.—4th, m., slight pains before stool, sore feeling and rumbling in belly. 9 a.m., 5 gr. Much eructation, nose not so stopped. Hardly any headache, only dazed feeling and weight in head, especially forehead; reading brings back headache. Towards noon, from 12 to 1 p.m., feels cold, chilly, and sleepy, the eyes close. 3.30 p.m., pulse 96, feverish, heat and fever; 1 h. later, pulse 80, headache going off. E., frequent call to stool without result. All d. a curious feeling in rectum and anus as if something twisted and turned in a circle and something was trickling down there, and as if a screw were boring up and down there. All d. frequent rattling of mucus in throat, and expectoration of mucus, cough with expectoration of greyish white viscid mucus in long strings. Pulse 72, e. Took 5 gr.—5th, m., nasty, pappy taste in mouth, rumbling in belly, slight colicky pains before stool. Stool scantier than usual, light brown, comes after much straining and pressing, though it is rather soft. Pulse 80. Dazedness in sinciput; nose again stopped. Noon, pulse 72. 3 p.m., 84 to 88, but not so feverish as yesterday. 9 p.m., pulse 72, sore feeling in belly all d.; the same curious feeling in rectum and anus as yesterday. 10 p.m., 5 gr.—6th. Same symptoms as yesterday. E., 5 gr.—7th. Stool, headache &c. as yesterday. Rheumatic paralytic feeling in r. upper arm and r. shoulder, and wearied feeling in all limbs, great disinclination to move or walk about. Sore feeling in belly greater. Oppression of chest as if great weight lay on chest. Headache returns after smoking, which is not relished. Cough increased, more hawking and expectoration of mucus. Pulse, m. 80, p.m. 84, e. 80; e., 5 gr.—8th. Slept uneasily, woke frequently, many dreams, erections. Stool, urine, taste as on previous days. Last night's urine is clear, yellow, smells sour, and has a slight white, whey-like sediment. Nose has stopped; hawking of much mucus and cough with mucous expectoration. More headache, increased sore feeling and colicky pains in belly, especially after eating. Pulse at 8 a.m. 80, at noon 84, felt warm and feverish, frequent urging to urinate. 3.30 p.m., pulse 102, pretty strong fever, skin not very dry but warm. After 4 p.m. the fever abates, pulse becomes slower, skin begins to be moist, but there is no profuse sweat except on forehead. All d. great oppression of chest, must breathe

deeply, which causes a feeling of soreness in chest, and such an oppression as if something prevented the chest expanding. Great exhaustion, general weakness and drowsiness. All d. lame and bruised feeling in upper arm, especially r., and still more in thighs, which feel heavy down to the knees, the legs below knees much lighter. Towards p.m. the lame feeling goes into calves. In e. r. arm is so weak that he must cease writing because it tires the arm so much and seems to paralyze it. L. arm but little affected. R. tibia painful; pain in sacrum and kidneys, worse in e. and they go further down. All d. rather severe prickling and itching in urethra, especially in its front part, and frequent calls to urinate with very little urine at a time. Slight pain throughout urethra through whole penis when urinating. Feeling as if the urine was arrested in the fossa navicularis and could not advance. Little appetite. After supper, which is not relished, violent eructation, slight nausea and inclination to vomit, great pain in abdomen, especially in middle and going downwards, much flatus, great urging to stool, feeling in rectum, and especially in anus, as if they were compressed, pinched together, and as if worms were there, and yet he had an easy stool, yellowish-brown, mixed with black spots, which relieved the pain in the bowels. Pulse 84 to 88 at 10 p.m., when he took 5 gr. Thereafter burning in stomach and bowels, heat and feverish feeling, also headache. Pulsation in abdomen with some sore feeling and increased headache, pain in sacrum and renal region, also tight feeling in chest.—9th. Slept ill and restlessly, wake frequently, dreamt of historical incidents and his former life when at school and at the university. It seemed to him in his sleep as though he had grown 30 to 50 feet long, and that everything about him was small and insignificant, his bed too short, &c. Starts often in sleep, awoke once and thought he was paralyzed in hands and feet. Feeling of exhaustion and as if bruised and feverish all n. Very bad taste in mouth; the tongue is furred yellow; food not relished; sometimes sick and inclined to vomit. The abdominal pains relieved by stool, which is soft, very thin, diarrhetic, and bright yellow. Dull pain in forehead. Lame and bruised feeling in all limbs, especially legs. Painful drawing in tendons of back of r. hand and of l. foot. Severe pain in sacrum and kidneys. Urine dark coloured. Frequent expectoration of mucus but less oppression of chest. Pulse, m. 76, p.m. 84 to 88, e. 80; feverish p.m. In e. rheumatic pains from dorsum of l. foot extending upwards to pelvis. Sacral and renal pains and headache more severe; severe colicky pains and much rumbling in belly, pains increased after eating. Frequent discharge of flatus smelling of iodine, fruitless urging to stool. Oppression of chest not so severe, less mucous expectoration, cough less. 5 gr. m. and e.—10th. Restless at n. with dreams as before. Colic pains more or less all d., not so severe as yesterday; these pains begin usually above navel and go down to r. side; all the symptoms of yesterday, only not so severe. Stool m. and e. preceded by much pain, thin, diarrhetic, and bright yellow. Urine bright yellow, sour smelling. No more med.—11th. Slept better, no dreams, felt better and stronger, tongue clean. Two stools preceded by pains, diarrhetic and bright yellow; still slight oppression of chest;

some thick yellow mucous expectoration.—12th. Restless sleep, many dreams not remembered, frequent erections. Slight dazed feeling in head. Stool m., thin, preceded by pains; slight rumbling and pain in abdomen. In e. fruitless urging to stool.—13th. Slept well; m., slight colic, ineffectual urging to stool. Urine dark. 10 p.m., pains in abdomen, urging to stool, which was darker coloured, with thick white sediment.—14th. Slight pains before stool, which is firmer and darker. In e. fruitless urging to stool.—15th. No stool m. but firm stool e.—16th. Quite well.

2. Sept. 16th, 10 p.m., 2 gr. 3rd trit.—17th. Restless sleep, dreamt of events that had occurred. Very small stool m. Slight headache, dazedness in head, especially forehead; also slight drawing tearing through forehead, above eyes. Slight nausea. 10 p.m., 2 gr., which caused much eructation.—18th. Slept well, but dreamt much. M., pains in belly before stool, which is scanty and brighter coloured. Sickly taste in mouth, little appetite. Slight pain in forehead. Pulse 70, m. 10 a.m., cold feeling in heated room; after 12 noon, pulse 84, very drowsy; dull, sore pain in sacrum and kidneys. In e. pulse 80; drowsy, had more pains, drawing and tearing in abdomen, slight pain in urethra on urinating, which was more frequent, but in small quantities. 10 p.m., 3 gr.—19th. Slept pretty well, only woke once, with a dream of fighting with thieves. Was sleepy in m. and had no inclination to get up. Headache as yesterday. Taste somewhat sickly, bitter at back of mouth. Taste of iodine round gums. Urging to, but no stool, m. Peculiar, creeping tickling in rectum, and especially anus, all d., much flatus discharged smelling of iodine. Frequent and copious urine of bright yellow colour and sour smell. Pulse 90, m. Slight oppression of chest, especially on inspiration. Slight pain in sacrum and kidneys and lower part of spine commencing at lumbar vertebræ. From 9 to 10 a.m., cold and chilly in heated room, pulse 88 p.m. During afternoon repeatedly chilly and cold. 11 a.m., a sudden, sharp, shooting pain from l. nipple to arm, aggravated by pressure, frequently recurring p.m. and e. Dyspnoea, must breathe deeply, when he felt tightness and pressure under sternum. All d. exhaustion, weakness, bruised feeling in limbs, especially legs and calves. In e. before stool much rumbling in bowels. Frequent urging to urinate, with slight pains and softness in urethra while urinating. 10 p.m., 5 gr.—20th. Slept badly, many dreams; very sleepy m. All n. feeling as if he had got a chill, with violent coryza; the nose was so stopped up he could not breathe through it, but must sleep with mouth open. This symptom ceased suddenly between 5 and 6 a.m. In m. urging to stool with drawing pain from above navel down r. side; scanty stool of yellowish-brown colour and firm consistence. Frequent and copious urination with slight pain through urethra. Occasional sharp pains in chest, oppression and pressure under sternum. Pulse m. 80, noon 88, e. 80. Very lazy, sleepy, bruised in limbs and calves e. When breathing, slight pain in both sides of chest and deep down in belly in splenic region, where it is more like a stitch. E. 5 gr.—21st. Same as yesterday. Pulse 80 m., 100 at 4 p.m., 80 e. Feverish p.m.; m. and e. 3 gr.—22nd. Slept badly, woke frequently with extreme urging

to urinate and pain when doing so. Woke once with erection and very violent pains and burning through urethra, but could not pass water on account of vesical tenesmus in spite of the excessive urging. In m. had a small, hard stool with shooting and constrictive pain in anus when the feces passed through it. Slight dull pain in and under shoulders, in nape, and joints of lower extremities. Otherwise same symptoms as yesterday and day before. (*A. h. Z.*, I, 97, 107, 115.)

10. Dr. BOSSIERE, pulse 75, took 20-dr. of sol. of iodide with syrup or gum. Its taste, 3 m. after, was accompanied with an uncomfortable dryness of mouth and pharynx. After 5 m. indescribable sensation, scarcely painful, along whole length of œsophagus. In 15 m., pulse 85, some headache. After 1 h., still dryness of throat and headache; pulse 80. (*Gaz. Méd. de Paris*, 1842, p. 830.)

II. *Poisonings*.—1. A lady, who had been for a long time in a very weak, delicate state of health, the digestive organs being very much out of order, and the bowels habitually constipated, had been taking for some d. 5 dr. 3 times a d. of an apparently very strong tincture of iron, having a powerful inky taste. I found patient exceedingly weak, with anxious feverish countenance; quick, small pulse, 120; skin hot and disposed to be clammy, and complaining of great pain along whole length of colon, much increased by pressure and by any movement of body. She had had diarrhœa for the 2 previous d., which last n. assumed a decidedly dysenteric character, bowels having been repeatedly moved, with considerable pain and tenesmus—evacuations consisting entirely of blood and membranous shreds. She had no appetite, and was rather thirsty; tongue very coated, and urine rather scanty. Her head ached, and she was much depressed in spirits. Under treatment gradual improvement took place; but it was 5 d. before convalescence was declared. (*MARSHALL, Brit. Journ. of Hom.*, xix, 309.)

2. D—, a man æt. 25, had a gleet dating from a gonorrhœa of 15 mo. back. M. VÉNOT, being called to him, found him in bed, suffering from severe hypogastric pain, with agitation, loquacity, redness of cheek-bones and of edges of eyelids, dry tongue, small, quick, contracted pulse; in a word, with all the symptoms of serious hyper-æsthesia. Patient told him that, 2 d. previously, he had used 3 injections of a concentrated solution of perchloride of iron. To the smarting pains immediately caused by the injections succeeded almost complete retention, and obstinate constipation. For 48 h. he had had neither stool nor urine; hypogastrium was swollen and very sensitive to touch, especially above pubes. M. VÉNOT immediately introduced a catheter, and evacuated nearly a pound of ammoniacal urine; leeches, warm applications, and emollient drinks were ordered. In e. greater calmness; two liquid stools (he had taken castor-oil). Next d., Dec. 16th, after a tolerable n., bladder was emptied anew; pains and anxieties returned in full force; face was contracted; copious flatulence upwards and downwards; pulse 97. In e. symptoms worse; pains intolerable; incessant eructations; hiccup, pallor, sensibility and tumefaction of whole abdomen. Urine thicker, redder and scantier than in m. Violent urging to micturate during n. 17th.—Illness increased; prostration and pain alternate; urine of a thick brown colour, mixed with purulent flocculi. Bladder

had to be evacuated every 6 h. Pulse became gradually less perceptible, without diminishing in frequency. Abdomen same. In c., the cysto-peritonitis was marching rapidly to its fatal termination, with stupor, feebleness, dry and black tongue. On 18th, adynamia was at its height, with faintings and colliquative sweats; and on 19th patient died.

M. VÉNOT reports two other cases in which hæmorrhage from the urethra, with more or less irritation, followed upon similar injections. (*L'Art Médical*, vi, 53.)

3. Dr. BOSSIKER treated a number of phthisical patients with F. indatum. In those who took the drug daily, especially in small and increasing doses, the same symptoms were experienced as by himself (I, 10), but more persistently, for 8—10 d. Subsequently in some the system seemed to grow habituated to the drug; in others the mucous membrane of mouth and pharynx became seat of burning pain, with sensation of pricking and of swelling at internal aspect of cheeks, at base of tongue, about isthmus faucium, in pharynx, and sometimes all along œsophagus. If parts were examined mucous membrane was found of vivid redness, diffused or punctated. With this there was frequently anorexia, thirst, and notable alteration of sense of taste. Mastication was at times rendered impossible. About half the patients on 1st or 2nd d. after beginning med. complained of nausea and vomiting. These symptoms rarely lasted long, and as they disappeared patients felt appetite and digestive powers increase, but the stools became infrequent. At first pulse and temperature of surface increased; after 2 or 3 weeks pulse became slower, stronger, and fuller, and temperature normal. At same time there was a general turgescence of the peripheral capillary system,—in fact a state of plethora manifested itself, with or without signs of congestion of particular organs. The lungs were the first to feel such influence, and showed it by increased dyspœna and cough, and sometimes by slight hæmoptysis. In others the congestion showed itself in the head, by headache, insomnia, painful dartings in ears and eyes, tinnitus, sparks before eyes. To these symptoms must be added some fugitive eruptions, urticarious, eczematous, or lichenoid; these I have observed three times.* (*Loc. cit.*)

4. The statements so generally made, that iron continued for too long a time, or administered to patients who are already of a plethoric disposition, causes flushing, palpitation, a tendency to congestions and even hæmorrhages, seem to be the result of *à priori* reasonings, for nowhere could we find any proof for such a statement, and, furthermore, observations made upon those living in the neighbourhood of iron springs, who use the chalybeate waters as a daily drink, not only failed to show any plethoric individuals, but on the contrary revealed a wonderful frequency of anæmic conditions. (NOTHNAGEL and ROSSBACH, *op. cit.*)

III. *Experiments on animals.*—I. C. G. GMELIN found that ʒij of sulphate given to a dog caused vomiting only,—that 40 gr. had no effect on a rabbit,—and that 20 gr., thrown into jugular vein of a dog,

* TROUSSEAU states that after use of iron, especially in women, there not infrequently appears an œcœ occupying face, breast, and back, running its course without fever. (*Gaz. Méd. de Paris*, 1843, No. 15.)

produced no effect. Dr. Smith, however, found that $\mathfrak{z}\text{ij}$ proved fatal to dogs whether taken into stomach or applied to a wound. Orfila obtained similar results. The effects were local inflammation and a specific affection of stomach and rectum. According to Weinhold, the spleen of animals fed with it becomes remarkably small and compact. (PERRIRA, *op. cit.*)

2. BLAKE injected 10 gr. of protosulphate (in solution) into jugular vein of a dog. There occurred but temporary depression of heart-action and blood-pressure; with 28 gr. heart-action ceased, and pressure fell to zero; 70 gr., in divided doses, caused gradual general dulness and death from asthenia—r. cavities of heart were distended with dark blood, l. contained 1 oz. of brighter colour but non-coagulable. When 2 gr. of persulphate in 2 oz. of water were injected into same vessel, pressure was diminished for a brief time, but quickly rose again when 3 gr. more were given; death soon followed; l. heart-cavities were empty and contracted, r. distended; blood coagulated at once when exposed; lungs were bright scarlet and contracted, and experimenter attributed death to contraction of their capillaries preventing supply of arterial blood to l. heart. Five gr. thrown into axillary artery raised blood-pressure at once 6.12 degrees of hæmadynamometer; death followed, and both sides of heart contained dark blood, implying that the lung-contraction was overcome in this instance, but only by an extreme degree of pressure. (*Journ. of Anat. and Phys.*, 1869.)

GAMBOGIA.

Gum-resin of *Garcinia Morella*, Desrous. Gamboja. Nat. Ord., *Cuttijera*.

1. *Proving*.—1. CASPAR NAKRING proved this medicine on several (female) subjects in doses of 30 dr. of pure tinct., 25 gr. of 32e, 20 gr. of and, and 25 dr. of 3rd trit. He gives us no information regarding the provers or the doses each took, nor does he indicate in what provers the different symptoms occurred.

a. Intolerable itching here and there, in hand, l. side of forehead, in eyes, eyelids, and canthi, in face, in upper surface of forearm just under elbow, on ball of thumb, index finger, insep, back of hands; after scratching there remains a burning and ulcerative pain, along with swelling and redness of scratched parts; the itching usually occurs e. and n. A small pimple over upper orbital border, with sensitive pain; eruption of small pimples on inner surface of both forearms, with great redness and itching e.; a burning blister on inner surface of upper lip; very itching blisters on both hands, at first pale, then red, lasting many d.

b. Drowsiness all d.; longer sleep than usual in m.; very restless sleep at n.; sleep disturbed by continual anxious dreams; anxious, restless dreams; dreams of dancing, lice, &c.

c. Chilliness all d., or only a.m., inward and outward coldness from 6 to 8.30 p.m., lasting $\frac{1}{2}$, 1 and 2 h., or all n. till 5 a.m., sometimes with thirst; violent rigor, proceeding from back, with general external coldness, even of forehead, commencing at 7 p.m., and lasting till 4 a.m.; rigor, with chattering of teeth, with external warmth of skin, great thirst, lips stick together; at n. sudden rigor, waking him up, lasts 5 m.; the chilliness is accompanied by empty eructation, yawning, sacral pains, and biting as from ants all over body, n., or at the commencement with severe stiches in ears. Increased warmth, with anxiety, also with some perspiration p.m. At n. slight perspiration; sweat all over body on waking at 4 a.m., m., perspiration all

over. In e. or n. intense thirst that kept him awake. The type of the pain is remittent or intermittent, generally quotidian, but sometimes tertian, and more delaying than anticipatory.

d. Cheerful humour, great loquacity, well feeling, great agility in all movements. Crossness, anxiety with inclination for work; work does not get on well, although the necessity for it is felt. Crossness and disposition to anger, m., on rising.

e. Vertigo frequently when at rest and when moving, on rising in m., or in forehead when spinning. Weight and throbbing in forehead a.m.; weight of whole head, with lassitude, drowsiness and pain in sacrum. Pains in whole head and beating in forehead towards nose, a.m.; frequent rising of head to head, with sweat. Pressive pain in head, with heaviness in forehead, relieved by open air, or with heat in head and whole body; headache compressive from both sides, a.m.; headache in crown as if bruised, a.m., better in open air. Some sharp stitches in r. side of head and in temple. Painful drawing from r. ear up to crown, a.m. Transient tearing in l. temple p.m. Great cold feeling in l. temple, as from a cold wet cloth, for $\frac{1}{2}$ h. p.m.

f. Itching in l. lower eyelid; itching in inner canthi and in forehead, with watering of eyes after rubbing and acrid, stinging tears, going off in open air; smarting in outer canthus, relieved by rubbing; dryness of eyes, as from drowsiness, with yawning and sneezing; extreme dryness of eyes, with redness of canthi; nocturnal adhesion of lids, burning in m., photophobia all d. and frequent shooting pain in eyes; violent itching of eyes, e.; violent burning of eyes and photophobia, p.m. or e., relieved by walking in open air, but recurring next m.; strengthened vision and clearer vision of objects.

g. Violent tearing deep in ears, e.; violent shooting in both ears; throbbing pain in l. ear, as from an abscess; humming in ears frequently, p.m., and e., always going off after a sensation as if a membrane in the ear burst; frequent noises in ear, m.

h. Tearing in bones of dorsum of nose; itching in both nostrils from e. till m.; ulceration of r. nasal cavity, with burning pain; bleeding from r. nostril, e.

i. Tearing in r. zygoma for $\frac{1}{2}$ h. e., and in r. side of lower maxilla frequently during d. Throbbing in a r. lower molar in cold air; feeling of chill and of lengthening of all front teeth, m.; cold feeling on tops of incisors. Tearing in all molars of r. side, also in gums, with raw feeling and swelling there. Dryness of mouth, burning on tip of tongue for 1 h. e.; burning of front half of tongue; excessive sensitiveness of palate, pain as from an excoriation or sore, relieved by cold; sweetish taste in mouth and throat, followed by expectoration of bright red blood. Tearing in tendons of r. side of neck, also with retching, shooting tearing in l. side of neck under ear, much aggravated by external pressure, thence going down to laryngeal region, also shooting in throat when swallowing. Roughness and burning in throat, compelling constant hawking; sore pain in throat, also when touched externally; sore burning at back of fauces when not swallowing; shooting in throat when swallowing, going off after eating; violent shooting in r. side of throat when swallowing and at other times, e.; choking from chest up into throat, taking away breath; swollen feeling in throat; sweet taste in mouth, and expectoration of bloody mucus.

j. Bitter taste; appetite increased almost to ravenous hunger, and much thirst; thirst after dinner, and especially e.; loathing and dislike to food; nausea, inclination to vomit, flow of water into mouth with roughness of throat; slight sickness and nausea frequently; nausea when taking soup, relieved by eating bread; after eating, immediately pinching in belly or sleep. Nausea from the stomach, as if it would turn over, while walking in open air, with collection of water in mouth; belching up of sour water, and movements in stomach; stomach-ache, with slight sickness and flow of water into mouth; frequent violent empty eructation; hecup after rising, m.; constant retching, going off after dinner; after nausea painful nipping in umbilical region and very relaxed diarrhetic stools; horrible vomiting and purging, with fainting; empty feeling in stomach and belly; weakness of stomach, as after long hunger, with rising of water into mouth; gnawing in stomach, with rumbling in abdomen; painful feeling of constriction of stomach after dinner; contractive and sore feeling in stomach, with tenderness to touch; ulcerative pains in stomach, going off after eating, afterwards when walking in open air rumbling in belly and ordinary stool after $\frac{1}{2}$ h.; persistent sore pain in stomach, with sensitiveness of integuments; sharp shooting to stomach, rousing him to start; throbbing in stomach, increased by

leaning against anything; a pressure in stomach and chest, taking away breath, in fits at 3 and 9 p.m., going off after eructation.

k. Flatulent distension and tension of belly, with pinching in umbilical region; buzzing and rumbling in belly; extremely painful burning in hepatic region; frequent severe pinching in whole belly, without urging to stool, or sometimes with immediate purging and burning in anus, with evacuation of the pinching; extremely painful contraction (as with pinners) about navel; feeling of contraction and twisting below navel, with urging to stool; painful gnawing in a small spot below navel; constrictive pain deep in l. iliac region; pinching in iliac region, without discharge of flatus; shooting in iliac region, as from flatulence; pinching as with nails in r. flank; tension in flanks when standing, sudden startling shooting in r. flank when sitting; distension and accumulation of flatulence; feeling of flatulence in abdomen, worst in sacral region, followed by urging to stool; rumbling in bowels.

l. Discharge of stinking flatus preceded by cutting and movements in belly; frequent discharge of flatus, especially e. and n.; stool lax in e., and discharge of much flatus which seems to lie on the bladder, and causes shooting pains, hardness, and tension of vesical region and shortness of breath; constipation and costiveness, ineffectual urging to stool; frequent urging to stool with pinching about navel from m. ili e., and protrusion of rectum; repeated nocturnal ineffectual urging to stool, a soft evacuation takes place next m.; firm stool followed by burning in anus and evacuation of a round-worm or with shooting in iliac regions and discharge of flatus before midnight; firm, hard, insufficient stool with great urging, pressing and prolapsus of rectum; repeated rather hard, then soft stool, later first hard, then soft stool; repeated soft stool with rumbling in belly or with pain about navel and tenesmus afterwards; soft scanty stool, with feeling of a hard body in the way preventing the further discharge of feces, going off after a subsequent stool; repeated purging with discharge of green mucus after pinching in abdomen; purging with burning pain and tenesmus in rectum, prolapsus ani, and persistent pinching round navel and evacuation of mucus; repeated relaxation of bowels with burning and violent tenesmus; diarrhoic stool of yellow and green feces mixed with mucus, preceded by intolerable cutting pain about navel; feculent diarrhoea discharged with great violence with long-continued burning in anus, $\frac{1}{2}$ h. before this violent cutting in abdomen waking him out of sleep at midnight; the pain is relieved by firmly compressing the small, empty-feeling abdomen; on falling asleep again, wake up from sacral pain, copious watery diarrhoea with pain in belly and tenesmus; before stool shooting in anus as with coarse needle.

m. Rare micturition; very scanty urine, only a drop or two, stopping for some time, then recurring with burning in orifice of urethra; frequent micturition, but little at a time; increased flow of urine.

n. Recurrence of menses, which had ceased for 6 weeks; very profuse menses some days too soon. Leucorrhoea.

o. Sneezing; violent chronic sneezing, only during d., chiefly a.m., aggravated to a high degree by strong smells, with irritation in r. nostril just above ala nasi, dryness of r. nostril, pressure in r. inner canthus as from a foreign body, making her rub frequently, sometimes dimness like a veil before r. eye; this sneezing caused violent tearing frontal headache, very acute stitches in l. sink, heaviness in legs, general flush of face. [This observation was made on an artificial flower maker, et. 29, and was caused by pounding $\frac{1}{2}$ oz. of G.; it lasted with intermissions more than a year.] Much nasal mucus of a foetid purulent odour; coryza at first dry, then with excretion of ill-smelling nasal mucus; stuffed coryza.

p. Scraping in larynx exciting dry cough, n.; frequent dry short cough by d.; cough, p.m., with some hoarseness and hawking of mucus; cough worse after lying down at n.; cough, especially at n., with sore pain in chest; severe dry cough at n., making her sit up; severe nocturnal cough with excretion of thin mucus.

q. Repeated very painful stitches in sternum p.m. and e.; stitches under r. mammary region; painful stitch in r. side of ribs towards axilla, taking away breath, after carrying a heavy weight; repeated digging and gnawing in both hypochondria, c.; great tightness and heaviness in chest with stitches through to back, especially in hypochondria; heaviness in chest and hence sleeplessness for a successive n.; pain in chest as if it were all raw inside; pressure in chest; pressure in middle of chest, and stitches from both sides of chest towards one another; sharp shooting under chest

(5 m.) then pressure in centre of chest with want of breath (1 h.); gradually going off c.; occasional shooting in fore part of chest, p.m. and e.; shooting deep in fore part of chest, frequently alternating with shooting in r. mamma, e.

r. Teasing in nape and l. shoulder, sharp shooting in l. renal region; shooting in r. sacral region; sudden painful shooting in sacral region, relieved by walking about; bruised pain in sacrum as if teased; repeated gnawing in oesoph; occasional whooping in top of r. shoulder; repeated very acute shooting under l. axilla, going off for a short time by rubbing; shooting and numb feeling in balls of r. thumb and middle finger, then shooting in palm through back of hand to forearm, with hot feeling; sharp shooting through palm out at back of hand, then burning of hands; a violent burning stich, sometimes in fingers, sometimes in hands, also in ankles, later in whole body; sharp shooting in distal joint of l. index; the shooting pains occur or are aggravated e.; tearing in shoulders or axilla, in tendons of extensors of fingers, in balls of thumb or forefinger, as also between metacarpal bones of fore and middle fingers, so that the skin was drawn in by the pain; pinching in r. arm-bones; itching of ball of l. thumb. Violent sharp stiches in l. groin (1 h.); repeated shooting in l. calf; violent shooting in r. sole, going off by rubbing; some stiches under r. big toe; severe tearing in l. hip; frequent drawing and tearing in l. groin; tearing in bone from middle of r. tibia to above knee; tearing and drawing in tendo Achillis as if it were shoneed; cramp and tearing pain in calf with drawing in of toes, removed by strong friction; cramp-like tearing in the 2 small toes of r. foot; cramp in r. big toe, removed when walking and in bed e.; painful cramp-like contraction on r. outer ankle and in big toe, making him limp when he walks; painful pinching in dorsum of r. foot towards toes; violent bruised pain under l. patella, when pressed the foot pains as if ulcerated; violent pain and stiff feeling in r. leg along tibia, only permitting foot to be stretched out by a great effort, p.m. and e., in bed; pressure as with hand above l. outer ankle, and gone-to-sleep feeling there, going off on treading; great weight and weariness of feet. (*Howards and Trinks' Handbuch*, i, 803.)

a. a. A. L. RICHTER finds that, taken in small doses, G. acts as a stimulant to the abdominal organs, augmenting the secretion of the glandular apparatus; in larger doses it purges, generally causing severe colicky pain and tenesmus, and often vomiting besides.

b. RAYER observed effects of G. upon persons who either had no acute disease or were convalescent from sickness. It was first given to 15 persons in doses of 5 gr. each. All vomited bile within 1 h. or 1½ h., and had from 2 to 6 stools, with little or no colic. There were no symptoms of local inflammation or general fever. A reduced dose of 3½ gr. was afterwards given, and occasioned slight nausea, but no vomiting, and 2—5 stools, with slight colic or none at all.

c. When G. is treated with alcohol there remains undissolved a gummy residue of a bitter and acrid taste, but, according to Krahmer, without sensible action on the intestinal canal in doses of ʒss or 40 gr. The alcoholic extract, on the other hand, which constitutes 25 per cent. of the original mass, is purgative in a dose of ʒr, and in Krahmer's experiments on himself it did not occasion nausea, but moderate pain in colon, and produced two large fecal and mucous stools. (*STILLÉ, op. cit.*)

II. A barber-surgeon administered ʒj to a patient, which produced violent vomiting and purging, with fainting and other accidents. The patient did not die immediately, but after some time and much suffering perished. (*Ibid.*, from PAULLINUS.)

III. The effects of G. vary considerably in different animals, and also in the same species, according to dose and mode of administration. Flohrmann found that ʒj gr. given to a horse 2 years old produced maise, agitation, a frequent pulse, twitching of muscles, distension of abdomen, thin alvine discharges, and trembling of whole body. Wiborg gave ʒj to a 9 mo. foal, producing 11 evacuations within 4 h., while 2 like doses administered to a horse had no effect whatever. The last-named experimenter, and also d'Aubenton, found that sheep were purged by ʒo—60 gr., and that ʒj were often fatal. Drachm doses caused vomiting and purging in dogs. In an experiment of Orfila's ʒss caused efforts at vomiting, but did not purge, and animal died within 24 h. without any active symptoms whatever. In such cases the m.m. of the stomach, and also that of the rectum, was reddened but not disorganised. When finely powdered and applied to a wound in considerable quantity, G. appears

to produce local inflammation and death without signs of pain and without vomiting or purging.

These experiments are very far from rendering clear the *modus operandi* of G. The immediate phenomena, both local and general, and the lesions found after death, are insufficient to explain the fatal result. Few of the symptoms which a local irritant produces are displayed; there is but little expression of pain, and seldom either fever, convulsions or coma, so that the action of the medicine must be regarded as very obscure, and different from that of the drastic purgatives with which it is classed. (*ibid.*)

GELSEMIUM.

Gelsemium sempervirens, Gray. Yellow Jessamine. Nat. Ord., *Loganiaceae*.

I. *Proving*.—1. JOSHUA STONE, æt. 27, black hair and light skin, am strictly temperate in my habits of life, using no intoxicating drinks of any kind, coffee, tea, or tobacco. I am subject to occasional attacks of indigestion, and suffer much from cold hands and feet. Otherwise than this, I enjoy a very good degree of health. On Nov. 21st, 1852, at 10 p.m., I took 6 dr. of tinct. (prepared from Bowers) in water. 22nd.—During last n. was quite restless, and much annoyed with unpleasant dreams. During d. dull, aching pain in occipital region, much aggravated by movement, especially on bending the head downwards. This pain was much increased towards e. 23rd.—Experienced dull pains in head and extremities. 24th.—No symptoms. At 10 p.m. took 10 dr. of tinct. No symptoms. On 29th took 50 dr. at 10 p.m. 30th.—During n. was very restless, with unpleasant dreams after midnight. Dull pain in bowels, which became quite severe towards m. Pain of similar character in sacral and lower lumbar regions. Dull, heavy pain in region of occiput. Involuntary emission of semen without erection. Urine much increased in quantity. 10 a.m., dull pain in l. humeral region, also in lower extremities: these are deep seated in muscles. Have felt chilly all d., particularly in m. Dec. 1st.—Dull aching pain in back, particularly in lumbar and sacral region, which came on about 3 a.m. Also similar pains (deep seated) in upper and lower extremities and joints generally. Yellowish-white fur on tongue. Sensation as of something wanting in epigastric region. Emission of semen without erection. All pains much aggravated by heat of bed, and are much worse after midnight. The pains spoken of above continued during d. but in a much less degree. In e., eyes felt quite sore, and as if there was some foreign substance irritating conjunctiva. 2nd.—Very restless during n., especially towards m. Rheumatic pains in bones and joints of extremities and in the back, as in n. previous: also pain in bowels towards m. Headache of dull aching character in occipital region, occasionally extending to os frontis. At n. eyes quite sore; not much pain, but merely soreness with sensitiveness to light and lachrymation. Slight chills during d. 3rd.—Awoke about 3 or 4 a.m. with severe pains in both upper extremities; seemed to be deep seated in muscles, most severe in l. arm and forearm, and in calves of both legs. General restlessness with chills in m. after breakfast. Rather

dull and stupid for some d. with disinclination to conversation. This was remarked by my friends, who knew nothing of my taking med.

4th.—Rheumatic pains in extremities as heretofore, but less severe. Soreness of eyes at n. 5th.—Symptoms similar to those experienced yesterday. Eyes quite sore at n. 6th.—About 4 a.m., awoke with pain of rheumatic character in extremities. After breakfast, experienced dull aching pain in head in region of occiput, which increased in severity as d. advanced. At 10 a.m. I went to the Penn Hospital, where I saw a number of severe wounds. I am not usually affected very much by the sight of wounds, but to-day that, or something else, caused some very unpleasant sensations, which were as follows:—I became very weak, and my friend remarked that I was very pale; there was also slight nausea and trembling of lower extremities; these continued some 20 m., but disappeared on going into the open air. Headache continued to increase in severity until after dinner, when it was much less severe. But at about 4 pain again returned, and was more severe than before, and seemed to increase in severity until e., when it became excruciating, accompanied with slight nausea; pain seemed slightly mitigated by shaking head. I also felt quite chilly. Went to bed about 9, but recumbent position did not mitigate pain at first; I, however, succeeded in getting sleep from about 10.30 to 1.30 a.m., when I awoke with most intense aching pain in l. frontal extending to r. occipital region, and occasionally over almost entire head. This continued about 1 h., and then left me entirely. After this, I experienced dull aching pain in umbilical region, which continued until I got up. Deep-seated aching pains in muscles of extremities, relieved by motion. After breakfast had sharp shooting pain from r. shoulder to dorsal vertebræ. 8th.—During last n. pains as heretofore, in extremities, which come on mostly after midnight. These pains also continued during d., but in much less degree. Some headache as before in occipital region. Palpitation of muscles of abdomen, which continued about 3 m. Dull pain in lower lumbar and sacral region. 9th.—During n. pains in extremities much as usual, particularly in forearms and calves of legs, also in elbow- and knee-joints. All symptoms of extremities similar to those experienced before, but less severe. 10th.—Early in m. sharp shooting in last phalangeal joint of r. thumb. Have experienced dull pains in muscles of r. arm and shoulder, and some of the time in l. arm and lower extremities. 11th.—Slight pains in extremities during n. 3 p.m., sharp shooting pain in calf of r. leg. 6, sharp pain in r. wrist. 7, dull pain in l. thigh, and under l. scapula. 7.30, severe aching pain in l. elbow. Have experienced dull pains of shifting character all d. 12th.—Symptoms of last n. were not prominent. Some slight pains in muscles of extremities. During d. felt extremely dull and stupid, but little pain in muscles of extremities. Dull pain in head in region of occiput. 9 p.m., pain in r. wrist, of dull character, with great weakness of same. 13th.—Pain in wrist less severe, but quite weak. 14th and 15th.—No symptoms. 16th, 10 p.m., took 50 dr. 17th.—During n. very restless. During d. tendency to headache on movement, particularly on going upstairs. 18th.—Slight pain in l. hypochondriac region. 20th.—About

11 a.m., severe aching pain in occipital region for a few moments. Very dull and stupid, with aversion to study. (HALE'S *New Remedies*, 2nd ed.)*

2. Dr. HENRY, of Montgomery, Alabama, April 3rd, 1852, took 30 dr. of tinct. The first symptoms felt were pains over whole top of head, extending back to occiput, with general dizziness and disagreeable pain in whole head. Melancholy and desponding mood. Pains of shooting character in frontal sinus extending to eyes and jaw; pain in eye is of pricking character, extending from centre to angles. In r. pains seem to wind round eye. Pain extending from bridge of nose to eye. Pains deep in the ball of l. eye, extending from above downwards. Paroxysmal pain l. lower extremity. Violent shooting pain in leg, which comes on in paroxysms; every one is more violent; pain is half-way between knee and ankle. Pain in l. hip confining itself to the joint; it at times extends down outside of thigh; it is of a drawing, sharp character, and is much worse on motion. Pain in Bexor muscles of r. forearm, in little and ring fingers, in foot and ankle, with spasmodic contraction and drawing pains in the toes. Pains in neck which confine themselves to upper part of sterno-mastoid muscles, directly behind parotid glands. On r. side pain extends from last back tooth up to temples. Short paroxysmal pain in superior part of r. lung; on taking a long breath it strikes from above downwards; this pain is one of the most prominent symptoms. Rumbling and rolling in abdomen with emission of flatus above and below. Periodical pains in abdomen, with yellow diarrhoea coming on in e. Pain in l. iliac region. Bowels loose, but great difficulty to discharge anything; there seems to be great strength in sphincter muscles. Yellow coat on tongue. 5th.—Took 30 dr. Experienced pain over whole top of head, extending back to occiput. General dizziness and disagreeable pain in whole head. Melancholy and desponding mood. Pains of shooting character in frontal sinus extending to the eyes and jaw as before, but more severe. Spasmodic pain extending from inner condyle of r. arm to axilla. Smoky appearance before eyes, with pain above them. Total blindness ensued in a very short time after taking the 30 dr., with violent dizziness. A band-like pain which surrounds head, with shooting pain in each jaw and parietal bone. Pain in l. side of head extending from parietal eminence to mastoid process of temporal, periodically recurring. Periodical pains in pectoral muscles. The med. was now taken for a week, dose being increased daily. There resulted, besides above symptoms, chilly sensation over entire body appearing at same time every d.; complexion yellow, also eyes; complete prostration of system with emaciation. (*Ibid.*)

3. Mr. FRANKLIN BIRLOW, æt. 24, sanguine, nervous temperament, took 20 dr. tinct. Effects at first were so slight that he did not think them worth noting, but 8 d. after taking it he experienced sensation of heaviness and oppression of head; severe and oppressive pains in forehead and vertex; headache very distressing; gloomy and indisposed to exertion of any kind; became tired and greatly exhausted very

* Taken from a thesis presented by Dr. Stone to the Hom. Med. College of Pennsylvania, communicated by Dr. Neidhard.

easily; headache comes on after dinner and continues till e. At same time excessive drawing and crampy pains in lower limbs, extending from thigh to toes; pains seem to proceed from bones as well as the muscles. Excessive crampy pains in whole *r.* foot. During and after a walk symptoms are all much aggravated; it seemed as if limbs could not be made to move another step. When the pains are felt above knee they are not felt below, and *vix curso*. Excessive drawing and contracting pains in *l.* gastrocnemius. The other pains in the limbs all abate while sitting; this does not,—no position seems to relieve it. Drawing and aching pains, which seem to come from bones. Heaviness and feeling of weight in the limbs. But little inclination to sleep; when it does come on dreams much of business, &c. Eyes much inflamed and weak, with great flow of tears at intervals. (*Ibid.*)

4. I commenced my proving of this drug in 1858. I have since proved it on at least 50 persons. The tinct. of the root was employed, in doses of 1—5 dr. A few provings were made with the 3x dil. (in all these the characteristic eruption was developed). The following is a brief digest of its pathogenesis:

a. Pain of head is a very constant symptom, generally dull, stupefying, and pressive; most frequently in forehead and temples; bruised pain above and at back of orbits; tightness of brain; often more or less nausea with headache; giddiness pretty constant; an intoxicated feeling and tendency to stagger, often with dizziness or imperfection of vision. The head symptoms are aggravated by smoking; they are felt very soon, sometimes within 5 m.

b. Mind irritable, impatient; incapacity to think or fix attention; confusion; stupid intoxicated feeling; dulness of all mental faculties. In one case, great and almost uncontrollable mirthfulness, but it is not said at what stage.

c. Great heaviness of lids; difficulty of opening eyes or keeping eyes open; eyes close in spite of him, on looking steadily at an object; fulness and congestion of lids. Diplopia when inclining head towards either shoulder, but single vision when holding head erect (1 case); objects seemed double upon raising head from stooping position or on looking sideways, but not when looking directly at them (1 case). Dryness of eyes. Misty or glimmering appearance before eyes. Pain in orbits, sometimes excessive.

d. Mawkish taste in mouth; clammy, feverish feeling and taste; great hunger (1 case); feeling of emptiness and weakness in stomach and bowels; eructations; hiccup; slight pain in transverse colon, with yellow colour of face (1 case); gnawing pain in region of transverse colon all afternoon; slight pain in *l.* iliac region (2 cases); frequent sharp darting pain through *l.* hypochondriac region; after experiencing chills, headache, fever, and prolonged sweating, 17 h. after taking drug was awakened by severe moving pains in lower abdomen, soon followed by a very large but natural stool, without relief of pain, and soon after by a deeply bilious discharge, with instant relief of pain,—19 h. after, another bilious evacuation, without pain, rumbling in region of umbilicus.

e. Urine increased in quantity, clear and watery; frequent micrurition,—as often as every $\frac{1}{2}$ h.

f. In a few cases, watery discharge from nose; paroxysms of hoarseness, with dryness of throat; voice seems weak; stitching sensation in region of heart; stitches in chest; shuddering pain in r. breast; constrictive pain round lower part of chest.

g. Pain in back, as in cold stage of ague (many cases); coldness of extremities, especially feet (often severe); feet felt as if in cold water. This symptom occurs early, and is generally accompanied with heat of head and face, and with headache, with aguish feeling, pain in and between bones of l. leg; not able to go downstairs without holding on to something. Pain under r. knee when walking. Pain in lower limbs (very common).

h. Febrile chilliness, with cold extremities and heat of head and face, with headache (an early symptom in most cases). Pulse very uniformly depressed, and down by 10—20 beats, within first 5 or 10 m., if subject remains quiet, but liable to great variations from exercise. In one case pulse rose from 60 to 70 in first 5 m., but in next trial fell to beats in same time. In many cases, pulse soon becomes very feeble, sometimes scarcely perceptible, with chilliness, cold feet, heat and pain of head, &c. After 1 to several h. chilliness subsides, general heat supervenes, mostly about head and face, with full pulse of 80—100. In most cases, perspiration follows, sometimes profuse, lasting a few h. to 2 h., with thirst, languor, and prostration. One feels as if he had had "a fit of sickness." Another speaks of "every symptom of ague; would have thought he had the ague."

i. Disposition to yawn; a sort of stupor; cannot keep eyes open; is obliged to lie down and sleep. Sleepiness, and long and sound sleep, are very general symptoms.

j. The drug produces a peculiar and very marked eruption in most of the provings. It appears chiefly on face, less frequently and less conspicuously on back, between shoulders, &c. It is papular, of much the same colour as that of measles, but the papule are larger, and more distant and distinct. They are attended with little or no sensation, the subject being unaware of their existence until he happens to see himself. This eruption generally appears the 2nd or 3rd d. of the proving, and continues one or two weeks, or more.

k. General symptoms were—weakness and trembling through whole system; listless and languid; great lassitude; feeling of lightness of body and sense of instability of whole system; feeling of danger of stumbling or falling; fugitive or fixed pains here and there; easily fatigued, especially in lower limbs; general feeling of illness, as in fever. (J. S. DOUGLASS, M.D., *United States Journ. of Hom.* 3, 1 bis.*)

* In a later communication (Nov., 1861) Dr. Douglass writes:

a. My experience does not perfectly coincide with your remark upon the action of G. upon the nerves of sensation. "It does not, certainly, "cause the numbness, tingling, prickling, and crawling sensations" of aconite, but, in my individual experience, it causes the pain. In my own provings I have frequently experienced a succession of acute, sudden, darting pains, evidently running along single nerve-branches in almost every part of body and limbs, sometimes so sudden and acute as to make me start. At one time a quick succession of these acute sudden pains coursed

5. Dr. W. E. PAYNE proved fluid extr. in 1859.

a. April 7th, 9.30 p.m., took 4 dr. in water; on 8th, 5 dr. in m. and 6 in forenoon; on 9th, at 5 a.m., 6 dr.; and on 10th, at 6.30 a.m., 10 dr. At 2 p.m. of 10th, when lying down, pain under l. floating ribs, suddenly, as from thrust with a sharp instrument. In an instant pain disappeared but appeared as suddenly in l. temple, causing involuntary contraction of brow. At 2.30 there was full and crowded feeling in whole head, and sensation of feverish heat in face; nevertheless temperature of skin did not appear augmented. At 3 took 6 dr. on sugar. In $\frac{1}{2}$ h. pulsative pains in l. hypochondrium, continuing 1 h. 11th.—At 9 a.m. 6 dr. In 1 h., while sitting, sensation as if galvanic current were passing down forearms and hands; same also in feet. At 2, when lying down, pulsative pains in l. hand and finger-joints, and at same time in r. foot, more severe in ball of great toe, continuing for 2 h. 12th.—At 6 a.m., 6 dr. Fulness about head. 13th.—At 9 a.m., 10 dr. 14th.—At 3 p.m., 10 dr. Feverish heat in face; full and crowded feeling in head, with pain as if brain were bruised, and accelerated pulse (90); general fatigue; aching in loins; soreness of trapezius muscles on moving. At 6, sensation as if galvanic current were passing through forearms, continuing for $\frac{1}{2}$ h. The sensitive and bruised feeling of the brain continued for 2 d., the aching and soreness in muscles of neck and shoulders for 4 d.

b. May 8th, at 9.30 p.m., took 3 dr.; on 9th, at 6 and 10 a.m., 5 dr., and at 9.30 p.m., 6 dr. 10th.—At 6 a.m., 8 dr. One h. after, confusion of sight; light-headed and dizzy, much worse from sudden movement of head and walking; gait staggering and very infirm; full, crowded feeling in head and heat in face. At 9.30, violent cramp-like pains in epigastrium, causing a momentary cry, lasting but a moment and then subsiding, leaving a constricted sensation for 1 h. This was followed by sensation of heat and burning in stomach. At 2.30 p.m., 8 dr. At 3, pressive pain in r. temple, with dizziness and blurred vision, such as may follow use of intoxicating liquor, but without exhilarating effects. The dizziness and blurred vision were attended by nausea, and continued for 3 h. There were also pains in l. elbow, wrist, and knee, and in both ankles; and pulse remained accelerated. The sensitiveness of brain continued for several h., and it appeared as if every step and sudden movement of head would excite down the outside and front of the tibia for $\frac{1}{2}$ h., leaving a line of considerable tenderness marking its track.

b. You remark that you have not been able to elicit such marked symptoms in your provings as were experienced by me. The symptoms particularly referred to are the chill, the reactive febrile heat with headache, and the sweat. You suggest that I am probably very susceptible to the action of this drug. This remark suggests an important fact which has gradually unfolded itself in my successive fragmentary provings on some seventy persons, and on myself. It is that the degree of chill, of febrile reaction, of headache, and of neuralgic pain, bears a very uniform ratio to the nervous sensitiveness of the patient. . . . In several highly sensitive subjects the chill has been equal to a respectable fit of ague, the reaction and pain of head corresponding, and the sweat profuse. These symptoms have been most marked in some female provers of this temperament, taking $\frac{1}{2}$ dr. doses. (*Monograph on Gelsemium*, by E. M. HALL, M.D., 1862.)

pain; but this did not occur. 12th.—At 6 a.m., 6 dr., and at 2.30 p.m., 8 dr. At 3.30, dizziness and blurred vision returned, and gradually increased so that all objects appeared very indistinct till 6.30, when it was gradually abated. Face was flushed and hot to touch; eyes suffused. (*Amer. Hom. Rev.*, ii, 80.)

6. a. I have at various times, when in health, taken a few pills saturated with the tinct. dry on the tongue. No symptoms save some fulness of anterior part of head, felt within a few m. of each dose, and soon disappearing.

b. April 3rd, 1864, just before going to bed, took 4 dr. of tinct. on tongue. In 15 m., stitch traversing r. eyelids vertically; afterwards, sense of contraction in scalp at centre of forehead. Sound sleep till 8 a.m. On rising, again 4 dr., and same at 11 a.m. Insufficient stool at 10 a.m. Walking and other exertion easily induced perspiration. At noon, slight heartburn and pain at cardia, while reading. At 8 p.m. 4 dr., and at 11 p.m. 5 dr. In afternoon and e. some irritability of r. testis, and, afterwards, dragging pain in same, extending to both groins and hypogastrium, followed by escape of flatus, and relief of pain. At 11.30 p.m., eructations of wind and bland fluid; intense but transient itching of small points on face and at edge of hair at several spots; itching about elbows and forearms; aching in l. rectus femoris, and drawing in r. calf; sneezing, followed by tingling and sense of fulness in nose. At midnight, 6 dr.; sound sleep till 7 a.m., difficult weary waking. 5th.—After rising, 7 dr. General vivacity; at breakfast, dull ache on r. side of head; gastric oppression, had to loosen waist-bands, after which colicky sensation to l. of navel as if stool would shortly pass. After breakfast, transient vertiginous sensation, followed by confused vision, especially of distant objects; when turning eyes, sense of sight is tardy in following movement, things appearing for several seconds to be blurred, and eye remaining unfixed in its new direction (no sensation of gauze or film). This gradually wore off by n. Sound sleep during most of n. 6th.—At 8 a.m. took of a new specimen 5 dr. General vigorous feeling. After breakfast, marked renewal of confusion of sight, with heavy-looking eyes. Found this symptom much less when holding a finger vertically beyond nose, also when either eye was closed. When reclining some languor and drowsiness; on rising, dull pain in occiput, and slight tendency to throbbing in r. side of head (previously, at breakfast, transient and slight cutting pressure on l. side). Some heat and dryness of hands at 10 a.m.; at 11, pulse, sitting, 76. P.m., languor and drowsiness on attempting to study in reclining position; slept an h., and on being aroused felt at first unwilling to move, eyes transiently bloodshot. After moving about awhile has languor. Pulse, lying, 54—60, sitting up, 64—68; hands, especially palms, hot and dry. E., pulse 72, when sitting—always full and strong, as usual. Wakeful till 1 a.m., with desire to study. Irritation of small spots on mucous surface of prepuce with surrounding congestion. Sound sleep latter part of n.; weary waking. 7th.—At 10 a.m., 5 dr., and at 2 p.m., 7 dr. At 4, swallowed a dessert-spoonful of red wine. Directly after, for first time to-day, return of confusion of sight, lasting but an h., but so

extreme that it seemed as if someone must suspect inebriation. Previously, depression of spirits with dull uncertain pains in head; coincident with intoxicated feeling gastralgia and colic. During e., colicky pains below navel, extending to testes, and caused by flatus, being relieved by its expulsion. 8th.—At 8 a.m., 8 dr. Sight more or less confused all d. At 11, cardialgia, while riding. Dulness of head. At 3 p.m., whilst reading excitable news, transient chilliness in upper half of body, especially back and nape of neck. At 11.30, 9 dr. At 12.30, rising of tasteless, semi-solid matters in cesophagus, with flatus and a sense as of something lodged therein, slightly painful, while sitting at study. Sound sleep. 9th.—Found sore pimple on l. side of neck. Took 10 dr. Exciting news caused urging to stool; stool was deep yellow and papaceous (as it was yesterday). Dull pain in r. head; transient cramping pain in inner thigh when walking; eye symptoms as before. At 5.30 p.m., 15 dr. In an h. rheumatic pains in r. knee and l. neck—latter while lying down, former when walking; soon passed off. Confusion of sight much increased during e. At 9.30, sneezing and dull headache; continued cardialgia and eructations while sitting; pulse 72. Pimple is sore, with areola, altogether size of pea, quite red and inflamed—an eruption not previously experienced. 10th.—At 8.30 a.m., 21 dr. Till 4 p.m. disturbance of sight was great; mind listless and incapable of reflection, with dull (not severe) headache all d., and digging in r. ear all p.m. At 9.30, soft bilious stool, preceded by threatenings of diarrhoea—latter renewed at noon by exciting news and afterwards in walking. When walking, also, feeling in knee-joint as of partial luxation. Several times during d. saliva was found yellowish as if from blood; and all latter part of d. bad, sour, spoiled taste and breath, with frequent need to rinse mouth or spit, light whitish coat on tongue. At 5, contractive sensation in r. neck; afterwards while writing headache, first on vertex, then in l. occiput, subsequently on both sides, in upper cervical region, and again on top—all in a few m. Finally, settled, dull, dragging headache, mainly in occipital, mastoid, and upper cervical region, extending to shoulders, relieved while sitting by reclining head and shoulders on a high pillow. Early sleep after dinner. When roused some headache still; mind composed and clear (11.30 p.m.). After writing a while, pulse 64—68; palms dry and hot, as also lips. 11th.—Three more pimples, like minute boils. No more med. was taken; and prover's normal condition being disturbed by a professionally broken night, his symptoms to-day are not recorded. Pimples were not disappearing by 15th. (J. C. MORGAN, M.D., in *Hale's New Remedies*, 2nd ed.)

7. To see what the effects of the drug would be when pushed, I gave to a patient, a sailor, convalescent from periostitis, 3 doses of 20 min. of tinct. each,—2 h. intervening between 1st and 2nd doses, and 1 h. between 2nd and 3rd. About $\frac{1}{4}$ h. after 2nd dose, usual complaint was made of difficulty of keeping eyes open from heaviness of lids. He saw things double, one image appearing beside the other. During this time pulse did not appear to be much affected, remaining at 77; but after 3rd dose it became quickened, rising gradually to 96. About 2 h. after taking 3rd dose he got out of bed to go to lavatory, being

perfectly conscious. He reached the room, but found himself then powerless, and quietly sank first on his knees and then at full length. He was quite unable to raise his lids; his lower jaw dropped, and he could not articulate. He was put into bed, and some warm stimulating drink given him, when he soon became better. He told me when I saw him, with the most open-eyed simplicity, that the medicine had done him a great deal of good, for he could make water very much better since he had had it (I should observe that he had previously suffered from the effects of a troublesome stricture); that he knew everything that was going on around him when he sank to the ground, but was unable to move, and that his feelings were like those which he had experienced after commencement of intoxication. (*Lancet*, 1874.)

S. a. I gave it to 6 persons on 17 occasions, in doses sufficient to produce decided toxic effects. The tinct. used was made with 1 part of root to 4 of rectified spirit. To excite the symptoms characteristic of this drug I found it generally necessary to give drachm doses hourly, for 3 h.—a quantity which may be given with perfect safety. Some individuals, however, are much more prone to be affected than others. Thus, a woman suffered from diplopia, headache, and hazy sight after a second dose of 10 min.; and in another case 2 doses of 20 min., at 2 h. interval, produced well-marked symptoms. On the other hand, I have given drachm doses hourly, for 6 h., with very slight effect; and in one instance I gave 20 min. to a delicate young woman every 3 h. for several d., finally causing only slight heaviness of eyelids.

b. Unless given in dangerous doses, G. ordinarily affects first and chiefly eyes and brows—pain in brows followed soon by giddiness, then by pain in eyeballs, and soon after by dimness of sight. A larger dose produces double vision without apparent squinting, with sense of great heaviness of upper eyelids, and somewhat contracted pupils. A still larger dose causes drooping of upper lids, sometimes so marked that edges become nearly closed, and can be opened only by strong and painful effort; and, after straining to open them, sometimes the lid is so tired that ptosis for a short time becomes complete. The movements of the eyeball are restricted (associated in one case with a strong double internal squint). The patient next complains of weakness in his legs, and we have never pushed the drug beyond the production of this symptom. When decidedly under drug's influence, patient is pale, with a heavy sleepy look. Some say their eyes feel sleepy; others yawn frequently, and say they can hardly keep awake, and when left to themselves fall asleep. Others complain of dryness of mouth, though tongue looks moist, and to finger feels so. Some keep moistening mouth with a little water even hours after discontinuance of medicine. These symptoms (except the squinting) were all produced in the greatest number of cases; but in some instances even large doses of tinct. induced only a few of the slighter symptoms. Thus, a woman took a drachm dose hourly, for 6 h., without exciting headache, diplopia, or giddiness—only great heaviness of eyes, and dimness almost amounting to temporary loss of sight; though on a former occasion, in this very woman, we produced extreme diplopia with giddiness with four ʒj doses. In one instance diplopia occurred without precedent head-

ache, giddiness, and dimness of sight; though subsequently, in this same woman, we produced with six ʒj doses hourly much giddiness and mistiness without diplopia.

c. The symptoms from G. come on early and soon subside. A single drachm dose rarely produces any marked symptoms; but in 10—15 m. after the second hourly dose the symptoms appear, and reach their highest point in about $\frac{1}{2}$ h., then quickly subsiding, so that most of them have ceased in an h. After 4—6 hourly drachm doses the symptoms may persist 6—8 h. after last dose; but they are most marked $\frac{1}{4}$ h. after each.

I shall now describe each symptom separately and fully.

d. Pain in head and eyes.—Patients described this pain variously. It was generally limited to the forehead, and most marked just over the eyes. Some called it a dull sensation over the eyes; others, a heavy pain; others, a giddy pain; and one patient experienced pain over the occiput, with sensation as if crown of head was being lifted off in two pieces. This headache was sometimes absent, sometimes followed instead of preceding the other symptoms. Dull aching pain in eyeballs, now and then shooting in character, occasionally worse in one ball, sometimes followed and sometimes preceded the headache. The headache and pain in eyeballs were often severe, and were intensified on moving eyes. When ptosis was well marked, the effort to open the eyes widely caused considerable pain, and patient seemed to get relief by closing the eyes.

e. Giddiness.—This was another prominent and early symptom. Some felt it over the whole head; but by far the larger number said it was limited to the brows. Standing or walking made it much worse. When well marked, the patients staggered, and were afraid even to stand, much less walk. So giddy was one patient that he nearly fell off the form on which he was sitting. Some described their heads as going round and round. They felt and seemed drunk, though without any incoherence or mental excitement.

f. Sight.—In every case the sight was affected; indeed, dimness of sight and giddiness appear to be the most constant symptoms, and may exist without headache, pain in eyeballs, or double vision. At first the sight, without being misty, is not so clear as usual; then a light mist comes before eyes, one patient comparing it to smoke, and another to a thick veil. At last sight fails almost completely, and first with distant objects; with further impairment of vision, nearer and nearer objects look hazy.

g. Diplopia.—The drug seems to produce two kinds of diplopia, one much more persistent than the other. As to the transient kind, we find it, on many occasions, a very passing phenomenon, lasting only a few seconds, then disappearing, then after a few m. reappearing. In this transient form images in the median vertical line appear double, distant objects first undergoing the duplication. Sometimes the patient was conscious of the onset of the diplopia; thus one woman said, "I know it is now coming on; I feel such a heavy weight under my upper eyelid." The double vision then came on; and, with the heaviness, passed away in a few seconds. One image was higher than

the other, the images in this respect varying much. Mr. T. Fox rapidly recorded, from the patient's lips, the phenomena occurring, as fast as they could be written:—"One gas jet appears about 6 in. above the other, and there are 6 in. between them horizontally; the upper one is to the l.; now the r. is uppermost, now the l. slightly again; going over to r. now again; exactly over one another now, and quite close together; now again separated, l. highest; now over one another." With other patients the two images seem on a level. Sometimes the drug produces only this transient kind of diplopia; at other times both kinds; and sometimes one kind preceded the other, the transient usually preceding the more constant form, recurring from time to time, while the constant form persisted. The phenomena of the constant form follow a definite order, and take place in the upper half only of the field of vision. They occur at first with objects held at the extreme r. or l. of the visual field, and, as the patient comes more under the influence of the drug, with objects held nearer and nearer the middle line; and at last, usually for a short time only, objects in the median vertical plane seem double. As the effect of the drug wears off, the double vision disappears in the inverse order. The outer lateral image is the higher, and the farther the object is carried to r. or l. the greater is the horizontal or vertical distance between the images. When a coloured glass is placed before either eye, the outer and higher image is seen by the covered eye. When the object is carried high above the head, the two images gradually coalesce and the object looks very much thinner, "like a thread."

h. With well-developed diplopia, there is impaired movement of the eyeball, chiefly affecting, as far as could be ascertained, the external and internal rectus, especially the external, for the outward and inward movement of the eyeball is less free than before the action of the medicine. The ball when carried as far as the weakened muscles are capable of it oscillates; as though patient, with a great effort, moved it as far as he could, and then the tired muscles gave way a little, but, being roused to an effort, they carried the eye back again, the frequent repetition of this effort giving rise to an oscillation. The external rectus is generally first affected, and one not infrequently sooner than, and in excess of, the other. Even when the diplopia is strongly marked, the loss of power over the muscles is not very great, and there is no obvious squinting. But as the patient becomes still more affected, ptosis supervenes; and a great part, or the whole of the upper half, of the field of vision is cut off. The loss of power in the eye-muscles is then more marked, and the symptoms are irregular and variable.

i. To test the effect of G. on the circulation, I made 33 series of observations on patients in whom we induced the full toxic effects. The observations were taken every $\frac{1}{2}$ h. whilst patient was fully under the influence of the drug, and subsequently, as its effects began to decline, at hourly intervals. In 22 instances pulse remained unaffected in frequency, whilst in 11 it was quickened, increase ranging from 6 to 12 in m. Curiously enough, even in same patients, effects were variable; for although on some occasions drug quickened pulse, on others it failed to affect it. This was not a mere question of dose, for an

increase in the dose did not affect the result. With a patient fully under influence of drug we were inclined to think pulse became a little smaller and softer.

j. I have carefully watched for, but have been unable to detect, any influence on the mental faculties. Patients under its influence look dull and heavy from the drooping eyelids, and often feel sleepy; but when asked if they are conscious of any mental depression they always answer decidedly in the negative. Nor is cutaneous sensibility affected. I have tested sensibility roughly by pricking and pinching, and also in 2 cases by compasses, but was unable to detect any loss of sensation in face or forearm, though patients had taken for 6 consecutive h. drachm doses of tinct. One patient, on both occasions on which I experimented upon him, complained spontaneously of a numb pain and a little tenderness along teeth and edges of gums of upper jaw.

k. G., in the doses in which I have employed it, does not affect the temperature.

l. Strange to say, the effect of an internal dose of G. is opposite to that occasioned by application to eye itself. When given by mouth in doses sufficient to produce symptoms, the drug, in every instance but one, caused contraction of pupils (in one case to a pin's point). In the exceptional instance there was a rapid alternation between dilatation and contraction, without any apparent cause; and in another, pupils strongly contracted when exposed to light, but dilated freely in a darkened room, and when recontracting on exposure to light seemed in an unstable condition, oscillating a good deal. The contraction of the pupil does not cease on the disappearance of diplopia or dimness; indeed, when the dimness passes away, the myosis may increase. On the other hand, the topical application to the eye dilates the pupil, especially when the alkaloid gelsemia is employed. Accommodation also becomes paralysed and the sight affected. Vision becomes nearly natural in 24 h., but pupil remains dilated much longer, sometimes, indeed, for a week, or even a fortnight. In three instances I thought I detected slight primary contraction, lasting only a few m. (*REIGAN, op. cit., 10th ed.*)

m. Dr. Eow N. Amoss put a drop of 6th dil. into half a tumblerful of water, and took a teaspoonful every 3 or 4 h. for a d. He reports following symptoms:—Dull full feeling, with severe aching, in whole of orbits; feeling as if something remained behind in urinating; stream stops and commences again; dull full aching, extending from ensiform cartilage along under free ends of r. false ribs to lumbar region, as if liver was congested;—worse pain about a hand's breadth from sternum; continued jerking in r. sartorius muscle, about middle of thigh; slight sharp cramp-like pain in l. gastrocnemius, about largest part of muscle; cramp in instep of r. foot, also in r. side about 1st false ribs; dull and light headache over all front and top of head, after drowsiness and sleep in forenoon; also, after sleep in e., light head; slight dryness of mouth and throat (as after salt bacon), with disposition to swallow frequently; feeling of relaxation of whole body, especially of hands and feet, with indisposition to move, breathing slow and superficial, with now and then a deep inhalation; pulse slow and weak; hacking cough, with feeling as though a drop of liquid had entered windpipe, with frequent clearing of throat; in evening, food drops into trachea, causing strangling; sharp stiches through eyeball and about origin of gluteus maximus (here like cramps); drawing pain in hamstrings, extending across joint; drawing stiches in dorsum of r. hand, down middle and ring fingers; pain

from pyloric end of stomach to axilla and under scapula and down (r) arm to outer side of forearm, terminating about a hand's breadth from elbow,—this passed off after taking biscuit and coffee; sore feeling during deglutition about root of tongue and larynx, with accumulation of mucus in upper trachea, causing frequent clearing of throat; slight griping pain through abdomen, mostly in umbilical region, after supper; r. inguinal gland swollen and tender; two little painful spots on each side of umbilicus, extending down into bowels,—pain increased by pressure.

b. Continued proving, 3 dr. in half a tumbler of water, 2 teaspoonfuls for dose. Slight jerking in r. rectus and vastus externus; burning sensation at inner canthus of r. eye; full feeling in whole head, with some throbbing and uneasiness in occiput; head feels full and sagging, feverish; sharp stitches around umbilicus; weak aqueous feeling in bowels; mucus accumulates in nose and upper part of trachea, keeping up hacking cough; languid feeling of whole body, especially of hands and feet. (HALE, *op. cit.*)

II. *Proving*.—1. Some barrels of G. tincture being on board a grounded vessel, several deck hands tapped them, and drank (it is supposed) from Oss—Oj each. "They looked very much like dead men; their eyes were closed, circulation very feeble, no pulse perceptible, and breathing so low it could hardly be discovered." Stimulants were given and all (five) recovered. (HALE, *op. cit.*)

2. A convict in N. H. State prison swallowed ʒiiss of fluid extract with intent to poison himself. The effects were,—great prostration, nausea and vomiting, dilated pupils, inability to speak or move, coldness of surface, feeble pulse. These symptoms passed off, with proper antidotes, in about 24 h. (*Ibid.*)

3. A child, 2t. 4, suddenly complained that it could not see, and died in ¼ h. *P.M.*, a great quantity of flowers of common wild jessamine was found in stomach. (HERING, *Brit. Journ. of Hom.*, xxi, 405.)

4. A gentleman was in his garden transplanting yellow jessamine. After he had cut off some roots and thrown them aside, two of his children, about 3 and 5 respectively, picked them up, and (beyond doubt) chewed and swallowed some. Shortly after the younger one came to his mother, lay down near her, and, as she thought, fell asleep. After a while she wished to awaken it, but found it dead. The other also fell ill and died in like manner, in a few h. (*Ibid.*)

5. A woman, several weeks pregnant, took ʒ3 teaspoonfuls of tinct. In 2 h. she complained of pain in stomach, nausea, and dimness of vision. These symptoms were soon succeeded by great restlessness, ineffectual efforts to vomit, and free perspiration over body. After 5 h. pulse was found feeble, irregular, and sometimes intermittent; there was great prostration, with irregular and slow respiration. Skin was dry; extremities cold; pupils expanded and insensible to light; eyes fixed, with inability to raise lids. The vital powers rapidly gave way, and without convulsions death occurred in about 7¼ h. after poison had been taken. *P.M.*, lungs were found slightly collapsed, and cavities of heart greatly distended with dark grumous blood. (*Amer. Journ. of Pharm.*, Jan. 1870, p. 14.)

6. a. Two men took by mistake each a tablespoonful of Tilden's fl. extr. of G. First, B—, was found lying on his l. side; face somewhat congested; pupils dilated, but responsive to light; eyelids half closed, with apparent inability to move them; lower jaw drooping, and

his tongue (to use his own expression) "so thick that he could hardly speak;" skin warm and moist; pulse small and feeble, and respirations somewhat diminished in number. He had neither purging nor vomiting. Secund, S—, complained of blindness, and staggered in walking; was inclined to sleep, with deep inspirations, and a numbness of whole body.

b. In a private communication with which Dr. Davis has favoured me, he states that pupils of both were widely dilated, and that both had double vision. Dizziness and vertigo were also experienced by both, but no impairment of intellect. Consciousness was not lost by S—, who recovered; but B— was unconscious an h. before death. Eyelids were paralysed in B—'s case, only partially so in S—'s. Loss of muscular power in B— complete; partially so in S—. Great numbness of extremities. Action of heart very feeble; respiratory movements diminished in both cases. Dr. D. describes condition of B— just before death as follows:—"Pupils widely dilated, spasmodic breathing, surface cold and congested, pulse almost imperceptible, and total unconsciousness." There occurred no evacuation in either case except cold perspiration. Death ensued in the fatal case in 2½ h. B— was a very small, nervous, delicate man; S—, large, stout, sanguineous. Further, being unaware that he had swallowed a poison, B— was not given an emetic until absorption had fully taken place. S—, on the other hand, received an emetic soon after swallowing poison. (BARTHOLOW, *Pract.*, v, 296.)*

7. a. On Dec. 31st, 1875, about 3 p.m., on returning home with a vial of fl. extr. of G., I incautiously applied bottle to my tongue, with view of ascertaining flavour, when carriage gave sudden jerk, which caused me to swallow about ʒi. On reaching home a few m. after, I felt giddy and drowsy, but sat down and ate some sandwiches. During this time strabismus gradually came on, with paralysis of muscles of mouth and throat, muffled speech, and dropping of lids, especially l. These symptoms gradually increased, until deglutition became impossible, and I had to remove the last morsel taken with my fingers; voluntary muscles being at this time perfectly unimpaired, also sensation and consciousness. I now became somewhat alarmed, and asked for coffee and brandy. This condition continued to increase, and my wife sent in alarm for our friend Dr. —. He endeavoured to administer an emetic, but power of deglutition being entirely gone, gave up attempt. I now stated, with difficulty, that I thought paralysis about face was subsiding, but feared it was extending to muscles of respiration. Dyspnoea soon came on with præcordial oppression. Being placed in recumbent position, mustard poultices were applied to neck and chest, and brandy and ammonia given. I now became semi-conscious; and the dyspnoea continued rapidly to increase, a series of short quick respirations being followed by three or four prolonged gasps. Breathing then ceased, and I became livid, and rolled in agony from sofa to floor. I was at this time so far conscious as to feel myself becoming rigid, and try to say,

* For original detailed report see *Am. Journ. of Med. Sc.*, 1867, p. 271 (also *Brit. Journ. of Hom.*, xxv, 511). The above gives all that is essential therein, and adds the facts contained in the later communication from the observer.—Eos.

"Over." After this consciousness entirely left me. Cold water douches, stimulation of skin and artificial respiration were used. My pulse was a mere flutter, and had almost ceased. In 3 or 4 m. I so far recovered as to perceive light, consisting of myriads of stars, as on recovery from chloroform. The lights of chandeliers could now be distinguished, and consciousness had so far returned that I was soon able to speak, and shortly after to sit up. The dyspnoea did not return, and I was soon able to swallow a little coffee. Muffled speech continued for some h.

6. Pulse, up to moment of becoming insensible, continued regular and rather full. Any movement of head (which seemed greatly enlarged) most intensely aggravated all the distressing symptoms; as did also application of any fluid to lips,—dread of which was nearly equal to that evinced in hydrophobia. During semi-consciousness there was but little loss of voluntary motion; and sight, hearing and touch were never entirely lost up to time of unconsciousness. L. side seemed more paralysed than r. During most of time there was frequent struggling, and face was flushed until lividity commenced. During later action there was profuse perspiration. But the most marked symptom was persistent numbness in occipital region, which lasted some h. after consciousness returned. (PARSONS, *Lancet*, June 29th, 1878.)

8. A student of mine, who by mistake swallowed 2 gr. of gelsemin ("concentrated preparation"—Eds.) experienced following symptoms:—In 2 or 3 m. he felt strange sensation in head, and involuntary closure of eyelids occurred. In 2 or 3 m. more this paralysis appeared to extend to all parts of body. He attempted to walk, but fell immediately to floor; whenever he attempted to move, he felt a peculiar, strange sensation in head; on lying quiet, though entirely powerless, he was conscious of everything about him. His respiration was at first hard, but in a few moments it became slow and somewhat difficult. Circulation was sluggish, and pulse exceedingly feeble. Extremities became cold, and in course of 15—20 m. surface was completely immersed in cold perspiration. He was restored by use of $\frac{1}{4}$ gr. doses of camphor, large doses of brandy, and a zinc emetic. After partial recovery, he experienced for several d. a feeble, languid state of muscular system; he also passed large quantities of urine, and was troubled with tenesmus and some bloody discharges from bowels. (PAINÉ, *Concentrated Medicines*, p. 53.)

9. Dr. B—, suffering from severe toothache, took what he guessed to be about 30 dr. of tinct. In 10 m. he said, "I cannot see you." His eyes were wide open, pupils dilated, pulse 80—90. He attempted to walk, but staggered like one intoxicated. He was immediately given an ipecacuanha emetic. He wrote with pencil on paper, for he could not speak, "I am very sick, wish to vomit, but cannot." In a few moments he vomited, but discharge passed through nostrils. Hands and feet became icy cold; pulse regular, 80—90. Under warmth and ammonia in an h. he was able to speak, and soon recovered. (HALL, *op. cit.*)

10. A young married lady took in m. before breakfast a teaspoonful

of strong decoction of root. In a few m. she said she could not see; her head felt strangely. She called in some of her neighbours, who gave her an emetic of mustard, which caused vomiting before the writer arrived. On reaching house, he found the patient in following condition:—Could not see, talk, or swallow; glottis seemed spasmodically closed. She could moan, which she did almost continually, but power of articulation was absent. Great trembling, with anxiety; was afraid she was going to die, and was very anxious to know if anything could be done. Face was swollen and of dark colour; eyes distended; pupils dilated; great prostration; pulse small and rapid; tongue and throat very dry. (BREWSTER, *Hahn. Monthly*, xi, 563.)

11. On n. of Dec. 5th, 1869, I was called in great haste to see Mrs. F—, who was supposed to be dying. In a few m. I reached her bedside, and found her totally unconscious; breathing stertorous and very imperfect; countenance of livid paleness; lower jaw drooping, leaving mouth wide open; eyelids partially closed and motionless; pupils moderately dilated; pulse 100, regular, but weak. I attempted to administer an emetic, but owing to the dysphagia could not get enough down to induce vomiting. Friction and stimulants were then resorted to, and in about 12 h. consciousness began to return. Recovery was not complete for some d., principal complaint being of great prostration and muscular weakness, particularly of lower jaw, eyelids and arms. After return of consciousness, intelligible speech was at first possible only when jaws were supported; tongue also was stiff, and voice thick and guttural. Patient stated that before she became unconscious, objects appeared double, and then she grew by degrees perfectly blind, and thought, naturally enough, that she was dying. (It was ascertained that she had taken in the course of a few h. more than 40 min. of the extr.) (PINKHAM, *Bost. Med. and Surg. Journ.*, N. S., vol. vii.)

12. In summer of 1866 I took, through mistake, ʒj of fl. extr., and immediately started to see a paralytic patient residing some 8 miles off. Before arriving I became nearly blind. Control over upper eyelids was almost lost. Flexors of hands and arms were paralysed, extensors nearly so. Sensation was blunted in hands and arms, but not in proportion to loss of motion. My speech was somewhat affected. A very disagreeable sensation of head was felt, even before muscles came under influence of drug; but mind was quite clear. In this condition I arrived at the house of my patient, and as I was incapable of using my hands, I directed the nurse to apply the galvanic battery to the patient; and as she was about putting the instrument aside, I asked her to apply the poles to my hands, which she did, and I was instantly relieved, and moreover perfectly and permanently. (MAIN, *Ibid.*, lxxx, 185.)

13. F. R—, æt. 24, suffering from neuralgic pain, took at 1 a.m. a teaspoonful of Tilden's fl. extr., and in 15 m. repeated dose. Pain was soon relieved and his eyes felt heavy; but in about ¼ h. he began to complain of choking, and soon arose struggling for breath, pushing his fingers into his throat, as if trying to tear it open. He staggered, reeling from one room into another, as though intoxicated; and in a short time after these symptoms came on he threw himself upon the

floor and became unconscious. I was summoned about 3.45 a.m., and reached house at 4. I found patient moribund, respiration gasping—3 or 4 per m., pulse rapid and feeble. He was totally unconscious, and could not be roused; pupils were dilated, not responding to light, and eyes could be touched without causing any contraction of lids; muscles relaxed, lower jaw drooping, skin moist, extremities rather cold. Artificial respiration was kept up for $\frac{1}{2}$ h., but without avail, and he died at 4.30. No convulsions at any time. *P.M.* $5\frac{1}{2}$ h. after death. Body well nourished; rigor mortis marked. Blood very fluid and dark coloured, showing no tendency to coagulate or turn red on exposure to air, even after standing in a large tub for 2 h. Heart, lungs, spleen, kidneys normal; liver dark coloured, and containing much fluid blood. Stomach contained 4 oz. of light-coloured fluid, mixed with glairy mucus; its internal surface was deeply congested, and marked by tortuous dilated vessels. Brain rather pale, sinuses not congested. Internal substance of cerebral lobes was dotted here and there in small red points; but these were not sufficiently large or numerous to be considered of much pathological importance. No collection of fluid in ventricles. (BOURVILLE, *Ibid.*, xci, 371.)

14. *o.* To a coloured servant, æt. 28, Dr. LOBOS gave 15 min. of a tinct. freshly prepared from the dried root. Soon after she came into his room breathing very hard, exhibiting in her countenance intense fear, and exclaiming, "Oh! doctor, I'm dying, I'm dying; do something for me." She attempted to lie down upon the bed, but her head barely touched the pillow when she sprang up, convulsively calling out in a loud whisper, "My breath! my breath!" She clapped her hands across her chest rapidly, and seemed unable to retain one position for more than a few moments. Pulse was 40, extremities cold. Stimulants were given; she rallied for a few m., then struggled as if for breath, and cried out. Presently she was taken with an excruciating chest pain. In a suffocative spasm she sat down upon the floor, went into an apoplectic stupor, breathing hard and foaming freely at the mouth, and died within 10 m. of the coming on of the spasm. Previous to this she was conscious and rational, but after it she did not speak.

b. One of the medical men called in found patient lying on floor, with extremities cold, no perceptible pulse, eyes staring, jaws rigid. There was at first slow catching respiration, but this soon ceased, and she died within 10 m. of his arrival. *P.M.*, substance of brain was found healthy, but there was much venous congestion of membranes. Pericardium contained about 3 oz. of serum. (*Lancet*, 1878, i, 892, from American papers.)

15. Dr. SINKLER gave to a lady of 49, suffering from neuralgia, 5 dr. of *B. ext.*, 3 times a d. At first each dose caused dimness and some loss of power over bladder; but after 2 weeks he was called to patient, who was reported as "very ill and sinking." He found her lying on a sofa, unable to sit up or to move at all. Extremities were cold, pulse small and feeble, respirations sighing and jerky, pupils dilated, and eyes suffused. There was paralysis of bladder, urine dribbling away constantly; muscular enfeeblement was most marked on r. side. Symptoms had been observed the d. previous, but had become rapidly

worse than m. On suspension of med., and administration of bromides and morphia, they were soon relieved. (*Phil. Med. Times*, viii, 150.)

16. I once observed the following symptoms, which occurred in a woman to whom G. had been given to arrest daily hysterical convulsions. The tinct. was given in doses of ʒo dr. every 4 h. The spasms were much relieved, and their periodicity broken up; but on the 2d. of its administration there appeared dryness and burning of fauces; red tongue inflamed in middle; severe burning in œsophagus, from mouth to stomach; spasmodic sensation and cramp-like pains there; hawking up of bloody matter. During the spasms, bloody brown foam would run out of the mouth. The burning sensations at times seemed intolerable; deglutition was painful; food and drink, taken warm, aggravated. This condition resisted arsenic, but yielded to phosphorus ʒ. (As the G. was largely diluted with water, these symptoms were not mere local effects. Patient had never experienced them before.) (*HALL, op. cit.*)

III. *Experiments on animals.*—1. *a.* To a small spaniel I gave, at 9 a.m., ʒss of Tilden's fl. extr. No symptoms appearing after 30 m., repeated dose. In about 15 m. noticed slight twitching of eyelids; some dilatation of pupils; increased action of heart, 120 in m. A few m. more, and muscles of head, face, and neck were affected with twitching; heart beat with irregular force, now hard and full, now very weak. Dog became giddy, and staggered; there was drowsiness on closure of lids, with occasional starting as if frightened. It remained in state of stupor about 30 m. At 10.30 ʒiiss was given. In less than 5 m. spasmodic contractions of nearly all muscles of body took place; limbs were drawn against trunk, head to one side. L. side seemed most affected. There was also laboured breathing, as in asthma; trembling of whole body, especially limbs; great dilatation of pupils, obliterating iris; heart's beats 140. Then came clonic opisthotonos. All this time eyes were closed and animal remained drowsy and stupid; tongue appeared of bright red, with purple tint. These symptoms gradually ceased till about 12, when ʒij more were administered. This was immediately followed by great tremor of whole body. He walked backward for some distance, staggering from side to side. In about 15 m. he sank into a stupid condition, with nodding and inability to open eyes. For next 15 m. this state continued, with occasional jactitation of muscles. At 12.30 ʒj was given, followed by renewal of spasms. Whole body and limbs became severely convulsed; complete blindness, with greatly dilated pupils; tongue a dark purple and hanging from mouth. At this time (about 30 m. after 4th dose) pupils contracted very much, sight still absent; then nausea and efforts to vomit, for first time. Heart's action 120; resp. 90. After a while he became quiet, when 30 dr. were given. In about 5 m. muscles of thorax seemed entirely paralysed; respiration seemed carried on only by violent efforts of abdominal muscles. Heart's action weak and fluttering, too rapid to be counted. He tried to walk, but hind legs dragged as if paralysed. Involuntary urination. In a m. or two he fell down, and there was entire paralysis of whole voluntary muscular system. He lay completely motionless; a leg lifted fell dead and heavy. Respiration very slow and laboured, long sighing inspirations. In this state he remained about 20 m., when, at 1.30, another dose of 30 dr. was given, followed by gasping; he seemed to be dying. For next ¼ h. respiration

was alternately gasping and stertorous; it then became natural. Blindness and paralysis continued about an h.; but by 4 animal was lively and well.

b. In a second experiment made on same animal 2 d. later, \mathfrak{J} was given in all, \mathfrak{J} every h. During first 7 h. symptoms were very similar to those obtained on first trial; but during last h., from paralytic and partially insensible condition, dog for a brief space became furious, and seemed during that time to regain all its strength. It ran across the room; leapt upon the lounge, over a chair; ran howling under a table, and glared out at us with bloodshot and protruding eyes. This transient excitement as suddenly subsided, and he became convulsed, with heavy, stertorous breathing, dull expressionless eyes, and some rigidity of limbs. Beating of heart was very feeble and slow, hardly perceptible. Respiration became more and more stertorous, finally rapid and short, and the animal died without any struggle or convulsion.

c. *P.M.*, I found brain in high state of hyperæmia; and 3 large drops of dark blood were effused under arachnoid. I did not notice any change in medullary structure of brain, but substance and membranes of cord were congested. Lungs were hyperæmic, and much heavier than natural. R. side of heart was filled with dark coagulated blood; in l. side some thin watery blood was found. Substance of heart showed slight unnatural redness. (HALE, *Monograph*, p. 12.)

2. On dissection of animals killed by large doses of G., I observed a constant hyperæmia of lungs and brain; r. side of heart and large vessels were distended with blood, and there was considerable congestion of capillaries in mucous coat of intestines. Muscular fibre of heart was dark-red and soft. Blood within ventricles was fluid. Substance and membranes of cord filled with blood. (MALLER, quoted in *Ibid.*)

3. a. BERGER experimented on frogs by injecting subcutaneously 0.1—0.3 grm. of watery extract. After a short stage of general restlessness, though often without this, gradually increasing heaviness of movement sets in. On drawing away feet but slight resistance is offered, and they are drawn up again, at first slowly, and finally only on being irritated; the animals when laid upon the back only succeed in turning over after many and fruitless attempts, and after 10—30 m. even these were ineffectual. They now appeared incapable of any voluntary motion, and remained in any given position except under very strong stimulus, when they made clumsy attempts to move. The cornea retained its sensitiveness, and sensibility to pain also seemed unimpaired; nerves and muscles were also capable of being irritated by a weak induction current. As a constant symptom of the poisoning a rapidly increasing retardation of breathing showed itself; this in one case ceased entirely even before mobility was quite gone, and detached respiratory movements were then only obtained by reflex irritation. The heart-beats seemed at first unaltered; in later stages there was slight decrease of frequency; but heart continued to beat regularly for some h. after cessation of respiration. Reflex irritability was almost always very much heightened within 15—20 m. after injection, in many cases almost to same extent as from strychnia. The slightest touch, shaking the table, or any loud noise, caused strong tetanic convulsions.

These reflex spasms remained even after decapitation. If sciatic was divided before experiment leg on that side was free from spasm, whilst ligature of external iliac showed no protective influence. This increased reflex excitability gradually diminished till it fell below the normal point, and lastly ceased altogether. The electrical excitability of the motor nerves and muscles appeared to be lessened, and disappeared several h. earlier than in unpoisoned frogs.

6. Rabbits received 0.08—0.3 grm. of extr. in same manner. After 10—15 m. they became restless; blinked at times; pricked up their ears; and after slight tremors of these and of one or other of the anterior extremities had commenced, in most cases there set in, in a very characteristic manner, movements of progression of the anterior extremities following one another in rapid succession, whilst the animal remained stationary. These symptoms reached occasionally such a pitch that the animal raised itself upon its haunches into a more or less vertical sitting posture. The movements soon ceased, and the animal slid down with its forepaws on the table, and let the head sink till the muzzle reached the table. On strong stimulation they succeeded at first in raising the forepart of the body, during which occasional striking out with the forepaws took place; this soon ceased, however, till finally they were unable to do even this much, and they allowed the hinder part of the body also to stretch out, generally with previous symptoms of irritation, and the animal lay completely paralysed, with convulsions (varying in intensity) of the extremities, especially anterior. The frequency of respiration was always diminished within a short time after the commencement of the experiment; soon after the motor paralysis became complete, rapidly increasing dyspnoea set in, and after a short convulsive stage the animals died with all the symptoms of asphyxia. The action of the heart was only affected by large doses, after which a slight diminution of frequency of pulse was noted, and this after previous section of the vagi equally with cases where the nerves had been left intact. On *p.m.* examination heart was always found pulsating vigorously and regularly. Sensitiveness of the cornea, and to pain, remained intact until death. Reflex irritability was at first increased, but not by any means so sensibly as in the cold-blooded animals; finally diminished. In the stage of asphyxia only did anaesthesia of the cornea with dilatation of pupils and protrusion of eyeball set in. It was possible, by means of artificial respiration, to obviate the effects of asphyxia, even where after stoppage of respiration these symptoms, and finally unmistakable slowness and intermittence of the beats of the heart, had set in; the heart very soon resumed its normal functions. After section of both vagi death from suffocation occurred; there was only wanting the slowing succeeding the dyspnoea. Artificial respiration always succeeded in keeping the animal alive even after enormous doses of the drug. If it had been previously commenced, even direct injection into veins of largest quantities of poison caused no appreciable change in heart's action. Manometric experiments, however, showed, in the case of large doses, a moderate sinking of blood pressure. *P.M.* examination showed all signs of death from asphyxia, especially the venous character of the arterial blood. The electric irritability of the peripheral nerves

and muscles was preserved. (*Centralblatt f. d. med. Wiss.*, 1875, p. 803.)

4. a. Injected under skin of back of frog 333 of sol. of extract. In 10 m. decided loss of muscular power; could not jump, but drew up hind legs when placed in inconvenient position. Apparently complete sensory paralysis, for no movements of limbs took place on application of irritants. In 15 m. complete motor paralysis, but muscles of calf contracted on direct irritation. Opened chest by division of sternum; heart was found in rhythmical action, 20 per m. After 1 h. from beginning of experiment, action of heart continued, 14 per m. There was then complete sensory and motor paralysis. After 2 h. action of heart had entirely ceased, but it could be made to contract by pricking.

b. Passed ligature round thigh of frog, including all parts save sciatic nerve, which was carefully separated. Then injected 15 min. of sol. In 10 m. muscular movements were observed to be feeble, and sensibility to irritants diminished. In 20 m. sensibility to pain appeared to be abolished, but muscular movements could still be executed. Then pinching of upper extremity, a strong galvanic current, and chemical irritants applied to other parts excited no reflex movements in ligatured limb. Galvanic, chemical, and mechanical irritants applied to sciatic of ligatured limb induced active contractions of gastrocnemius. Direct irritation applied below the ligature to the muscles of the ligatured limb also caused them to contract. (This experiment indicates that G. destroys the excitability of the sensory nerves before that of the motor, that it does not impair the muscular irritability, and that its action as a paralyzer is upon the centre and not upon the peripheral nerve-fibres.)

c. Pigeon: temp. of gullet 107° , resp. 48. Injected under integument of thigh 30 min. of same sol. In 5 m. voluntary movements—walking—disordered; resp. 30, laboured, expiration jerky and prolonged. In 10 m. legs were paralysed, so that standing was no longer possible. Soon after wings were widely expanded, resting on floor, and agitated by a succession of short tremors, which at length extended to whole body. Eyelids partly closed. Still manifested consciousness, and attempted to move away head when approached. Sensibility was finally completely abolished, so that no form of irritant excited resistance or movement. Death occurred at end of $\frac{1}{2}$ h. in a general convulsive tremor, in which eyes were closed, head drawn down, feet extended backwards, and wings widely expanded. Action of heart continued for several seconds after total suspension of respiratory movements. Just before respiration ceased, thermometer in gullet registered 104° .

d. Kitten: axillary temp. 102° . Injected 30 min of sol. In 10 m. head depressed, resting on forelegs, which were doubled up; respiration laborious, expiration jerking, abdominal wall falling in towards diaphragm suddenly; pupils dilated and eyes drooping; in attempting to walk forelegs are weak and relaxed, but hind legs are less affected; when tail is pinched, cat cries out and attempts, but ineffectually, to strike with foreleg; lips and tongue are dry, and tongue is frequently protruded; tail in constant vibration. In 15 m. after injection, began a series of backward movements, which were repeated irregularly every few m. This backward movement is accomplished chiefly by the hind

extremities, claws of forefeet catching in floor from loss of power to retract them. Cat is yet conscious of impressions, for reflex winking takes place on touching ear and face, and she cries out when tail is strongly pinched. At end of 20 m. convulsive backward movements more frequent and irregular; jaws widely separated, mouth parched; forelegs drawn up and folded under chest, and hind legs rapidly flexed and extended, without (at last) moving body. In 30 m. after injection complete muscular relaxation; respiration ceases, but heart continues to beat for 5 m. longer. Axillary temp. before respiration ceased, 98°. (BARTHOLOW, *Pract.*, v. 103.)

s. s. G. is a powerful paralyser. Its paralyzing action is best studied in the frog. In these animals it often produces tetanus as well as paralysis. Whether we produce paralysis alone, or paralysis followed by tetanus, depends upon the dose. Thus, as a rule, with small doses of the alkaloid, we only get paralysis; with rather larger, quiverings and tetanoid movements; and only after larger doses, decided tetanus. Is the paralysis due to influence on brain, cord, motor nerves, or muscles? It paralyzes cord, leaving nerves and muscles unaffected. The tetanus is due to the action of the poison on the cord; and I draw special attention to the fact that the paralysis always precedes the tetanus,—that gelsemia has the property of first weakening and then reanimating the cord, thus corresponding to *jaborandi*, *buxus sempervirens*, and other drugs.

h. G. is also a powerful respiratory poison; indeed, this drug generally, if not always, destroys warm-blooded animals before it produces complete paralysis. It causes no primary quickening of respiration, and does not paralyze the phrenic or the intercostal nerves, and it acts after division of both vagi. It asphyxiates, as Dr. Burdon Sanderson has shown, by paralyzing the automatic respiratory centre.

c. G. affects the sight in animals as in man. Thus we poisoned a dog, and, after the production of slight muscular weakness, the sight became almost lost, for the animal ran straight against objects without trying to avoid them, evidently not seeing them.

d. Dr. Burdon Sanderson concludes, from a kymographic experiment on a rabbit, that *G.* exerts no influence on the blood pressure; and in 6 temperature experiments of my own upon rabbits the results obtained were simply *nil*.

e. The local application dilates the pupils of rabbits and cats. The pupil of a cat being extremely sensitive, I thought that if the local application did cause primary contraction I should detect it best in this animal. In 5 observations the pupil in each instance became decidedly contracted before dilating. Its average time of commencement was 20 m., of duration 24 m.; and it was followed by wide dilatation.

f. I have said that the internal administration of G. contracts the pupil in man and the lower animals, and that dilatation occurs only on the supervention of asphyxia, disappearing under the employment of artificial respiration. It occurred to me that the direct action of the drug would ultimately dilate the pupil, but that a dose adequate to produce this effect so quickly paralyzes the respiratory centre that before the drug has time to effect dilatation the animal dies asphyxiated.

To ascertain the validity of this conjecture I made a rabbit insensible with 7 gr. of chloral, then inserted a canula into its trachea, and injected into the subcutaneous tissue of the axilla 30 dr. of the fl. extr., at once commencing artificial respiration to prevent the advent of any asphyxia. In 17 m. I thought pupils were a little contracted; in 26 m. well-marked signs of paralysis set in, shown at first by difficulty in keeping up head; in $\frac{1}{2}$ h. animal could not raise head off table, while it still retained considerable power over trunk and extremities. At this point eyes became prominent and pupils began to dilate, and in 34 m. animal tumbled over on its side, and then I noticed that pupils were decidedly larger and eyes more prominent; but as after 1 h. pupil had not become widely dilated I repeated dose, injecting it in two places. Paralysis rapidly increased, till it became complete in anterior part of body, though over its hind legs rabbit still had power; at last these also became almost completely paralysed, and animal lay on its side in a helpless state. As paralysis advanced pupil dilated somewhat, till at last it became above double its original size, though it never reached the degree of dilatation observable in man and cats after the local application of the alkaloid. I noticed that the animal retained the power of closing the eyes quickly and strongly, even after almost complete general paralysis, whence I conclude that the seventh or some of its branches is one of the last nerves to undergo paralysis. (RINDGAR, *op. cit.*)

GENTIANA.

Including *G. racemata* and *G. lutea*. Nat. Ord., *Gentianaceae*.

Gentiana cruceolata.—Crosswort gentian.

1. *Prevings*.—1. Dr. FRÜHLICH chewed and swallowed the juice of a or 3 roots. They caused confusion of head, pressure in forehead and stomach, vertigo, increased appetite. (*Ann. Zittau, f. Ham., 4, 3, 133.*)

2. Dr. GERSTEL took, June 20th, a teaspoonful of tinct. Scraping and roughness in throat. On Sept. 16th one tablespoonful of expressed juice. Pressure in stomach repeatedly during d., and an in-pressing feeling in r. eye. (*Ibid.*)

3. Dr. REICHAUER took first daily in m. 10 dr. tinct., increasing the dose every 3 d. by 3 dr. After 4 weeks, when he was taking 60 dr. daily for several d., he had eructation of air with the odour of the tinct., astringent taste; roughness in throat, causing him to hawk frequently; transient stiches in tonsils, difficulty of swallowing; increased flow of saliva, anorexia. No more symptoms occurred after 3 weeks of the med. He then took $\frac{1}{2}$ oz. of expressed juice, which caused extreme nausea and vomiting of the whole dose. (*Ibid.*)

4. Dr. SCHWABE took 1M dil. every forenoon and afternoon, from July 4th to 8th 5, from 8th to 12th, 10, from 12th to 16th, 15, from 16th to 20th, 20, from 20th to 30th, 40 dr. Sensitiveness, pinching, sore feeling in umbilical region, worse after dinner, like slight colic, for $\frac{1}{2}$ h. After the larger doses the pain was more marked, more frequently occurring, and lasting longer, relieved by sitting and lying, aggravated by standing, walking, and smoking, compelling him to bend forwards; the navel seemed drawn forwards. At same time in r. inguinal region a feeling as if something would come through the ring. This went off when sitting or lying. On July 30th, on coming from shade into sunlight, he sneezed violently, and observed a lump the size of a hazel-nut at the place indicated, which was peculiarly sensitive. He left off taking the G., but the abdominal symptoms continued 3 weeks longer. (*Ibid.*, 134.)

5. Dr. WACHTEL took, May 25th, m., 10 dr., increasing the dose by 10 dr. tinct. daily until June 1st. On this d., when he took 30 dr., he had scraping and roughness in throat. Next d. there was slight redness and tiresome constrictive pain in throat, that made swallowing difficult. He felt constantly obliged to hawk in order to get rid of the viscid and adherent mucus. Also pressure in forehead and great pulsation of carotids. These symptoms lasted till June 8th.—9th and 10th, took 50 dr. tinct.; 11th, 80 dr.; 12th, 100 dr.; 13th, 120 dr.; 14th, hoarseness, loss of voice whilst speaking, difficulty of swallowing, with anxious constrictive feeling, and slight but uniform redness of velum palati, inner and posterior part of pharynx; pulsation of carotids; pressing aching in both temples; in n. between 15th and 16th restless sleep. All these symptoms ceased on 20th.—Aug. 10th, 50 dr.; 11th, 80 dr.; from 15th to 18th, and 22nd, 100 dr.; from 23rd to 27th, 200 dr.; 28th, 300 dr.; and 29th and 30th, $\frac{1}{2}$ oz. tinct. He had repeatedly hoarseness and sensitiveness of throat, feeling of pressure in stomach as if a stone lay there, with nausea (after $\frac{1}{2}$ oz.) going off in $\frac{1}{2}$ h. (*Ibid.*)

6. Dr. WUSTE took, July 6th, a tablespoonful of expressed juice. After 1 h. great distension of abdomen, which went off after walking for some time.—7th. Same dose. Soon searching in bowels, with slight headache, followed by a copious pappy stool. After 2 h. swiping in velum palati and throat half way down œsophagus, which went off during forenoon.—8th. Same dose; he must frequently spit, and there appeared on inner side of lower lip at both sides of frenum, 2 aphthous ulcers, which lasted 6 d. When they were gone, he felt frequently during d. scraping and roughness in throat, with constriction when swallowing. The back of palate, both tonsils and upper part of larynx were very red. This affection was intermittent; for several weeks it appeared and disappeared several times during d.—Aug. 16th, m., took a tablespoonful of expressed juice. After 1 h., full feeling in stomach, with constant urging to evacuate; head veiled, whistling; constriction of throat, must often hawk and spit. After 2 h. much expiration of air, which relieved the tension in abdomen and the head.—17th. Same dose: soon searching about in stomach, and later in abdomen, which went off when walking. After 2 h. repeated sour eructation, and soon afterwards vomited sour water 3 times in $\frac{1}{2}$ h. Felt very ill, all the nerves seemed tense, so that walking was difficult. All symptoms relieved after warm soup.—18th. Same dose: thereupon full feeling in stomach, distension of abdomen, frequent empty eructations. The tiresome tension in abdomen lasted all d., and was only removed by a copious pappy stool. (*Ibid.*, 135.)

7. Dr. WURME took large doses of tinct. and juice without effect except once (after two tablespoonfuls of juice) he had a feeling in stomach and œsophagus as though he had swallowed a hot mouthful and then drunk cold water. This lasted all d., was aggravated by eating, relieved by drinking cold water. (*Ibid.*, 137.)

8. Dr. v. ZLATAROVICH took, Aug. 19th, $\frac{1}{2}$ oz., and on 23rd, 1 oz. of expressed juice. Except slight drawing in limbs, had no symptoms till 23rd. Then after 1 h. he felt a peculiar anxiety, with increased quickness and difficulty of breathing, swelling of temporal veins, and feeling of pressure in temples. While reading, the letters were indistinct, as if covered by a veil. At same time fulness and contraction in abdomen; drawing in nuchal muscles to ears, increased by turning head; restlessness, so that he could not remain long in one spot. When sitting still, had a constrictive sensation in head. Symptoms relieved in open air. In afternoon well.—24th to 29th. Three tablespoonfuls daily. Restlessness, sinking, burning in stomach, unusual thirst, a pappy stool; repeated drawing in nuchal muscles, cramp-like pain in soles; e., running over body as of fleas. (*Ibid.*)

9. Mrs. v. ZLATAROVICH took, Aug. 19th, $\frac{1}{2}$ oz., and, 22nd, 3 tablespoonfuls of juice. Feeling of distension and contraction of abdomen; tension in lumbar region; menses came on on 23rd, 3 d. too soon, with headache, as if head were too full, sensation of bursting of skull, relieved by rest, aggravated by movement, preventing her from sleeping for a long time.—27th. After 3 tablespoonfuls, very much out of humour, lachrymose, dislike to talk. Eyes felt as though they lay deeper in orbits. Same h. later 3 fluid stools, preceded by pinching. (*Ibid.*, 138.)

10. Dr. WATZKE took, Aug. 15th, 3 a.m., 2 tablespoonfuls of juice. Immediately frequent eructations of air and belching up of sour fluid; then tension of abdomen and great nausea. At 30 a.m., vomited with effort a small quantity of sour-smelling and intensely bitter slime, leaving scraping and roughness of throat.

6. From Sept. 15th to Oct. 1st took daily 30 dr. of dilutions from 6 to 3. When he took 5th dil. he had slight pains in abdomen, frequent discharge of fetid flatus, and several loose stools.

7. Sept. 19th, at noon, 3 dr. 15th dil., and the same at 3 and 9 p.m. Soon after 1st dose he had repeatedly a feeling of pressing in scrob. cordis. At 6 p.m. a sudden stitch through l. temple; later a disagreeable tension and occasional transient jerking pains in crown, which changed to continued painful pressure; straining the eyes and thinking much increased the headache; felt indisposed, and went to bed at 9 p.m., when the headache soon went off, and he slept well. — 20th, 9 a.m., took 3 dr. 15th dil. Some h. afterwards had frequently recurring painful drawing in mastoid process; after dinner, sensitiveness of scalp and of whole brain, increased by moving head, tense drawing in r. shoulder for several m. 3 p.m., 3 dr. The sensitiveness of brain lasted till e. — 21st. The same dil. caused the same symptoms, but slighter, and besides drawing and twitching along r. side of neck to shoulder, recurring every ½ h. till e. (*Ibid.*, 3E.)

11. Dr. WATSON's brother, æt. 28, robust, always in good health, took a table-spoonful of fresh juice in a glass of water. In a few m. complained of inclination to vomit and constriction in throat; frequent sneezing. After ½ h. vomited his breakfast and his medicine. At 10 a.m., when in church, had violent urging to stool, and then 3 copious watery stools. At 11 a.m., when walking, had violent vomiting of bitter slime, which was repeated after a short time. (*Ibid.*, 139.)

Gentiana lutea. Yellow gentian.

1. *Prepar.*—1. D —, æt. 27, bilious temperament, took, Aug. 17th, 3 a.m., 150 dr. finer, 10 a.m., weight and confusion of head when writing.—18th, 7 a.m., 150 dr. After rising, 2 soft stools, head felt as after drinking spirits, distension and pressure in l. hypochondrium. 10 a.m., giddiness, pressure in eyeballs. 6 p.m., nausea.—19th, 6 a.m., 350 dr. Soft stool, immediately increased warmth in whole body, wind in stomach.—20th, 7 a.m., 350 dr. After 3 h. dislocation pain in l. knee, saliva more consistent than usual, shooting in middle of sinicupit, pressure in r. hip near sacrum; frequent hawking, mucus hard to bring up, confusion of sinicupit, increased heat of whole body, pressure in chest when moving. Pressure in sinicupit after midday. 4 p.m., conjunctiva slightly reddened, eyes painful; later, shooting in l. upper lid.—21st, 7 a.m., 450 dr. Frequent hawking, confusion of sinicupit, return of dislocation pain in l. knee, limited to patella; some hoarseness. At 1, 3, and 6 p.m., 400 dr. Eructations, roughness of throat; heat and confusion of head, inclination to vomit, nausea, yawning, slight vertigo. Felt as if should vomit, which makes his eyes water; the heat of head, especially of cheeks, increases; eructation and borborygmus, pressure in eyes, forcing and pressing in sinicupit, tension of abdomen, increasing towards e., with dyspnoea, pressure in middle of chest to l. of sternum. Stomach empty, shooting and tearing in sole when he bends toes much while walking. In r. eats ravenously. 9 p.m., sudden urging to stool, followed by copious stool, later tenderness of abdomen, eructation and belching with taste of sour wine, dryness of throat and mouth, pulse quick. On going to bed could not sleep for a long time, woke up at midnight, felt hot; griping and cutting pains in abdomen, with quickened respiration. The pains continuing, he could not sleep, must toss about in bed. Lying on back with legs drawn up was the easiest position. Constant discharge of flatus upwards and downwards without relief; the belly continued full and distended and tender to touch, to above transverse colon, not so the gastric region. After 3 a.m. could sleep, but the pains in belly always disturbed sleep; great weariness and longing for sleep, but could not sleep, though he tried all positions.—23rd, 10, abdomen still painful, cutting when touched, especially from pubes to transverse colon. He must walk slowly, because the abdomen is painful at every step and movement, though he has had a stool. Pressive pain in hips and sacrum when he stoops, feels like a strap tightly drawn over hips. 9 a.m., soft light yellow stool after cutting in abdomen. 10 a.m., cutting in abdomen returns so violently that he must bend himself together, soon afterwards heat, proceeding from lumbar vertebrae. Pressure and weight in sacrum, aggravation of back and belly pains by movement, amelioration by sitting; earthy taste; exhaustion and prostration. Now the chief pain when touched is under the navel; rumbling in belly, feels as if bubbles rose up in it. 3 p.m., bilious diarrhoea. By next m. all symptoms gone. (*BIRCHER, Hygiea*, 219, 1.)

3. E., medical student, æt. 36½, of irritable constitution, suffered formerly from gouty symptoms.—Aug. 13th, m., 300 dr. tinct. Transient febrile attack, like shivering, arising in back and rapidly spreading all over back of body like an electric shock. This febrile attack occurred 3 times at short intervals, followed by weariness, prostration and tension in limbs, pressure and tension in stomach, slight distension of abdomen, forcing down towards anus with tenismus.—15th, 6 a.m., 300 dr. Soon splashing and rumbling in belly, which is distended and tense, with feeling of fulness and weight, umbilical region when touched and pressed somewhat painful; distension and tightness of stomach outside and in, pressure there, with feeling of nausea and inclination to vomit, very transient, then forcing towards anus; confusion and weight of head, with tense and pressive pain in sinuiput and forehead, tightness of chest.—19th, 6 a.m., 300 dr. Anxious pressure in stomach, with feeling of nausea and inclination to vomit, tension and fulness of stomach, rumbling in bowels, distension, tightness and full feeling of abdomen, with painful feeling in hypogastrium, especially about navel; inward pressure at navel; discomfort in whole abdomen, with forcing down to anus, numb feeling of whole body, and cross humour; confusion and dazed feeling of head; dull out-pressure in fecal region, uncommon fulness, tightness, and distension of abdomen, with fetid flatus, general irritability and increased sensitiveness of abdominal parietes. All these symptoms worse in forenoon on moving, better in afternoon.—21st, 6 p.m., suddenly felt in r. hand a drawing, tense gouty pain, with inflammatory redness on skin of knuckles of index and middle fingers, with spasmodic and painful movements of this hand, especially in inflamed places. Up to 9 p.m. this pain constantly increased, wherefore he then rubbed the forearm, palm, and back of hand with some drops of the tinct., whereupon the inflammation and pains rapidly subsided. (He had had a similar attack some years before, but the pain and swelling then increased but soon subsided, leaving a peculiar pain and weakness of hand.) Next m. felt a slight nerve pain in the affected knuckles, and when then the pain entirely disappeared.—22nd, 6 a.m., 600 dr. Immediately irritation through nasal cavities as if coryza were coming on; soon afterwards watery discharge from nose, making him blow it; thereafter weight and pressure in stomach, with anxiety and nausea as though he would vomit, and difficult and deep breathing. The foreing and fulness of stomach and chest recurred between 8 and 10 a.m. Fulness and dull aching like heavy throbbing in head; he felt a constant upward pressure in sinuiput; formicating searching in knees, aching tension in umbilical region, fixed pain in navel, as if drawn in, with dull, heavy, and full head, as if it were enlarged, and stopped-up nose; general painful feeling all over belly, with tension in hypogastrium; particularly severe reactive aching pain in r. side of belly, more towards the back; general numb feeling through body. Constant urging to stool and frequent stools of more consistent character than usual. Urinary secretion increased.—23rd, 9 p.m., 300 dr. Sleep somewhat restless; in m. fulness and pressure in chest, with dyspnoea, some bellyache, with pressure in stomach and urging to stool. (*Ibid.*, 4.)

3. St. — took, on Aug. 26th, 6 a.m., a tablespoonful of the tinct. After 3 h., dimness of vision lasting a few moments, during which he cannot see the person from whom he is buying peats; soon afterwards feeling of constriction of stomach, diminished appetite, restless sleep for several d.; in afternoon aching in occiput; frequent pappy yellow stools. (*Ibid.*, 3.)

4. Dr. WATZKE took, October 9th, m., 30 dr. tinct. Swelling, fine shooting and constriction in throat, chiefly in back of palate, nausea, inclination to vomit, pressive pain in temples; in-pressing in umbilical region.—12th. Forenoon and afternoon 12 dr.; during forenoon remarkably hoarse for some h.—13th. Forenoon and afternoon, 30 dr.—15th, 30 dr. Repeated violent eructations, pressure in umbilical region, little appetite.—16th, 300 dr., intense bitter taste for 2 h., sinking in stomach; attacks of nausea; the plainest food caused pinching in belly and two slight slimy diarrhetic stools in rapid succession. (*Deut. Zeitsch. f. Hom.*, 3, 1, 140.)

II. *Pathogenesis*.—1. There can now be little doubt that gentio-picrine, the true active principle of G., is a bitter closely allied to quinine, alike in physiological and in therapeutic action. The effects of an overdose of G. itself are dulness, weight in head, oppression of forehead, and slight giddiness; symptoms, in fact, much resembling those induced by cinchona. The face becomes flushed, and the conjunctive

are injected. The bowels are relaxed, and the stools have a bilious character. It is probable that, besides the gentio-picric, there is some volatile ingredient in G. which has a slightly incisiong action, since Planché states that water distilled over pure G. possesses the latter quality. (PERRIN, *op. cit.*)

GLONOINUM.

Glyceric trisnitrate, $C_3H_5(NO_3)_3$. Nitro-glycerine; product of action upon glycerine of a mixture of nitric and sulphuric acids.

1. *Provinge and Poisonings.**—1. Its taste is sweet, pungent, and aromatic; but in ascertaining this great precaution should be used, for a very minute quantity put upon the tongue produces a violent headache for several hours. This effect was experienced by several persons in my laboratory, and I have frequently felt it myself. (SOBBERU, *Comptes Rendus*, Feb. 15th, 1847.)

2. Dr. HERING, struck by the foregoing observation, tested G. (so named by him from its then chemical formula) on a number of healthy persons, and published his results in the *Brit. Journ. of Chem.*, vol. vii (1849), and again more fully in his *Amerikanische Arzneiprüfungen*, Nos. 1 and 2 (1853). From the latter work we select the following:

MORRIS DAVIS took $\frac{7}{10}$ dr. Observed a kind of burning on sundry small spots on lips. After 10 m. throbbing in temples and rush of blood to head, temporal arteries throbbcd perceptibly; pain over eyebrows; the slightest shaking of head increased headache, this lasted 30 m. On walking in street, all the objects seemed strange, the houses did not seem in their right places; the way home seemed 3 times longer than usual. (*Am. Arzneipr.*, 46.)

3. Dr. JEANES took about $\frac{3}{8}$ dr. In 30 seconds he felt as if something were moving in nerves from nape to head. Soon afterwards slight pain in the organ of wit, l. side, the place was sensitive to slight pressure, but stronger pressure relieved pain. Then pain in forehead, in vertex, and whole head when sitting. After 2 m. pain from spine up to head. When walking up and down he had a pain across shoulders, that extended to the arms, and was especially severe on the back of r. hand on distal end of middle finger metacarpal bone. After 3 m. when walking cracking in r. hip-joint and afterwards twice in l. knee. Pain in joint of r. lower jaw and stiffness of it. Pain in both knees under patella on both sides of it. Crepitation in l. ear. Headache extends through head with feeling of weight, worst in temples when the head is shaken. After 5 m. pain in metacarpal bone continued. Pain in head increased by moving head from side to side, not when moving it back and forward. After 7 m. cracking in r. knee. Walking increases pains in limbs; the pains go from below upwards, then from above downwards, in arms.

* It is difficult, if not impossible, to draw any dividing line between proving[†] and poisonings, with this substance. We have therefore craved together all observations of its action on the human subject, arranging them in their chronological order, which is a matter of some historical interest.—Eos.

Cutting pain in both temples, goes downwards or to ears. After 10 m. a curious feeling in head, after the headache is relieved. Cold shudder down back, and while walking flushes of heat. After 12 m. burning heat between shoulders. After 20 m. shooting pain from near r. ear towards eye. 9 p.m., great dryness on soft palate. (*Ibid.*, 47.)

4. A girl, æt. 23, took $\frac{1}{1000}$ th of a drop of G. twice. Each time complained of numbness of lower lip with feeling as if it were swollen. She had also pain in forehead over eyes, palpitation of heart, pulse quicker by 20 beats. Numbness and fatigued feeling, so that it was a great exertion to raise the arm. (*Ibid.*, 68.)

5. *s.* Dr. D. JACKSON, on Feb. 18th, being quite well and his pulse at 65, took $\frac{1}{2}$ dr. of the saturated solution in alcohol. After 30" the pulse had become 80, and he had a disagreeable sensation of weight in sinaput. After 30" more the pulse rose to 90 and the frontal headache became very bad. In $\frac{1}{2}$ h. the pulse fell to 70 and the headache was almost gone. On repeating the dose the pulse rose to 75 and the frontal headache was very violent, with a feeling as if the eyeball was pressed forwards and outwards and stuck out. On taking another similar dose the pulse immediately rose to 112. The headache was very severe, the eyes became prominent and had red injected vessels, specks before the eyes, as in bilious headache, fulness in the base of the brain and violent throbbing of all the arteries of head and nape. The action of the heart was laboured, with a peculiar oppressed feeling. After being a short time in the open air, the severer symptoms were relieved, and there only remained a sensation of weight and a disagreeable feeling about heart.

6. Feb. 23rd. Pulse 66. Took a whole drop of the alcoholic solution. In less than 1 m. the pulse was 124, hard, and almost incompressible. The heart beat violently. A lancinating pain went from cardiac region to back between shoulders. The headache, especially in the forehead, was hardly endurable, the disagreeable sensations at base of brain are more violent than before. The suffused eyes seemed to project, the pupils were dilated. Lightning flashes were constantly before the eyes, making reading indistinct. Tongue and mouth were as if burnt, tongue felt swollen and raw, and there were spasmodic twitchings in it. The chest felt contracted. After 2 m. the pulse was 100 and markedly intermittent. The symptoms went off gradually, and after $\frac{1}{2}$ h. nothing remained but a feeling of fatigue and oppression of heart. (*Ibid.*, 69.)

6. W. P. W.—took $\frac{1}{100}$ th dr. After 2 m. felt as if his chin were elongated down to his knees, he must constantly put up his hand to feel if it was so. Twenty years previously he had fallen and injured his chin, but had never felt anything unusual there till now. After 3 m. bruised pain in r. organ of firmness, followed by pulsation there. After 6 m. pain over r. eye and across upper border of orbits from r. to l. After 8 m. continued pain in l. organ of form, later on in both sides. (*Ibid.*, 49.)

7. Dr. W. WILLIAMSON took, June 25th, at 5.30 p.m. $\frac{1}{100}$ th dr. After 1 m. pain in l. hypochonder, pain under l. patella. After 2 m. uneasiness in stomach and heat in gullet. After 3 m. heat in outer

canthus of r. eye, sore pain in orbital border, full feeling in r. side of forehead. After 5 m. pain in l. side of occiput and later in l. side of forehead, pulse rose from 80 to 92, palpitation of heart, full feeling in upper part of abdomen, short stitches with heat in l. eyeball. Memory defective. After 10 m. pulse 88, pain in organ of wonder r. side. After 20 m., 5.55, took $\frac{1}{6}$ dr. After 1 m. fulness in heart. After 2 m. pain in r. organ of wit. After $2\frac{1}{2}$ m. some pain in l. side. After 3 m. some pain in organ of benevolence, fulness of jugular veins, throbbing in l. half of forehead, stiffness of nape, eructation, stitches in l. tonsil. After 5 m. pulse 92, pain in l. half of head, worst in vertex, pain in l. organ of wonder, pain in coronal suture, stiffness and pain in l. side of nape, stitch in r. temple, throbbing in l. temple. Contracted feeling in r. elbow. After 10 m. pulse 70, pain in forehead when he looks long at anything, rumbling in transverse colon, yawning and inclination to stretch backwards; bruised feeling in forehead where the pain was; sore and constricted feeling in head, aggravated by shaking head sideways and by leaning forwards. When he shakes head feels as if brain were hard, loose in head and sore. After 10 m. rumbling in transverse colon, yawning and inclination to breathe deeply, face red and hot, especially round eyes, pain in eyeballs, stitches in l. tonsil, taste like pine-wood. After $1\frac{1}{2}$ h. and again after 3 h. copious stool of soft faeces, flatulence in abdomen all c. Next d. woke early with bellyache, followed at 6 a.m. by copious loose stool; had 6 more similar stools up to 10 p.m. During evacuation anus seemed contracted, frequent discharge of flatus at stool with a loud sharp noise; griping before stool. Mouth in m. full of disgusting, thick saliva, and slimy saliva during d., which he must spit out, tongue seemed larger and was covered with white fur. Mind disposed to recall and dwell on injuries suffered long ago. 3rd d.—Tongue white and larger, with impressions of front teeth, slimy feeling in mouth, no stool. (*Ibid.*, 54.)

8. a. I (R. E. D—), pulse 68, applied—Jan. 13th, 1853, at 1.15 p.m.—the moistened cork of the bottle in which the saturated solution was kept to my tongue. In less than 5 m. pulse rose to 100. Head felt throbbing and bursting, especially above ears and at temples, and I experienced a choking sensation as if a ligature were tied round my neck, which kept the blood from returning from the head. Headache was much aggravated by shaking head. After about 15 m. it was felt most behind ears, except when head was shaken, when it was felt disagreeably in temples. Face felt congested, though it was not altered in colour. After 1 h. head still felt full and congested. After 2 h. I felt, while standing, an extremely violent shooting pain under ribs on r. side (region of gall-bladder) that caused me to bend forward while it lasted, which was about $\frac{1}{4}$ m.

b. On 27th I got some of the r. dil. on my fingers, which I sucked off. That n. I slept uneasily, and felt a dull, hard, pressive headache, chiefly in occiput, which went off before I got up. After luncheon (potato-soup) at 2 p.m. my bowels began to feel uneasy, and I soon had a copious loose motion. Whilst driving about in afternoon paying professional visits, I suffered severely from pain (griping) in lower part of bowels, apparently in rectum, and great inclination to go to stool. I

succeeded in restraining this till 6 o'clock, when I was forced to return home, and my bowels were moved. Evacuation was loose but not copious. It seemed as if there were much more to come, but that there was an obstruction high up in the rectum. Before the evacuation I felt sickish and faint. The diarrhoea-feeling was less felt while driving in open air than when in warm rooms with patients. After dinner I had another loose, scanty evacuation, after which all the symptoms went off.

c. On Feb. 11th took 3 dr. of 1st dil. In 1 m. began to perceive the throbbing in temporal arteries and sense of constriction about neck; face and anterior part of head feeling congested. This went off in less than $\frac{1}{2}$ h.; but there remained occasional pain in temples and feeling of lassitude for a considerable time.

d. On 18th, e., took one pilule imbibed with saturated sol., and almost immediately experienced the throbbing and tightness. This soon subsided; but later in e. I perceived that when I moved about I felt painless pulsation all over body, and circulation was very easily quickened. That n. I could hardly sleep for excessive dryness and parched feeling in mouth, with great thirst, which there was no water at hand to quench. This symptom was still present when I rose in m. (Dr. DUDGEON'S provings, *Brit. Journ. of Hom.*, xi, 273.)

9. Mr. BRADWIN, Jan. 27th, at 9 p.m., pulse 60, took 1 dr. of 1, on a piece of sugar. In about $\frac{1}{4}$ m. perceived throbbing of temporal arteries, soon accompanied by rather severe throbbing pain in both temples. In a few seconds more, pulse was found to have risen to 100, and heart throbbled most violently and rapidly. In a m. or two a faint, warm, sickening sensation was perceived in chest and stomach resembling threatenings of sea-sickness; also slight giddiness, especially on moving about. The throbbing pain continued to increase for about 10 to 15 m., then gradually diminished, and in about $\frac{1}{4}$ h. became considerably easier; the feelings of nausea and giddiness also were lessened; but on returning upstairs very fast about $\frac{3}{4}$ h. after taking drug, all symptoms recurred with double force; temples ached and throbbled excessively, and there was great nausea and giddiness. In a few m. these sensations subsided, leaving slight nausea and throbbing pain in temples. Nausea was removed by supper (oysters and stout) at 10.30; but pain continued, and was very readily aggravated by any exertion of walking, talking, or reading. Went to bed at 12, had less pain in recumbent posture, especially when lying on either side; slept well all n. On waking in m., felt slight pain, or rather uneasiness, in temples, with tendency to nausea and giddiness, which continued all d. Fullness of temples and very slight nausea felt still at 8 p.m.* (*Ibid.*)

10. Dr. SÖSS HAHNEMANN. On same d., pulse 64, a small drop of 1₂ produced, 1 m. after being taken, pulse 100, and, 2 m. later, 112; with great variability, pulse now quick, now slow. At same time, slight shooting pain was perceived, at first in r. temple, then also in l., pain increasing to such intensity that a kind of giddiness appeared, accompanied by a sick feeling; pressure on both temporal arteries

* Prover also felt sensation of warmth and fullness down arms, as if in course of cutaneous nerves; also similar sensation in sciatic nerves, and some warm dull aching in loins; but these symptoms lasted a very short time only.

lessened the violent throbbing pain; skull seemed to be too small, and it was as if brain would burst it; violent action of heart, and distinct pulsation felt all over body; sickness increased, but no vomiting; on r. wrist was a feeling as if it was tied up, which produced a kind of lamed feeling all along r. arm. On going quickly upstairs headache became insupportable. Supper took off sick feeling, and at rest headache was slight; but as soon as he attempted to walk, he felt with each step intense throbbing headache in both temples, obliging him to press hard on them for relief. Slept very well; but next m., on waking, felt some headache, which continued all d., with occasional sharp catching pain under l. ribs. No stool for 2 d. subsequently. (*Ibid.*)

11. Mr. GILLAR, pulse 68, took 2 dr. of r_1 on sugar. "Immediately felt a glow of heat, which determined itself to the head, and which also rapidly increased in intensity, particularly in anterior region; temporal arteries became very full, and in about 5 m. after taking dose pulse had risen to 100; evident congestio cerebri was now experienced, with irregular contractions of heart, symptoms of syncope obliging me to sit down; then partial obstruction of sight and deafness. In act of swooning, I was conscious of water being dashed over my brow, which partially restored me, though I was very pale. I chewed a coffee berry, which produced vomiting (of saliva and coffee grains only); a little sugar of milk saturated with tincture of coffea was also given me. Chilliness and prostration of energy continued, with marked fulness of temporal arteries and pressure of brain; also great rigidity of occipito-frontalis. During early part of n. sleep was disturbed with visions of innumerable multitudes of heads, with comical expressions of features, I woke about 5 a.m., without being much refreshed; in about 2 h., I slept again till m. During next d. prominent symptoms were rigidity of occipito-frontalis, and a degree of obstruction of brain. In e. a cup of coffee removed all sensations." (*Ibid.*)

12. Mr. EWALL took on same occasion 1 dr. of r_1 , which produced headache of the usual throbbing full character in the temples, and increased rapidity of circulation. When these symptoms had subsided, he took after supper a second dose. On attempting to read, fulness of head from r. parietal protuberance forward, including whole of parts anterior. This increased to actual pain, with beating in temporal arteries; great quantity of flatus from rectum, feeling of sickness, and uncommon feeling of fatigue; pinching round umbilicus, pain at small spot in l. hypochondrium; pulse jerking and full; sharp pricking pain in arms and legs; cramp in r. leg. (*Ibid.*)

13. On m. of Jan. 28th, Dr. WYLD took 1 dr. of r_2 on sugar, and in 2 m. pulse rose from 70 to 120, and head throbbled. He described headache as if brain was pressed in towards centre, from both temples and from occiput. These symptoms lasted till n. On following d. he had diarrhoea, copious, loose, blackish, lumpy. (*Ibid.*)

14. Dr. JUNOD, strongly built, short-necked, florid, subject to headache at small spot of r. head posteriorly, took 6 pilules of r_2 . In 3 m. pulse rose from 72 to 80, and he experienced tensive sensation in head, just over frontal sinus, and across nose; also feeling of fulness above and in front of ears. On shaking head, he felt great pain in spot where

he habitually suffered from headache. He described sensation in head as if he were hanging with it downwards, and as if there was a great rush of blood into it in consequence. These symptoms went off in a very few m. (*Ibid.*)

15. A married lady, æt. 28, strong and robust, the catamenia being present, took at 4 p.m. ʒ pilules of ʒ. In a few m. pulse became very much accelerated, and she complained of throbbing and heaviness of head, increased to severe pain on shaking it. There was also felt a tight contractive sensation down jaws on either side, in masseter muscles, as if lockjaw were coming on. Catamenia ceased immediately, and headache increased in violence towards e., when severe diarrhoea came on. Catamenia did not resume their flow till following m. on walking briskly. (*Ibid.*)

16. A nurse took in e. ʒ dr. of ʒ. She writes;—"About ½ h. after taking med. I felt severe shooting pain through temples, from r. to l., attended with sensation of great weakness, and inability to stand or walk without giddiness. Afterwards felt sharp cutting pains in chest and stomach, with sickness, gripings, and inclination for action of bowels, which lasted till next m., when they were relieved. During n. felt very restless, and unable to sleep, thirsty and hot, and inclined to vomit. For greater part of next d. felt weak, with great weight and pressure on front part of head, loss of appetite, aching in limbs as if tired, which, however, abated a little at n., and I slept much better. Next d. I had nearly lost all symptoms save headache and sickness; but they continued, though in less degree, for 2 d. more." (*Ibid.*)

17. Dr. FISCHER took ʒ dr. of ʒ., pulse 68. After 2 m. pulse 90, becoming fuller for 3 or 4 m. more, with glow of heat in hands, then falling to 80; pains in forehead, and in spot on vertex, which might be covered with hand, pain compressive, burning; heat, shooting and throbbing in temples; burning in malar bones and eyes; soreness and tenderness in head lasting all d., with constant gnawing in occiput; confusion and inability to think or study all d. (*Ibid.*)

18. On the e. of Feb. 3rd, 1858, I was conversing with a homoeopathic practitioner, when he mentioned a medicine which possessed peculiar and extraordinary qualities, some of which he described as having affected himself, though he had taken it in very minute quantities. I laughed at his credulity, and offered to take as much as he pleased, upon which he let ʒ dr. of what he called the 1st dilution fall on my tongue. In about 3 m. (having purposely conversed in the interim on other subjects) I experienced a sensation of fullness in both sides of the neck; to this succeeded nausea, and I said, "I shall be sick." The next sensation of which I was conscious was as if some of the same fluid was being poured down my throat, and then succeeded a few moments of uncertainty as to where I was, during which there was a loud rushing noise in my ears, like steam passing out of a tea-kettle, and a feeling of constriction around the lower part of my neck as if my coat were buttoned too tightly; my forehead was wet with perspiration, and I yawned frequently. When these sensations passed off, which they did in a m. or so, they were succeeded by a slight headache, and dull heavy pain in the stomach, with a decided feeling of sickness.

After $\frac{1}{2}$ h., during which I lay on a sofa, feeling rather languid, I was quite well again. My friend told me that my condition caused him the greatest alarm, for he thought he had killed me. My head (he said) fell back, my jaw dropped, I was perfectly white, breathing stertorous, and no pulse at the wrist for about 2 m. He poured some stimulant down my throat, and I revived. I had never been in better health and spirits than on the day of this occurrence, and had taken nothing for hours but a little cold tea. (*FIELD, Med. Times and Gaz.*, March 20th, 1858.)

19. A stout healthy young woman had severe toothache, and was applying a very small piece of lint dipped in the 1 per cent. solution, when it accidentally fell into her mouth and was swallowed. In about 5 m., after feeling giddy and sick, with headache, she became insensible. Her countenance, naturally florid, was unaltered, breathing tranquil, pulse full and rather quickened. I tested her sensibility to pain, and called loudly to her, but without producing any impression. About 3 m. after insensibility had commenced, a slight failure in the pulse was detected, whereupon she had some stimulant poured down her throat, and quickly recovered, complaining of some headache, but with the toothache gone. (*Ibid.*)

20. I took 1 min. of Gl., my pulse being 80. Half an h. before I had seen my brother take the same dose without any serious effect, and we now purposely changed the subject of conversation. In the course of a few m. I exclaimed, "I feel drunk." This sensation was quickly followed by a dull aching pain at back of head, which was alternately better or worse, each accession becoming more severe. It soon extended to forehead and back of neck, in which there was decided sensation of stiffness. There was also some difficulty of swallowing, succeeded by nausea, retching, and flatulence. A profuse perspiration ensued, and in 15 m. the symptoms began to abate, but I continued dull and heavy and my pulse was now 100. Considerable headache remained, which increased in after part of d. to such an extent that at 6 p.m. I was obliged to go to bed. At daybreak I was not relieved, but after a few h. more sleep I arose in my usual health. (*F. A. JAMES, Ibid.*, 1858, ii, 387.)

21. A lady suffering from severe facial neuralgia took $\frac{1}{4}$ min. of Morson's solution (1 in 20) in a teaspoonful of water. In 2 or 3 m. she began to complain of sickness and faintness. These rapidly increased, and there was, for a few moments, unconsciousness, accompanied with convulsive action of the muscles of the face, and stertorous breathing. Face became pale, and pulse alarmingly feeble. After swallowing some brandy and water she vomited, and the unpleasant symptoms gradually subsided. (*BRADY, Ibid.*, March 12th, 1859.)

22. The following symptoms were produced by a single pilule of Gl. 1. The subject of the experiment was a married woman, æt. 33, subject to irregularity of the circulation and neuralgia. At the time of taking the Gl. she was in tolerable health. We give the account in her own words:—"Dose about 5 p.m. At 6.30* sudden dimness of

* The tardy appearance of the symptoms may seem to cast some doubt on their genuineness in this case. But in vol. xxi, p. 458, of the same journal, Dr. Dudgeon

sight; heat in eyes with feeling of tension; crushing weight on forehead, particularly between brows and across nose; throbbing and sharp darting pain in r. temple, then in both, and behind ears. Pain steadily increased, and for 3 h. was almost intolerable. Tea then afforded partial relief, but symptoms quickly returned, and lasted till 3 a.m., gradually including nausea, palpitation, thirst, choking sensation in throat, and great depression. Bathing temples and back of neck freely with eau de Cologne gave instantaneous relief to head symptoms; and though they returned as spirit evaporated, it was in less intensity. This was done several times, and at 4 a.m. I fell asleep, remaining thus till 7. I awoke nearly free from pain, but have had returns of it at intervals during d., with a sharp attack of the old crushing spasms of the heart. Cold feet; general discomfort. Pulse rose on taking the Gl., and has continued high till now" (2 h. after). Next e. a similar attack, though slighter, was experienced. (*Brit. Journ. of Hom.*, xviii, 139, 1860.)

23. When about to sit down to dinner, Dr. J. G. Wood, from mere curiosity, touched with his tongue the open mouth of a small vial containing the 1, dil. of Gl. No results were anticipated. The first and immediate effect was lightness and buoyancy of body as from inhalation of ether, followed immediately by a full, crowding, pressing sensation in brain, accompanied by dizziness and whirling; also entire loss of appetite, though this was strong 5 m. before taking drug. Head felt enormously large; great mental agitation; pulse, ordinarily 64, immediately went up to 96; trembling of hands and arms, so that he cannot hold knife and fork steadily. Pressure on brain gradually increased, so that in space of 10 m. it seemed on point of bursting. Visionary objects passed before eyes; great difficulty in conversing from diminished power of tongue, and confusion of ideas; pulse rapidly ran up to 130, and carotids pulsated violently. Cracking sensation in brain, obliging him to hold on to head during every movement to prevent an apparently threatened rupture of cranium; confusion of ideas so great he could not tell where he was; pain in head intense, most severe in r. side. Obligated to lie down, and immediately fell into a heavy sleep, from which he was soon roused by a professional call. When rising, pain and pressure in head so severe he could not stand; obliged to lie down again for a few moments. Pulse now 140. Went out to visit patients; somewhat relieved in open air, and—though still greatly confused, and scarce knowing where he was or what he was about—when his attention was fixed by an effort of will remembered his patients perfectly, all their symptoms and the medicines prescribed, without once mistaking. Shocks in brain, synchronous with every pulsation of arteries. On returning home attempted to lie down, but could not on account of increased pressure and throbbing in brain, which were so much increased on attempting to assume the recumbent position as again to oblige him to hold on to head as if to prevent rupture of cranium. He became frantic, could neither lie, sit, nor walk, but

reports an experience of his own, in which, having accidentally inhaled Gl. from the explosion of a bottle of it in his hand, no effect from it was observed at the time, but about 3 h. later its characteristic headache set in with great severity, lasting all e. and through n., and even felt till after breakfast next m.—Eos.

pitched about like one intoxicated, incapable of controlling muscles of locomotion. Cold water now poured on top of head produced spasms ending in vomiting, after which (7 p.m.) he became comparatively easy for a short time; very soon, however, pressure and throbbing in brain returned, and continued to increase till a second vomiting which was followed by similar relief, recurrence, and a third vomiting. A cup of warm tea, now taken, seemed to afford decided relief, though of short duration (camphor at 3, and belladonna at 5, had been of no service). At 9 took a cold bath and went to bed, sleeping uninterrupted till 5 next m. On rising felt very weak; no appetite for breakfast, head full and dizzy. At 10 a.m. general sick weak feeling, with pressure and fulness of head. No appetite for dinner. All symptoms of previous d. increased till 3 p.m., then gradually diminished. Sleep sound. On 3rd d. symptoms less severe, but same in character. Head symptoms commenced about 9 a.m., and steadily increased till 3 p.m., then gradually diminished. Sleep this n. disturbed, full of dreams, constantly occupied, during sleep, with professional duties. Dispirited and apprehensive.

The symptoms occurred in the above order for several successive d., but every d. less intense, until they finally disappeared. According to others, his general appearance was like that of one intoxicated. He frequently asked if he should die, and what would be done with him. None of these questions can be remembered. (*Trans. of Amer. Inst. of Hom. for 1860.*)

24. DR. ISAAC COLBY took, June 17th, 1856, at 10 a.m., 2 dr. of 1st dil. First and immediate effect, confusion of ideas and loss of strength. Sight and hearing both affected, indistinct. Fulness and pressure in fore-part and top of head with throbbing, pulsation, and confusion of all senses. Sensation of balancing, requiring constant effort to keep head erect, which inclined to drop as on going to sleep. Undulating sensation, increased by every turn of head; sick, faint, death-like sinking at epigastrium, with nausea such as results from excessive dizziness induced by rapid whirling of body. Great weakness in middle portions of thighs and arms. All symptoms continued 2 h. without abatement, when inhalation of camphor occurred to mitigate some of them, but the more prominent remained uninfluenced. After 4 h. fulness and throbbing of head continued unabated, together with dull headache, which appeared rather to increase till retiring for the n. Awoke on following m. with same fulness and throbbing, which occupied whole fore-part of head, and appeared to be deep-seated. (*Ibid.*)

25. STRZINIA took at 4 p.m. a small portion of a drop; it tasted sweet, caused scraping in soft palate and throat, making him swallow his saliva repeatedly. The scraping increased rapidly, spreading all over pharynx, where it caused intolerable pain. After barely 2 m. there came on constriction and tightness of chest with anxiety, perceptible palpitation of heart with need to draw a deep breath. In crown of head violent pressive pain which passed into an undulating and throbbing, and this spread all over head, especially about sagittal suture. Music and moderate exercise did not aggravate it. The pulse increased to 96, was very full and hard. Feeling of heat in eyes. 7 p.m., head-

ache in open air much increased, extended down to eyes, accompanied by heaviness of lids and sleepiness. Went early to bed and fell sound asleep; towards m. disturbed by home-sick dreams, which caused him to weep. Next m. he was much relieved after discharge of very foetid flatus. During forenoon several attacks of violent palpitation of heart. Towards e. the headache returned but was mainly pressure in crown with occasional shooting in l. temple. The following d. these symptoms frequently recurred. (*Zeitsch. d. Ver. hom. Ärzte Oesterr.*, ii, 18.)

26. a. EICHHORN took, April 16th, 9 a.m., 10 dr. 3rd dil., on sugar. After 5 m., tension in r. temple with occasional shooting in r. eye, tensive pain behind r. ear which he had experienced for several d. came on more violently. Pulse 60, same as usual. 10 a.m., repeated same dose. Soon, diminution of pulse to 52, confusion of sinciput; all went off in open air.—17th, 4 a.m., 10 dr.; 6 a.m., 20 dr. The tensive pain in occiput very severe, extends upwards and downwards and to both ears. Now and then slight tension above r. eye; tension all over sinciput. 8 a.m., 25 dr. Symptoms relieved in open air, and tensive pain in occiput recurs in fits. 10 a.m., 15 dr. No new symptoms; in afternoon quite well.

b. April 18th, 5 a.m., 5 dr.; 8 a.m., 10 dr.; 9 a.m., 20 dr. 2nd dil. During forenoon confusion of sinciput, dull shooting in r. ear for some m.—19th, 8.30 a.m., 10 dr. Heaviness over eyelids, slight nausea, pressure in stomach. 9 a.m., 12 dr. Periodical tearing shooting in both temples, extending to masseter muscles. 9.30 a.m., 20 dr. Tension in forehead increased, with pressure on eyes and root of nose. All went off during d.—22nd and 24th, 10 a.m., 10 dr. No effect.—26th, from 8 to 10 a.m., every $\frac{1}{4}$ h., 10 dr., lastly 20 dr. Hot feeling in r. cheek. Severe pressive tensive pain behind r. ear, increased by pressure, especially when the pressure is removed. Pressive pain in r. ear as if swollen; tension in r. temple. After taking 20 dr. these symptoms increased much. The tensive pain in occiput extends to deep in neck. Pressure and confusion of whole head, with varying intensity the occipital pain continued all d., did not go off in open air, and lasted till he went to sleep at n. Next m. head was quite free.—27th. Took 20, then 25 dr. No effect.—28th, 8 and 9 a.m., 10 dr.; 9.30 a.m., 15 dr.; and 10 a.m., 20 dr. Felt nothing but dull tension in sinciput and occiput. 10.30 a.m., 20 dr. Pressure and weight in forehead, dull pain in both ears, over l. eye and behind l. ear, transient. 11 a.m., 25 dr. Tension in masseter muscles, pressure in sinciput. 11.30 a.m., 40 dr. Occasional shooting in ears, pressure in temples. 12, noon, 30 dr. Shooting in ears increased, great pressure in temples. All the rest of d., confused head alternating with pressive tensive pain, sometimes in temples, sometimes in occiput and ears. Long of falling asleep and frequent waking with severe pains in ears, temples, &c. Immediately after rising felt quite well. In course of forenoon and also afternoon (29th) occasional pressure in temples, especially r., and in occiput. No more symptoms.

c. April 30th, 8.30 a.m., 6 dr., 1st dil. For some time burning sensation in tongue. After $\frac{1}{4}$ h. pressure in sinciput, especially r. super-

ciliary ridge. 9 a.m., 10 dr. After 5 m., slight feeling of nausea, pressure in temples. Pulse 72, small and contracted. 9.30 a.m., 10 dr. No effect.—May 2nd, 8.30 a.m., 6 dr.; 9 a.m., 10 dr. Shooting and fulness in ears, tension over forehead. 9.15 a.m., 10 dr. Dull tension from behind r. ear in mastoid process, in a spot that could be covered with tip of finger, lasts 5 m. 9.30 a.m., 15 dr. Pulse 56, contracted. Pressure, fulness, and weight in whole sinciput. 10 a.m., 10 dr. Severe pressure in forehead and occiput out at ears. In forenoon and in open air occasional dull stitches behind one or other ear, violent pressure in r. temple, tension and confusion in whole of sinciput, fulness in head and ears. In afternoon same symptoms but slighter. No more symptoms. (*Ibid.*, 20.)

27. LEMSKA took, May 1st, 3.30 p.m., 10 dr. of a solution of 3 gr. Gl. in 1 drachm alcohol. Immediately great heat all over body, especially in face and head, with profuse hot sweat for $\frac{1}{2}$ h. After a few m. very rapid heart-beats. Pulse about 120, the beating of heart felt in head like a hammer, especially when stooping. Sometimes when stooping such violent shooting in heart that he must rise up immediately. Giddiness, redness, and heat of face, eyes watery. This lasted $\frac{3}{4}$ h. Unsteady gait and palpitation of heart increased by walking. Along with the palpitation pressure in head, especially occiput, this lasted till 9 p.m. Ate his dinner at 5.30 p.m. and felt quite well, but the expression of his face was wretched and there were blue rings round eyes. (*Zeitsch. f. h. Kl.*, ii, 121.)

28. Dr. R. DEMME took 2 or 3 dr. of a 1 in 10 solution. It caused tingling sensation in throat and increased saliva. In 10 m. he had giddiness and dull pains in head. On taking 5 or 6 dr. these effects came on sooner, and were accompanied by quivering sensation in masseter muscles. After 10 dr. movements of lower jaw were impeded from contraction of temporal and masseter muscles, and slight twitchings were felt in muscles of extremities. These effects lasted about $\frac{1}{2}$ h., and gradually passed off. (*Rep. f. Pharm.*, xii, 431.)

29. Eight persons, 5 women and 3 men, after ascertaining their normal pulses during rest, took 1 or 2 dr. of a 1 in 80 solution of Gl. and then counted pulse every 5 m. The pulse of No. 1 sank from 88 to 86, and then to 84. Nos. 2, 3, and 4 showed a rise after 5 m. No. 5 showed first a falling in 5 m., then a rise after 10 m. No. 6 showed a rapid fall after 2 m., a rise in 5 m., and a fall again in 10 m. No. 8, like No. 1, after 2 dr. showed a decline both in 5 and 10 m. (C. WESSELHOEFT, *N. A. J. of H.*, N. S., vii, 6.)

30. a. A labourer drank from a fluid, which he thought was oil, two swallows, but the burning in the throat taught him that he had taken blasting oil, and at the next farmhouse he drank quickly milk and water, and asked for medical aid. He did not feel at time very unwell, but complained only of slight pressure in the chest, accelerated breathing, irritable pulse, off and on some vertigo. After taking an emetic he vomited a fluid smelling and tasting of nitro-glycerine. Respiration became very quick (60); the pulse greatly accelerated (96) but normal; oppression in the pit of the stomach set in; consciousness remained undisturbed, the patient complained of dulness of head, but

only once he could not answer when questioned; headache, pains in mouth and œsophagus and thirst were not present, nor mucous rattling of lungs; temperature rather cool than hot. (Leeches to temples and corda.) At n., about 5 h. after taking poison, vomiting and purging set in, lasting with great severity over an h.; vomited matter had odour of nitro-glycerine; stools were at first greenish, after awhile white, like foam made with soap, watery, and had a trace of the odour. He felt somewhat better; the gastric pains ceased; respiration was more quiet, but still superficial, a deeper one following two or three superficial respirations; he complained only of the extremely severe headache; after a while he lay quietly as if asleep; cyanosis and sopor set in, and the patient died an easy death 7 h. after taking poison. Five h. after death cadaveric stiffness was considerable, and froth collected in mouth.

b. *Post-mortem* examination showed a hyperæmic condition of cerebral membranes on convexity and at base; moderate hyperæmia in substance of brain, especially at external layer; more internally, brain appeared normal. Posterior part of lungs also showed great congestion. Mucous membrane of trachea was of a reddish-brown colour. Fluid blood in l. ventricle of heart, r. one empty; coagula in both pulmonary arteries. Stomach contained about 120 gr. of a red-brown fluid; its mucous membrane at the fundus showed reddish-brown injection, with numerous small ecchymoses, swollen to a gelatinous mass, and could easily be stripped off. Nothing abnormal in intestines. (Holst, Schmidt's *Jahrbucher*, 1872. H. speaks of four other cases, described in different journals. In all cases severe headache was present, but it set in immediately after taking the poison, whereas in this case it appeared at a later stage; unconsciousness and sopor also only set in before death closed the scene. In relation to the cumulative action of nitro-glycerine, Hystroem found that labourers who have much to do with the blasting oil get a sort of immunity from its noxious action.)

31. Dr. MURRELL prepared a 1 per cent. solution. "Wishing to taste it, I applied the moistened cork to my tongue, and, a moment after, a patient coming in, I had forgotten all about it. Not for long, however, for I had not asked my patient half a dozen questions before I experienced a violent pulsation in my head. The pulsation rapidly increased, and soon became so severe that each beat of the heart seemed to shake my whole body. I was quite unable to continue my questions, and it was as much as I could do to tell the patient to go behind the screen and undress so that his chest might be examined. Being temporarily free from observation, I took my pulse and found that it was much feebler than natural, and considerably over 100. The pulsation was tremendous and I could feel the beats to the very tips of my fingers. The pen I was holding was violently jerked with every beat of the heart. There was a most distressing sensation of fullness all over the body, and I felt as if I had been running violently. I remained quite quiet for four or five minutes, and the most distressing symptoms gradually subsided. I then rose to examine the patient, but the exertion of walking across the room intensified the pulsation. I hardly felt

steady enough to perform percussion, and determined to confine my attention to auscultation. The act of bending down to listen caused such an intense beating in my head that it was almost unbearable, and each beat of the heart seemed to me to shake not only my head but the patient's body too. On resuming my seat I felt better, and was soon able to go on with my work, though a splitting headache remained for the whole afternoon." (*Nitro-glycerine as a Remedy for Angina Pectoris*, 1882.)

III. *Experiments on animals*.—1. A tom-cat got about 5 dr. in 20 dr. of alcohol. He forthwith began to sneeze and vomit and howl dismally; much thick ropy saliva flowed from his mouth. In 5 m. these symptoms abated, and he wandered incessantly about, seeking some concealed place in which to lie down. Back was rounded up; tongue protruded; rapid and spasmodic breathing; panting; occasional spasms in stomach; piteous moaning; ears hot; eyes dull and drowsy, third eyelid much drawn over eye; constant twitching in ears; he seemed disinclined to move, as though it caused pain; he stretches out paws, protruding claws. Next m. he seemed well. (HERING, *Brit. Journ. of Hom.*, vii, 420. 1849.)

2. In another cat, whose nose was touched with the Gl., head was thrown backwards upon neck, saliva flowed freely from mouth, which was kept open and the tongue protruding; eyes glaring and fixed, pupils much dilated. She walked backwards, but with difficulty, as limbs were rigid; pulse very rapid. On giving her a little more in mouth limbs became quite rigid; heart's beats uncountable; respiration difficult, rapid; eyes stood out of head, iris scarcely visible. In about 2 m. she ceased to breathe, though heart still beat. A few seconds later spasmodic contraction of legs set in, and continued some time after both circulation and respiration had ceased. (*Ibid.*)

3. In frogs it causes at first great restlessness, then lethargy, to which convulsions and paralysis succeed. In mammals it causes depression, with very rapid pulse and respiration, paralysis of reflex action and voluntary motion, loss of sensation and death by stoppage of respiration. It agrees with nitrites in acting as a poison to muscle. The spinal cord appears to be paralysed before the cerebral ganglia, and the convulsions in frogs are of cerebral rather than spinal origin. It paralyses the heart of the frog when directly applied; and it lessens the blood pressure. (L. BRUNTON, *Pharmacology*, &c.)

GNAPHALIUM.

Including *G. polycephalum* and *G. uliginosum*, Michx. Everlasting. Nat. Ord.,
Compositæ.

I. *Proving*.—1. Dr. BATES and General NORRIS proved it in 1st and 2nd dec. tit. of leaves and flowers. Their symptoms are given without indication of those belonging to each prover or of the period when they occurred. They are as follows:—Giddiness, especially after rising from recumbent position. Pain in occiput; dull, continual. Occasional shooting pains in eyeballs. Intermittent neuralgic pains in both upper maxillæ. Dull, heavy expression, slightly bloated face. Flat, sweetish,

sickening taste; tongue covered with long white fur. Diminished appetite. Much wind in stomach, eructations of air and slight nausea. Occasionally, obstinate hiccup. Colicky pains in various parts of abdomen; abdomen sensitive to pressure, particularly about cæcum. Looseness of bowels, feces pale coloured. Borborygmus, frequent discharge of flatus. Feeling of fulness and tension of bladder, even when it has just been emptied. Large quantity of pale, inodorous urine passed, without sediment. Pain in kidneys. Frequent slight transient pains in region of prostate gland. Increase of sexual desire. Occasional stringing in glass penis. Feeling of debility in arms, as if incapable of raising lightest weights. Rheumatic pains in elbows and shoulders. Daring pains in chest from side to side. Numbness in lower part of back, with lumbago. Feeling of weight in pelvis. Intense pain in sciatic nerve and its larger ramifications. Numbness occasionally taking the place of sciaticea, rendering walking very fatiguing. Frequent cramp in calves. Cramp in feet, especially in bed. Rheumatic pains in knee and ankle-joints. Gouty pains in big toes. (*North American Journal of Homœopathy*, vii. 381.)

1. W. J. A. FULLER took, April 25th, 2 gr. 3rd dec. trit. at bedtime.—26th. Woke at 6.30 a.m., mouth felt furry, unpleasant taste. Fulness about temples, like incipient nervous headache, to which he is subject, removed by washing head and mouth with cold water. 7 a.m., felt well, and took 1 gr.; taste like shag after chewing slippery elm bark. 7.30 a.m., ineffectual efforts to stool. 5 p.m., rising in throats, half sour, half bitter, transient.—27th. Woke at 2.30 a.m., mouth felt parched, bad taste. Rose at 7 m. with dry mouth, furred tongue, slight pain and flatulence in bowels, relieved by washing head and mouth in cold water. 7.15 a.m., 1 gr. Rumbling in bowels, stool before breakfast, unusual.—28th. Woke at n. with erection and urgent sexual desire, very unusual. Woke at 6 a.m., with erections, slight bellyache, after breakfast a good stool. In afternoon another large stool. At n., exhausted and uneasy.—29th. Woke at 3.30 a.m., took 1 gr. at 6 a.m. Erection on waking. On rising, slight transient bellyache. Slight pains about r. eye after rising.—30th. Woke in m., tired and unrefreshed, erection. Felt languid all m. At 3 to 4 p.m., slight headache and muddiness about head, not relieved by smoking. 3 p.m., night sweat and headache, relieved by bathing head with bay-rum.—May 1st. Woke with furred tongue and bad taste, removed by washing mouth with cold water; had an erection. The erections not accompanied by sexual desire. (*Ibid.*, 384.)

2. Dr. WOODSURY, æt. 29, in perfect health, took, Sept. 10th, 1859, 1 h. after breakfast, 25 dr. of a saturated tinct. of Gn. uliginosum. Experienced during d. unusual rumbling in bowels, with slight griping pains; in e., a diarrhetic stool, with unensiveness in bowels until falling asleep. 13th.—25 dr. on retiring for n. Diarrhetic stool early next m., and 2 second before noon, with pain and rumbling in abdomen, diminished sense, loss of appetite and taste. 15th.—No stool; otherwise right. 16th.—50 dr. on retiring; very copious and watery stool before m., and 2 more before noon. Nausea and pain in abdomen all n. of 16th; urine scanty as before. 18th.—Dark, liquid, offensive stool at usual h. in m.; pain in bowels nearly all d. 19th.—Bowels constipated, otherwise well. 22nd.—Took 3ss. of tinct. of Gn. polycephalum at n. Three watery discharges, with great pain and nausea, before morning. 23rd.—Profuse diarrhoea, with great pain in abdomen, all d.; urine scanty and red as before; great weakness and prostration. 24th.—Discharges more natural; less pain. 25th.—Well. (*Publ. of Marriack. Hom. Med. Soc.*, ii. 25.)

3. P. Mrs. S.—æt. 40, took first 10, then 15, then 25 dr. of tinct. of Gn. uliginosum without perceptible effect; then took 60 dr., which caused a copious diarrhetic discharge, preceded and attended by nausea, pain, and rumbling in bowels. Pain and borborygmus continued for 2 d.

4. Same gave 15 dr. to each of 3 children, aged respectively 4, 6, and 8, on retiring at n. Two elder had diarrhetic discharges in m. and several times during d. following, with pain in bowels and great irritability of temper. Youngest had violent purging and vomiting, like cholera morbus, before m.; and purging continued through next d. at increasing intervals. In all constipation, lasting 1 or 3 d., succeeded the diarrhoea; during which time children were indifferent to food, almost to aversion, and very irritable. (*Ibid.*)

GRAPHITES.

Blacklead, plumbago. "A mineral carbon, containing a small indefinite quantity of iron." (B. H. P.)

1. *Proving*s.—1. HAHNEMANN, *Chronic Diseases*, part iii of original, vol. of translation. Contains 1144 symptoms from self and four others.

2. After 1 gr. slight pressure in stomach and eructation. After 2 gr. in $\frac{1}{2}$ h. rumbling in bowels and slight pinching betwixt navel and l. hypochonder, increased frequency of stools, often with insignificant amount of feces covered with mucus. (STORR, *Buchner's Rep.*, xliii, 45—quoted *A. A. Z.*, xlvii, 40.)

3. Dr. PIPER took on May 8th, 4 a.m., a quantity of a trituration containing $\frac{1}{4}$ th gr. pure G.—9th, 4 a.m., $\frac{1}{4}$ th.—10th, e., $\frac{1}{2}$ rd gr.—11th, e., $\frac{1}{2}$ th.—12th. Observed in m. a patch of vessels the size of poppy seeds on l. side of vermilion of lower lip; they disappeared after washing, but returned afresh after 4 h. Had never previously had anything of the kind. Same e. took $\frac{1}{2}$ gr.—13th, e. $\frac{1}{2}$ gr.—14th, 15th, 17th, 18th, e., $\frac{1}{2}$ gr.—19th 1 gr., nothing observed till 20th, p.m., when he felt an acute sore pain on r. side of perinæum. On examining perceived small pale red papules betwixt hairs, very painful when touched.—21st. The papules and pain having disappeared took, e., 1 gr.—22nd, e., 2 gr.—23rd, p.m. Severe thrilling pain in occiput, with heaviness of head, tension and stiffness of nape, pain intolerable when walking, hardly felt when lying. E., 4 gr.—24th. On waking m. the same pain, it went off about 7 a.m. E., 6 gr.—25th, e., 8 gr. Next 2 d. took no more med. and had no symptoms.—28th, 4 a.m., 10 gr.—29th. After a n. passed with much talking and anxious dreams about innumerable dogs and cats, took 4 a.m., 10 gr. and e. 20 gr. Had taken in all 70 gr. From and after 4 gr. had an indescribable taste, which caused several attacks of nausea, probably caused by the accumulated insoluble powder. On 29th no stool, a rare occurrence. On 30th a hard blackish stool. The same on 31st, e.—June 1st. A pappy stool of blackish colour. Latterly there appeared on body and thighs single small papules, a not unusual occurrence in warm weather.—3rd. The papules had attained the size of pin's heads, and the fluid in them was brownish yellow; when they burst there was hardly any scab. Then there appeared some painful scattered pimples, which rapidly turned to vesicles; they were confined to the back parts of thighs and legs. They gradually disappeared. Nothing then occurred till the n. between 10th and 11th, when there was profuse perspiration. Often woke with cramp in calves and the sweat continued to such a degree that by m. not only the hair of head but the bedclothes all the length of body were wet. The urine passed during d. was clear, but after 4 to 5 h. showed a glittering cuticle.—12th. The n. was like the previous one, but with hardly any cramp in calves. On waking this and previous m. unusual painfulness of corns. The next 5 n. were spent out of bed, and none of further symptoms were noticed. From the end of May a constant matting of hair was observed; it had to be

combed 8 or 10 times a d., and was with difficulty kept smooth. The hair felt as though it had been lying long in water and afterwards dried and stuck together. This was last observed on June 19th. (*A. S. Z.*, xviii, 127, 133.)

GRATIOLA.

Gratiola officinalis, L. Hedge hyssop. Nat. Orù., *Scrophulariaceae*.

I. *Proving*.—1. TAKES. (No information.) Great ill-humour and desire for solitude (1st d.); fretful mood (*do.*); no desire to talk or move; earnest reflective mood; irresolution, no persistency in work; dizzy in head, he wanders long looking at one spot, without thinking about it (soon); reeling gait; drawing pain on l. frontal protuberance (1st d.); pain as after a blow on l. temporal bone, when touched (1 h.); pressure in eyeballs (and d.); creeping in ears (speedily); sensitive feeling in face as if swollen (3rd d.); drawing pain over l. eye ($\frac{1}{2}$ h.); tearing in r. half of face; creeping and humming in r. zygoma, and $\frac{1}{2}$ h. later in l.; heat of face and hands (1st h.); burning and creeping, with feeling of swelling in cheeks (2 $\frac{1}{2}$ h.); jerking, painful drawing in front of throat (1st h., 23rd d.); drawing in upper incisors (1 h.); creeping on gums; accumulation of saliva in mouth; creeping sensation in fauces; urging to eructate, which changes to qualmishness (1 m.); eructations several times during 1st hours; hunger, but want of appetite (1st d.); qualmishness, a.m., which is relieved by eructations (1st d.); food causes slight pressure in gastric region, and fulness, lasting several d.; after a late supper, in early m. while in bed, some gastralgia; digging in region of stomach; sudden urging to vomit, with shivering on scalp (noon); pressure in scrob. cordis (noon), also after eating (2nd, 3rd d.); pressure in pit of stomach as from a stone moving here and there with cramp-like drawings ascending into chest, accompanied by frequent qualmishness and eructation, lasting several d., and always worse after eating (4th d.); sensitive stitches in epigastrium, with nausea and occasional eructation, e. (1st d.); while walking, dull stitches in epigastrium, especially during inspiration (4th d.); cutting at epigastrium ($\frac{1}{2}$ h.); an h. after an ordinary meal, gnawing in scrob. cordis as from hunger, which goes off after eating again, but soon returns; pain under short ribs on l. side, after dinner; dull stitches under short ribs during dinner, intermitting (4th d.); same, r. side, e. (3rd d.); same on l. side (2nd and 3rd d.); griping about navel, after food (2nd d.); griping in abdomen, e., for several d.; after food griping in belly, and soon thereafter urging to stool without evacuation; griping after food, especially m. and e., for several d. (from and d.); cutting pain in belly, while sitting (6 h.); bothryngi after dinner (1st d.); hazed stool, some h. later every d., often preceded by urging (2nd to 12th d.); after long urging to stool a hard evacuation, for several d.; after frequent urging to stool and rumbling, as if diarrhoea would ensue, a hard evacuation requiring pressure; in early m., after great straining, a scanty firm-formed stool (2nd d.); evacuations for first weeks hard and tardy, then softer and (as usual) twice daily; a thin, pappy, yellow stool; urine is scanty and reddish, cloudy on standing; drawing pain in glans penis; violent stitches from the spermatic cord through abdomen to chest. Oppression of chest and increased action of heart (1 h.); stronger and quicker action of heart (1st d.); dull digging pain in r. ischium, e. (1st d.); crampy drawing in under part of l. upper arm, also at several spots in hands (1st d.); tearing drawing pain in arms, especially l. elbow and wrist (2nd and 3rd d.); tearing throbbing pain in l. elbow (3rd d.), also in l. wrist (6th d.); paralytic feeling in l. arm, e. (1st d.); bruised pain in loins; after a slight walk, bruised pain in thighs (2nd d.); tetanic condition with clear consciousness, while lying p.m., after deep sleep, in which an emission had occurred,—on waking, bruised pain in whole body, especially back and l. arm (1st d.); great relaxation of body and mind (1st d.); early in bed feels as if beaten, better after getting up, but confused in head (4th d.); heaviness in arms and thighs, when moving; yawning and relaxation of body, with desire to lie down (1st d.); profound stupefied sleep, on waking dazed in head; chill with cold hands, which returns several times during d. (1 h.); chill and shivering,

especially along back, with quite cold hands, u.m. (1st d.); shivering over head, e. (1st d.); increased warmth in hands (soon after ingestion). (HARTMAN and TRICKS, *Stramoniumfolie*, ii.)

2. NANNING.* Fretful or hilarious mood; speedy but transient vertigo; feeling as if brain was contracted and head would become smaller, with general sick feeling; going off in open air (2 h.); sudden sensation in whole head, while sitting, as if someone let go a steel spring which had been made very tense, and which vibrated and hummed for some time, so that hearing and sight vanished, though consciousness was not lost,—attack lasted 2 m. (2nd d.); feeling in middle of forehead as if a hair hung down, which he constantly wanted to wipe away (2 h.); frequent sudden burning in l. frontal eminence, as if one suddenly approached with a red-hot iron; boring and tearing in temples, p.m. and at n., only a little next m.;—the most violent pain lasts only $\frac{1}{2}$ h., aggravation from cold or warmth, and temples become very sensitive to the pain; long-lasting accumulation of saliva in mouth ($\frac{1}{2}$ h.); stitches in l. false ribs, now stronger, now weaker, often completely intermitting,—in m. on rising, after stool and after dinner (2nd d.); pinchings and drawings on both sides of hypogastrium up to chest, then stitches over navel and in-drawings there, very painful (2 h.); first usual stool, then violent fluid evacuation with pain in belly, then urging,—soon after stool pain in belly again, and another fluid evacuation (6 p.m.); catamenia 2 d. too early, and last 2 d. longer than usual. Heat in chest over scrob. cordis, then in head, with redness of face and hands, but with only ordinary warmth of surface; itching of skin at various points. (*Ibid.*)

3. Dr. HERRMANN, *art.* 39, sanguine temp., good health, save for drawing pains in occiput from time to time, which did not occur during proving. From 1—1 dr. of tinct. experienced no effect. From 5—14 dr. noticed following symptoms:—Vertigo, to staggering, in m. after rising, for some h.; pressure in temples, of short duration; pressure and itching in corners of eyes, with inflammation of conjunctiva; lids gummed together with dry pus, most in angles; inflammation of gum near a hollow tooth; hawking of much mucus in m.; tongue thickly coated, yet natural taste of food, and augmented appetite during whole time of proving; borborygmi and pinchings in abdomen after each dose; stomach-ache with transient nausea; fullness of abdomen and emission of malodorous flatus; itching at anus; great urgency to stool, as if diarrhoea would come on,—stools nevertheless very hard; pappy stool, twice in d., followed next d. by constipation; burning in urethra while urinating; pressure in l. side of chest, when breathing while stooping. From 20 dr., paralytic drawing in thighs, as far as knees; frequent yawning and desire to sleep during d.; great chilliness. (*Archiv.* 1871, 2, 265.)

4. B—, man of 31, choleric, sanguine temp., in strong health. From 1—12 dr.,—dazedness, pressure on r. forehead; continued itching in eyelashes; much borborygmus in abdomen; itching in anus and many urgings to stool, which is sometimes hard, sometimes liquid; drawing and tearing in neck, r. side; rheumatic drawing in shoulders; drawing in arms and tearing in all joints; weakness in legs; much yawning and great fatigue; skin of whole body moist. (*Ibid.*)

5. Dr. KRATZEMSTEIN. From 1—4 dr. of tinct., observing nothing save isolated symptoms, took it later in doses of 20 dr. twice daily. From these:—Violent rush of blood to head, with beating in forehead, which increased to vertigo with obscuration of vision, which movement—especially that of a carriage—carried even to loss of consciousness, and which did not cease till after a sleep of some h. Indisposition to any mental exertion. Tearing in eyes, with formation of mucus on lids, especially at internal angles; in reading or looking at illuminated objects, momentary loss of sight, which disappeared after closing eyes, but returned incessantly; on reopening eyes all objects appeared white, even verdure of trees and grass. Itching as of insects crawling or cobwebs trailing along face, especially violent on lower jaw, and compelling scratching, after which small pustules form, ending not in crusts but in desquamation. Much accumulation of saliva, he ejects mouthfuls of clear water. Indescribable feeling: of malaise in throat, which obliges continual swallowing, and this is difficult, as if throat were constricted; food and drink, nevertheless, are swallowed freely; eructations ease the feeling, especially when he can bring up some bitter fluid, but it returns after some h. In stomach, especially some h. after food, twisting and digging, with

* See *Stridum Hydrargyricum*, i, 26 (vol. i, p. 30).

dissection of epigastric region, so as to need loosening of clothes, and exciting eructations and even retching, which brings up nothing but bitter mucus. Violent spasm in hypochondria, with fullness and sense of distension, eased by escape of flatus or by stool; belly ache, as in diarrhoea from chill, with twisting and digging, relieved by bending forward and resting. Frequent stools, with burning and pressing, and protrusion of large excrescences, which—on their return without anus and even *per se*—cause dazing pain; a fecid mucus escapes, brown and acrid, without faecal matter; irritation in anus continues, and after repeated efforts there follows a mass of semifluid faeces, dark brown, mixed with mucus, very fetid; a final effort expels white mucus, like white of egg, and appeases the rectal irritation and the pain in r, hypochondrium and abdomen. Mucus in urine, floating about on standing; after micturition, burning all along urethra. Violent heating of heart, felt all through body, but only lasting a few seconds,—especially strong after stool. Small pulse, intermitting several times after the palpitations. Ill-humour; all contradiction excites him; passion; disgust for life, with uneasiness about his health. (*Ibid.*)

6. Dr. MUEHLENBEIN, *vet.* 74. Well, save some fullness at stomach remaining from an attack of diarrhoea. May 22nd, 1838, at 6 a.m., took 10 dr. in a teaspoonful of water (obtainable throughout proving from tobacco, tea, coffee, and wine). No symptoms. 23rd.—10 dr. at 3 a.m. At 7.30, pulse, usually 73.—80, is 62. From 10.30—11, while visiting patients, sense of lassitude and trembling in hands, making it difficult to write (a feeling, however, not unknown to him). 24th.—Rose at 6; found urine cloudy, with brick-dust sediment, as it often is with him when he has been indisposed; took 30 dr. While taking it, and during d., dazing, cutting, disagreeable pain in velum palati, near uvula, on r. side, with a kind of stiffness, so that swallowing was difficult and painful. Urine still sedimentous. 25th.—35 dr.; no return of pain in throat or other symptoms. 26th.—50 dr. A little somnolence and yawning in forenoon, and slight lassitude and trembling while visiting between 11 and 2. 27th.—50 dr., without appreciable effect. (*Ibid.*)

7. H—, *xt.* 30, blind from cataract, but otherwise robust, took 10 dr.; March 20th—26th, 1838, 1 dr. every c., 27th—April 15th, 1 dr., 16th—23rd, 6 dr., from 24th, 10 dr. On April 17th he informed Dr. Muehlenbein that he felt excited after each dose, and could not sleep in early n.; he began to perspire all over, and to experience frequent urging to micturate, and pulsations, especially in head, during which pulse was very rapid. He was advised to suspend medicine for 2 d. Next n., however, he only slept for 3 h. towards m., and perspired much; and on following one, though there was no sweat, sleep was deficient. On the 3rd d. he took much exercise, and then slept well and had no more sweats. From 4th to 6th d. took remainder of drug, without feeling any effect. While in former state, he thought he noticed some intermittence of pulse and pressure at heart. On May 9th began to prove mixture of 20 dr. of tinct. in ℥j of alcohol, taking every second c. 20 dr.; but experienced nothing. June 25th.—Began to take powdered G., 20 gr. every other n. After 1st dose, in ½ h. nausea and flow of water into mouth, lasting 1½ h., after which he slept; on following m. a diarrhoeic stool, with pinchings in belly; during d. well. 24th.—Took 20 gr. with same immediate results, though less than on former occasion. Good sleep at n., but next m. a soft, and at noon a semifluid stool of fetid odour. He took a third powder on 27th. Towards noon next d., slight diarrhoea. On 29th, c., another powder, with little effect. 22nd.—Took in c. ℥j in powder. After 1 h., great malaise, flow of water into mouth without vomiting, but with desire thereof. At 4 a.m., colic; at 9, two semifluid stools. During the colic, some flatulence, whose emission eased pain. He complained of pains in loins, possibly resulting from fatigue; and had pressure in thighs on mounting stairs. 26th.—About 6.30 a.m., took ℥j. Flow of water into mouth; towards 7, great malaise, nausea, frequent but unsuccessful urgings to vomit. Some food at 9 caused all nausea to disappear for an h.; it then returned, was again appeased by soup at noon, but persisted in less degree till c. He had two liquid stools about noon, and one more at 4 p.m. (*Ibid.*)

8. Dr. C. G. F. MUEHLENBEIN, *xt.* 29. May 22nd, at 6 a.m., 10 dr. of tinct. After dinner, a loose stool, 23rd.—At 6 a.m., 20 dr. After ½ h. borborygmi and agitation in stomach, scanty stool with slight pains in belly. Borborygmi, &c., increased after breakfast at 8. In r. flank pain as if he were constantly and strongly drawn to opposite side. From 3 p.m. continued pinchings, drawings, and borborygmi in abdomen, with frequent urging to stool and embarrassment of head. Towards 10.30,

copious stool, with transient gripings, 24th.—Free perspiration towards m. At 6 a.m. 30 dr., with some local effects; urine dark reddish-yellow, with brick-dust sediment (not uncommon with him). Pulse at 3 a.m., rather stronger than usual. No stool. 25th.—On waking this m. extraordinary lassitude and somnolence. At 6, 10 dr., with usual abdominal disturbance, and from 10 a.m. till e. pressive headache with heat of forehead; also all d. languor and tired feeling in legs and arms. 16th.—At 7 a.m. 40 dr., with same effect as yesterday. 27th.—50 dr., which caused also burning and dryness of palms for $\frac{1}{2}$ h. 28th.—Pressive frontal headache continued till noon, 29th.—60 dr., with no fresh results. (*Ibid.*)

9. Dr. NÉCIZ. From doses of 3—6 dr. of tinct. repeated every 3 d. for 4 weeks, experienced following symptoms:—Frequent sense of cold on vertex, sometimes painful, which on covering head soon passes into heat; after each meal almost irresistible sleepiness, with feeling of general weakness; woke early in m. with painful sensation in occiput, going off on rising or on lying prone; often unable to get to sleep if he sits up later than usual; at times slight attacks of vertigo, especially while walking fast; an insupportable pain in two hollow canine teeth on exposure to anything cold; frequent accumulation of water in mouth, especially while fasting and on drinking cold water; after each meal ($\frac{1}{2}$ h.), but especially dinner, extraordinary sense of fullness at stomach, lasting for hours, but dissipated promptly by eating a piece of bread; dull pain frequently in l. lumbar region, especially while walking, eased by external pressure; during first 24 d., 21 times in m. distension of abdomen, colic, with pale face and nausea, going off after a copious semiliquid stool with fetid flatus. (*Ibid.*)

10. Wife of above took G. for 14 d. After supper, painful embarrassment of head, which went off after breakfast, but recurred frequently; great susceptibility of head to cold; every morning for 4—5 weeks, swelling of upper lip, going off after some h.; painfulness of all teeth, especially on touching them or taking cold things (for a long time); a sort of cramp in chest,—feeling as if it were constricted, most between scapulae and under sternum, relieved by eructation (once only). After 20 dr. at one dose, heat in stomach, then feeling of coldness and pressure, with nausea; after some h. a semiliquid stool, which removed all discomfort. (*Ibid.*)

11. Dr. SPANNAH. First d., 5 dr. of tinct. Scratching in throat soon after ingestion, and d., 10 dr. Same, with short-lasting nausea; tearing and cutting about umbilicus. 3rd d., 15 dr., with similar results; loose stool. 4th d., 15 dr. Scratching in throat; transient pressure in r. chest; slight nausea, gurgling in abdomen, 3 watery stools, momentary tearing in flexors of arm and elsewhere (has recurred at times for some d.). (*Ibid.*)

12. Dr. STEINHEIM. May 2nd, took 10 dr. in m. After 1 or $\frac{1}{2}$ h., pinching in belly, eructations; after dinner, much flatulence; next d. cold and shivery, disposed to sleep. On m. of 8th, repeated dose. Frequent pinchings and eructations; in e., escape of blood after stool, with urging. 9th.—Pinchings and eructations continue, shivering down back. 10th.—Ulcerative pain in r. hand and l. foot; chill repeated. 21st.—15 dr. After $\frac{1}{2}$ h. deep pinchings in abdomen, rumbling in belly and frequent empty eructations. From 22nd to 25th, considerable weariness, June 2nd.—20 dr. After 1 h., pricking and pinching in belly; pressive pain in eyes after $\frac{1}{2}$ h., which recurs during d. Nothing more after this d. (*Ibid.*)

13. LEMBECK took, April 24th, 7 a.m., 10 dr. tinct. At 3 p.m. a liquid, dark stool, 7 p.m., a smaller, liquid dark stool, with much straining.—25th, Nocturnal stool, and the following d. the same.—30th, 3 a.m., 20 dr. Several times severe boring pain in both ankle-joints and in knees, when sitting. 3 p.m., repeated scraping in larynx and fit of dry cough. No stool. Scanty urine.—May 1st. Firm stool. 9 a.m., 30 dr. During d. very severe boring in ankle-joints. No stool. E., boring in tibia.—2nd, m., hard stool.—3rd, 3 a.m., 50 dr. At 1 p.m. copious, soft, dark stool without griping, with flatus. Boring pain in tibia, e.—5th, 11 p.m., 50 dr. Slept well.—6th, 9 a.m., dark, soft, copious stool. 3 p.m., when sitting, severe drawing in both thighs down to knees and feet, like pains of fatigue. No more symptoms. (*N. Zeit. f. A. Kl., xvii, 97.*)

14. *Purging*.—1. A young scrofulous woman, who had taken with advantage for some time a mixture of G. and digitalis, added thereto an enema of decoction of former. The first brought away much thick glairy matter; the second, in addition, caused intolerable itching of the parts; the third caused evacuation of matters like the

scrapings of intestine, and much increased the pruritus; nevertheless, next d. a fourth enema was taken, which produced sharp cuttings and abundant evacuations, followed by palpitation and at length a shocking nymphomania, with all the delirium which usually accompanies this condition. It took 3 weeks of bleedings, baths, diluents and demulcents, and counter-irritation from a distance, to restore calm. After recovery, patient felt such shame at what had passed that she drowned herself. (BOUVIER, *Ann. de Santé*, 1816.)

2. Similar eruptions occurred in a young woman for whom such lavements had been prescribed by a herbalist to remove "obstructions." She had to be sent to Charenton, and could not be set out for 3 m. (*Ibid.*)

3. A third lady, who used same measures for a persistent quotidian, lost (after a enemas) her fever, but became permanently nymphomaniac, so as to compel her husband to separate from her. (*Ibid.*)

4. A young woman of 24 took, for weight in anal region, a single enema made with a handful of G., retaining it for $\frac{1}{2}$ h. She then had copious evacuations, vomiting, a fainting fit, and at length a complete nymphomania, for which she had to be confined, but from which she soon recovered. (*Ibid.*)

GUACO.

Mikania Guaco, Humb. and Bomp. Nat. Ord., *Compositæ*.

I. *Proving*.—1. In 1853 the Mass. Hom. Med. Society selected G. for provings by its members. A quantity of the freshly-prepared tinct. (of the leaves) was distributed among them, with printed rules for experimenting. Several negative provings were reported to the Society; and a few well-marked symptoms were obtained, discussed at the meetings, but—so far as I know—never published. A few brief notes, taken at the time, are all I have on the subject, save such facts as still remain in my memory. Dr. W. F. Jackson, after taking at various times 120 dr., had unusual flow of urine, which was cloudy, with excess of phosphate, sp. gr. 1024. He had pain over region of bladder, and feeling of weight and weariness through hips and lumbar region. Dr. T. B. Wales had some pain and rumbling of bowels, followed by thin watery discharges. The writer took a dr. every $\frac{1}{2}$ h. from 8 a.m. to 8 p.m., and another dose before retiring, for 3 d. On m. of 4th d. he was awakened at 4 a.m. with pain and sudden call to stool of dark brown fecal matter, thin and watery; slept till 6 a.m., when he had another stool, sudden, forcible, profuse, with appearance as of rice water; some pain in sacrum and back afterwards, with feeling of weakness and fatigue. Tongue was not coated, nor appetite impaired; no marked change in urine. The symptoms disappeared gradually in 2—3 d. (TALBOT, *Publ. of Mass. Hom. Med. Soc.*, vii, 259.)

2. Dr. ELB proved G. in doses of 5—20 dr. of tinct. This proving has never been published, but Dr. Elb gives the following account of the symptoms produced, so far as they relate to the spinal cord:—"Guaco produces humming in nape of neck, which extends to shoulders; tearing stiffness, drawing tearing, extending to axilla; drawing tearing in and between scapulae, extending into forearm; frequent fine stitches, tearing and violent drawing pain along spine, worse on bending; aching and pressure forwards in lumbosacral region. In connection with these spinal pains,—severe aching in occiput, which sometimes extends over upper half of back. In upper extremities,—aching drawing and simple drawing pains in deltoid, with a paralyzed sensation; tearing and luxative pains in shoulders (both these sensations extending into forearm); burning in shoulder-joint; tearing in elbows and fingers. In lower extremities,—soreness and pain as if beaten about hip-joint, drawing in thigh; drawing and swollen feeling in calves; very considerable heaviness in legs and drawing in them; tearing in ankle-joints; burning and tearing in soles. All pains in back and extremities are aggravated by motion, and continue a long time."

Dr. Elb adds:—"The following very constant phenomena should not be disregarded, viz. difficult deglutition, there being no inflammatory affection; constriction of larynx and trachea; dryness; heaviness of and difficulty of moving tongue." He

further speaks of having "experienced during the proving no depression of spirits, no decrease of mental activity, and in general no debility, but rather an excited condition;" of suffering often from headache and heat of head; and of there being clear indications of a congestion of the hæmorrhoidal vessels. (*A. A. Z.*, lxi.)

GUAIACUM.

Guaiacum officinale, L. Lignum vitæ. Nat. Ord., *Zygophyllaceæ*.

I. *Proving*.—1. HAHNEMANN, *Mat. Med. Pura*, vol. iv of original, vol. i of translation. Contains 29 symptoms from self, 113 from 3 fellow-observers, and 3 from authors.

2. *IBID.*, *Chronic Diseases*, part iii of original, vol. of translation. Contains only 16 additional symptoms from self.

II. *Proving*.—1. A young couple affected with secondary syphilis got a decoction of ℥vj Lign. Guaiac. On going to bed each took one half of the decoction. After 2 h. there came on a violent spasmodic inflammatory affection of trachea, especially larynx, accompanied with considerable palpitation of heart; both felt as though they should be suffocated, and were unable to leave their bed to seek help. When the doctor saw them he bled them. They recovered in 5 d. (LAMBERT, *Casper's Wechnsch.*, 1840, No. 44, p. 715.)

2. G. mainly influences the vascular system, promoting the cutaneous exhalation. In some cases it has been observed to produce only general lassitude and dulness. In others, according to Kraus, it sometimes occasions an exanthematous eruption. When the system is impressionable, it causes vascular fulness, and a proneness to congestion and inflammation, and when used for some time it disorders the digestion. In excessive doses it causes burning pain in throat and stomach, vomiting, purging, palpitation, disordered circulation, congestion of head, confusion of mind, giddiness, fainting, &c. (STILLÉ, *op. cit.*)

3. *σ*. By continued use it has caused a mild salivation (Burdach). The stimulant influence of G. is extended to the pelvic vessels, and thus the hæmorrhoidal and menstrual discharges are somewhat promoted by it. Continued use (of the wood) occasions heartburn, flatulence, and costiveness.

6. The bark acts in a similar way to the wood. Regnaudot injected at 8 a.m. ℥ij of an aqueous infusion of it into the veins of a young man. In ½ h. a shivering fit came on with colicky pains, followed by two stools; this shivering continued till 5 p.m. (PEREIRA, *op. cit.*)

4. With the symptoms of G. above described, stiffness, of a rheumatic character, is felt in nape of neck and small of back, with pains in the bones of the legs, the limbs feeling as if swelled; darting pains, apparently of a rheumatic neuralgic character, extend also from the feet to the knees.* When G. fails to act upon the skin, it often operates as a diuretic. (PHILLIPS, *op. cit.*)

* Dr. Phillips does not give his authority for these effects of guaiacum, but they are too pertinent to be denied.—EDS.

HAMAMELIS.

Hamamelis virginica, L. Witch hazel. Nat. Ord., *Hamamelidaceæ*.

1. *Proving*s.—*r. a.* Being in perfect health, I took, May 24th, 1851, 10 dr. of tinct., between 9 and 10 a.m. I experienced nothing until e., when I had return of symptoms with which I was troubled 15 years before, caused by running till I was exhausted, viz. laboured breathing, oppressive tightness of lower thorax, inability to make full and deep inspiration; when attempting to assume recumbent posture I found it impossible to breathe in that position, experienced crowding fulness of blood in neck, and such sense of suffocation that I could not lie down, and was obliged to sleep that n. in a rocking chair, with my neck perfectly free of any covering. All these symptoms passed off next m. On June 1st I took a teaspoonful, and experienced return of same symptoms, only more aggravated, and continuing two days and nights without being mitigated by antidotes,—camphor, hyoseyamus, &c.,—which I took. At this time I found it very painful to ride or walk. On 12th took a tablespoonful with like effect; I was unable to breathe comfortably except sitting or standing erect, and even then to make deep full inspiration.

b. On Aug. 20th took 1 dr. of 3rd dil. in e., but thought no more about it, being engaged with an obstetric case all n. Between 9 and 10 a.m., however, my nose began to bleed, and continued to do so for an h., till I smelt of camphor and checked it. With the epistaxis was feeling of tightness at bridge of nose, and considerable crowding pressure between eyes, also benumbed sensation over whole frontal bone. This occurrence was quite unprecedented.

c. A young man to whom I gave same dose 3 times a d. had after 10 h. profuse epistaxis, which I checked in like manner with camphor.

d. Mrs. W—, always regular, consulted me for some slight dyspeptic symptoms, and I gave her 1 dr. of 3rd dil. 3 times a d. In 2 d. she reported that (midway between two periods) she had been flowing considerably for 24 h., and had lost over a quart of blood, bright and fresh, not coagulable, unlike her ordinary menstrual discharge, which was dark and generally coagulated. Hæmorrhage ceased (medicine being suspended) in a few h. In 4 d. she came again, and I gave H. as before; she again commenced flowing 24 h. after taking it, and on leaving it off the hæmorrhage again ceased.* A similar thing occurred in a young lady, who for imaginary ailments had same prescription. (Dr. H. C. PIERSON, *Phil. Journ. of Hom.*, i, 460.)

2. *a.* Dr. BURT, Sept. 10th, 1864, at 9 a.m., took ʒss of 10th dil., prepared with water. At 10 great fulness of forehead, with pressing distress at root of tongue; distress at umbilicus; dull aching pain in sacrum and hips, quite severe when walking. First and last sensations earliest perceived, and lasted all d., also great dryness and burning of

* A leucorrhœa of years' standing ceased when this patient began taking H., and did not return.

palms. 17th.—Restless n., whole body feeling dry and hot; sexual dream with emission, followed by great weariness and severe dull pain in loins; fingers stiff, with sharp sticking pains in 1st joint of r. index; soft stool. At 7 a.m., ℥j of same. Fulness of forehead, and severe sharp pains in temples all d., with pressing sensation in pharynx; back and legs ached severely all d.; very gloomy and sad. 19th.—Feeling well, at 4 p.m. took 50 dr. From 5—9 slight frontal headache, with constant burning distress at lower part of epigastrium and umbilicus; desire for stool, but with greatest effort cannot accomplish it; during last h. drawing pain in testicles, rheumatic pains in legs, hands hot and dry. 20th.—Slept well; sexual dream, but no emission; r. wrist and fingers stiff; dull pains in lumbar region. 6 p.m., took ℥ss (aqueous dil.). At 9, slight headache, with severe distress at pylorus and umbilicus; dull aching in both testicles; dull pain in lumbar region. 21st.—Slept well; dull headache; slight distress in bowels; dull lumbar pain; hands and fingers ache, and are quite stiff; stool of natural consistence, but covered with mucus. At 11 a.m. took ℥ss. 8 p.m., felt all above symptoms, with dull pressive distress in pharynx, and roughness of fauces; dull pains in r. hypochondrium, and in feet and toes; very severe dull drawing pains in flexors of right arm. 22nd.—Slept well; sexual dream, with emission; stool at 6 a.m., covered with slimy mucus, with distress in bowels; very severe backache; hands hot and dry. At 10 took ℥ss. All d. had feeling as if something had lodged in fauces, causing constant inclination to swallow; dryness of fauces; slight pain in bowels; very severe backache; hands hot and dry; very gloomy; no disposition to move. 23rd.—Restless n.; throat very dry all n., with feeling as if something large had lodged there; compelled to swallow every few m., which caused dull pains in tonsils; much pain on swallowing food this m., and fauces are very much congested and tonsils slightly swollen; severe backache. At 9 a.m. took ℥ss. 9 p.m., tongue has two blisters on r. side, very troublesome; throat has been very painful; sharp pains in stomach; drawing pains in groins, passing into testicles, also in hands, legs, and feet. Took another ℥ss. 24th.—Slept well; very languid; skin hot and dry; flat, rough taste; very troublesome blisters on both sides of tongue; severe congestion of fauces and tonsils; deglutition very painful; a number of times during d. severe dull pains in testicles, with distress in bowels; hands hot; very gloomy. 25th.—Slept well; throat feeling better; natural stool, but with distress at umbilicus; all d. frequent dull pains in testicles; frequent inclination to urinate; constant backache. 26th.—Tonsils and fauces still congested, but not painful; tongue well. Last n. profuse cold perspiration all over scrotum, but there only. A number of rheumatic pains to-day in arms and legs.

6. On March 6th, 1865, I commenced a proving of the fluid ext., commencing with 10 dr. a d., and increasing after 4 d. to 50 dr., when I was compelled to stop the proving on account of the excruciating pains produced in the testicles. I awoke at 3 a.m. with these, and could sleep no more; for 4 h. I never suffered more acutely, no position would relieve me; pain was of dull drawing character, and would

ever and anon change suddenly to stomach and bowels, producing nausea and great faintness. The other symptoms of the earlier proving also recurred, but in greater severity. (*Am. Hom. Obs.*, 1865.)

3. Dr. WALLACE McGEORGE, æt. 26, in good health, save for a cold in head, took, Sept. 30th, 1867, 1 dr. of tinct. on retiring. No symptoms save such as the coryza might occasion. 3rd.—1 dr. at midnight. Same result, with (5th—7th) weary aching in r. lower extremity, where are varicose veins, these being larger and more sensitive; and occasional tendency to nausea and vomiting. 11th.—Another dr. 12th.—Slight headache (that of coryza had gone); qualmish feeling, tendency to vomit after every meal. 13th.—Headache over nose and eyes. (*Trans. of Amer. Inst. of Hom.*, 1874, p. 253.)

4. a. Dr. LEZARD, in good health, took, Nov. 1st, 1873, 5 dr. of tinct. At 10 a.m. dull headache, pain in r. lung. Took 5 dr. more at noon; felt dull and stupid. At 7, took 6 dr. Increasing headache; some burning in r. ear; rawness in throat and fauces; no desire to study or read; sleep somewhat disturbed; increased urination, urine pale. 2nd.—Took 5 dr. at noon; shooting pains running down r. forearm along flexor muscles into palm; dull headache; dimness before eyes; could not sleep well; urination profuse, urine pale. 3rd.—10 dr. at 9 a.m. Dulness in head; some pain in r. lung; rawness in throat; did not sleep well at n. 4th.—Tongue white in m., with bad taste; still dull headache, and occasionally shooting pain along r. upper jaw, extending to cheek; pain and full feeling at root of nose. 5th.—Could scarcely sleep at n., heard nearly every hour struck; some pain running down spermatic cords into testes; scrotum perspired freely during n. 6th.—Sharp, lancinating pain along molar teeth, extending to malar bone and also temporal; stitching pain along l. sciatic nerve; some pain in l. knee; feeling as if vermin were crawling along edges of hair; about 4 p.m. pain along spine on level with stomach. 7th.—Again pain along r. teeth; indisposition to work. 8th.—Itching in l. ear and on covered parts of body; stitching pain in l. hip and under l. patella while walking; face feeling better; slept better. During next 2 d. symptoms gradually wore off.

b. Gave son, æt. 13, 3 dr. of tinct. at noon. It gave him a dull headache, lasting about 1 h.; rawness of fauces,—he declared he had a sore-throat, and wanted me to treat it. Next d. throat was better, but he had severe pain in l. great toe.

c. Gave daughter, æt. 11, 1 dr. Immediately feeling of rawness in fauces; dull headache across frontal bone; could not read or study; had sudden pain in r. great toe while running, which she never felt before. (*Ibid.*)

5. C. J. WILTBANK, in good health, proved 6th and 3rd disks. From former he had bruised feeling in shoulders and upper arms, with gloominess, restlessness, and marked weakness of memory. After some d. bruised feeling seemed to descend into lower extremities, with severe headache and slight fever. From 3rd he had great desire to urinate, with little result; violent pain at back of r. head; aversion to water, to think of which makes him sick; frequent emissions and erections, with constant desire for embrace; cannot settle mind on

study. After these symptoms had subsided, took a dose of 12th dil., which brought them all back, but in milder form. (*Ibid.*)

6. A. P. HOLLETT, æt. 23, took, Oct. 1st, 1867, 2 dr. of tinct. at 10 p.m. 2nd.—At 9 a.m. flashes of chilliness over back and hips, extending down extremities; dull stupefying headache over eyes and root of nose. 3, general lassitude and feeling of weariness; limbs ache, with quite a tendency to go to sleep; irritable disposition; flow of large quantities of urine, with frequent desire to urinate; headache all d. 3rd.—Symptoms all aggravated; unable to study or read. Took antidote, and discontinued proving. (*Ibid.*)

7. C. H. EVANS, æt. 22, on e. of Oct. 1st, 1867, took 2 dr. of tinct. 2nd.—Headache in temples, worse in m.; thirst towards e. Slight pain in r. neck, along sterno-mastoid, worse on movement. Took antidote, and discontinued proving. (*Ibid.*)

8. W. M. JAMES, æt. 19, Oct. 1st, 1867, took 2 dr. of tinct. and retired to bed. 2nd.—Arose at 7.30 a.m. with hoarseness as from a cold; about 10 throat became slightly sore, causing pain on swallowing, continuing till bedtime. 3rd.—Arose at 8.30 a.m. with soreness of throat increased, also dryness, with thirst, causing him to drink large quantities of water at short intervals of time. 4th.—On rising, soreness of throat slightly better, almost entirely disappearing by e. Took 3 dr. on retiring. Soreness of throat quite gone by next m.; emissions on n. of 4th and 6th, and on 7th, at noon, severe pressing headache over r. eye, most intense while sitting or lying quiet, disappearing while walking in open air. On e. of 8th felt more thirsty than usual, and at 10 headache returned severely. (*Ibid.*)

9. C. S. COOPER, æt. 24, took, Nov. 20th, 1867, 1 dr. of 6th dil. After 2 h., dulness in head. 21st.—Feeling of languor all over body; micturates too often, with continual desire for it; sensation as if brain was swimming around, throughout this d. and on rising next m.

10. I. B. CHANTLER, student, took, Nov. 1st, 1872, at 2 p.m., 10 dr. of 3rd dil., and at 6 p.m. 15 dr. more. 2nd.—20 dr. at 7 a.m. and 2 p.m. During m. very severe sore pain in head of r. humerus, extending down to elbow-joint, with slight stiffness of latter; very severe frontal headache; sensation of heavy weight at back of stomach, also as if anterior lobes of brain were too large for cranium; severe sore pain running down thighs, particularly r.; soreness of knee-joints; very cross and irritable, not wanting anybody to speak to him. 3rd.—Wants to do nothing but smoke and be alone, though smoking seems to aggravate all symptoms of yesterday. 4th.—20 dr. at 6 a.m. Frontal headache is intense, can hardly stand it; pain in r. humerus from shoulder to elbow is very severe; increased stiffness of elbow-joint; forgetfulness, especially of words when talking, so that his roommate thinks him crazy. At 2 p.m., same dose; throat very sore; general languor and depression; heaviness at back of stomach increased. 5th.—At 6 a.m., 10 dr. Profuse urination, though only a little at a time; it feels as if bladder fills up very quickly, urine light-coloured; very sore throat, every inhalation seems to dry it up; severe pain in renal region on rising in m.; sore pain in popliteal spaces; pain in both humeri; sore pain in r. scapula, very severe. 6th.—Dry cough, some-

times expectoration of thick yellowish or greenish-grey mucus; putrid taste; every time he coughs stinging pain in *r. uvula*, as if it would break off; slight nausea. 7th.—Terrible frontal headache, worse sitting or standing, better lying; very severe sore pain on mastoid process of *r. temporal bone*; sore pain in eyes; muscles of face feel very sore and stiff; soreness and headache all over head; rubbing forehead relieves frontal headache, pressure also; spasmodic contraction of sphincter ani; vertigo, as if drunk; urine very profuse, pale grey deposit sinking to bottom of vessel, rising to top when shaken, looking like laudable pus; no thirst during entire time; cannot go to sleep at n. for thinking. At 10 p.m. took 10 dr. more. 8th.—All symptoms very much increased; feel too ill to go to lectures; fluent coryza daily 4—10 p.m., burning and smarting wherever discharge touches; sore pain down cervical vertebrae; stopped-up condition of head; pain in *r. humerus* intense. Symptoms yet increased on 9th, but then gradually left, pain in humerus leaving last. (*Ibid.*)

II. *Poisoning*.—1. A carpenter had been taking Pond's extract for several d. for acute rheumatism. Suddenly very alarming hæmorrhage from the lungs set in, from which he recovered under camphor, arnica, and china. (THOMAS, *M. H. R.*, i, 251.)

2. a. Drs. H. and FRANCIS BURRITT prepared a tincture of the bark, twigs, and leaves, and employed it in several cases of burns with the happiest results. The latter says: "In applying it to my own burnt fingers the suffering was instantly relieved. Some of it running down my hand, I thoughtlessly arrested it with my tongue. It produced immediate coldness of the whole body, and was not followed by any sudden reaction; no heat or fever followed, but the system gradually recovered its accustomed heat. Immediately after the sensation of heat was felt a tearing pain across the small of the back was experienced, and a painful fulness of the joints of the legs as if they would burst, which soon extended to all the joints of the body; at the same time a painful fulness of the brain was felt, especially at the top, with a desire to hear lofty sublime conversation, attended with perfect indisposition to talk myself. After the fulness of the joints disappeared there was a dread of moving the limbs as if it would cause suffering, with a weary stiff, full feeling. There was also a dry thirsty feeling of the throat, which water would not relieve, lasting full 24 h.

6. "I afterwards gave a lady, for pain in the hypogastric region, 1 dr. of H. 15. The same pain was felt across the back, the same suffering of the joints, and the same distress of head as in my own case, with a feeling as if a bolt was passed from temple to temple through the head and tightly screwed. This was accompanied by a feeling that she ought to be revered by all around her, and have great respect paid to her opinions. This condition continued for about 1 h. This lady had no knowledge of what she took or of what might be expected from the action of the remedy." (*Amer. Hom. Rev.*, i, 511.)

3. Dr. DAVIDSON gave 6th dil. to a woman for hæmorrhoids. These were relieved at first, but after taking medicine 3 times a d. for 6 d., for 2 d. she suffered severely from peculiar pricking pain, increased on pressure from wrist to shoulders. On examination pain was found

to follow course of superficial veins. Six months later she again took H., but after 4th dose had pricking pain in region of heart, lasting 10 d., and accompanied after 2nd d. by similar pain in veins of both arms. (*Monthly Hom. Rev.*, iii, 447.)

4. I was treating a young lady suffering from a complication of disorders, amongst which were almost daily epistaxis and throbbing headache. To check the epistaxis I put a few drops of the tinct. of H. into a tumblerful of water, and ordered a dessertspoonful to be taken alternately with the china which was being administered for the headache. The first dose of the H. was followed by flushing of the face, with most distressing throbbing, aching, and sense of fulness in head. These symptoms gradually subsided, and the intermediate dose of china was taken without any appreciable result. The 2nd dose of H., however, was immediately followed by the same symptoms as at first, head feeling as if it would burst. I stopped the medicine, and the epistaxis recurred next m. as usual. In a d. or two I resumed it, giving it in the 3x dil. Again the dilatation of the cerebral vessels took place, though the symptoms were not so severe as on the first occasion. (*HUGHES, Brit. Journ. of Hom.*, xxiii, 256.)

5. H., in 10 or 15 gr. doses 3 or 4 times a d., has caused violent contractions of the vagina, and a smarting burning sensation, followed by pruritus. In the same doses, administered to a man, I have known it to produce irritation of urethra, followed by a discharge and *ardor urinae* (this last also in women). (*PAINÉ, quoted by Hale, New Remedies*, 2nd ed.)

6. A woman of 58, using Pond's extract as a gargle for sore and ulcerated throat, had following symptoms:—Lowness of spirits; dizziness; coryza; crampy pains and violent throbbings in stomach; retchings; distension of stomach with wind; nausea; hiccup; palpitation; pain in groin; soreness of femoral vessels to middle third of thigh. On lying down was compelled to rise 15 to 30 m. afterwards to pass urine in large quantities. (*McGEORGE, Trans. of Amer. Inst. of Hom.*, 1874.)

7. In one case a patient informed me that H. invariably caused seminal emissions, which ceased when it was discontinued. (*BRUNTON, Pharmacology, &c.*, sub voce.)

HELLEBORUS.

Helleborus niger, L. Christmas rose. Nat. Ord., *Ranunculaceae*.

I. *Proving*.—1. HAHNEMANN, *Mat. Med. Pura*, vol. iii of original, vol. i of translation. Contains 92 symptoms from self, 162 from 8 fellow-observers, and 34 from authors.

2. NEMNINO. Very indifferent mood, without joy or sorrow (1st d.); anxious mood, with some indifference; is contented with nothing (2nd d.); extreme inclination to be irritable, the most trifling thing which is contrary to the wish excites anger (2nd d.); involuntary sighing; giddy, with increased heat in stomach and bowels (immediately after taking it); so stupid and giddy that all objects seem to move in a circle,—stupidity lasts till 2nd d.; unsteady in head, especially on walking, all d.; dull pain in frontal eminence with vertigo while sitting; dull frontal headache, e., with pressure in 3. temple; blunt preservative feeling on upper head like clavus; con-

tinual headache, as from compression, all d.; feeling in upper head as if brain were pressed in; momentary pain, as if blunt needle were thrust into upper margin of l. orbit, towards inner canthus (also in eye), relieved by pressure, but returning when this is removed, for $\frac{1}{2}$ h. (and d.); roughness in throat as after sharp, spirituous things ($\frac{1}{2}$ h.); great appetite, with frequent empty, tasteless eructations; nausea, with the same; heat rising from stomach to head, with quoushness, also same extending over whole body; distressing feeling of fasting, like borbormia ($\frac{1}{2}$ h.); painful feeling of distension in stomach; disagreeable fulness in stomach, with crackling in abdomen; in m., fasting, biting in stomach, then some griping and borborygmi, then only a slight soft stool, followed by urging (3rd d.); biting pain in stomach and gnawing there, with canine hunger during a short walk, with great prostration of lower limbs; burning, pinching, and biting in stomach, as from worms, lasting all d.; pain in stomach after meals, as if ulcerated, for 7 d.; l. false ribs seem to be secured on to spine ($\frac{1}{2}$ h.); sharp stitches under l. false ribs, in walking; whole abdomen swollen and sensitive (3rd d.); emie, as before diarrhoea; urging to stool, ineffectual; same to urinate, with little result, and much burning in urethra; while urinating no free flow, as if bladder had lost power (throughout proving); urine dark yellow, it decomposes in a few h.; general relaxation of genitals, without desire for coition. Frequent dry hacking cough, with painful tension in l. false ribs ($\frac{1}{2}$ h.); constriction of chest and dyspnoea; during each deep breath blunt stitches in l. chest, while lying down at n.; continued blunt stitches, with gnawing, in middle of spine; pain in rectum, as from overheated flatus; chilliness along back, relieved by warmth of stove, but soon recurring. (HARTLAUB and TRINKS, *Reise Arancimüllscheer*, i.)

3. *a.* LEMEX2 took, May 30th, 8 a.m., 1 gr. of powdered root; 9.30, severe pains in muscles of l. thigh for some m.—31st, 8 a.m., 2 gr. No effect.—June 1st, 8 a.m., 3 gr. Continued heat in interior of sinciput from 8.30 a.m. till e. Repeated pressure in l. side of head, a peculiar feeling of heat in nose, especially nostrils, for some m. 1 p.m., severe pressive pain deep in umbilical region, lasting upwards of 1 h.; several times severe boring in outside of r. knee, afterwards on l. zygoma, e. in knee.—3rd, 8 a.m., 3 gr. 8.30 a.m., pain in anterior muscles of l. thigh, later in l. thoracic muscles and r. calf, pressive pain deep in interior of head, sensation in eyes as if all were too bright, and black spots hovering before eyes. Pressure in l. side of head, later in r. knee. 9 a.m., heat deep in head. Several times pain deep in umbilical region, very severe 9 p.m.—4th, 5 p.m., 5 gr. 5.30 p.m., severe pressive pains in l. forearm, later in l. pectoral muscles. Pressure and pain in sinciput, also e. Severe pressure in r. wrist.—6th, 7.30 a.m., 6 gr. Pressure externally in l. knee, stitches in apex of lungs. 8 a.m., black spots before eyes till 9 a.m. Heat in head, extending to nape and back, continued. Pressure in r. toes. 9 a.m., hot feeling deep in umbilical region with obtuse pain there. The heat of head increased, cheeks and ears red, pulse quick, 100 or more when sitting. Frequent flushes of heat from head to back, down to sacrum, lasting till noon. Sensitiveness of eyes to light, pupils contracted. Pressure and drawing alternately in l. fingers, calves, l. elbow, under r. shoulder, in l. cervical muscles, r. knee, from 9 to 12 noon, afterwards more rarely in toes and l. side of head. 10.30 a.m., smarting in r. eyelids.—8th, 7.30 a.m., 7 gr. 8.15, pressure in occiput, continued pressure in l. knee, r. shoulder, toes. Black spots and rings before eyes, continued severe pressure on vertex, quick pulse. Much heat in back till 11 a.m.; sensitiveness of eyes to light. 9 a.m., heat deep in umbilical region, heat in head and face for 1 h. Continued pressure and heat in sinciput all d. Pressure in l. zygoma, knees, elbows, burning in nostrils, pressure in wrists, pectoral muscles, l.

shoulder, r. eyeball, lasting till e. From 10 a.m. till 1 p.m., scraping in fauces, and again at 10 and 11 p.m. From 5 p.m. pressure, tearing, heat in sinciput.—13th, 8 a.m. 8 gr. After $\frac{1}{2}$ h. pains commence in single joints as above; later, heat in head, pressure in forehead, quick pulse, flickering before eyes, heat in stomach. 11 a.m., much heat in back. Very severe pressure in last r. metacarpal bones. Pressure deep in r. eye. Eyes sensitive to light, small pupils; severe pressure on muscles above knees. 7 p.m., pains in sinciput increase; heat in back; much empty eructation.—18th, 7.30 a.m., 10 gr. After $\frac{1}{2}$ h. pressure in anterior muscles of thighs, on wrists, in sinciput; weight in sinciput all d. 8.30 a.m., shooting in tongue, pressure on r. knee, in metacarpal bones; shooting and pressure in calves; severe pressure in r. shoulder for a long time; compression above l. knee; flickering before eyes, great heat in face and head; quick pulse. 9.30 a.m., scraping and shooting in throat for some h.; burning under nose; heat in back till noon. 11 a.m., pressure in pectoral muscles, and deep in umbilical region, for 2 h.—19th. Pains in limbs continue.—23rd, 7.30 a.m., 10 gr. Symptoms as before.—25th, 7.30 a.m., 12 gr. After $\frac{1}{2}$ h. pressure in shoulders, then in thighs and knees. Head very hot, heavy, painful; heat in face; flickering before eyes; pressure in ears; quick pulse; heat in back down to sacrum; scraping in throat; redness of face. 9 a.m., pressure in upper arms; pressure deep in umbilical region, in ankle-joints, tibiae, eyes; severe drawing in fingers and toes; pain in various parts of back. The heat of head and back last till 5 p.m. Pain and weight and pressive pains in limbs all d.—July 4th, 7.30 a.m., 12 gr. Same symptoms.

6. July 13th, 8 a.m., 1 gr. ext. Hell. After $\frac{1}{2}$ h. much flickering before eyes; pressure in knees, toes, shoulders; weight of sinciput. 9 a.m., scraping and dryness in fauces till 3 p.m. 10 a.m., great heat of face, back, whole body; pulse quick; head heavy, confused, till e. Noon, vertigo when walking, must stand still, else would fall.—15th, 8 a.m., 1 gr. Severe pressure in r. ankle and leg, then in r. shoulder, in joints of r. finger between metacarpus and fingers; flickering before eyes; pressure in sinciput; scraping in throat; tearing in various parts of head; severe pressure in lower part of thigh, in elbows. 8.30, heat and heaviness of head. The pains in joints jump from one part to another. 9 a.m., heat and redness of face, quick pulse; heat in stomach, much eructation; stitches under l. ribs. 2 p.m., several times severe shooting in l. eyeball. All d. dryness in mouth and scraping in throat. 4 p.m., considerable increase of heaviness, heat, pressure in sinciput, which lasts till 6 p.m., then ceases; suddenly violent pressure in r. upper arm, and the head symptoms go off, but soon return when the pain in arm ceases, and then head symptoms alternate with pain in knee, in r. leg, l. hand, and upper arm; pulse quick, hands cold, head and face feel hot, but the head symptoms are always the worst, and do not cease till 11 p.m. N., troubled with anxious dreams.—16th. Head still heavy. During d. same pains in arms, toes, knees.—17th. Occasional slight pains in fingers, knees, and shoulders.—15th, 8.30 a.m., 1 gr. After $\frac{1}{2}$ h. pressure and weight in sinciput. Pressure in r. knee, leg, tibiae, joints of fingers, wrists, and

ankles until e., but gradually diminishing. 10 a.m., much heat in back; scraping in throat; smarting in borders of eyelids. 1 p.m., vertigo when stooping. Symptoms on the whole slighter than on previous occasion.—Aug. 5th, 5 p.m., 1 gr. Same symptoms as above. At n., when sitting up, vertigo, also on waking in m., it lasts some m.; head heavy, then nausea comes on; when sitting and bending head forwards is better, but nausea and vertigo recur when he raises head.—6th, m., pressure in shoulders, weight and pressive pain in sinciput. For some d. visible twitching of l. index towards thumb, sometimes thumb twitches along with index, sometimes quick twitching of muscles between these fingers, distinctly visible under skin; this is frequently repeated during d.; it comes on when walking, sitting, and reading.—7th. Frequent tearing in toes and fingers. All d. head heavy and confused, inclined to vertigo, especially in room; better in open air, but even then a feeling as though vertigo would come on.

c. Nov. 24th. Took 5 dr. tinct. ($\frac{1}{10}$). After $\frac{1}{2}$ h. pains in forehead, knee, dorsum of foot, calf, occiput. After 1 h. heat and fulness of head; pressure in stomach. Towards e. pressure and shooting in knees and thoracic wall. Effect lasted 12 h.—28th. 10 dr., caused more heat and weight in face and head, in between increased coldness in back, then pain in thoracic wall, in heel, legs, cranial bones. All d. sinciput dazed, heavy, painful. Twitching in upper eyelid.—Dec. 5th. 15 dr., after $\frac{1}{2}$ h. pressure in sinciput, head hot and heavy; intolerance of light, pain in knee, big toe, leg. Nausea; pressure in muscles of arm, scapulae, temples, cranial bones, lumbar muscles; shooting in thoracic wall. Effect lasted 14 h.—12th. 25 dr., acted more strongly. Immediately pain in knee; prickling and numbness of r. hand, which felt furry, coldness all through r. arm; all this lasted 2 h. Numbness in both feet; boring and shooting in forehead, occiput, r. thigh and leg. Deep in throat shooting, burning, dryness; heat in back, violent boring deep in r. eye. Effect lasted 10 h.—20th. 30 dr., soon drawing in calves, numbness of r. hand, coldness all through arm to points of fingers; prickling in l. foot; sinciput heavy; before eyes dark and bright spots; pressure in thoracic wall, toes, and fingers, in r. groin, deep in l. eye, in knees and ankles, frontal bone, dorsum of feet, heels and calves. For several h. coldness throughout body, with cold hands and feet; heaviness in sinciput, anorexia, painful distension of abdomen. E., violent cutting in belly, great pressure deep in sinciput.—Jan. 17th. 40 dr., after $\frac{1}{2}$ h. heaviness of head, great coldness through back, furry feeling with increased coldness in r. arm and hand, shooting and tearing in ankle to toes. Pressive burning pain in stomach; pressure on eyes; formication in l. cheek; shooting in calves, shoulders, toes; prickling in all toes. All d. pressure in sinciput; boring and drawing in forehead, fingers, forearm, knee; the symptoms lasted till 11 p.m.—12th, m., boring in forehead and along coronal suture. E., pressure in r. ankle and above and below it, then in metacarpal bones. Effect lasted 36 h. (*N. Z. f. Hom. Kl.*, vii, 172.)

4. FRANK, æt. 29, sanguineo-choleric temperament, healthy though rather delicate. Feb. 8th, took for a troublesome vesicle on tongue which had been there a few d., at 10 p.m. 3 or 4 dr. H. 1 on

tongue without swallowing them.—9th. Woke about 5 a.m. with pain in belly and urgent call to urinate, though there was but a small quantity of urine in bladder. The pain in belly continued, consisted of cutting and twisting round navel, a sort of flatulent colic, which could only be alleviated by lying curled up. Flatus was discharged, and the pain gradually subsided, was quite gone in 1 h., and left behind a feeling of disagreeable relaxation of abdomen, which was relieved by pressing on it. He hardly felt the vesicle on tongue, and after a few h. chewing was hardly interfered with, but he had a sore pain in the affected part of tongue for a short time. 8 a.m., stool passed with difficulty, as though the bowel had no contractive power, though the stool was soft and partly thin. Nothing more all d. On going to bed took 4 dr.—10th, 7 a.m., a transient pain in abdomen with discharge of flatus. 10.30 a.m., twitching cutting from r. iliac region downwards, and from navel outwards, extending to l. side of umbilical region. Immediately afterwards the same pain, which remained confined to the first-named point, and this was painful to pressure. Continued to take the med. to the extent of 3 to 5 dr. in e., but felt nothing peculiar from it. (*Alg. h. Z.*, xviii, 114.)

5. Dr. BRUNO LINCK, æt. 36, with exception of occasional catarrhal attacks, strong and healthy, took, Sept. 27th, 6 dr. tinct. All d. scraping sensation in soft palate and fauces, occasional eructation of air, and twice a pinching sensation, once in the r. side of chest in front, the other time on the l. side or cardiac region.—28th, 10 dr. After 1 h., forcing and pressing asunder in anus, followed by a difficult stool, consisting of balls of feces with a frothy substance intermixed. After 2 h. cold feeling in abdomen, such as usually precedes an attack of colic, but it soon went off. At every inspiration a rattling in throat, as from mucus there, not observed during expiration; it sounded like the opening and shutting of a ventilator. On inspiring, the respiratory passages seemed to be narrowed, and the act of inspiration, in place of being noiseless, was audible as after running when catarrh is present.—29th. No med. Pressing asunder suddenly in rectum, as though about to have a stool, but the evacuation was of thick dry feces, passed with difficulty and with sore pain in anus, which lasted some time after the stool. E., a very violent pressive tearing pain on a small spot at external side of l. orbital border, as though seated between eyeball and orbit and involving the eyeball; this lasted 5 m., and there were three fits of it. After this, a very marked painfulness of the whole anterior and external part of r. thigh, something like sciatica, a sort of tearing cramp not moving from one part to another; it lasted but a short time. Great drowsiness in e.—30th. Large, formed, difficult stool with burning sore pain in anus, which continues afterwards in sphincter. In e. pain like sciatica as before. All d. feeling in anus as if suffering from obstinate constipation.—Ocr. 1st, m., no call to stool, feeling in anus as if it were completely closed, then sudden pressure and distended feeling with call to stool, at first merely flatus, then a large firm stool, during and after which extreme sore feeling in anus. E., tired pain in both legs, especially when standing, with bruised pain in sacrum.—2nd. 20 dr., pain in l. knee, in patella, aggravated by

bending knee and pressure as from a violent blow. After 1 h., discomfort in abdomen, with cold feeling as if diarrhoea were coming on. Soon afterwards, sudden call to stool with cutting in abdomen, and then another stool, pappy, with relief of discomfort. Trachea full of mucus, breathing audible, all these symptoms gone by noon. After dinner, extreme heat of face, burning red face.—3rd. Pain like sciatica in l. hip; discomfort in abdomen with some drawing, as when colic is about to ensue, then urging to stool and pappy evacuation. In afternoon renewal of sciatica-like pain in fits in the region of the outer surface of os ilii. Chilliness along back, dodging about near the vertebrae of l. side; for a moment spreading over l. shoulder forwards. Painful pressure in a small spot in l. eyeball between this and external superior orbital wall. The same pain as in the l. hip in the r. thigh. Tearing in l. shoulder.—4th. Pain in abdominal parietes in front and side, as if bruised; sudden, obtuse pressure as from foreign body in anus, with call to stool, but only flatus comes; after a while renewal of the pressure and evacuation of a scanty thick-shaped stool. In serobiculus cordis, and just below it, a pain like spasm of stomach, compelling him to rise up, whereby it is ameliorated, with nausea. While walking, this feeling goes off, but returns when sitting immediately; then eructation, without relief. The sacral pain continues. Bruised pain in anterior and lateral abdominal integuments. Fine tearing in r. forearm; tendency to sweat in afternoon. All d. nearly, painful feeling in l. hip as if excoriated or burnt, aggravated by the slightest touch.—5th. Fruitless call to stool; fine tearing pressive pains in l. frontal protuberance, affecting l. eye. Continued burnt pain in l. hip. (*A. h. Z.*, xxxix, 281.)

6. GOTTLIEB SCHAUFF, farmer, æt. 23, phlegmatic temperament, subject to pimples on face.—Sept. 20th. 4 dr. tinct. Boring stitches in spine close under shoulders. Obscuration and pressure in forehead, and especially in eyes, as though something would fall out of them.—22nd. 4 dr. Shooting in l. costal region.—23rd. 5 dr. Bitter taste of food all d.—24th. 7 dr. Pain in forehead as if head would burst, violent pressure deep in orbits. Digging pain in abdomen. Stools more frequent, pappy, and undigested. E., relaxed state of arms and legs. Staggering vertigo with tendency to fall forwards. Quailmishness and nausea with constant inclination to vomit; frequent yawning; loss of appetite; some transient slight stitches in l. side of chest occasionally.—27th. 10 dr., feeling in stomach as if he should vomit.—29th. 10 dr. Painful pressure in head above eyes.—30th. 10 dr. Bitter taste lasting long; after 5 to 8 h. sourish taste with increased saliva, sneezing with nausea.—Oct. 1st. Full feeling in stomach along with ravenous hunger. Stool badly digested; confusion of head with heat, increased by stooping. Belching up of bitter fluid, hiccup; sense of smell dulled; cross humour; heaviness of limbs; symptoms worst p.m. and e. Fermentation in abdomen; shooting in l. eyeball. (*Ibid.*, 284.)

7. Experiments on healthy persons. The watery extract was given in doses of 5, 6, 10, 15, 20 and 29 gr., the alcoholic extract of the root gathered in October, 5, 10 and 15 gr., or the alcoholic extract of the May root in doses of 15 gr. The altered extract of the October

root in 5, 10, 15 gr. In none of the provers was there any increase of stools, in several a certain amount of slowness of evacuation of the feces was observed. The most noteworthy alterations were observed in the organs of circulation, in the brain and organs of sense, and in the alimentary canal. Pulse always became slower, either immediately, or after a transient quickening. But the change did not last long, 2 or at most 3 h. If the pulse was at first quickened the increased rapidity lasted only $\frac{1}{2}$ or at most 1 h., and amounted to 5, 20, or 25 beats per m. The slowing never exceeded 2 h., often much less, and amounted to 5 to 10, at most 15 beats per m. The cerebral symptoms were never absent; they showed themselves in confusion, weight of head, dull headache in forehead and sinciput, vertigo, drowsiness, and either in deep sleep or in restless sleep disturbed by dreams, or in coma-vigil; at same time head and face were sometimes hot and extremities cold. There were also roaring and tinnitus aurium, and moderate dilatation of pupils, and in one prover the sight was clearer. Usually there was dryness of mouth. Pains in stomach and bowels usually after 2, 4, or 6 h. In addition there was inclination to vomit, mostly late in e., sometimes in m., but actual vomiting never occurred. Rumbling in bowels and uneasiness in abdomen continued the following d., but diarrhoea never occurred. The larger doses caused more or less prostration, weariness, malaise, which lasted over the next d. In one prover there was unusual depression and sadness, which lasted several h.

b. A delicate, emaciated man, æt. 31, commenced with $\frac{1}{2}$ scruple n. and m. and this was continued 3 d. 1st d., no stool; 2nd, a normal stool; 3rd, none. 4th and 5th d., the dose was increased to a scruple twice a d. 6th d., 2 scr. m. and e., a firm stool e. He now got $\frac{xj}{m}$. and following d. 7th, no stool. 8th and 9th, firm stool. Hitherto nothing abnormal had been noticed except some increase in quantity of urine. 11th d., at r., some pain in abdomen. After walking in garden remarkable pallor, sunken features, unsteady gait; violent cutting in abdomen and weakness. He leant on a tree, supported by an attendant, the arms hung helplessly down, hands cold, face pale, eyes deeply sunken, lids closed, pupils uniformly dilated, hardly responsive to light, lips bluish, tongue clean, skin of face covered with sticky perspiration, pulse thread-like, 102. He did not speak, was put to bed, and was hardly in before he was seized with violent, painful purging, followed by some retching, and he vomited twice a slimy yellowish fluid. The pains in belly and retching lasted 3 h., during which time he had 3 liquid stools with violent tenesmus. (SCHROFF, *Virch. j. d. prakt. Heilk.*, lxxii, 72, 1859.)

II. *Poisonings*.—1. Two men drank each a glass of decoction of rad. Helleb. nig., Sig. Salomonis and Fol. Hederæ. After $\frac{1}{2}$ h. violent pains came on; one of them took another glassful, whereupon the pains increased. Vomiting, caving, violent twitchings, extreme cold feeling, and lastly death, were the consequences. The other died with similar symptoms 2 $\frac{1}{2}$ h. after taking the poison. P.M. 16 h. after death. Lungs congested with blood, m.m. of stomach inflamed, of brownish black colour, almost gangrenous. (FERRARY, *Journ. univ.*, 1818, April, p. 12.; in Wibmer.)

2. A woman who had just been confined took a few grains of extr. *Hell. nig.*, and had loose stool; some h. later vomited mucus, sneezed about 12 times, and died sneezing. (HILDANUS, *Cent.* 4, *Obs.* 32; in Wibmer.)

3. A man, æt. 50, took $\frac{1}{2}$ drm. extr. aquos. *Hell. nig.* He had pain in bowels and vomiting, and died in 8 h. P.M., whole intestinal canal inflamed, especially large intestine; 42 h. after death limbs were supple. (MORAGANI, *De Sed. et Caus. Morb.*, epist. 59, art. 15; in Wibmer.)

4. A youth, æt. 19, took by mistake a tablespoonful of powdered *Hell.* Soon, frequent vomiting. When seen by the doctor after 2 h. he had vomited 60 times, was covered with cold sweat, face pale and altered, small trembling pulse, abdomen distended, slightly painful to touch. The retching and vomiting continued, spasmodic jerkings in muscles of thighs, violent burning in stomach and œsophagus. After 3 h. almost all symptoms gone. (FAHRENHORST, *Rust's Mag.*, xxv, pt. 1, p. 190; in Wibmer.)

5. A woman took a teaspoonful of an infusion of 1 $\frac{1}{2}$ oz. of root in 12 oz. water (kept in a covered jar in an oven all n.). It caused pain and pricking in tongue, fauces, and throat "as if 100 pins were pricking her." Painful sense of constriction and strangury (? strangulation) of throat, with difficulty of swallowing; pain at epigastrium, very violent sickness. Tongue and other organs of deglutition began to swell; much viscid mucus voided from mouth. Eyes sunk, excessive prostration, discoloration about eyelids, great collapse of vital powers, like collapse of Asiatic cholera; extremities cold, surface of body covered with cold, clammy sweat. Pulse from 30 to 50, very small, at times scarcely perceptible. After sulph. zinc emetic, camphor, coffee, hot applications to extremities, she rallied in 3 or 4 h. Pulse rose to 68; complained of headache. Purgatives given and she soon recovered. (MASSBY, *Lancet*, 1856, ii, 100.)

III. *Experiments on animals.*—1. *a.* The activity of the several species of the genus *Helleborus* has been found to depend upon the presence of two glucosides, *helleborin* ($C^{23}H^{42}O^{12}$) and *helleborein* ($C^{28}H^{44}O^{16}$). The former is not found so largely in the *H. niger* as in certain allied species. It is a very energetic substance, though having no action on the skin, and acting less intensely on mucous membranes than its fellow. Administered by the stomach to mammals, it caused licking and chewing movements; teeth-grinding; a certain amount of salivation in cats and dogs; vomiting in dogs and birds; pains in the belly (apparently) in dogs and rabbits; efforts at evacuation in dogs. On dissection, mouth and œsophagus were healthy; in pigeons the crop was always extensively inflamed; in mammalia stomach and intestines showed signs of irritation in varying degrees, from simple increase of secretion to inflammation of high grade with extravasation of blood. The remoter actions of the drug fell upon the nerve-centres, especially the brain, paralysis of which appeared to be the cause of death. In mammals a period of excitement and restlessness was followed by paresis of the hind limbs, with tremor and vacillation of the whole body; a further stage was marked by profound paralysis and anæsthesia; cats

alone recovered comparatively soon from this state. Marmé and Husemann always detected marked congestion of the membranes of the brain and cord. In rabbits there was also diminished consistence of the cord and extravasation of blood into the cranial cavity. Functions of other organs were affected in much the same way as by narcotic agents in general; urinary secretion somewhat increased (in cats only); respiration slowed (during narcosis); hypostasis and hyperæmia in lungs after death. Heart's action was not reduced, except by heaviest doses; especially in frogs and dogs cessation of pulsation was very late. Pupils dilated widely in narcosis, but contracted *post mortem* under electric stimulus.

b. The experiments of Marmé with helleborein show interesting differences of effect from the above. The action is both local and remote. Locally, it does not affect skin, but is intensely irritant to mucous membrane. Absorbed, it exerts a powerful influence on the heart and the intestinal canal; yet it does not seem so deadly to animals, in equal dose, as helleborin. Very small doses administered by the stomach for a long period produce a cumulative effect, shown by loss of appetite, nausea, and vomiting, which disappear rapidly on suspending the drug; and occasionally this mode of administration has produced (as larger doses will) pain, increased secretion, and gastro-enteritis. The special action of helleborein on the heart resembles that of digitalis, but is quantitatively much weaker. Small repeated doses slow the heart; larger doses hurry its action, and then usually arrest it suddenly; the action is through the vagus, and blood-pressure is heightened both in the slowing and in the hurrying grade. Respiration lasts longer than the heart's action; it is nevertheless affected,—first quickened, then made slow and difficult. Salivation is always produced, whatever way the drug is introduced into the system; diuresis is constant, and the kidneys are hyperæmic after death; in female animals the uterine mucous membrane is invariably congested. There is semi-paralytic weakness of the limbs, and after very large doses there are severe convulsions. (PHILLIPS, *op. cit.*)

HELONIAS.

Helonias divisa, Pursh. (*Veratrum luteum*, L.). False unicorn, blasing star. Nat. Ord., *Melanthaceæ*.

I. *Proving*s.—1. Dr. TULLY experimented with 10—30 min. of zinc, of root. Its effects were—vertigo; slight darting pains in head; sight affected, a sensation of much light, with indistinct vision; on much exertion or sudden and considerable motion of head complete blindness for a time; an indescribable sensation in hypogastrium; nausea, and commonly vomiting, without relief of symptoms; pulse weak and quite unfrequent (even as low as 40); cold extremities. After vomiting, sensations of alternate heat and cold, more particularly referred to hypogastrium. Once, 2 h. after dose, glow in hypogastrium, with occasional flushes of heat through whole system. All

symptoms reach their height in 4—5 h., and in 7—8 h. have completely disappeared. (*Bart. Med. and Surg. Journ.*, 1832, p. 136; from Allen.)

2. Dr. BRANCH took ʒj of saturated tinct. After 2 h. genial glow in stomach, with occasional flushes of heat; feeling as if pupils admitted too much light, though they did not appear to be dilated; on sudden turning of head became almost blind. After 2½ h. became sick at stomach, and rejected dinner, which was in a state of fermentation; previously to this an indescribable distressing sensation in epigastrium; pulse weak, hardly perceptible, about 60; extremities cold; on walking out, before he had proceeded 200 yards he became blind, but on stopping for a short time sight gradually returned. After 4½ h. symptoms were at their height, and pulse was only 40; after 7 h. all had pretty much disappeared. (*Ibid.*)

3. Dr. C. H. BURK proved solution of 30 gr. of Helonin in ʒj of alcohol, diluted with ʒss of water. Oct. 15th, 1862, he took ʒ. at 10, 4 at 11, and 8 at noon. Soon after each, pain, tightness, and pressure at stomach, partially relieved by eructation. At 1 took ʒ. at 2, 50 at 8 and 10 p.m. Between last 2 doses slight pain was felt through temples, with fullness in head and vertigo. 16th.—Took 40 dr. at 7 a.m., 50 at 9, 60 at 11 and 12. Felt nothing but an unusual degree of languor, and weariness and weight in region of kidneys. Took 68 dr. at 2 and 60 at 3. Now made sol. of 20 gr. in ʒj of water, and took 40 dr. at 4 and 50 at 7 p.m. Symptoms mentioned as occurring in head are more decided; fullness increases, and there is sense of pressure from within up to vertex,—latter feeling aggravated by looking steadily at any fixed point; a larger amount than usual of clear light-coloured urine has been voided during past 12 h.; pulse 84, full and a little irregular. Took 60 dr. at 9; no fresh symptoms. On 17th, took ʒss at 7 p.m., and on 18th same at 9 a.m. and 12 m. P.m. and e., unusual weariness, with feeling of weight in renal region; mind dull and inactive. 19th.—Took ʒss at 8 a.m., 12 m., and 5 p.m. Pain in vertex, increasing by stooping, with vertigo; sharp spasmodic pain in back, running to crest of l. ilium. Has awakened each m. since proving began at 5 (an unusual hour) with tongue and fauces dry and bitter, disagreeable taste in mouth. 21st.—At noon, ʒj; soon after, cramp-like pain in stomach. At 8 p.m., ʒj; severe rheumatic pains in r. hip-joint, worse during motion; pains in forehead, as if band about 1 in. wide were drawn from temple to temple; pain and lameness in whole back, dryness and bitter taste in mouth. There also came on dull, gloomy, irritable mood; he could not endure least contradiction, or receive suggestions in regard to any subject; all conversation was unpleasant, and he desired only to be let alone and allowed to find fault with everything around him. 22nd.—Took ʒj at 9 a.m. and 12 m. Mental state just described became continuous, and lasted unchanged for several d. On 26th he had pain in lumbar region, about upper part of sacrum and pelvis, more constant and severe than previously; pain worse at n. than in d. (HALE, *New Remedies*, 2nd ed.)

4. Dr. S. A. JONES, March 24th, 1868, at 4 p.m. took 15 min. of tinct. in ʒiv water. At 6.15, while at supper, nausea as though

vomiting would ensue, and feeling in bowels as if diarrhoea would come on. All soon passed away. "Between 8 and 9, while reading, fulness and pressure from within outwards at vertex and occiput; at same time scalp seemed to burn. When I read earnestly, concentrating my attention, all these sensations vanished; but if I turned my attention from the book they were instantly perceived. I found that I could get rid of them or bring them on just as I liked. While undressing, I felt a sudden and momentary but very acute pang of pain in region of kidneys, as if I had been shot there." 25th.—At noon took 30 min. 2.30, dull heat, hardly a burning, in renal region; also pressure at vertex as if skull was too full; took 1 gr. of Helonin. 5, painful aching in r. ankle-joint as if wedge was driven in. 9, burning in lower abdomen as if whole were filled with quite warm water. 26th.—2 gr. at 12 a.m. At 4.20 p.m. fulness in forehead all through between temples. Took 4 gr. Same aching in ankle again, not interfering with locomotion. Two stools to-day, very unusual. 27th.—Through forenoon, vague distress in stomach, slight dull headache in forehead, extending towards vertex. 3, took 12 gr. A little weakness in sacral, and burning in upper dorsal spine. 28th.—A second stool again to-day, yellow and mush-like; before it feeling as in diarrhoea, after it slight burning in anus. An easy mile's walk made him feel very tired and weak; also aching pain in chest, as from overwork, as if whole front of chest, and especially a strip some 4 in. wide down sternum, had been compressed in a vice. After resting an h. very tired feeling in lower lumbar and sacral region. 10.30, 160 min. of tinct. When sitting reading at n. great heat and burning in dorsal region, especially marked in space between lower half of scapulae. Pain in l. side, as if spleen was distended, causing a dull ache; it did not last long. Still tired lumbo-sacral aching. Sensation as if kidneys were two bags of hot water (felt so distinctly that he could have outlined kidneys by it). Warm numbness in legs, beginning at tendo Achillis, creeping upwards, most marked over gastrocnemius, and in knee. 29th.—Yellow and mush-like stool; front of chest very sensitive to air; while walking, same tired aching as if chest had been compressed; on every movement flushes of heat pass over him (in a room). At noon 480 min. 1.45 p.m., burning in sacral region; 2.30, burning in stomach, burning and aching in spine (dorsal and lumbar), tasteless eructations; leaking after each act of micturition, which lasted a long time; legs at times feel almost as numb as after 10 min. of Fleming's tinct. of aconite; numbness in feet goes off by motion, and is only felt while sitting still. Exceedingly restless, and want to be continually moving about, feel better when moving, or when doing something which absorbs attention. 30th.—Nothing but slight dull ache in sacral region. 11 a.m., 540 min. Only symptom was increase of this aching. 31st.—Back across lower lumbar region very tired and weak; p.m., also burning there, and great pressure on vertex. In e. spinal symptoms gone, but it seems as if kidneys themselves ached. Two small brown stools to-day, preceded by bellyache. April 1st.—Impressing headache on vertex returned p.m., and had colic-like pains in hypogastrium off and on all d.; back lame and aching; unusual feeling

of fatigue, without cause; this and all pains ceasing when he moves about, but returning on sitting still. Bowels full of flatus; many tasteless eructations, each causing feeling of nausea. and.—Burning between scapulae, and tired aching in lumbo-sacral region. 6th.—Since 3rd, daily headache at 4—5 or 8—9 p.m., dull, temporo-frontal, with pressure over root of nose; feels feverish with it, but without heat of surface or acceleration of pulse; also very irritable. Aching in sacrum again to-day. During week from 12th—18th all aches and ailings left him, and he felt unusually well.

8. Dr. Jones made above experiment with view of ascertaining effects (if any) upon urinary secretion. He was accustomed—owing, as he thinks, to tobacco-chewing—to pass urine of generally faintly alkaline, sometimes neutral reaction, and almost constantly depositing somewhat copiously the amorphous phosphate of lime. From March 28th to April 9th an acid reaction was frequently observed; and after the proving, the presence of the deposit became the exception instead of the rule of his life. He found the drug somewhat diuretic. It lowered the sp. gr. of the urine, and seemed to increase the elimination of urea; but Dr. Jones considers the large quantity of alcohol taken in the tinct. a disturbing factor in the results. (*Amer. Observer*, April, 1871, and Jan., 1873.)

11. *Poisoning*.—1. When taken in doses of 5—15 gr., it acts as an emeto-cathartic, producing griping, burning sensation in epigastrium, and great activity of salivary glands. Indeed, I have known the most perfect salivation to follow the use of large doses of Helonin. In doses of 1—5 gr., it produces irritability of stomach, and slight purging with burning sensation in bowels, irritation of urethra, pain in kidneys, which is followed by albuminuria, indicating congestion, and large discharges of urine, with slightly increased sp. gr. (*PAINE, Conc. Med.*)

2. I prescribed for a woman suffering from uterine atony Helonin, 1st trit., 2 gr. 3 times a d. In a few d. she came to me complaining of an entirely new and annoying symptom, viz. intense irritation of external labia and pudendum, which were puffed, not red, and burned and itched terribly. So intense was the irritation that she could not prevent herself from scratching with her nails until the surface bled. Every m. cutaneous surface would fall off in thin, transparent exfoliations. Mucous membrane of labia was red, swollen, and covered with white curdy deposit like aphthæ. Urination was very painful, on account of the scalding sensation as the urine passed over the denuded mucous membrane. No sexual excitement was present. Speculum showed inflammation to extend one third the length of vagina. On suspending Helonin, and prescribing lotion of borax, in a few d. symptoms subsided. (*E. M. HALL, Am. Obs.*, x, 55.)

3. Dr. E. CLARK has observed in 6 or 8 cases, from 1st trit. of Helonin, pain in lower part of back through to uterus, piercing, drawing; breasts swollen, nipples painful and tender, will not bear pressure of even ordinary dress; great uterine hæmorrhage came on, and continued till drug was left off. (*IBID.*, *New Remedies*, 2nd ed.)

HEPAR SULPHURIS.

Impure calcic sulphide, CaS . Liver of sulphur, prepared with powdered oyster-shells and flowers of sulphur.

I. *Proving*.—1. HAHNEMANN, *Mat. Med. Pura.*, vol. iv of original, vol. i of translation. Contains 282 symptoms from self, 16 from two fellow-observers, and 10 from authors.

2. *Idem.*, *Chronic Diseases*, part 3 of original, vol. of translation. Contains some 350 additional symptoms from self.

II. *Psionings*.—1. A little girl, æt. 8, had whooping-cough, for which H. was given. She had taken it for some d. with good effect, but after taking 9 gr. m. and n., she slept till 4 a.m., and then had a paroxysm of more than common violence. The contents of stomach were ejected, large masses of mucus flew out of her mouth, the face was bloated, eyes swollen, pain along the attachment of the diaphragm to the ribs, the cardia and back very sensitive. The 4th dose brought on a febrile state of extreme violence, burning heat, unconquerable thirst, severe headache and delirious raving. The next n. the febrile state recurred, but less violently, she had several stools of green mucus mixed with discoloured feces. The 3rd d. there was again some fever and the same kind of stools. During d. the patient was lively, but weak. (HINZE, *Hufeland's Journ.*, li, pt. 3, 75; in *Frank's Mag.*, ii, 752.)

2. A boy, æt. 16, in order to cure the itch, took 3 dem. of H. in water. He soon felt unwell, went out into the open air to get breath, and in a few m. retched and vomited and fell down dead. *P. M.* after 36 h. *L.* lung adherent to costal pleura, lungs coloured blue, no blood in ventricles of heart. The veins full of black blood, arteries empty, liver blue throughout its substance, stomach small, contracted, containing a spoonful of greenish-yellow mucus, smelling of H., its inner and outer surface dirty yellow, small intestine empty, normal colour; brain normal, its blood-vessels full of black blood. (CAMMERER, *Med. Corr. d. würtemb. ärzt. Ver.*, vii, No. 18, 41; in *Frank's Mag.*, ii, 114.)

3. A woman, æt. 40, subject to pyrosis, prepared a solution of H. and carb. of pot. of which she drank a quantity containing 3 to 4 dem. of H. After a short time she was found lying on the bed with her head over the utensil into which she had vomited; she was unconscious. She had vomited about half a tumblerful of whitish fluid whence much gas was emitted. She was quite senseless and lifeless, no pulse; the heart seemed to be faintly trembling. The whole of the skin, especially of the face, lips, ends of fingers and eyelids had a violet hue, the tongue protruded betwixt lips, the mouth exhaled a mephitic vapour, and viscid brown mucus exuded from it. She no longer breathed,—only a slight hiccup occurred as the last remnant of irritability. *P. M.*, 2 or 24 h. All the tissues seemed darker than normal, otherwise the organs were healthy. (CHANTOURELLE, *Recueil périod. de la Soc. de Méd.*, lxxi, 353; in *Frank's Mag.*, iii, 522.)

4. A girl, æt. 21, took by mistake about 3ss of H. She soon vomited a quantity of the stuff. Seen after $\frac{1}{2}$ h. she was pale, prostrated, had great heat of mouth, throat, along œsophagus to stomach.

Mouth and nose exhaled a strong smell of sulphuretted hydrogen, she seemed ready to suffocate, could not expand the chest, pulse irregular, very small and contracted, slower than normal, coldness of skin all over body, burning pain in epigastrium, constant but ineffectual efforts to vomit. She was made to drink water plentifully, which brought away all the H. along with green and frothy matter, and at last blood and a piece of membrane $2\frac{1}{4}$ inches long, apparently a portion of the m.m. of the stomach, in the centre of which was a clot of blood. She got some gummy emulsion to drink along with a spoonful of a solution of chloride of soda. After this the gas ceased to be exhaled. The pain in stomach subsided, but there came on violent colic in the bowels and this was soon followed by diarrhoea, the evacuations containing a whitish milky fluid similar to that first vomited. After the subsidence of these symptoms there came on a pretty sharp inflammation of bowels. The posterior part of the mouth, the soft palate and pharynx became dry and brownish red, with burning heat in these parts, pain in œsophagus when pressure was made along neck, dysphagia, great heat of stomach, violent pains in epigastrium and umbilical region, thirst, inclination to vomit, spasmodic closure of throat, pulse quick, hard; transient flushing, and eventually permanent redness of face. All these symptoms became developed in a few h. After antiphlogistic and sedative treatment there was satisfactory improvement by the 3rd d. There still, however, remained great tenderness of epigastrium and umbilical region, complete anorexia, frequent nausea, heat and pain in œsophagus, redness and dryness of pharynx. Under appropriate treatment the health was completely restored in about 3 month. (*Ibid.*, cit. pt. 2, 188, *F. M.*, iii, 524.)

5. A man, æt. 73, for chaps on heels and toes got H., of which in 2 weeks he consumed 8 gr. triturated with milk-sugar.—April 23rd, noon, severe rigor with chattering of teeth, icy coldness and pallor of hands and feet lasting several h. Face pale, features altered, loss of consciousness, sopor. On waking up he spoke confusedly, or lay with dull look, staring in front of him without thought. He had extreme weakness, could not stand erect without help nor turn in bed. Vertigo on being raised up, constant inclination to vomit, increased by every movement, bitter taste, vomiting of slime and bile, the smallest quantity of liquid drunk caused retching and vomiting. The chill was followed in e. by slight heat, with dry mouth, periodical colicky pains, thin stools, which increased at n., with persisting inclination to vomit.—24th. Stools every 20 to 40 m., consisting of dark brown, greenish fluid mixed with lumps of yellow, green and bloody slime smelling of rotten eggs, preceded by very violent colicky, cutting, and tearing pains throughout body, especially in umbilical region, extending to deep in pelvis. These pains are increased before every stool, are attended by borborygmus and constant urging, so that they are passed several times in bed. During every stool the tenesmus continues, not afterwards. Continued sickness; occasional vomiting; loathing at food. Pulse and temperature normal. He remembered nothing of what occurred the previous d.; is very weak. Ipec. 3, every h.—25th. Diarrhoea continues, also pains in bowels, only small quantities of bloody mucus

are passed. The pains, which involve the hypogastrium, are cutting, tearing. Urine dark, scanty. Inside of lips, cheeks, and tongue covered with aphthous patches. Painfulness of mouth increased by touch or by drinking. Weakness less. Merc. ox. nigr. ʒ, ʒ gr. every 4 h.—26th. For first time has had some sleep at n. Pains diminished, they occur seldomer, though they are sharp but of shorter duration. Stools entirely consisting of bloody mucus, but they are rarer. Frequent ineffectual tenesmus. Discharge of inodorous flatus occasionally. Towards e. the pains cease.—27th. Quiet sleep at n.; no vomiting; no stools. Frequent discharge of flatus up and down with relief. Convalescence. (КНОРРЕ, *A. H. Z.*, xix, 233.)

HYDRASTIS.

Hydrastis canadensis, L. Golden seal, Nat. Ord., Ranunculaceæ.

I. *Proving*.—1. Nov. 9th, 1862, took 10 gr. of powdered root at 3 p.m. Constant slight pain in umbilical region with hot sensation there. 7, soft stool followed by severe cutting pains in hypogastric region, and dull aching pains in testicles, accompanied by a very faint feeling; eructations of sour fluid; dull heavy weight in lumbar region. 10th.—Feeling well, at 9 a.m. took 20 gr. 12 m., dull, heavy, frontal headache; constant distress in umbilical region, with loud rumbling in bowels; dull ache in region of kidneys. Took 15 gr. 5 p.m., dull headache, slight constant pain in umbilical region; still renal pain. Took 40 gr. Constant dull headache, with much pain in hypogastric region and small of back; slight stool, with faint feeling after; legs very weak and aching; urine 20 oz., acid. 11th.—Woke several times in n. with severe pain in small of back and hypogastric region, and dull pain in umbilical region, worse on motion, with great rumbling in bowels. Stool at 6 a.m., soft, papery, followed by very faint feeling, and severe pains in hypogastric region; dull headache; eyes secrete large quantities of thick white mucus; mucous membrane of eyelids a good deal congested; nose very much stuffed up; slight hacking cough, with scraping sensation in larynx. At 10 a.m., 50 gr. 5, constant dull frontal headache; nose secreting constantly a thick white mucus; constant rough hacking cough; constant coryza. Soft, mushy stool at 2, with great rumbling in bowels. R. knee has pained much all d., much worse in walking. Took 60 gr. 9, constant dull headache; frequent coryza, with profuse lachrymation, nose running constantly with thick white mucus; continued slight hacking cough; constant dull pain in umbilical region; soft mushy stool; urine 42 oz., unaffected by heat. 12th.—Slept well; eyelids agglutinated; lids congested; obstruction of nose with thick white mucus; coryza and cough as before, also umbilical pain and stool; dull aching in loins; aphthous sore on m.m. of under lip. At 10 a.m. 70 gr. 12, constant dull aching in stomach, causing "gone" or faintish feeling; dull frontal headache. 5, feeling in stomach has persisted; stool as before; very sad and gloomy. Took 80 gr. Pain in stomach and umbilical region

all c.; dull heavy backache; urine 36 oz., acid. 13th.—Woke many times with severe cutting pains in stomach and umbilical region; nose stuffed up; aphtha in better; soft papaceous stool. At 10 a.m. took 100 gr. All p.m. umbilical pain as usual; by spells quite sharp pains in region of spleen, with hot sensation; very gloomy. At 4 p.m. took 70 dr. of tinct. Constant dull burning pains all c.; cramps in umbilical region; smarting of eye. Urine 41 oz., slightly acid. 14th.—Prevented from sleeping most of n. by dull heavy aching pains in umbilical region; dull heavy headache; eyelids agglutinated, m.m. congested; nose stuffed up; soft mushy stool. At 9 a.m. took 50 dr. of Tilden's fluid extr. 12, there has been constant dull burning pain in umbilical region, accompanied by faintish "goneness" in epigastrium; dull, frontal headache; burning in eyes. Took 75 dr. Symptoms were present all d. Urine 66 oz., acid. 15th.—Very chilly all n., in spite of abundant covering, and great pain in umbilical and caecal regions. Pain all d. in whole abdomen; soft mushy stool; urine 50 oz. 16th.—Felt quite well. (W. H. BURT, M.D., in Hale's *New Remedies*, 2nd ed.)

2. Dr. W. N. WHITESIDE proved tinct. of dried root, 1 in 10. Nov. 11th, 1865, took 30 dr. 12th.—Same dose. Sticky mucus about palate and bad taste. 14th.—Weight in stomach. Same dose. 15th.—Less ability to retain urine; had to micturate more frequently, but not (he thinks) more copiously. 16th.—Frequently, when eructating, a little urine escapes. Great ennui and lassitude. 17th and 18th.—On each d. 45 dr. 19th.—Unusual clearing of throat while singing. 20th.—Sticky mucus about fauces. 21st.—At 9 a.m., 130, at 12.30 p.m. 180 dr. A little mucus in fauces which he cannot swallow. 22nd.—On waking at n. (habitual) whizzing noise in ears, and crick in l. elbow and phalange of l. hand—quite painful. Tongue seems large and marked by teeth; flatus fetid. Took 300 dr. Roaring in ears at 9 p.m.; pulse 56. 23rd.—Broad yellow stripe on tongue and bad taste. At 6 p.m., 300 dr. 24th.—Noise in ears on waking at n., and rumbling in bowels; chilliness at 9 a.m., pulse 52, some pain in stomach. At 10 a.m., 220 dr. 10 p.m., urine smells a little decomposed. 25th.—Rumbling and tinnitus at n. as before; mouth sticky, with light fur on tongue; a small aphtha on upper lip (patient had one there, which soon disappeared, when he began proving). 7 a.m., troublesome aching in l. sole for 1 or 2 h. Ringing in ears, with slight pain in anus. Took 120 dr. 27th.—Bad taste in m.; an aphtha on under lip, urine has unusual odour. 28th.—At 9 a.m. 50 dr. Noise in ears in 5 m., pulse 66. An aphtha on tongue, and that on lip quite large and sore. 30th.—150 dr. Dec. 2nd.—Painless gurgling in stomach. Stools all through proving a little softer than usual, and of smaller diameter. (*Ibid.*)

3. Dr. W. S. VIGOR, æt. 24, bilious temp., in perfect health, took 5 dr. of tinct. on going to bed, Nov. 3rd, 1866. Next m., cutting pain in bowels before and after stool; some coryza; heavy full aching in forehead while in warm room, going off in open air; while walking, pain in r. hip and l. knee. Symptoms went off p.m., but returned next m., nostrils being very sore and sensitive to cold air. In e. pain from

l. mastoid process to scapula. Next d. catarrh had descended into chest, and there was aching and soreness in many places, and a recurrence of some chest pains which only come on when he takes a violent cold. On 7th, besides other symptoms, while lying in bed at n. sharp cutting pain from r. iliac region into testicle, leaving parts above Poupart's ligament very sore and tender, with pain into root of penis while pressing upon it, and next m. after urinating.

8. On 18th, being quite well again, took at 11 p.m. 10 dr. of 3rd dil. Had to be awakened next m., which occurred also on m. after first dose, but never before proving; felt unrefreshed and dull, with little appetite for breakfast. All d. dull and heavy, forgetful, indisposed to mental exertion, and singularly spiteful and irritable. Some aching in cerebellum and neck and uneasiness in abdomen. 20th.—Still spiteful and angry disposition all d., but otherwise well; which he was in all respects on 21st. (Dr. LIPPÉ's provings, in *Ibid.*)

4. C. B. DRENER, æt. 21, well save for occasional dyspeptic symptoms. Oct. 31st, 1866, took 1 dr. of tinct. at 6.30 p.m. No symptoms save those of dyspepsia. On Nov. 3rd took 5 dr. at 11 p.m. In 15 m. rumbling in abdomen as if diarrhoea was coming on. 4th.—Slept well. At 9 a.m., pain over l. eye, with soreness in forehead; r. nostril stopped up. On walking in open air headache disappeared, and a watery coryza set in; latter stopped again in room. Same thing occurred on 6th, and on 7th he had rheumatic pains in both thighs, extending later to hip- and knee-joints; pain worse on first sitting down after walking. (*Ibid.*)

5. N. F.—took 4 times daily 3 pellets medicated with the 1₄ dil. He had constrictive pressive feeling about sternum; shortness of breath; sharp cutting pains through temples, with dimness of vision; griping in bowels, with profuse light-coloured diarrhoea, so prostrating that he was obliged to discontinue proving. (*Amer. Observer*, iii, 518.)

6. a. Dr. C. H. WEAVER, in ordinary health, of spare habit and nervo-bilious temperament, took, July 25th, 1865, 8 dr. of tinct. at 1 p.m. Immediate feeling as though brain were partially narcotized, soon followed by sharp, cutting pains darting through temples, also in elbows and biceps muscles; feeling also of contusive lameness in last-mentioned parts. At 4, took 10 dr. Sore and raw feeling in throat, especially around epiglottis, with hoarseness; stuffed-up, smarting sensation in posterior nares, as from a recent cold; increased secretion of nasal mucus; griping in bowels, with several light but somewhat acid stools. The proving was continued 2 or 3 d., and about the same sensations produced.

6. b. Aug. 21st, at 5 p.m., took 10 dr. Sharp stinging pains in temples, but dull in vertex and over eyes; very acrid feeling near epiglottis, with hoarseness. At 8, same dose. Passed very restless n., troubled with frightful dreams and fancies. Next m., feeling as if intoxicated; stinging, rheumatic pains in r. shoulder, elbows, and fore-arms, and in knees; pulse slow and laboured, but considerable heat of skin; headache up to noon; constriction in chest at middle of sternum; acute distressing pain in stomach; continued stuffed-up feeling in posterior nares and frontal sinuses, with discharge of thin clear mucus;

continual snuffing and occasional sneezing throughout d., and hoarseness; passed much limpid urine frequently. About 4 began to feel very weak; griping in bowels and soreness over surface of abdomen, also great soreness of muscles of neck; somewhat feverish, with intense itching in various parts of body. Arose next d. feeling weak; passed a very copious, mushy, light-coloured stool; have still dull headache with some sharp stitches through temples; but most marked symptom is a sharp, raw, excoriating feeling in both nares, with constant inclination to empty the nose; discharge of nasal mucus is very free; sneezing constant for 20 m. At 6 a.m., took 15 dr. Sharp, aching pains in shoulders, arms, and especially first finger of l. hand; increased hoarseness; nausea; almost constant weakness, so increased towards e., with terrible headache and giddiness, that I was obliged to cling to my horse for support in the saddle; fell 2 or 3 times in walking to my room, but after a cup of warm tea and a little nux vomica was able to get about. Next d., headache continues, and not till expiration of a week does it feel quite easy; discharge of mucus from nose also is profuse, almost incessant, for 10 d., bronchi being affected similarly, but less severely." (*Ibid.*)

II. *Poisonings*.—1. Miss W—, æt. 75, suffering from chronic ulcer of leg, but general health being good, took by mistake on e. of Aug. 15th, 1862, 20 dr. of tinct. During n. was restless. On m. of 16th experienced great sense of sinking and prostration at epigastrium with violent and long-continued palpitation; three greenish evacuations, with pain in bowels as if she had taken a drastic purge. In course of d. she had flushes of heat over head, neck, and hands; these were succeeded by an erysipelatous rash, covering neck, palms, and joints of fingers and wrists. Irritation was maddening, with intense burning heat. These symptoms continued until the 22nd, when skin exfoliated; irritation remained in a slighter form for some d., and was always worse at n. (BAYES; in Hale.)

2. A patient, subject to sore-throats, had one involving buccal cavity. An infusion of H. was prescribed as a gargle, to be used 3 or 4 times a d. Misunderstanding directions she used a whole tumblerful in about 5 h., at same time applying a cloth saturated with it over mouth and chin. Next m. (3rd) mouth, lips and nose were very much swollen, and during d. pimples appeared around mouth and chin resembling early stage of smallpox. Next d. they began to vesiculate, on 6th to sink in centre, turn dark, and commence drying, scaling off on 10th. (W. L. CLEVELAND; in Hale.)

III. *Experiments on animals*.—1. Prof. Bartholow has made some experiments on frogs and rabbits, and proves that the alkaloid hydrastine is the true active principle, its characteristic effects having been simply repeated by sufficient doses of the fl. extr. His conclusions are as follows:

a. H. belongs to the excito-motor agents. It heightens perception, cutaneous sensibility, and reflex functions; and causes death by tetanic fixation of the respiratory muscles.

b. The spasms and convulsions caused by H. are central and spinal, not peripheral.

- c. H. exhausts the irritability of motor nerves and muscles.
 d. H. acts on both the inhibitory and the motor apparatus of the heart, destroying their power of response to irritation; but the former function yields after the latter. The blood pressure is lowered. (MONR, *Hahn. Monthly*, Nov., 1880.)

HYDROCOTYLE.

Hydrocotyle Asiatica, L. Thick-leaved pennywort, Bevilacqua. Nat. Ord. Umbelliferae.

1. *Proving.*—r. Dr. AUDOUIN proved H. on himself and several others. [The symptoms obtained are given in schema-form only].
 a. From 12 dr. of tinct., gurgling at several spots in abdomen; pretty sharp pains in bowels, especially in transverse colon; sensation as if all abdominal organs were in movement; gripings every 5 m. without stools.
 b. From 20 dr. of same (in man of 30), constriction at heart with pulse calm and regular, or with some isolated throbbings in certain arteries, or with flushes of heat at divers parts of face.
 c. From 10 dr. of same (in youth of 18), pressive grasping at heart; pricking in eyes; obscuration of sight. 'Tinnitus aurium'; bearings in r. ear; pretty sharp pain in l. meatus auditorius. Slight erythema of face, neck, back, chest, arms and thighs; prickings and insupportable itchings at various points of surface; spot of light lilac colour and auricular shape on plantar surface of r. foot, walking hurts it pretty sharply; yellowish spots on both legs; small red points on eyelids, l. side of neck, and both hands.
 d. From 25 dr. of same (in man of 24), painful drawings in almost all cranial nerves; neuralgic pains in supra-orbital nerves.
 e. From 10 dr. of 3rd dil., flat or bitter taste; distaste for smoking; some whitish patches on l. side of tongue, three on dorsum, one underneath (of size of half-franc); vivid redness of velum palati, accompanied by pain in deglutition.
 f. From 6 dr. of same (in woman of 25), spasm of heart.
 g. From 25 dr. of same, small red points covered with whitish scales and seated on l. side of neck.
 h. From 8 dr. of 6th dil., slight embarrassment in constrictor muscles of pharynx; pricking in pharynx; roughness and dryness, heat and pricking in œsophagus; anorexia, followed by keen appetite; anxiety and weight in gastric region; swelling of stomach; acid risings; feeling as if flatus formed a ball in stomach; crampy pains in stomach without nausea; heat in region of stomach; some nausea.
 i. From same dose taken daily for 6 weeks by one æt. 19.—three nearly complete discs, with edges slightly elevated and scaly. They began to decrease immediately on suspending drug, and had completely disappeared after 14 d.
 j. From 10 dr. of same (in young man of 19), neuralgic pains in supra-orbital nerve.

4. From 4 dr. of 3rd dil., exceedingly sharp pains in uterus and appendages, compared by their subject (a woman of 35) to those of labour.

5. From 3 dr. of 4th dil., in a woman of 25, pretty sharp intermittent pain in l. cheek; dull pain in ovarian regions.

m. Without specification of subject or dosage,—constriction in whole abdomen; heat throughout hypogastrium; weight in rectum; burning at anus; augmented evacuations, without colic. Frequent desire to micturate; increased quantity of urine; urine becoming brown on cooling; cloudy urine, depositing no sediment. Weakened voice; speaking soon tires; sense of dryness in larynx; intolerable pricking in neighbourhood of glottis; slight embarrassment of speech; roughness all along trachea; difficulty in expelling bronchial mucus; occasional oppression at chest; embarrassment of respiration. Irregularity of heart-beats; flushes of heat at several spots in face, but especially in temporal regions; afflux of blood to head; weight of head; slight chills p.m.; coldness of hands and feet, accompanied by a state like that preceding fever, but without change of pulse; febrile movement. Obstruction of nose; feeling as if nose would bleed; slight epistaxis; tickling in nostrils, especially l.; dry coryza; swelling of nose. Relaxation of scrotum; slight drawing in spermatic cords, chiefly l.; prolonged indifference to sexual intercourse; sense of weight in uterus; heat deep in vagina, prickings and itchings at its orifice; redness of neck of womb, disappearing on leaving off medicine, returning on its resumption; menstrual flow anticipates by 5, 10, or even 15 d. Vertigo; lassitude of whole body; impossibility to keep upright; painful constriction of posterior and upper scalp; drawing at base of cranium; acute sensibility of occiput, aggravated by touching; intense pains with a little swelling in posterior part of cranium. Slight irritation of terminal mucous membranes generally, including pruritus ani. Bruised feeling in all muscles; painful fatigue in muscles of shoulder; sensation as of damp cold in forearm and hand, leg and foot, of l. side, removed by rubbing, but returning when this ceases, and lasting in spite of external warmth for 25 m.; crampy numbness in r. forearm and hand; contractions in forearms and legs; wandering pains in muscles of chest and legs; fatigue in muscles of thighs, and crampy movements in calves; drawing in sacral muscles; sense as of contraction in muscles of stomach, intestines, and bladder. Increased activity of salivary glands; redness of tonsils; slight creepings in kidneys, and uneasiness there and in liver and prostate. Irresistible desire to stretch upper limbs; pains in various joints; heat in tibiae as if hot water circulated through marrow. Sombre thoughts; profound ennui; misanthropy; indifference; desire for solitude; in reaction, gaiety, hope, loquacity, general expansion. (*Études pathog. et thérap. sur P.H. a.*)

II. *Poisonings.*—1. The first effect produced by this drug is a sense of heat and pricking in the skin, especially of the hands and feet, which is followed after some d. by general heat of the skin of the trunk, and in some cases by an intolerable itching, and sometimes there supervenes a slight redness of skin, the capillary circulation being generally accelerated, the pulse becoming stronger and fuller. After the medicine

has been taken for a week the appetite is sensibly augmented, in some patients even to voracity. The visceral functions do not appear to be disturbed, even when the drug has been taken in large doses. (HUNTER, in *Ibid.*)

2. The most remarkable and constant effects are:—Considerable increase of the urinary secretion, augmented heat of surface, and somewhat copious sweats. Its inconveniences are, after the manner of the solanaceæ,—flushes of heat in face, malaise, anorexia, weight in head, vertigo. (CAZENAVE, in *Ibid.*)

3. I treated a case of leprosy, where the general health was but little altered, with pills of the extract. When 7 of these were taken in the d. the patient became the subject of remarkable phenomena like those produced by the narcotico-acrid poisons,—dizziness, dazzlings, uncertain look more or less fixed, vacillation of limbs, physiognomy more or less like that of intoxication, general malaise, anorexia, enfeeblement, uncertain gait, headache, drowsiness. This state did not pass quickly away, notwithstanding that the medicine was left off; it lasted 5 or 6 d., losing little by little its intensity, but leaving lasting prostration and disgust for food, which was somewhat pronounced for a fortnight. (DEVERGIE, *Ibid.*)

HYOSCYAMUS.

Hyoscyamus nigerr. L. Henbane. Nat. Ord., Solanaceæ.

1. *Proving.*—1. HAHNEMANN, *Mat. Med. Pura*, vol. iv of original, vol. i of translation. Contains 104 symptoms from self, 123 from 6 fellow-observers, and 355 from 44 authors.

2. a. SCHNELLER first proved extr. herbæ recentis alcoh.-aq., Ph. Bor. He began with gr. $\frac{1}{2}$, and increased dose daily by same, arriving at last to gr. $\frac{5}{4}$, and taking $57\frac{1}{2}$ gr. in all. The first 4 doses produced nothing remarkable. Two h. after taking gr. $\frac{1}{4}$ he noticed dryness of lips, tongue, soft palate, and whole buccal cavity; tongue was furred yellow, and taste insipid. Seven h. after gr. $\frac{1}{2}$ there was confusion of senses, weakness of sight, and some difficulty of speaking, a state like slight intoxication. From 2 gr., besides dryness of throat with hoarseness, there was confusion in frontal region, spreading afterwards to sight and hearing; restless sleep; and scanty stool. From gr. $\frac{3}{4}$ —4 there was considerable disgust after taking dose; dull frontal headache; and in 7 h. cloudiness and weakness of vision, with normal pupils; dryness of mouth increased, taste was disgusting, tongue furred yellow; considerable swelling of abdomen, with necessity to breathe deeply; sour eructations; diminished stools; pulse rather slow. From gr. $\frac{4}{4}$ to $\frac{4}{4}$ dryness of mouth diminished, but confusion of head remained; frontal headache on l. side and amblyopia set in, as also frequent inclination to yawn, and sleepiness. Every e. nausea. During last 2 doses above symptoms decreased in remarkable manner; there was very little confusion of head; sneezing frequently occurred, with sensation of approaching coryza (which now developed itself); sour

eructations were frequent, stool diminished, sleep good. After 2 d. was in normal state.

6. S— now proved extr. herbæ recentis ex succo, Ph. Austr. He commenced with gr. $\frac{1}{2}$, increasing daily by same; afterwards he took larger doses, viz. gr. $11\frac{1}{2}$ and $18\frac{1}{2}$; altogether gr. $87\frac{1}{2}$. Whilst taking first 7 doses he had tickling and burning in throat, with increase of mucous secretion. On taking gr. 2— $3\frac{1}{2}$, mouth became dry, tongue furred white: there were slight gripings in umbilical region, voice became hoarse, appetite lessened. From gr. $3\frac{1}{2}$ — $4\frac{1}{2}$ dryness of throat decreased, and voice regained its clearness; other symptoms continued, and peculiar drawing and tearing pain in joints, especially wrists and knees, came on, as also confusion of head and attacks of giddiness. From gr. $4\frac{1}{2}$ — $5\frac{1}{2}$ mouth and fauces became again extremely dry; thick fur covered tongue; taste became insipid, with disgust at food and bad smell from mouth; head confused. Here and there small furunculi appeared on face; vision became weak and conjunctiva somewhat injected. He left off for 2 d., when all became normal, save injection of conjunctiva. The dose of $11\frac{1}{2}$ gr. caused in an h. giddiness and reticulated vision, with r. frontal headache, soon followed by prickling sensation in arms and thereafter viscid perspiration on them; at same time great heat, redness and congestion of face, which went off in $\frac{1}{2}$ h. The dryness, &c., came later, involving also cavity of nose, with pain at root; very little mucus mixed with blood was secreted. To this were joined empty eructations, oppression of stomach, slight gripings with soft stool, appetite much diminished, pulse accelerated, sleepiness. Last dose of gr. $18\frac{1}{2}$ was taken at 7.30 p.m. About 8.15 recurred slight vertigo, with cloudiness of vision and dilated pupils; sensation as of a foreign body in eye; upper lids felt heavy from sleepiness; conjunctiva injected; arms felt as if a warm air were breathed upon them. At 9 dryness of mouth occurred, with usual accessories; taste metallic, head confused. At 10, eructation and nasty taste, with inclination to vomit; discharge of flatus. Mouth remained dry all n., as also nose; sleep restless. In m. teeth and all mouth were covered with a yellowish mucus, taste disgusting, voice hoarse. In 2 d. all was right again: furred tongue and diminished appetite continued longest. Stools were on the whole rather increased. (*Z. f. Ver. hsm. Arch. Oest.*, i.)

3. I took, on several occasions, 10, 20, 30, and even 40 gr. of the ordinary extr., and experienced only a little headache, with disturbed vision, dryness of mouth, sweetish taste, whitish and viscid coat on tongue,—symptoms which soon disappeared. On Sept. 12th, 1821, I took, fasting, 10 gr. of another extr. After an h., slight headache which went on increasing, pastiness of mouth with singular perversion of taste, which seemed a mixture of sweet, salt and bitter, and prevented my tasting any substance I tried. My tongue was white; I felt at the same time dryness and heat of throat; my skin was warm and transpiring, my pulse a little quickened; slight tendency to sleep, to which I gave myself up for a short time; on waking, pupils so dilated that no iris could be seen; notable weakening of sight, staggering walk, numbness of lower extremities. My mental faculties remained free. At end of 4 h. these symptoms had ceased. Next d., nothing

remaining save dryness of mouth and the peculiar taste, I repeated the experiment with the same result. (RATZER, *Arch. Gén. de Méd.*, i, 307. 1823.)

4. LEMBKE took, Feb. 17th to 19th, 8 a.m., 2 dr. tinct. No effect.—20th, 7 a.m., between 10 and 12 a.m. head oppressed, vertigo, especially when walking, quite often unsteady and staggering; this repeatedly during following hours. At n. restless sleep, frequent waking, tossing about.—25th, 7 a.m., 5 dr. No effect.—March 2nd, 7 a.m., 6 dr. Stool scanty and hard. 3 p.m., pressive pain in stomach.—3rd and 4th. Hard scanty stool.—5th, 7 a.m., 10 dr. 8 a.m., scraping and dryness in fauces; head confused, full; later hot. 9 a.m., heat through back; stool slow and scanty, also on 6th, following d. normal.—10th, 7 a.m., 10 dr. Soon, head confused, hot, full, the heat deep in head; pupils at first dilated then contracted. 8.30, general heat; very distended veins; scraping in throat repeatedly. 9 a.m., heaviness and pressure in head, especially forehead; severe shooting in larynx, followed by dry cough with sweetish taste of blood (a not uncommon symptom). At n. violent pressure in umbilical region, somewhat relieved by pressing on it, still felt next m., going off after stool.—14th, 7 a.m., 10 dr. Head confused, hot. 8 a.m., scraping and dryness of throat.—20th, 7 a.m., 15 dr. Soon, dilated pupils, after 1 h. contracted. 8 a.m., scraping in throat; head confused, dazed, especially in forehead, till 9 a.m.—25th, 7.30 a.m., 15 dr. No symptoms.—26th, 7 a.m., 15 dr. 7.30 a.m., sinciput heavy. 8 a.m., scraping in throat; sinciput remained heavy and dazed, especially when stooping, till 3 p.m.—29th, 7 a.m., 15 dr. Sinciput heavy, confused till 3 p.m.—30th, 7 a.m., 15 dr. No symptoms. For 2 or 3 weeks the urine is very high coloured and scanty; the following days it became normal.—April 1st, 9 a.m., 15 dr. No symptoms.—2nd, 7 a.m., 20 dr. Continued scraping and dryness of throat from 8 a.m. till 2 p.m.—3rd, 7 a.m., 20 dr. No symptoms.—11th, 7 a.m., 25 dr. After $\frac{1}{2}$ h. considerable heat in face and head for 1 h.—13th, 7 a.m., 25 dr. After $\frac{1}{2}$ h. head confused, hot, dazed for $\frac{1}{2}$ h.; several times during d. pressure, heat in forehead, some epistaxis with relief, later some pain.—16th, midnight, 20 dr. No symptoms.—18th, midnight, 20 dr. No symptoms. (*N. Z. f. h. Kl.*, i, 57.)

5. Dr. KEIL took, Sept. 19th, 5.45 a.m., 10 dr. tinct. 9 a.m., pulsating pressure in stomach while sitting; soon afterwards momentary shooting in l. side of abdomen; the pressure in stomach returns and goes up to r. side of chest.—26th, 5.45 a.m., 20 dr. After $\frac{1}{2}$ h., gnawing pressure in stomach. Towards e. same sensation.—Oct. 2nd, 8.50 a.m., 30 dr. No symptoms.—9th, 9 a.m., 50 dr. After dinner, 2 p.m., sensation in l. hypochondrium as if flatulence accumulated there; after a glass of water pressure in stomach; fatigue of eyes; soon a kind of heartburn, repeated p.m. From p.m. till e. confused head. At n. woke with violent throbbing headache; the carotids beat strongly; the pain went off during sleep, no trace of it in m. At n. muscular twitching in arms (not an unusual symptom).—10th, 9.45 a.m., burning in r. side of abdomen confined to a point.—Nov. 16th, 9.15 a.m., 50 dr. The headache of Oct. 9th recurred after 1 h. but was not severe. (*Hsm. Vierteljahrsch.*, ix, 242.)

6. Dr. GERSTER (æt. 31, health delicate, has many hæmorrhoidal symptoms) made several provings with 15th and 3rd dil. without noteworthy results. He then took the tinct., which had no effect till he took, on Aug. 17th, 15 dr. In e. and next m., heat in joint-head of last phalanx of l. little finger, swelling of this condyle; pressive pain, increased by movement, which is difficult.—18th, 20 dr.—19th. The pain in the finger is less.—20th. The pain gone; took 25 dr.—22nd. Slight sensation of pain and swelling of proximal joint of r. little finger.—28th, m., 40 dr. 11 a.m., urging to urinate, sensitiveness of 2nd joint of r. index, swelling of it, and painfulness when slightly pressed.—30th, 42 dr., same symptoms as yesterday.—31st. When walking upstairs sensitiveness of r. metatarsus; when walking over uneven pavement increased sensitiveness, feeling of pressure and tension in that part as if too full of blood. This lasted 9 d., and was often so severe as to cause him to limp. Also a corn on the r. little toe which had never given any pain was for a long time after the proving painful. (*Ibid.*, 243.)

7. a. Dr. LINDERMANN, æt. 39, health good, made provings with 15th, 3rd and tinct.—Feb. 24th, 4.45 a.m., 8 dr. 3rd dil. Immediately bitter taste, empty eructation, warm feeling in belly, and frequent yawning. 5 a.m., forehead slightly confused; sacrum as if bruised when lying on back (a common symptom). 5.15 a.m., call to stool; bruised and warm sensation in knees and ankles; inclination to stretch the limbs with relief to the pain. 5.30 a.m., warmth and discomfort in abdomen; feeling of fulness in rectum, but inability to squeeze out flatus. 5.45 a.m., pain in sacrum and knees goes off after getting up. 7 a.m., scanty stool. Forenoon, forehead confused; noon, very hearty appetite. Afternoon, call to stool with discharge of flatus, stool scanty, slow, and hard. 9 p.m., frequent and copious micturition; flatus.—27th, 6 a.m., 12 dr. Immediately, transient but repeated warmth and full feeling in belly; feeling of fulness in rectum; slight transient confusion of forehead; deep yawning. 7 a.m., only slight bruised pain in sacrum. 7.30 a.m., empty eructation. After breakfast, soft, easy, and copious stool. At n., frequent micturition.—28th, 6 a.m., 20 dr. Empty eructation once; full feeling in rectum. 6.30 a.m., sacral pain, eructation, scanty soft stool; mucous rattle in throat followed by hawking up of gelatinous blackish mucus. N., much urine passed.—19th, m., hawking up of same kind of mucus. Afternoon, full feeling of rectum not removed by copious stool.—24th, 6 a.m., 30 dr. Forehead confused; great drowsiness and going to sleep; awoke at 7, call to stool without result; pulse 80 (it was 65 before taking the dose). Noon, scanty, slow, hard stool. No more symptoms up to 28th except retarded stool, ineffectual call to stool, which was generally scanty and soft.

b. March 1st, 5.15 a.m., pulse 65, 3 dr. tinct. Immediately, disgusting bitter taste, empty eructation, yawning. After 2 or 3 m. slight cutting and pinching in umbilical region as before diarrœa, yawning and eructation again. 5.30, forehead confused, difficulty of thinking, drowsiness. 6 a.m., eructation and yawning; the same at 6.30 a.m. Pulse 70. 7 a.m., some sacral pain. After breakfast scanty stool. Afternoon, ineffectual call to stool.—2nd, m., scanty soft stool.—3rd, m., soft stool. Afternoon, call to stool. N., frequent micturi-

tion.—4th, 5.45 a.m., 6 dr.; immediately transient disgusting taste, empty eructation. After 10 m., slight transient cutting and pinching in umbilical region; forehead confused, drowsiness. 6.15 a.m., eructation, yawning, bruised pain in sacrum, increased by sitting, relieved by walking. 7.15 a.m., scanty, slow, and soft stool.—5th, m., pulse 70. Call to stool without result. Afternoon, the same.—6th, 6 a.m., 12 dr. Immediately disgusting taste, eructation, same pain in umbilical region, forehead confused. 7 a.m., pulse 80; later, in warm room chilliness, increased in open air. 9.30 a.m., pressure in r. eyebrow and r. eyeball, which is sensitive to touch in upper part, r. pupil smaller than l., transient gouty pain in l. elbow, pupils not quite round, constant itching in l. inner canthus, sacrum feels bruised even when walking, cold along spine, throbbing in frontal protuberance, r. eye more sensitive in open air and watery, distant vision worse than usual. Sacrum all d. as if bruised; this goes off at noon. 3 p.m., pulse 70; ineffectual call to stool, discharge of flatus. E., after clyster copious lumpy stool. N., many dreams.—7th, 6.15 a.m., pulse 82. Sacrum bruised. 8.30 a.m., pulse 78. 9 a.m., copious, soft, easy stool. E., the above pain in both eyes, but worst in r.—8th, 5.30 a.m., pulse 76. Stool easy, soft.—9th, 6.15 a.m., pulse 74. Stool delayed but easy and soft. 10 p.m., pulse 70, pupils dilated.—10th, 5 a.m., 15 dr. Disgusting taste, eructation, yawning. After 20 m. r. conjunctiva red, slight burning and watering of eyes, drowsiness. 6 a.m., pulse 72, pupils smaller. 6.15 a.m., forehead confused, pain in eyes as before, eructation, sacral pain when seated. 6.45 a.m., yawning, unusually good appetite; after breakfast, stool soft, slow. 10.30 a.m., forehead confused when walking; slight pressure in eyeballs, anxiety in warm room, flush of heat over spine, especially in lumbar region, searching and slight pinching in umbilical region, slight photophobia, watering of eyes in open air. 11 a.m., slight, transient oppression in cardiac region, causing sighing, unusually good appetite. Noon, pulse 73. 12.30 p.m., good appetite. 3.30 p.m., hot feeling in lumbar region in room, when sitting, pupils smaller, pulse 70. 5 p.m., great pain in sacrum when sitting, invincible drowsiness, yawning, discharge of flatus; chilliness in spine in open air, bruised pain in sacrum when walking, much flatus discharged. E., drowsiness. N., many tiresome dreams.—11th, 6 a.m., pulse 68. Forehead confused, sacrum as if bruised, going off when walking, returns at noon when sitting, hunger, flatus without stool. Noon, pulse 72. Afternoon, soft and sluggish stool.—12th, m., scanty, sluggish, soft stool, bruised feeling in sacrum, weariness of knees when walking. Afternoon, call to stool without result, enema brought away copious lumpy stool. E., pressive feeling in cardiac region, hot feeling in loins.—13th, 7 a.m., pulse 70. Sacral pain when walking, forehead confused, stool scanty, easy, and soft. Afternoon, after enema dry stool, before and after much urging to stool. E., diarrhetic stool.—14th, 5.30 a.m., 30 dr. Pulse 76, disgusting taste. After 8 m. constant empty eructation, with taste of medicine; soon afterwards pressive pain in umbilical region, forehead confused, eyes fatigued when reading, drowsiness. 6 a.m., loud rumbling in belly, ineffectual efforts to eructate, call to stool. 6.15 a.m., rumbling increased, slight burning

in eyes, giddy, nausea. 6.30 a.m., increase of pinching in umbilical region. 7 a.m., full feeling in rectum, relieved by eructation; yawning, sudden chilliness in room; stool soft, easy, scanty. Noon, an indescribable tiresome feeling rises suddenly from pit of stomach to sternum, and spreads out on either side of it; heat up back. Afternoon, call to stool, only flatus passed. 5 p.m., r. eyeball still sensitive, its pupil contracted. 7 p.m., pulse 68.—15th, 6 a.m., pulse 85. Stool scanty, sluggish, soft. Forenoon, transient pain in heart as before, heat up back. N., many dreams.—16th, 5.45 a.m., pulse 70. Stool soft, easy, scanty. Afternoon, call to stool, with discharge of flatus only.—17th, 5.15 a.m., pulse 70. Sacrum feels bruised, stool soft, sluggish, scanty.—18th, 5.30 a.m., 30 dr. Pulse 77, disgusting taste lasts long. After a few m. rumbling in abdomen. 5.45 a.m., eructation, soon afterwards drowsiness; inability to fix attention when reading, pressive sensation in eyeballs, heaviness of upper lids, slight pinching about navel, fulness of vertex. 6 a.m., disgusting taste continues, slight transient nausea, then frequent yawning. 6.15 a.m., hunger. 6.30 a.m., difficulty of fixing attention when reading, return of pinching in belly, drowsiness; pulse 70, futile attempts to eructate, forehead confused, constant itching in l. inner canthus, transient chilliness in back when walking in room; uncommonly good appetite for breakfast. 7.45 a.m., stool dry and sluggish, pulse 70, slight transient chill in back, especially loins and sacrum, forehead confused, eyeballs sensitive to pressure, r. pupil contracted and drawn to an angle. 9.45 a.m., pulse 80 after walking; 30 dr. After $\frac{1}{2}$ h. eructation, fatigue of knees on going upstairs, pressure on eyeballs, which are painful when touched; heat over back, also in open air, slight oppression of chest, especially in cardiac region; heat in epigastrium, rising up to chest; transient tearing in l. upper arm, then in forearm in its posterior aspect, increase of fatigue of knees, frequent yawning, ineffectual eructations, transient nausea, great appetite, slight pinching in belly. 10.45 a.m., pressure and anxiety in cardiac region, making him breathe deeply; sweat on back and scrobiculus cordis. After 11 a.m. ineffectual efforts to eructate, yawning, hunger, pressure in cardiac region increased, fatigue of knees. Noon, pulse 70, much smaller than in m. 4.45 p.m., pulse 70, rather fuller, r. pupil more contracted. E., ineffectual call to stool, invincible drowsiness, pain in sacrum. N., frequent and copious micturition, sleep restless, anxious dreams, pain in occiput.—27th, m., sacral pain when sitting and stooping, forehead and occiput confused. 6 a.m., pulse 90, fuller than yesterday. Stool easy, soft, copious. 7.45 a.m., pulse 90, frequent micturition, hot feeling in sacrum and loins even in open air. 10 a.m., hunger, pulse 90, all afternoon indisposed for study, invincible sleepiness, constant urging to stool, which only came at 6 p.m. after enema; pulse 76. N., anxious dreams and restless sleep. Frequent micturition. 28th, 5.30 a.m., 50 dr. Pulse 70. Immediately eructation with taste of med. After 10 m. heaviness in upper eyelids and sleepiness, inability to think, forehead confused, yawning. 6 a.m., sacral pain when sitting, then slight transient pinching in umbilical region, head symptoms increased. 6.30 a.m., feeling in eyes as if he had not slept all n., head heavy, need to

sigh, pupils contracted, r. most, both not quite round, hunger, call to stool, chill down back in room, itching in l. inner canthus, then in r. 7 a.m., pulse 66, less full. 7.30 a.m., pulse 66, eyeballs sensitive to touch, good appetite for breakfast, stool soft, easy; bright red deep-seated vessels in eyes, heat in sacrum and lumbar region. 10 a.m., after moderate walking pulse 94, pupils more dilated, r. less so. 50 dr. Heat along back, then sweat on sacrum and in axillæ; heat in scrob. cordis, oppression of chest, making him breathe deeply, knees tired on going upstairs, forehead confused; all symptoms worse in heated room. Empty eructations, pupils much more dilated, quite round, sweat increased by walking, transient rheumatic (tearing, twitching, gnawing) pains on outer and back surface of l. upper arm and lower end of l. ulna and scapula; very transient stitches in heart. 11 a.m., the tightness of chest concentrated in cardiac region, eyeballs painful superiorly when moved outwards and upwards, a severe stitch in cardiac region, followed by oppression of heart with slight transient stitches, feeling of pressure in eyebrow, giddy. 11.30 a.m., pulse 73, small, pupils smaller, hunger. 11.45 a.m., hypogastrium painful as from incarcerated flatulence, pulse 93, somewhat larger. 12.30 p.m., r. pupil contracted, frequent micturition, but quantity of urine not unusual; diminished sexual appetite. 2 p.m., hunger; from after dinner till 3 p.m. great drowsiness, with inability to study and weariness. 3 p.m., pulse 76, much larger and freer, both pupils rather dilated, l. most so. 50 dr. After 15 m. slight transient pain in stomach and umbilical region, forehead confused. 3.15 p.m., ineffectual call to stool, with discharge of flatus, pulse 70; itching of l. inner canthus, slight pressure in heart, making him breathe deeply, tired knees, stomach painful on pressure, empty eructations, hunger, smarting in l. canthus. 4.30 p.m., pupils more dilated, sensitiveness of stomach increased, pinching as from flatulence in umbilical region, fatigue from walking, pain in loins. 6.30 p.m., pulse 80, small, forehead tense, occasional tightness of chest, discharge of flatus, transient pain in l. upper or forearm, as if in bone, especially in lower end of humerus posteriorly. N., frequent micturition, quantity of urine not great.—29th, 6 a.m., could hardly be awakened he slept so soundly, head stupid, tension in forehead, conjunctiva of both eyes very much injected, especially of l. eye, in which the lids stuck together slightly; sclerotic vessels also injected, pupils not dilated, pulse 90 and broad. 7 a.m., forehead confused and warm, throbbing and drawing in r. frontal eminences, increased by movement and stooping, occiput tense, pressive sensation in r. eyeball, most felt when looking upwards and outwards; after this the pain is most concentrated on l. side of occiput; it is as if sore and slightly burning, relieved by pressure, but then the pressure in forehead increases, compelling him to pucker up the skin. 8.30 a.m., frontal pain worse, transient stitches in l. scapula, stool soft, easy, scanty. 8.45 a.m., pulse 84, knees, feet, and joints of upper extremities as if bruised and fatigued; drowsiness during occupation. 9 to 9.45 a.m., redness of l. inner canthus increased, eye weeps and burns, head as if surrounded by a hoop, occasional transient shoots in l. hip; lameness of limbs, especially lower ones, trembling of r. hand when writing, the worse the

headache the more contracted the pupils. 10 a.m., pupils small, r. smaller than l., transient pain in r. zygoma and upper maxilla, then transient dull pain in ears, especially l., pain in forehead and eyes, increased in cool wind, becomes throbbing in l. frontal protuberance, smarting on outside of l. lower lid, soon afterwards of r. lid, fatigue of knees and lameness of lower limbs continues, sacral pains on stooping; later, pain in temporal region, especially r., aggravated by cold air, relieved in room. 11 a.m., hunger, fatigue of knees. Noon, pulse 73, pinching as from flatulence about navel. 12.15 p.m., pupils smaller, especially r., call to stool, great appetite. 1 p.m., l. frontal headache, drowsiness. 2 p.m., call to stool, only flatus discharged; forehead feels screwed in, full, general itching here and there. 2.30 p.m., pupils larger. Between 4 and 5 p.m. headache went off, frequent micturition all d. 6 p.m., when walking in open air suddenly violent shooting in r. side of neck at point of insertion of sterno-cleido-mastoidæus, soon going off on applying pressure. 6.30 p.m., pulse 90, pretty full. N., deep and heavy sleep, frequent micturition. The next few days similar though milder symptoms occurred. (*Ibid.*, 246.)

8. SCHAOKF made comparative experiments with H. on 3 persons, 1, with the watery extract made from the juice of the fresh plant; 2, with the æthereal and alcoholic extract of the seeds; 3, with the watery and alcoholic extract of the root of the year old plant; and 4, with the watery extract of the whole plant 1 year old. These extracts varied in strength; the weakest was that from the 1 year old plant; somewhat stronger was that from the 1 year old root; still stronger was that from the whole 2 years old plant; much the strongest was that from the seeds, about 3 times as strong as the previous one. Small and medium doses caused a constant diminution of the frequency of the pulse by 10 to 20 beats and more within the first 2 or 3 h. The diminution occurred the more slowly the smaller the dose, and more quickly the larger the dose. Large doses caused a rapid diminution, and the larger the dose the sooner and the greater was the rise of the pulse above the normal. Thus 0.1 grm. of the æthereal extract of the seeds caused a slowing of the pulse by 20 beats in 2 h.; 0.2 grm. of the same preparation slowed the pulse to the same degree in 1 h., in the next $\frac{1}{2}$ h. it rose 11 beats, and in the following $\frac{1}{4}$ h. fell 12 beats; 0.4 grm. slowed the pulse by 19 beats in 20 m., in the next 20 m. it rose 29 beats, was small and irregular, and then for another h. it remained with fluctuations above the normal, and then gradually and slowly fell. In large doses H. causes dilatation of pupils, sometimes preceded by contraction for a short time. Small doses caused confused head, dryness of lips, mouth, and fauces, diminished secretion of saliva, weariness; large doses caused stupefaction, great disposition to sleep, amounting in very large doses to coma-vigil, profound, sound sleep, which, when large doses were taken, was disturbed by horrible dreams; sometimes marked headache, vertigo, feeling of stoppage of ears, roaring in ears, weak sight, so that the letters could not be distinguished, increased sensitiveness of eyes to light, diminished sense of smell,—not of taste; inability to pay attention on any subject, which lasted 2 d., any attempt to fix attention was followed by confusion and pain in

head; the weakness and vertigo caused staggering gait; the dryness of mouth and fauces produced inability to swallow, great roughness, hoarseness of voice, dry skin crackling like parchment, temperature of skin lowered. In one prover on 2 trials he had the next d. diarrhoea and inclination to vomit, without actual vomiting, and epistaxis; in another on the 2nd and 3rd d. increased secretion of thick, viscid nasal mucus mixed with blood. Sometimes on the 2nd and 3rd d. after the trial there was sweat. (*Lehrbuch der Pharmacologie*, 553.)

9. Two dr. of succ. hyos. were dropped into l. eye. As no effect was observed after 15 m. the manœuvre was repeated. In a few m. dilatation of pupil commenced, and gradually increased, all objects appeared smaller and brighter. On attempting to read an indistinct yellow umbra seemed to surround every black letter. This umbra only lasted 1 d. Afterwards some words seemed to be larger than the others, though the size of all was the same. The dilatation of the pupil lasted 3 d. (LIEBACKE, *Hygea*, ix, 444.)

10. When taken by the mouth H. produces exactly the same effects as when its active principle has been injected beneath the skin. They are fully developed about an h. after ingestion. Three fluid oz. of a "succus" produced in an adult aged 40 effects exactly equivalent to those which followed the subcutaneous injection of gr. $\frac{1}{2}$ of sulphate of hyoscyamine.* There was the same inability to maintain the erect posture, and reeling when an attempt was made to stand, and an equal amount of muscular twitching. But instead of insomnia there was for 3 h. excessive somnolency, with dreaming and occasional muttering. When aroused the condition of the patient was as in the experiment referred to, but so great was the tendency to sleep that he could not keep the eyelids open for many seconds, and he dozed off with a half-finished sentence on his lips. Two oz. of good tincture of henbane produced equivalent effects. (HARLEY, *Old Vegetable Neurotics*, p. 329.)

11.—*Poisonings*. 1. Poisoning of 4 children, æt. 4 to 6. Vertigo and mania. Speechless, with wild look, very dilated pupils, dark red face, blue lips, distended but not painful abdomen. Small intermitting pulse, cold extremities, lower extremities paralysed. They laughed and were incoherent, breathing short and difficult, hearing seemed to be quite extinct, general convulsions, trismus, mouth and lips distorted; wild delirium, sopor, carphologia, sensibility nearly lost, no stool or urine. Suppression of urine lasted 22 h. Swallowing very difficult; in one boy ineffectual retching. All recovered under emetics. (SPRINGER *Annal. d. Staats A. Kunde in Archiv*, xix, 182.)

2. Man took daily doses of 8 gr. of extr. He becomes very restless, talks incoherently, will not remain in bed. Countenance expresses calmness, cheerfulness, and content. Eye clear and calm, reflective, pupil rather dilated, pulse small, slow. He rose up suddenly and strongly, said with a smile that he was uncommonly well. Thought he was at home, wished to go out, and endeavoured to persuade those about him to let him, spoke in elegant language, with well-chosen expressions, and with such liveliness that the quiet and indolent peasant could scarcely be recognised, as he used to express himself in very

* See Hyoscyaminum, t. 6.

vulgar language. Complete sleeplessness. These symptoms lasted 36 h. (RZINHOLO, *Casper's Wochensh.*, 1840, No. 8, *A. h. Z.*, xix, 63.)

3. A countrywoman made her soup with *H.* roots, taking them for some other vegetable. Nine persons partook of it, and thought it excellent; but they soon felt nausea, astringent bitter taste, which excited vomiting, their pupils dilated, their countenances were distorted, they could not remain still, convulsions came on, and then delirium. They lost, in succession, sight, hearing, and speech, fell into a state of prostration, stupor, and invincible sleepiness. They all went to bed. (*Encyclographic Mid.*, Mars, 1844, in *A. H. Z.*, xxviii, 153.)

4. M— and wife ate a quantity of the root of the *H.* by mistake. After about 1 h. stupefied state, which increased, flickering before eyes, eyes bright, diplopia, dilated pupils, obscuration of vision, vertigo, great dryness of mouth, trembling in limbs, staggering gait; small, scarcely perceptible, intermitting and slow pulse. An emetic soon restored them. (MÄNGER, *Med. Zeit. v. Ver. f. Heilk. in Preussen*, v. No. 8, 40.)

4 bis. A girl, æt. 4, ate some seeds of *H.* Soon, unsteady gait, small white vesicles on lips, and bloated face, then imperfect vision and non-sensical talk. Milk was administered, but symptoms increased every minute. 8 p.m. (3 h. after), face bright red, conjunctiva red, pupils extremely dilated, iris merely a narrow ring, unaffected by light; on lower lip some white vesicles the size of lentils, tongue with a slimy coating behind, pulse small, moderately quick, heart's beats strong, irregular, complete loss of consciousness, frequent groaning and snatching around with extended fingers, frightful grinding of teeth, frequent twitching of hands and feet, and constant incomprehensible talking. An emetic brought away milk and seeds. 8 to 10 m. after application of wet cloths to head she began to speak. Next m. the symptoms of poisoning gone, the dilatation of pupils and staggering went off in course of d. (STEIN, *Ibid.*, No. 27, 136.)

5. A boy, æt. 3, ate a number of seeds. He was found lying senseless on the floor, beating about him, foaming at mouth, face very red, convulsive movements of face and limbs. An emetic brought away many seeds, but the narcosis persisted. Soon other remedies restored him, but he had staggering gait for 8 d. (GITNER, *Ibid.*, xi, No. 44, 195.)

6. Two girls, æt. 6 and 8, ate a number of seeds of *H.* After 4 h., the six years old girl had pale face, pupils greatly dilated, pulse small, quick, heart beating strongly, hands and feet cold, slight convulsions of extremities, distortion of eyes, grinding of teeth, unconsciousness. The 8 years old girl had hot head, increased heat of body, face red, bloated, pulse full, not quick, heart's beats strong, irregular, eyes projecting, conjunctivæ very red, pupils much dilated. Very cheerful delirium; she sang and spoke incessantly and very hurriedly but indistinctly, became very violent and beat about her when spoken to loudly or touched. An emetic brought away many seeds, and after the application of cold water to head and drinking vinegar they soon recovered. (SCHUBERT, *Casper's Wochensh.*, 1842, No. 14, 227.)

7. A man took for piles about 3j of the seeds in white wine. Immediately great heat all over, head confused, sight obscured, vertigo, nausea. After ¼ h., furious mania, cried out loudly, complained of

violent pains in head and abdomen. After 2 h. face bluish, eyes red, wild, sparkling; the veins of neck, extremities, and face much distended, the whole body convulsed, frequent subultus tendinum, and such furious delirium that no one could restrain him. In the intervals he was occupied in catching imaginary flies, or picking at the bedclothes; at the time he spoke little, and could hardly articulate his words. After this agitation he lay on the edge of the bed and seemed quite prostrated, then he snored like a person with apoplexy, and seemed to sleep, but this was soon interrupted by the convulsions, which returned more violently than before. Pulse small, quick, contracted, and intermitting; it disappeared when slightly pressed; tongue dry, clean; hypogastric region very distended and sensitive; urine very scanty. Itching causing him to scratch till the blood came, and insuperable horror at drink of all sorts; on taking a spoonful of liquid into his mouth he ejected it with violence. He got 4 gr. of tart. em. After 4 h. no sickness, the symptoms became worse, the head more confused, no more convulsions but stupefied and quite unconscious. After another dose of the emetic he vomited a quantity of the seeds. The symptoms were allayed, the pulse became more regular and stronger, the head freer but the face more livid, eyes less red, but the dilated veins continued till 6 p.m., and all the symptoms went off except the confusion of head, as shown by his confused ideas. The n. was passed quietly but without sleep. About 6 a.m. general perspiration set in, which lasted 2 d. This was followed by an eruption of large red confluent pimples, not containing any fluid, from hips to knees, where there had previously been eczema, cured by mercury. This eruption itched for 3 or 4 d., then dried up and desquamated. He had dimness of vision which lasted some d. Pupils dilated. (COSTA, *Journ. de Méd.*, xxx, pt. 2, 134.)

8. Two soldiers gathered some sprouts of H., and boiled them in oil, of which they both partook. They soon had vertigo, the tongue was paralysed, the limbs relaxed, and they fell to the ground as if intoxicated. After 5 h. they were brought into hospital, and then their eyes were wild, pupils dilated, look staring and stupid, breathing difficult, pulse small and intermitting, aphonia, trismus, risus sardonicus, loss of sensibility, typhomania, cold extremities, paralysis of lower extremities, carphologia and convulsions of arms. One, who took a sufficient quantity of tart. em. to cause him to vomit freely, was next d. quite well except a slight supraorbital headache. The other, who did not vomit freely, remained very delirious during the n., but the following d. was well. A corporal who had taken a small quantity of the stuff had burning in throat, slight stupefaction and oedematous swelling of arms and hands. (CHOQUET, *Ibid.*, xxvi, pt. 4, 353.)

9. A plethoric man, æt. 34, got in the space of 4 h. 2 clysters of an infusion of H. ʒj and ʒiij. After 1 h. he was in an apoplectic and convulsed condition, could hardly see 3 paces distance, there seemed to be a veil before eyes, his face was brown and bloated, difficult speech and incoherent talk, throat dry and constricted, with dysphagia, could hardly stand upright, seemed about to fall every instant. (BERNIGAU, *Hufeland's Journ.*, v., pt. 4, 905.)

10. A child, æt. 4, ate some seeds of H. at 4 p.m. It was observed

that the mouth was distorted convulsively; soon the convulsions extended all over the body, the child passed the night screaming horribly, and tossing about, and made frequent attempts to vomit. Next m. the father brought it in his arms violently convulsed, like St. Vitus's dance; it cried out sometimes, could not stand, and was destitute of all steadfastness of body and limbs, which were in constant violent movement. Hearing was gone, pupils enormously dilated, eyes staring and bright, pulse small and scarcely to be felt, like a thread; skin soft and warm. It was carried to another house; during the transport it lay quite limp and passive in its father's arms. When put to bed the convulsions returned, but not so severely. Vinegar was administered by mouth and anus, whereby a large quantity of green stuff came away, with relief; this was followed by a quantity of white mucus, and it gradually recovered. The dilated pupils contracted the next d. (KAMLEIS, *Ibid.*, lxxviii, pt. 2, 81.)

11. Two girls, æt. 5, ate several capsules of H. They were seized with trembling of limbs, anxiety, restlessness, and incoherency of speech and action. After 6 to 8 h. they were found talking incoherently, laughing, and sometimes singing, they did not know those around them, had frequent twitchings of facial muscles. When they were held, or when an object was taken out of their hands, they scratched, pinched and bit in order to get away, showing great strength in hands and feet, sometimes they made dancing movements, ground their teeth, and projected their tongue spasmodically with a peculiar trembling movement of it, eyes sparkling, rolling about, albuginea red, pupils extremely dilated and insensible to light, pulse hardly to be felt, small, and very quick. Emetics, coffee, and vinegar, and lastly milk, soon brought them round. (BURDACH, *Ibid.*, lxxvi, pt. 6, 89.)

12. Three children, æt. from 4 to 8, one c. ate some of the leaves of H. They soon began to stagger, fell convulsed to the ground, and were found in the e. in a perfectly unconscious state. Milk was administered and assistance sought. The doctor saw them about midnight; their faces were bloated, they were normally warm; skin dry; pupils so dilated that not a trace of iris could be seen, eyeballs directed upwards and inwards. In one child the abdomen was enormously distended, but without pain even when pressed, tongue extended out of mouth, turned upwards towards nose. The others had not this symptom. In the 2 youngest the extremities were convulsively agitated to such a degree that a strong man could hardly hold them, the shoulders were bent backwards, and the abdomen projected forwards. They were alternately unconscious and conscious, spoke much and hurriedly and unconnectedly. The 8 years old child had no similar symptoms, but lay quietly unconscious. Pulse intermitting every 5 or 6 beats, in paroxysms, otherwise quick and full. Dysphagia in all 3. No complaint of pain; one child was foolishly gay. (WAGNER, *Ibid.*, lxxxvi, pt. 1, 129.)

13. A woman got 2 enemata of decoction of leaves of H. She had vertigo, stupefaction, incoherency of ideas, great excitement, delirium, redness of face, very dilated pupils, pulse slow, resistant, loss of strength. Three days later, notwithstanding vinegar enemata, castor-oil, and

strong coffee, she had violent fever with extreme dread of dying, which last became a sort of monomania which lasted six months, and left behind great nervous irritability. (*Journ. de Toulouse*, 1853, in *Z. d. V. hom. Aer. Oest.*, i, 376, 1857.)

14. Three persons, a man and two women, ate a considerable quantity of cooked root of H.

a. The woman, who had eaten least, had during the meal paralysis of tongue, and such great constriction of throat that she could neither chew nor swallow the morsel in her mouth. Soon she commenced to laugh, to dance, to run about the room, to seize hold of various things; she stared at those around her, heard nothing, and did not answer questions, several people could not make her drink or lie down. Face pale, pulse quick, respiration free, pupils very dilated, capillaries of eyes greatly injected. The maniacal symptoms lasted with complete sleeplessness till next d., the vertigo, stupefaction, and incoherency lasted several d.

b. In the second woman paralysis of tongue and spasm of throat came on rather later. She soon fell asleep in her chair, and lay there motionless. The head sank down on chest, face very red, respiration deep, skin warm, pulse small and quick, eyes closed, its vessels much injected.

c. The man took the largest quantity. In him paralysis of tongue and spasm of throat came on later. Then he rose from table, staggered like a drunken man to bed and sank down there motionless; the whole body was cold and stiff as a log. Face pale, conjunctiva much injected, the anterior cervical muscles so contracted that it was impossible to lay his head back on pillow; pulse small, thready, very quick, respiration; on account of paralysis of pulmonary plexus and spasm of pectoral muscles, stertorous and difficult. (*Gaz. des Hôpit.*, 12, 1854, in *Z. d. V. hom. Aer. Oest.*, loc. cit.)

15. A gentleman took by mistake for borage two cups of infusion of H. Seen soon afterwards he was in bed in profound sleep. Features pale, lips blue, breathing tranquil, pulse full, 82. When roused, muttered and became irritable. On attempting to make him drink he resisted it violently, and soon fell into a state of hallucination, in which countenance assumed a menacing expression, and he called various persons by name with whom he imagined himself to be conversing. When let alone he relapsed into lethargic sleep. After 5 gr. of tart. em. recovered rapidly. (*St. AUGÉ, Journ. de Pharm.*, xxxix, 383.)

16. An old gentleman, who since a paralytic stroke in his 75th year had habitually taken opium or morphia to obtain sleep, was now just able to walk with assistance from one room to another. He was unable to rest without taking 1—2 gr. of morphia in the 24 h., and even then failed to obtain sound sleep. For some weeks previously, and since the morphia had been increased, muscular twitchings, which were at first slight and partial, became severe and general, and in the fingers, arms, or legs constant. When dozing under influence of the morphia the twitchings increased; and once or twice, as he sat in a chair, the whole body was jerked forwards, and raised into the upright position. Fearing that the morphia, if it did not actually generate this

excitation, greatly increased it, I prescribed on a certain occasion 8 gr. of extr. of H. instead of the customary 1½ gr. of acetate of morphia. After an h., busy delirium, with constant muttering or talking and meddling with the hands, set in. These symptoms having continued with complete insomnia, for 12 h., I gave him ½ gr. of morphia, and as this did not produce much effect, ½ gr. more 12 h. later on. Still less soporific effect followed this last dose, and during the next 24 h., n. and d., there was complete insomnia, great mental vivacity, such as he had not exhibited for years, perpetual talking, and occasional catching at surrounding objects. During the whole n. he engaged the nurse's attention and interest by recounting the adventures of a friend in the Peninsular campaigns. Throughout the next d. he was intent upon taking a journey, but if any incident of his past life was suggested, he entered minutely into every particular, talking incessantly, with unwonted rapidity and emphasis. He used the simplest and most descriptive language; and he was quite independent of conversation, for it was necessary, in order to avoid any increase of excitement, to treat him with silence. Once a subject was named, no matter whether the attendant circumstances occurred the previous d. or 50 years ago, it immediately engaged his attention until some incidental remark or an illusion suggested other ideas. If a subject with which he was not wholly familiar happened to be mentioned, he spoke of it rapidly and coherently as far as his knowledge extended, but then became confused, incoherent, and a little irritable and impatient. The connecting links in a particular train of thought were weakened and occasionally broken by illusions and delusions. The sight of a white napkin suggested, through milk, his former breakfasts in India, the milking of the cow at the door of the house, the appearance of the frothed milk in the silver basin. His white handkerchief lying crumpled on the dark sofa-cover recalled the ivory nut, and he entered into a minute and faithful description not only of this plant, its habits and fruit, but of the characters of several other tropical vegetables. Then he wandered into the country, and suddenly pulling up a leg exclaimed, "Take care, give me your hand, that is a very deep step." The next m. he introduced himself with a loud voice in a friend's house at Torquay, and, while engaged in imaginary conversation, suddenly raised the eyelids, and looking across the empty space in the direction of the bare wall, said with much emphasis, "That's a fine dahlia!" A few m. afterwards he was engaged in Bristol. Several times he directed the carriage to be sent for, and supposing that it was at the door made attempts to rise from his couch. After 48 h. of this I gave the usual 1½ gr. of morphia; 4 h. afterwards he fell asleep, and slept tranquilly and almost continuously for the next 26 h. During the action of the H. the twitchings continued unabated, but after the refreshing sleep they began to subside. During the next fortnight he slept without any sedative. The twitchings meantime disappeared; and though it has been necessary to give as much as 1½ gr. of powdered opium during the 24 h., they have not returned after an absence of three months. (HARLEY, *op. cit.*, p. 330.)

17. I was called about 2 p.m., April 3rd, 1876, to see a child of 4,

whom I found delirious and acting very strangely. (It was found to have eaten some henbane seeds.) The first symptoms noticed by the mother were that its eyes had a peculiar look; they seemed dim and watery, pupils large, strange staring expression. At dinner-table he wanted everything he could see or reach, yet could not swallow readily. He understood my questions when asked, and would answer yes or no. He complained of head aching across forehead and temples; sick at stomach, but does not vomit; face and neck bloated; easily controlled in delirium. At 4 I found him much worse; would answer, and seem to know for a moment, and then would begin acting strangely; working and clutching of hands; would strike at attendants; restless, movements very quick, it was with difficulty he could be held on lap; eyes wild and staring, pupils much dilated, squinting; twitching of muscles of face; pulse 100; urine pale. At 8, child greatly excited, talking incessantly; his attention cannot be fixed on anything, nor can he be held. He is now on floor, watched by those in attendance; he wants to get away but cannot stand alone; he attempts to walk, and falls upon his face; limbs seem almost paralysed. He acts as if intoxicated, wants to fight, closes fists and strikes at attendants, also attempts to bite. At intervals he would sing, and at times burst out laughing. Nervous trembling and jerking of muscles; when anything is offered to him, he seizes it with both hands greedily; the slightest opposition excites him. Towards midnight symptoms began to diminish, but it was after 3 a.m. before patient became quiet and disposed to rest; he slept at intervals. Next m. he appeared quite natural, though eyes looked wild and staring, and pupils were still dilated. (N. B. COVERT, M.D., *Trans. of N. Y. State Hom. Med. Soc.*, N. S., 1, 157.)

18. A married man of 40, in perfect health and virile vigour, was suddenly attacked, March, 1847, with violent toothache, worse at n. To cure it, he fumigated mouth with smoke from burning seeds of H. Pain instantly vanished, but from that moment he became perfectly impotent, and remained so up to September, when he consulted Dr. Wehle in Prague. Under stimulating treatment he recovered in 8 weeks more. (*Oest. Med. Wochenschr.*, 1843, p. 539.)

III. *Experiments on animals.*—1. As its name implies, H. may be eaten by swine with impunity; it is also said to be innocuous to cows and sheep, while deer, barnyard fowls, and fish are poisoned by it. According to Orfila's experiments, it acts upon dogs as upon the human species. Although the alkaloid is poisonous to rabbits, twenty times the quantity of strong alcoholic extract does not injure them. (STELLÉ, *op. cit.*)

2. Given to horses in large quantities it causes dilatation of pupils, spasmodic movements of lips, and frequency of pulse. (PEREIRA, *op. cit.*)

Hyoscyaminum.—An alkaloid obtained from *Hyoscyamus*, $C_{17}H_{23}NO_4$.

1. *Proving.*—1. a. The active principle of *Hyoscyamus*, when given in small doses, such as are insufficient to produce positive dryness of mouth, rapidly subdues ordinary excitement of pulse, and reduces it within an h. or two to its lowest rate, that is to say, to the condition

in which it is usually found after a long period of complete rest of mind and body. For example, the pulse of a man ordinarily engaged shall be 80. After gr. $\frac{1}{2}$ of sulphate of H. it will gradually fall to 60 or 50. In another person, whose pulse may be 72, we shall at the end of the same time find it steadily beating about 45. In all my experiments I have never observed the pulse to fall lower than 40.

b. After doses (gr. $\frac{1}{2}$ to $\frac{1}{4}$) sufficient to produce complete dryness of tongue, and of hard and soft palates, the pulse will generally experience an acceleration of 10 or 20 beats, and be increased in force and volume. This acceleration will generally be observed 10—20 m. after the subcutaneous injection; it does not usually continue longer than 20—30 m., and rarely lasts an h. Then the pulse slowly declines, and gains a little in force and volume. It usually declines by about 5 beats for every interval of 20 or 30 m. until, after 1½ or 2 h., it attains its minimum rate. Apart from these effects on the pulse, the following symptoms will be observed after moderate doses (gr. $\frac{1}{6}$ to $\frac{1}{4}$):—In 10—20 m. tongue more or less completely dry, rough, and brown, hard and soft palates dry and glazed, excessive giddiness, and a weight across forehead, somnolency, cheeks occasionally a little flushed, and membranes of eye sometimes slightly injected. After continuing about an h. these symptoms pass off; and tongue, with hard and soft palates, becomes covered over with a sticky and offensive secretion, agreeing in all respects with that which follows the action of belladonna. The pupils slowly dilate during the latter part of the action of the medicine, and at its close attain their maximum degree of dilatation.

c. If larger doses than gr. $\frac{1}{4}$ be given the above-mentioned effects will be increased and prolonged for 2 or 3 h.; and they will be accompanied either by wakeful, quiet, and usually pleasing delirium with illusions of sight; or with such excessive somnolency that patient cannot keep eyelids raised for a few seconds, but when aroused lapses again into a dreamy sleep, broken by occasional mutterings and slight jerking of limbs. In either case the power of maintaining the erect posture will be lost, and at best patient reels like a drunken man. (HARLEY, *op. cit.*, p. 322.)

2. a. Samuel M—, æt. 49, in strong health save for facial neuralgia. Pulse 74; pupils $\frac{1}{8}$ "; resp. 20. Had gr. $\frac{1}{4}$ subcutaneously injected. After 23 m., pulse 89. After ½ h., pulse 84, regular; giddiness; tongue dry and hard. After 1 h., pulse normal; mouth clammy, throat dry. After 2 h., pulse 72; pupils $\frac{1}{8}$ "; mouth quite moist; throat felt very dry.

b. Gr. $\frac{1}{6}$ given in same way. After 20 m., pulse 92, regular; great somnolency; excessive giddiness; he staggered much in walking. After 1 h., pulse 89; pupils $\frac{1}{8}$ "; legs felt too weak, and he was too giddy, to walk without assistance; continued very sleepy; no dryness of mouth. After 1½ h., pulse 79; pupils $\frac{1}{8}$ "; still giddiness and somnolency; mouth and throat very dry and parched since last date, and remained so. After 2 h., pulse 72, otherwise normal; pupils $\frac{1}{8}$ "; tongue dry and brown in centre; both palates dry and glazed; somnolence nearly gone, but giddiness continued, and he still required help in walking. After 2½ h., giddiness and dryness passing off. (*Ibid.*)

3. *a.* Charles V.—, *æt.* 32, strong man with chronic lumbago. Pulse 76; pupils at light $\frac{1}{10}$ ", sideways $\frac{1}{4}$ ". $\frac{1}{10}$ gr. injected. After 20 m., pulse 58. After $\frac{1}{2}$ h., pulse 55; pupils $\frac{1}{8}$ ", sideways $\frac{1}{2}$ ". After 1 h., pulse 54; after $1\frac{1}{2}$ h., 51; inclined to yawn. After $2\frac{1}{2}$ h., pulse 50; pupils as at $\frac{1}{2}$ h.; slight dryness of mouth. At first force and volume of pulse were slightly increased, but afterwards it continued unchanged and regular throughout. There was neither somnolency nor giddiness.

b. $\frac{1}{10}$ gr. After 40 m., pulse 66. Giddiness came on 10 m. after injection, and he now staggered a little on rising from chair; no somnolency; pupils slightly dilated; mouth generally dry. After $2\frac{1}{2}$ h., pulse 52, otherwise normal; pupils $\frac{1}{8}$ ", sideways $\frac{1}{2}$ ".

c. $\frac{1}{10}$ gr. After 20 m., pulse 91, a little increased in volume; face a little flushed; felt heavy. After 1 h., pulse 80; pupils $\frac{1}{8}$ ", sideways $\frac{1}{4}$ "; sclerotics and conjunctivæ a little injected; face—chiefly cheeks—hot and flushed; tongue dry and brown down centre, rest of mouth very clammy; much somnolency and giddiness; he had slept last 10 m. After 2 h., pulse 56; pupils $\frac{1}{8}$ ", sideways $\frac{1}{2}$ "; flushing, &c., quite gone; mouth moist and clammy, and exhaling offensive odour; he had slept during last h., and still experienced somnolency.

d. $\frac{1}{10}$ gr. After 30 m., pulse 102, of undiminished volume and power; pupils $\frac{1}{8}$ "; conjunctivæ a little injected; tongue uniformly dry; both palates dry and glazed; dull, heavy, and sleepy, and very giddy, reeled much in walking. Giddiness and dryness came on 12 m. after injection. After 40 m., pulse 100; after 50 m., 88, eyes suffused, eyeballs restless, face hot and flushed; looked very heavy, had slept, and great somnolency continued; mouth still moist. After $1\frac{1}{2}$ h., pulse 67, otherwise normal; pupils $\frac{1}{8}$ ", sideways $\frac{1}{2}$ "; face less flushed; mouth quite moist, but throat very dry, and during last h. a dry tracheal cough was present; very giddy and sleepy still; frequently yawned and sighed. After $2\frac{1}{2}$ h., pulse 58, softer; pupils $\frac{1}{8}$ ", sideways $\frac{1}{2}$ " nearly; flushing, &c., had disappeared; somnolency now passing off. After 3 h., pulse 53; pupils as at $2\frac{1}{2}$ h.; face and eyes natural; mouth moist; no other after-effects, and he now walked a distance of 4 miles.

e. The following table shows effect on urine:

<i>Obs.</i>	<i>Urine before med.</i>	<i>Urine after med.</i>
<i>a.</i> 11.7 a.m.	Between 8.30 and 11.7 $\frac{3}{4}$ p. gr. 1015, acid, pale sherry colour.	$2\frac{1}{2}$ h. after injection $\frac{3}{4}$ p. gr. 1010, feebly acid, whey coloured.
$\frac{1}{10}$ gr. at 11.15 a.m.	8.30—11.15 $\frac{3}{4}$ p. gr. 1016, acid, much uric acid.	1 h. after $\frac{3}{4}$ p. gr. 1008, alkaline, much less uric acid.
<i>b.</i> 10.30 a.m.	8.30—10.30 $\frac{3}{4}$ p. gr. quality as above.	$1\frac{1}{2}$ h. after $\frac{3}{4}$ p. gr. 1008, neutral, a trace of uric acid.
<i>c.</i> 11 a.m.	8.30—11 $\frac{3}{4}$ p. gr. 1010, faintly acid.	1 h. after $\frac{3}{4}$ p. gr. 1005, very alkaline.
<i>d.</i> 10.47 a.m.	8.30—10.47 $\frac{3}{4}$ p. gr. 1015, acid, bright on boiling. 1000 gr. measures contained: Chlorine gr. 1.95 Urea " 12.32 Sulphates and phosphates " 4.16	$2\frac{1}{2}$ h. after $\frac{3}{4}$ p. gr. 1008, alkaline, phosphatic opalescence on boiling. 1000 gr. contained: Chlorine gr. 1.35 Urea " 8.13 Sulphates and phosphates " 5.24

(*Ibid.*)

4. Mrs. F—, æt. 47; pulse 72; pupils at light $\frac{1}{8}$ ". $\frac{1}{2}$ gr. caused great somnolency for 3 h., with tottering and giddiness, so that she had to make two or three efforts before she could raise herself from the chair, and then began to reel and could not walk safely without support. Felt a great weight across forehead. Pulse during first 15 m. fell 16 beats, and during next $2\frac{1}{2}$ h. 8 beats more, when it attained the minimum, numbering 48. During the next h. it rose to 40. At end of 30 m. tongue was dry and brown, and both palates dry and glazed, remaining thus for following $1\frac{1}{2}$ h. $3\frac{1}{4}$ h. after injection, pupils measured $\frac{1}{8}$ ", and general symptoms had passed off completely. (*Ibid.*)

5. Mrs. E. W—, æt. 34, stout and healthy, but suffering from neuralgia of fingers; in much pain, pulse 88 after sitting 1 h., pupils $\frac{1}{10}$ ". In 15 m. after injection of gr. $\frac{1}{4}$ pulse decreased 6 beats; once or twice a m. a beat came very slowly, otherwise quite regular; much somnolency and giddiness. After 30 m. pulse further decreased 2 beats, quite regular, slightly increased in volume and power; tip of tongue and hard palate quite dry; face hot and flushed; still very sleepy. After $\frac{3}{4}$ h. mouth suddenly and completely moistened, and at same minute pulse fell 7 beats, and attained minimum depression of 19 beats; flushing of face began to decrease; pupils $\frac{1}{8}$ ", sideways $\frac{1}{2}$ "; somnolency and giddiness remained, and she continued to sleep during next $1\frac{1}{4}$ h., when disturbed awaking with a start. At end of this time pulse was 72, having increased 3 beats since last mention; it was regular, and of slightly increased volume and force. (*Ibid.*)

6. John C—, æt. 55, an able-bodied but weakly man, had gr. $\frac{1}{2}$ injected for relief of obstinate neuralgia. After 5 m., giddiness. After 20 m., pulse increased 12 beats, full and regular; tongue and mouth generally dry; hard palate quite dry; pupils dilating; felt sleepy and giddy. On attempting to rise from chair, he began to reel; legs were very weak, and he could not walk without assistance. After 45 m., pulse increased only 2 beats, of natural volume and force; pupils dilated to $\frac{1}{2}$ "; tongue, except margin, quite dry and rough; both palates completely dry and glazed; articulation indistinct from great dryness of tongue and throat. Complained of giddiness across forehead; no somnolency. Mind quite clear when engaged in conversation, but when left undisturbed he relapsed into a dreamy condition with eyes wide open. Twice he reached out a hand to an object on the table, and began to look about on the floor, and when I asked him "what for?" he said, "Oh! I thought something had dropped off the table—the walls appear to move a little." There was no flushing of the face or injection of the eyes. He could not rise from his chair, or walk without assistance; and as he sat, the extensors of the legs were slightly twitched now and then, so as to advance the foot with a little jerk. After 2 h., pulse 1 beat less, full and regular; pupils a little over $\frac{1}{2}$ "; excepting gums, mouth quite dry. Continued in same condition, without manifesting least tendency to sleep. He remained quiet, but inclined to be meddlesome when his attention was not engaged in conversation, grasping at objects on the table, or in the waste-basket on the floor, and attempting to remove them before hand reached them, evidently misjudging distance. The muscular system generally was

flaccid, he did not sit erect in the chair, and (besides jerking of feet already mentioned) once or twice the hand was suddenly pronated and supinated with a jerk. After 2 h., pulse had decreased 6 beats, but still remained of good volume and force; pupils between $\frac{1}{2}$ " and $\frac{3}{4}$ "; mouth dry as before; no flushing of face or injection of eye, no headache or somnolency. In answer to my questions, he said that he only felt giddy. The limbs were fidgety, and occasionally affected with slight twitching. Left alone, he relapsed into a state of forgetfulness and dreamy meddlesome delirium, picking at objects, and, having reached them after several unsuccessful efforts, fumbling them about until he dropped them, and then, in the attempt to pick them up, losing his balance, and, but for constant attention, falling over. When aroused, he rubbed his hands, gaped, and answered my questions readily. He was quite unable to walk. The eyelids were unsteady. A remark which I made at this time excited a risibility which he was unable to restrain, and every now and then the suppressed chuckle burst out into a hearty laugh. During next $1\frac{1}{2}$ h. he became somewhat restless, and if I left his side for a m., he would attempt to get up, reel for a few paces, and then fall together like a drunken man upon the carpet. At the end of this time the giddiness diminished, and a slight inclination for sleep came on. After $3\frac{1}{2}$ h. he was gapiish and tired. He could now walk without assistance, but still reeled a little. Anterior part and margins of tongue were now quite wet with an acid secretion. Eyeballs were still unsteady. After $3\frac{1}{2}$ h. pulse was 60, and normal as at 2nd h.; pupils were nearly $\frac{1}{2}$ " at light; mouth everywhere moist, and cerebral symptoms rapidly subsiding. At this time he ate a plateful of cold meat; and $\frac{1}{2}$ h. after, only slight giddiness and heaviness remaining, he walked home. (*Ibid.*)

7. When in an adult 1—3 milligrammes are subcutaneously injected, in a few m. pupils dilate, and in 20—25 m. iris has disappeared. At same time, patient complains of a dryness of throat and gums, which shows itself by involuntary acts of swallowing and constant mumbling. There is much thirst and some dysphagia. There is a slight acceleration of pulse and breathing; also a little rise of temperature, but this is not constant. Dulness of head is complained of, and a slight excitement with tendency to movement; but the legs tremble, bend, and refuse their aid, as in intoxication. After an h. or two comes desire to sleep, lassitude; sometimes a slight delirium and a profound slumber succeed to this period of excitement. Next d. nothing remains but sense of dryness of throat, and sometimes pupils still dilated. In impressionable persons there is occasionally disturbed vision, as diplopia; and in some unwanted erotic dreams, with or without pollutions. (LAURENT, *de l'Hyoscyamine et de la Daturine*, Paris, 1870.)

8. *a.* To an adult, at 11.50 a.m., 3 h. after a meal, 2 gr. of amorphous alkaloid were given. Previous to administration pulse was 104, temp. 98.6°, resp. 20, pupils $\frac{1}{2}$ ". At 12, pulse 94, resp. 18; otherwise same. 12.10, pulse 80, resp. 18, mouth dry, giddiness. 12.20, pulse 116, resp. 20, temp. 98.7°, pupils $\frac{1}{2}$, motion impaired. 12.30, same; drowsiness. 12.40, pulse 120, resp. 24, temp. 98.5°; motion more impaired. 12.50, temp. 98.9°, articulation slow. 1.0, pulse 114,

resp. 22, temp. 98.7° , mouth and nose very dry. 1.10, pulse 108, resp. 24, temp. 98.5° ; interrupted sleep. 1.20, pulse 105, resp. 22, temp. 98.2° ; illusions and paralysis of accommodation. 1.30, pulse 100, resp. 21. 1.40, pulse 105, resp. 22; active dreams and involuntary exclamations. 1.50, pulse 106, resp. 20, temp. 98.6° ; icterus.* 2.0, pulse 100, resp. 21, temp. 98.2° ; movement still impaired. 2.10, pulse 94, resp. 18, pupils (all this time at $\frac{1}{2}$) $\frac{3}{8}$ "; incoherence and aphasia. From this time pulse, &c., were no longer recorded; mental state was characterized by heaviness, incoherence in conversation, and a certain amount of ataxic aphasia, as shown by a tendency to slur over words and syllables. During following n. sleep was disturbed by dreams, in which person affected frequently made short audible remarks, evidently in answer to subjective interrogations.

8. After 3 d., 3 gr. were given to same individual at 3.50 p.m. Pulse was 104, resp. 20, temp. 99° , pupils $\frac{3}{4}$. 4, pulse 108, resp. 19; lips dry, giddy. 4.15, pulse 112, resp. 22; great loss of motor power. 4.30, pulse 108, resp. 19, pupils $\frac{1}{2}$; marked drowsiness. 4.40, pulse 116, resp. 23; voice husky, interrupted sleep. 5.10, pulse 126, resp. 22; could not walk alone. 5.23, pulse 110; interrupted sleep. 5.30, pulse 114; restless and incoherent. For 7 h. subsequently it was possible to take only occasional and irregular observations. During a long continued display of delirious excitement pulse fluctuated irregularly between 104 and 120, respirations fell to 14, and temp. reached a minimum of 98.4° and a maximum of 99.2° . During this stage of the action of the medicine the patient manifested all the symptoms of simple mania. He mistook identities, spoke incoherently, acted irrationally, and was frequently under the influence of delusions and hallucinations. Early in this period there was marked paralysis of ocular accommodation. Chairs, which were 5 or 6 feet distant, were grasped as if within reach, and repeated efforts were required to rectify the mistakes originating in this aberration of vision. The full cerebral effect of the drug was manifested 2 h. after administration. The first symptom was inability to fix the attention on any given subject. The patient, though rising from his seat for a definite purpose, immediately forgot what his own intentions were. He talked in incoherent snatches, and after commencing to express an idea passed suddenly on to the statement of another and apparently unconnected one, which also he left obscure and unexplained. While under the combined influence of delusions, hallucinations of sight, and paralysis of accommodation, he attempted to step from a window about 30 ft. from the ground, stating that he was going out upon the lawn, which he was convinced was on a level with the window. He had numerous hallucinations of sight. A picture which, under the influence of a delusion, he had taken from the wall and placed on a sofa, he immediately afterwards sat upon in the belief that it was an embroidered cushion. He pointed to cats which, he said, were standing on their hind legs and making fantastic movements, when no such animals were visible to others. Friends at a distance

* "The subject of the experiment was the only person who witnessed the existence of jaundice. It has never been seen in the course of numerous subsequent experiments."

were spoken to as if sitting in parts of the room which were quite unoccupied. Female heads and faces were pointed at in the air as examples of perfect grace and beauty. The mistakes in identity were so complete that interrupted conversation was carried on with persons who had temporarily assumed the identity accorded to them by the patient. During the persistence of these personal delusions, statements, which were either unreservedly sincere or ludicrously inappropriate, were freely elicited by suggestion. The patient several times partially changed his clothes with the intention of going out for special purposes—to work, to walk, or to dine; but every new suggestion led to a modification of dress, till, actuated in a totally different manner, he left his toilet incomplete, and directed his attention to new and equally absurd pursuits. Latterly the motor impairment became less marked, but the cerebral condition was characterised by greater incoherence in speech and extravagance in action. The patient tried repeatedly to wind up a gold watch with a corkscrew. Ideas were imperfectly expressed which at best had neither sequence nor relative connection. The patient walked in an aimless manner from room to room, but to a great extent avoided obstacles in his way. The emotional condition was one of quiet satisfaction and comparative good humour. When the influence of delusions required the use of personal restraint the patient met it more by illogical argument and expostulation than by force. The cerebral condition during the time following upon the short period of drowsiness was characterised by wakeful restlessness, till, 9 h. after the administration of the medicine, the patient, in a comparatively lucid interval, undressed and went to bed. Throughout the n. he experienced numerous hallucinations of sight. Lizards and other animals crawled on the bedclothes. A face—always the same—formed itself by the hollows and elevations of the cornice, but this delusion could be dispelled by mental analysis. Two sides of the room appeared to form the two pages of a book separated by the intervening angle, and by the influence of hypermetropia seemed to rest upon the bed and lie open before the patient; but after fixed attention the vision appeared to recede, till the elements of the delusion were fully determined by their relation to surrounding objects. After a short period of interrupted morning sleep no traces of the operation of the drug remained, except wide dilatation of the pupils, some dryness of the throat, and slight lassitude. During the action of the drug there was no reddening of the skin or other appearance of eruption.* Though during the greater part of the time consciousness was not affected, scarcely a single incident anterior to the time of going to bed was remembered by the patient, neither could the events recorded be recalled to his memory by any attempt to associate the vagaries which he had forgotten with those of which he had a dim recollection. While the physiological action of the drug lasted there was free diuresis but no vomiting or nausea. (LAWSON, *W. Riding Asylum Medical Reports*, vol. v.)

* "Since the time that this paragraph was written, I have had frequent occasion to see and demonstrate a decided rash produced by the use of H. It appears most frequently on the face and forehead, and is not unlike the eruption of measles."

III. *Experiments on animals*.—1. The action of H. on the lower animals is essentially the same as on man.* (*HARTLEY, op. cit.*)

2. M.M. OULMONT and LAURENT have arrived, from their experiments on animals, at the following conclusions:

a. Hyoscyamine and daturine act especially on the sympathetic nervous system.

b. In small doses they reduce the capillary circulation; in large doses they produce paralysis of the vessels.

c. Arterial tension is increased by weak, diminished by powerful doses. These effects are not modified by section of the vagi.

d. Frequency of pulse is increased and fulness diminished.

e. Hyoscyamine renders movements of heart regular; daturine often produces intermittence and arrest of action. When applied directly, both alkaloids slow, and ultimately arrest, the beats.

f. Both always accelerate respiration.

g. Neither has any direct action on the nervous system of animal life. Sensation and motor power are not modified by them. In toxic doses they blunt cutaneous sensibility.

h. In small doses they accelerate the movements of the intestines; in large doses they paralyse them.

i. The general phenomena observed when these alkaloids are given are due to modification of the circulation, and disappear rapidly. The alkaloids are soon eliminated, especially by the urine, in which they may be found.

j. The dilatation of pupil which is produced is due to stimulation of the sympathetic; the third pair of nerves is not concerned in its production.

k. Small doses generally give rise to slight increase of temperature; large doses diminish the central temperature. (*LAURENT, op. cit.*)

3. a. The smallest active doses of H., when administered to animals, cause numerical depression of the pulse and increased arterial tension, reduce the temperature, dilate the pupil, and have little effect on the respiration.

b. Small doses cause reduction of pulse, with increase of arterial pressure, followed by quickening, which after a greater or less persistence suddenly subsides and sinks towards the normal point. During the action of the drug there is restlessness, followed by motor paralysis, diminution of respiration, and reduction of temperature about 4° .† In all cases there is dilatation of pupil and dryness of mouth and throat.

c. Large doses elevate the pulse without previous depression, and this quickening is maintained for 6 or 8 h. Great fall of temperature, diminution of respiration, loss of motor power, delirious excitement, and sometimes prolonged but interrupted sleep, succeed, and are in their turn followed by sudden reduction of the pulse towards the initial

* So also state M.M. Oulmont and Laurent.—Eds.

† "The great decline in temperature is most noticeable, associated as it is with such a marked increase of cardiac activity. The relation between the temperature and the respirations is so precise as to suggest an explanation of this anomaly. The beginning of this precipitate decline in temperature exactly corresponds with that of the slackening of respiration, and when the respirations are at their lowest the temperature reaches its minimum" (in a cat 15° below the starting-point).

point, and sometimes below it. This fall precedes complete recovery from the operation of the drug.

d. Lethal doses cause death either by syncope during extreme vascular excitement, or by coma following upon non-elimination of the drug by the urine, and imperfect aeration of the blood through impairment of respiration.*

e. The drug generally produces increased urinary and diminished alvine secretion.

f. To rabbits, pigeons, and others of the lower animals, H. is almost, if not altogether, as active a poison as to man; but in birds no dilatation of pupil is produced by it, and no dryness of mouth and throat.

g. Long-continued administration of the drug causes loss of weight, quickening of pulse with increase of arterial pressure, quickening also of respiration and increase of temperature. Subsequently there is restoration of weight but persistence of heightened pulsation, respiration, and temperature. Individual doses administered to an animal constitutionally affected by hyoscyamine cause, not reduction, but elevation of animal heat.

h. The intrathoracic changes and the decline of temperature are physiologically produced by stimulation of the sympathetic system and depression of the cardiac and pulmonary distribution of the pneumogastrics. The elevation of temperature seen in persistent administration of the drug is probably due to a tolerance of the substance by the pneumogastrics while the sympathetic still remains affected by it.

i. The pupil is dilated by H. through simultaneous stimulation of the sympathetic and depression of the third pair, as distributed to the iris.

j. Local application causes dilatation of pupil, commencing in 3—4 m., increasing for 15 m., persistent for about 3½ h., gradually passing off and returning to normal state in 3 d. After internal use of moderate doses pupil begins to dilate in 2—3 m., and reaches its widest diameter in 20 m. The maximum dilatation persists more than 24 h., and the pupil does not return to its normal size for 6 d.

k. In order to determine the vascular changes in the cerebrum, I exposed under chloroform one hemisphere of a rabbit, and observed the

* "There are two definite modes of death from large doses of H. In the case of animals dying suddenly while the pulse is excessively high, and the muscular power sufficient to admit of a considerable amount of struggling, there is invariably a large secretion of urine, and little nascent action. In such cases death results from syncope. But when muscular activity is not excited by external irritation, and when there is no secretion of urine, head symptoms develop with marked rapidity and intensity; sleep, at first interrupted by spontaneous startings and short periods of delirious excitement, passes into absolute coma, and death ensues after a temporary period of renewed cardiac excitement. In the first class of cases the brain is found to be somewhat anæmic, and little or no blood escapes on its removal. The bladder is generally full and distended, and the heart contains some fluid blood on both sides. In the second, the cavity of the skull is full of fluid blood, large quantities escaping from the sinuses. The medulla and cerebellum are surrounded by venous fluid, and the surface of the brain is marked by large vessels, though the cerebral substance is pale and anæmic. The corpora serena appear in such instances to contain relatively more blood than any other part of the brain. The heart and lungs are full of fluid blood, and the latter also œdematous. The kidneys are always congested."

condition of the intracranial circulation. Time was allowed for the production of changes incidental to the exposure to atmospheric irritation and the removal of vascular support. A sufficient dose of H. was then given, and almost immediately there was a marked contraction of the vessels under observation. As the pulse quickened there was slight dilatation, but subsequently little or no change occurred till shortly before death, which took place in about an h. Previous to death, the number of visible branches of the main trunk which had been selected was reduced from 13 to 10, and after death the other side of the brain was found pale and anæmic. (LAWSON, *op. cit.*)

HYPERICUM.

Hypericum perforatum, L. St. John's wort. Nat. Ord., *Hypericaceæ*.

1. *Proovings*.—1. KAROLINE M—, æt. 23, unmarried, phlegmatic temperament, healthy, took, 7 a.m., 4 dr. tinct. 1st d., 8 a.m., great thirst, dry mouth, some stitches in r. temple. 8.30 a.m., throat swells for ½ h.; feeling of fatigue; several times dry short cough; pressure in sacrum; tension in both arms. From 9 to 10 a.m., nausea, on drinking water eructation. 11 a.m., tongue white, lips dry, their epithelium seems dried. 2 p.m., more thirst, hot feeling in mouth. 3 p.m., throat swells again. 5 p.m., pressure and burning in chest, anxiety, dry burning heat in mouth. Great sadness, she feels like to weep. Frequent empty, tasteless eructations; no appetite, feeling of weakness in head. 6 p.m., feeling of confusion in head, especially the crown, a dull humming. Sleepy, eyelids always disposed to close, pupils dilated; pulse quick. 6.30 p.m., tearing from r. calf down through whole foot. 8 p.m., stitches through l. chest. Sleep very disturbed with frightful dreams, searings, and anxiety—and d., very tired with great thirst. 3 p.m., hard stool. 5 p.m., very sleepy; smarting on back of hands; tightness of chest; shooting in l. side of chest; feels as if heart would fall down. 8 p.m., severe stitches under l. breast; here and there stitches under r. breast; very short breath; throat swells; shivering through whole body. Pressure in stomach after boiled rice; face swollen.—3rd d., at 3 a.m., spoke in sleep all sorts of incoherent stuff, looked distraught, stared at her brother; head hot, carotids beating violently; face very red, swollen; eyes fixed, pupils dilated; pulse very quick; hair moist; rest of body dry, burning hot; great anxiety; all at once left off talking and sang, soon afterwards wept and screamed frightfully, and gasped for breath. On giving her two magnetic passes, she at once came to her senses and said that when a hand was laid on her head she felt a pleasant calming sensation. The whole attack lasted about 1 h. She now complained of the most violent headache as if from a hammer, especially in crown, of tearing stitches in interior of head; formication in hands and feet, they felt furry; extreme thirst, white furred tongue. All d. felt excessively weak; tension in both eyes; dry burning heat all over body; continued stitches from within outwards through l. chest and sternum, increased by movement.—4th d., last n. drawing toothache in whole l. lower jaw (after midnight), for a short time. During d. as if fluxus would be discharged; disinclined for all mental and bodily work.—5th d., 2 a.m., tongue furred white, pulse quick and hard, nose disagreeably dry, pupils dilated. P.m., throbbing in crown, head hot, anxiety; tension in both eyes, pressure in sacrum, palpitation of heart. 4 p.m., chilly feeling through whole body, urging to urinate; violent sweating in both hands, red military eruption on back of hands and between fingers, thirst and oppression.—6th d., violent pinching pains in belly as from flatulence, soon followed by soft stool.—The next 14 d. she still felt great exhaustion, weakness of head and of memory. (MILLER, *Hygeæ*, v, 485.)

2. KATHARINE M—, æt. 31, mother of 4 children, sanguine temperament, healthy, took, 8 a.m., 4 dr. tinct. 1st d., very acute smell all d. 10 a.m., tension in cheeks for several h. 4 p.m., in r. temple transient but severe tearing with chilliness

of whole body; a kind of shooting sometimes in epigastrium, sometimes in r. hypo-chondrium. At a. in bed feeling as if something were alive or tickled in brain; dreams much and wakes after each dream.—and d., a.m., painful feeling in teeth; p.m., anxiety, something hot rises up in throat; tension in both cheeks, from noon till e. Very sleepy.—3rd d., shooting in r. hypochondrium, transient tearing in elbows. P.m., a jerking pain in teeth and cheeks; great heaviness of head. E., tearing in l. arm, especially from elbow to fingers; soft stool. At n. call to stool without result.—4th d., a.m., tension in teeth, heaviness in head, brain feels com-pressed, nausea for $\frac{1}{2}$ h., continued tearing in arms. 3 p.m., transient spasm in knee, jerking and twitching in cheeks. 4 p.m., feeling as if an icy cold band were touching the forehead for about $\frac{1}{4}$ h.; it then went to r. eye causing spasmodic contraction there for $\frac{1}{2}$ h. 4.30 p.m., transient stitches through r. ear. Oppression; no stool to-day.—5th d., wakes with confused head. 4 p.m., cutting in umbilical region, sort of ebullition there; hot face, feeling as if head were all at once longer. 7 p.m., abdomen distended hard like a drum; no stool; is very dejected and feels like to weep; tearing in occiput. 9 p.m., great lassitude; r. leg and l. arm lame alternately with squeezing.—6th d., 2 a.m., twitching and formication in l. 3rd finger half the d. Has a stool, whereupon the distension of abdomen gradually subsides. 8 p.m., great tearing in both arms. 7th d., m., tearing in l. arm; a kind of contraction in l. vagina. Midnight, violent tearing in genitals, with urging to urinate twice during n.; tension in region of uterus as from a short ligament.—8th d., weariness in arms. E., a smarting eruption on both hands, like urticaria, must scratch them nearly raw.—9th and 10th d., toes and heels somewhat swollen and smarting; lassitude; distended abdomen and tension in r. hypochondrium; paralyticpressive pain in sacrum. E., smarting in l. fingers.—11th d., 2 a.m., urging to urinate with faintness and vertigo in and out of bed. Wakes in m. with great vertigo and nausea. 9 a.m., vertigo continues; trembling and cramp in l. arm and fingers; leucorrhoea. For about 3 weeks felt weak, had leucorrhoea for several d.; hair falls out much; marked weakness of memory, easily startled, inclined to sit still, very sensitive to cold. (*Ibid.*, 487.)

3. Magdalene M.—, wt. 28, unmarried, sanguine temperament, good health, took 4 dr. tinct. 1st d., heaviness in head, tension in temples; restless sleep, felt quite heavy in bed.—and d., fine pricking like needles in arms, tension in hands; booripilation in crown. 2d a.m., great urging to stool, evacuation of a hard lump. 3 p.m., confusion of head, here and there tearing in teeth; pain in eyes, anxiety, frequent starting, hot feeling in lips. E., stitches in both temples, throbbing in l. temple.—3rd d., wakes at 4 a.m. feeling as if were not lying in bed or as if she lay heavy in bed; many dreams. N., tearing in arms. A.m., pressure on chest and throbbing in r. temple. Noon, nausea with inclination to vomit and great lassitude. 2 p.m., stitches in l. shoulder at every breath; abdomen distended;pressive paralytic pain in sacrum; cutting and pricking in belly as from flatulence. 3 p.m., violent stitches in crown; great urging to stool with evacuation of a lump.—4th d., 3 a.m., woke with tearing toothache in upper and lower jaw; feet felt furry, with needle pricks in them. Noon, several stitches in sacrum. 4 p.m., stool with excessive tenesmus.—5th d., much starting; every time she starts heat rises up in throat. E., tearing in r. thumb.—6th d., m., confusion of head, pain in temples, weak feeling and trembling in all limbs; nausea. 10 a.m., normal stool. 5 p.m., violent stitches through chest, so that she must hold her breath.—7th d., 9 p.m., hard stool with violent tenesmus, followed by sickness; tearing in r. eye and in crown; brain feels confused.—8th d., wakes with great lassitude and trembling; throat swollen; tension in both hypo-chondria, violent thirst, white tongue;pressive pain in sacrum; drawing pain from l. ear to vagina; on touching vagina feeling of swelling there; head feels larger; tongue furred, dirty yellow; stool hard; tearing in r. thigh and knee.—9th d., feeling in throat as if a worm were crawling there; stitches in both sides of chest alternately. 3 p.m., on rising from seat l. foot felt spined.—10th d., great lassitude, tearing in r. knee; stitches in scapula; stitches through r. eye. During next 14 weeks complained that her hair was falling out. Menses, previously regular, were 14 d. too late. The weak feeling in head and lassitude go off gradually. (*Ibid.*, 490.)

4. a. Dr. SCHELTZKE, being in good health, took, June 13th, 2 doses of 100 dil. Afternoon, weak, distracted after a short walk. Until 3 p.m. unusually poorly, giddy, heaviness of legs, tension in neck and nape.—19th, itching in both cheeks,

especially about whiskers. P.m., drowsy after dinner, shivering, coldness from calves over thighs repeatedly during d.—22d. Nausea, loathing, inclination to vomit after supper. N., vivid dreams not remembered.—23d. Bad taste, eructation; shivering in back and over shoulders; frequent spitting of gelatinous mucus; disposed for rapid work. N., several times painful cramp in calves, first r, then l., compelling him to get up and walk about. M., ulcerative pain in a vesicle on thigh. 4 p.m., much yawning.—23d, m., 6 dr. tinct. Head heavy; tension below l. temple; frequent eructation with oppression in chest, retching; flatulence, tension in abdomen, hernial sufferings; shooting and burning pain in sacrum and loins, with cold feeling in back, shoulders and arms.—24th. Chilliness all over body with nausea; diminished appetite, loathing of food; spitting out of much granular white mucus; frequent discharge of dark yellow-coloured urine.—25th. Dreamful sleep with morning sweat; tension in nape with pressure and shooting in center of chest; l. wrist pains as if sprained when moved; appetite diminished; soft stool.—29th, a.m., 1 dr. tinct. For 8 d. Every n. lying heavy sleep with morning sweat; during d. much flatulence, pressure, and forcing in belly; appetite good but soon satisfied; much flatulence, distension of bowels; after dinner easy, helpful working energy. N., tiresome dreams of climbing hills, scaling cliffs, great pressure of work, flying. M., fatigued; head heavy.—30th. Tension in forehead as if the skin were drawn up; after breakfast eructation, pressure in stomach, flatulence, discharge of flatus. P.m., stiff nape, shooting in l. knee, tingling in legs and feet as from fatigue; when working in garden profuse general sweat. N., at first quiet sleep then tiresome dreams.—July 1st. Flatulence all d., sickness, loss of appetite, loathing of food.—2nd, n., disagreeable, disgusting dreams; after breakfast pressure in stomach, loathing, anorexia, much saliva; during dinner nausea, inclination to vomit, stomach and bowels felt hot and swollen, drowsiness. E., continued nausea, loathing, inclination to vomit; 1 h. after supper of milk, constant salivation, eructation, hawking up of viscid saliva. N., fantastic dreams with frequent waking from loathing and spitting of mucus.—3rd. After a cupful of milk for breakfast, pressure in stomach. 10 a.m., cramp in l. foot; painful cramp-like drawing as if foot went to sleep when lying; nausea, eructation, heat in epigastrium and chest. E., after coffee, pressure, nausea, tension in chest, eructation, yawning; later, nausea, loathing, spitting of mucus, constant shivering, most when sitting and moving, relieved by cold water. N., dreamful sleep; thirst on waking, but cannot drink on account of retching and heat.—4th, m., nausea, miserable, inclined to vomit, empty feeling of stomach, can hardly get up for nausea with pressure in precordia; all forenoon constant pressure, nausea, anorexia, as from overloaded stomach, though had eaten nothing. 1 h. after dinner, pressure, nausea; weakness almost to falling. 3 p.m., after a glass of wine and cheese, less weakness. E., commotion in pit of stomach and cardiac region, eructation, pressure in epigastrium. N., woke several times with pressure in stomach and burning, like disorder of stomach from sour wine. M., eructation of mucus, boring and pressing in stomach.—5th. Commotion in stomach with yawning and hunger, but no appetite owing to loathing, nausea, furred tongue, eructation, leucoids; tongue goryish white, especially at back. Noon, tearing in r. shoulder and forearm, frequent yawning, urine dark yellow. E., great nausea, constant eructation, sometimes of wind, sometimes of mucus; nausea and malaise, with inclination to vomit, retching, flow of saliva for ¼ h.; eructation of a quantity of inodorous wind, relieved by drinking water. N., dreamful sleep.—6th. On waking, nausea. In forenoon, occasional eructation. Soon after dinner, pressure, burning, commotion in stomach, frequent eructation, anxious breathing, increasing for 1 h., then inclination to vomit.

Dr. S.—thinks the above symptoms could not be owing to the small doses of H. taken, especially as he observed that many patients about this time had similar gastric symptoms. Some years later he made another proving of the medicine with the following results.—June 23rd. A mixture containing ½ dr. of sat dil. taken in 3 doses from m. till noon. This caused drowsiness and slight perspiration towards m. Forenoon, perspiration when working in garden. Afternoon, painful tension like cramp in soles; lassitude when walking, not when sitting; general malaise; shooting pain in chest and feeling of heartburn internally; shooting in ribs and shoulders as if from a chill; pain in belly, pinching, distension of abdomen, soft stool. E., after coffee, pain in belly, diarrhoeic stool; head heavy, confused; soreness of eyelids, burning in canthi, fatigue of eyes, tension in nape; pain on moving head; tingling

in feet, soles cold. N., copious bright yellow urine with burning; sleep dreamful, sensible dreams.—25th. Itching in forehead, crown, hips; eyelids slimy, tense; ulcerative pain on outer border of l. hand when it is laid on table; yawning;pressive pain in occiput when moving.—26th. 1 dr. tinct., gouty pain, swelling and tension in proximal joint of l. little finger; mental fatigue. (*A. A. Z.*, lxxix, 12 and 30.)

5. a. De. STONES, Aug. 17th, 1852, on smelling and tasting tinct. just set to macerate, in e., felt as if under influence of tea, and went to bed with brain excited; did not sleep soundly; dreams vivid. Next m. found himself on back, and digging head backwards into pillow. Rose well; immediately after breakfast severe scalp headache in l. occiput, at times sharp, at times dull. 23, took ʒss (ʒ ʒss) of tinct., and walked out. Access of erotic ideas, very vivid, immediately, lasting for ½ h. Felt as if excited by tea all d.; p.m., craving for wine. Pulse accelerated after dinner. On going to sleep starting in r. forearm above wrist. 29th.—Rather dull and languid in m. 10.30, took ʒss, no effect all d., but at n. felt as if excited by tea. In e. stomach felt contracted and hot; made mistakes in writing. Starting of l. leg in going off to sleep. 30th.—Dreams active, confused; on rising felt rather weary, with foul tongue. 31 a.m., took ʒj, and felt dull head clear up under it directly. Later, slight laceration in r. great toe for ½ h. Back of head bothered this forenoon; peculiar, slightly cutting warm pain all round rectum, internal to sphincter. 21st.—Took ʒss. After breakfast dull, heavy pressure on r. side of chest from 7th rib down. 6 p.m., dragging pain in liver at point of false ribs, 22nd.—On going to sleep jerking of tendons in l. wrist. Lay a good deal on back; sleep uneasy; threw head back, and kept on jerking it backwards. 23rd.—This m. conscious of anxious dreams, as if something important were left undone. 22 a.m., took ʒj of infusion; p.m., ʒij more. No effect; slept well; felt very well. 24th.—Head dull; weary and heavy all d.; momentary pains in inner condyle of r. femur, between l. index and thumb, at entrance of r. ear, inside r. calf. In bed at n. slight shoots down great sciatic at back of pelvis. Took ʒj. 25th.—Slept well; dreams busy; pain in r. knee again this m. A cluster of itching vesicles on root of l. thumb in forenoon, gone at n. Walking p.m., felt bruised pain in l. thigh, muscles supplied by ant. crural are stiff and sore, this lasted some d., going and coming; all joints feel bruised, l. ankle particularly liable to wrench. Mind soberly inclined for 3 d. 27th.—Dreams full of bustle; forget people's names; cutting pain between shoulder-blades to r. of vertebrae. 28th.—Fullness of head; mind disposed to be sad and tenderly melancholy; sewing point in l. hand and l. inner ankle; creeping in r. breast and r. occiput. No subsequent symptoms.

6. Sept. 6th.—Took between dinner and tea ʒx of a mixture of ʒij of tinct. and Oʒ of infusion. Lancing pain in l. finger-joints; drawing in r. calf; itching in r. meatus aud., going off on touching, but recurring; pressure in r. iliac fossa near ring; burning stinging in edges of l. eyelids; increased distance of vision in e., with slight aching of brows and face, which increased in n. to severe distressing ache in r. half of face, in an old stump especially. 7th.—Sleep disturbed and uneasy from lacrache; horrid dreams; 10 m. early momentary stinging biting on back of r. toes, feet disposed to tingle. After breakfast pressure on malar prominence; dull lacrache in forenoon and e., and return of sensation in toes. Took ʒiij of mixture. 8th.—Bad n. from horrid (sexual) dreams. In forenoon slight pains in shoulder-joints, especially l.; pressure on chest at nipples with peculiar warm kind of fermentation. 9th.—Dreams as before. 4 p.m., walking,pressive pains for a few m. in renal region; biting stinging in orifice of urethra. Feel rather dull to-day. 10th.—Took ʒiss. After breakfast, pressure in stomach, extending towards back;pressive pains down l. forearms, ulnar side; stinging burning at edge of l. pectoralis for 1 m.; tendency to tingling of legs, especially l. 11th.—Last n. severe arching in old stump of a r. upper molar, keeping him awake and restless; best lying on that cheek and keeping quiet; single thrill of shooting pain in l. pectoralis. 12th.—Sleep quiet and dreamless; after breakfast pressure on outer rhind of l. clavicle; fleeting pains in r. shoulder and l. ear; cutting pain under l. shoulder-blade, with pressure in stomach after dinner. Same after breakfast next m., and some flying pains here and there. Proving interrupted by a spoiled stomach.

7. Sept. 17th.—Preced dilution of 20 dr. of tinct. to ʒij of spirit. Took 10 dr. at 10.40. P.m., while walking, erotic ideas and erection; in e. feeling as if headache would come in l. occiput. 18th.—Sutic yellow bilious stool at 4 p.m., usual fecal

use having occurred in m. At 8 p.m., 10 dr.; in an h. painful drawing in r. tibialis anticus, and momentary squering pressure in l. kidney. 19th.—10 dr. three times. This m slight rheumatic drawing aching in point of l. shoulder; head dull; nose dry on rising and all d.; twinges of pain along external border of l. foot after dinner; dull aching in r. pectoralis, extending to back around ribs. 20th.—Dreasa confused; woke early with pain in r. trapezius; it went off after washing. At noon, 10 dr. Nose dry; lips dry yesterday and to-day. 21st.—Law n. at 12, coming home, felt sudden shoot of pain all over front of l. leg, apparently in peroneum; it recurred 2 or 3 times, and several times to-day. Papulae on neck such as had appeared before on chest; aching in region of trapezius. At 10.30 took 20 dr. on tongue twice; later, finished medicine. Flashes of weakening drawing pain all over front of l. leg, all p.m., either walking or sitting; attack for a few m. of same sort of pain in scalp (l. parietal region); pressure on malar bones, c. 22nd.—Blight and transient pains, mainly pressure, in various parts. 23rd.—After glass of beer at dinner, old stump ached slightly, and went on to ache badly during n., and more or less all near d., when occurred also pressure on calf as of a blunt point several times, and weight and dragging in liver when walking home late at n. 25th.—Horrid dreams; stomach felt hot and uncomfortable on rising; various slight and transient pains here and there during d. 26th.—At 3 a.m., took 10 dr. of 3rd cent dil. About midday an aching in front of l. thigh, felt yesterday, recurred, and came and went frequently. Momentary lancinating pain at elbow and down neck. 27th.—Sleep full of dreams, woke on back dreaming of some desperate horror. 28th.—Took 10 dr. of same at 11 a.m.; in an h. pressure at l. groin, towards ring; p.m., severe pressure pain on top of r. shoulder. 29th.—Sleep disturbed; horrid dreams; starting of legs when falling asleep; slight convulsive shocks and twitches following, preventing sleep; exorbitant state of nervous system, all n.; erotic ideas and dreams; lancinating pains in l. wrist and ankle, and along inner border of l. foot. 30th.—Better n., rose refreshed; took 10 dr. in m. Pressure pain on centre of front of l. thigh; severe drawing pains down nerves of r. leg for a few moments; lancinating pains in fingers. L. nostril has been abnormally dry for a week; crusts in it. Oct. 31st.—Pains in l. thigh as before; cutting pains in fleshy ends of fingers; sight weak. and.—Occasional recurrences of pains during next 3 d., but no new symptoms appeared. (*How. Timm*, iv, 312.)

6. A. S. E. S.—, single woman, wt. 35, began Oct. 18th, 1874, to take 10 dr. of tinct. 3 times a d. For first 2 d. felt very well. On 3rd d., in e., bowels full and fluctuant; restless n.; cramp in l. foot on going to sleep; numbness in l. arm, waking her 3 times, going off after friction. 4th d., cramp in l. leg on going to sleep. 5th d., fullness of head and low spirits this m., passing off in a h., followed by feeling of stiffness in eyes, as after tears, and strained painful feeling in forehead. 6th d., painless loose motions m. and e. for last 3 d. 7th d., in n. awoke with distension and cracking pains in bowels, and great nausea; constipation; urine turbid. After 8th d. increased dose to 30 dr. 9th d., 4 h. after 1st dose great coldness and numbness of l. leg for 10 m. while sitting; indigestion and flatulence in n.; woke on 10th d. with distension and cracking pain in lower belly, relieved by relaxation of bowels. Again slight numbness of leg after 1st dose. 11th d., flatulence and distension of stomach after tea; sleep disturbed by 1 lacrache, which came on p.m. 12th d., pain in face increased; low spirits; defective memory, can hardly arrange ideas or execute intentions, forgets what she wanted to do; after this lacrache subsided, and she went from home. Catamenia appeared on 16th d., with less trouble than usual and in greater quantity.

8. Prayer now, from Nov. 3rd, took globules of 12 (it is not said how frequently). On 1st d., l. leg numb in e. and d., rose with fullness of head; pain in bridge of nose and aching in articulation of jaw; l. leg numb; temper irritable. 3rd d., slept badly, dreams of distress; unrefreshed on waking, better towards noon; head clear, but face hot and smarting for 2 h. 4th d., sleep comfortable but dreams distressful; after tea pinching pain in bowels, which became much relaxed. 5th d., fulness and pain with heat in vertex on waking; same dreams; pain in head worse after dinner. For 2 or 3 of proving had at various times fugitive pains in face, shoulders, limbs, and fingers, of "laming" character; also crampy pains in abdomen and numbness of legs. Catamenia appeared Nov. 19th (3 d. too soon); increased in quantity, but attended with sickening pains in belly which she never had before. (*Ibid.*, p. 315.)

IGNATIA.

Ignatia amara, L. St. Ignarius' bean. Nat. Ord., *Leguminosæ*.

1. *Proving*s.—1. HAHNEKANN, *Mat. Med. Pura*, vol. ii of original, vol. i of translation. Contains 620 symptoms from self and 175 from others.

2. The following symptoms are given as pathogenetic by HALLÉ, but without information respecting provers or the doses they took.

a. LIX.—Shooting pain in forehead and out at temples. Great distension of hypochondria, especially in sides, scrobiculus, and sacrum; on account of the fullness and distension under ribs she could not draw her breath; constant anxiety; must unfasten her clothes. Weakness and hollowness in scrobiculus. Violent sacral pain of a peculiar kind, compounded of scraping, shooting, drawing, and working.

b. HG.—Near navel on r. a painless pressure on a small spot, increased by deep breathing and voluntary distension of abdomen, compelling retraction of the navel, which sometimes put a stop to it; with borborygmus.

c. OL.—Penis very stiff, and at same time painful forcing and pressure in a large space round the member; the attack ended with an emission.

d. MHZ.—Tearing pain in posterior aspect of both legs, especially in tendones Achillis and their muscles, as though the parts were cut to pieces; it was particularly felt when he stood still when walking (consequently strained the parts). (*Heraklides*, i, 48.)

3. JÜRQ and his pupils proved Ign. in tinct. prepared by adding 1 oz. of the crushed bean to 8 oz. of spirit (at 85°); and in powder prepared by triturating the crushed bean with an equal weight of sugar of milk.

FRIEDRICH, after 9 drops of tinct. taken in 1 oz. water, experienced pressing constrictive pain at vertex, which moved into forehead and lasted nearly 8 h. After 14 dr. felt some inconvenience in swallowing at dinner and supper. After 27 dr. at 8 a.m., there occurred towards noon pressing pain in forehead and pressure in both eyes lasting till 2.30 p.m. (*JÜRQ, Materiales*.)

4. a. GÜNTZ, on Aug. 1st, 1822, took 11 dr. at 9 a.m.; 1 h. later pressing headache in both temples set in and lasted 30 m. Same symptom occurred after 18 dr., and was followed after 10 h. by diarrhœic stool, which was repeated next d. After 27 dr. taken at 8 a.m. on Aug. 17th had severe pressing headache in temples, followed by three loose stools in same d. and two on following d. On Aug. 22nd, at 8.30 a.m., swallowed 4 dr. of tinct. shaken up with 6 oz. water; at 11 a.m. pressing headache in temples, with pressure in gastric region, set in, and at 9 p.m. a loose evacuation occurred. In another experiment, where 4 dr. were taken in 3 oz. water, increased flow of saliva, nausea (lasting 2 h.), pressure in pit of stomach and insignificant temporal headache occurred; also frequent belchings of wind, but bowels were unaffected.

6. GÖNTZ took 1 gr. of powder; besides bitter taste and increased flow of saliva only felt nausea and slight frontal pain, which vanished with bitter taste. After 2 gr. felt painful pressure in region of spleen and fundus of stomach, lasting several m., then disappearing for $\frac{1}{2}$ h., and so on for several h. Appetite at dinner was small, and rumblings were felt in bowels during afternoon. After 3 gr., felt after 3 h. slight pressing pains in r. half of head lasting 1 h. Appetite at mid-day poor and followed by rumbling in bowels during p.m.; stool normal. After 4 gr., felt after 1 h. pressing headache in r. half of forehead, spreading 1 h. later to l. side and ceasing $\frac{1}{2}$ h. later. Within $\frac{1}{2}$ h. after dose felt pressure in fundus of stomach, lasting with occasional intermissions $2\frac{1}{2}$ h.; coupled with this increased secretion of saliva was noticed 2 h. after dose. During p.m. frequent rumblings were felt in abdomen, and towards e. a soft pappy stool was passed. After 5 gr. taken at 8 a.m., increased flow of saliva soon occurred, lasting 10 m., recurring at intervals during a.m. and accompanied by very troublesome nausea. At 9 a.m. same headache came on, spreading later on over whole head and lasting till mid-day meal, which he did not relish, and accompanied as before by pressure at stomach. Same rumbling occurred during p.m., but stools were not altered. At midnight woke with feeling of anguish and oppression at chest, causing him to draw long and frequent breaths, keeping him awake 1 h. On awaking next m. felt uncomfortable and muddled in head, and still noticed some pressure in stomach. (*Ibid.*)

5. d. KNESECKE, on Aug. 10th, at 8 a.m., took 45 dr. in 1 oz. water. About 15 m. later was seized with slight vertigo lasting a few m., and passing on to pressing headache in r. half of occiput, which lasted all d. but had completely vanished next m., after a very quiet n. Loose stool occurred on e. of 10th, preceded by cutting pains in hypogastrium. Same symptoms, but more marked, followed dose of 54 dr., the cutting pains spreading over whole abdomen. After dose of 63 dr. within few m. decided confusion of whole head came on, and was very troublesome for 1 h.; as this passed off, pain in r. half of occiput increased, becoming heavy and pressive and lasting without a moment's intermission until e. Cutting pain in abdomen, followed by liquid evacuation, also occurred during e. Slept quietly and felt quite well next m. After 36 dr., vigorously shaken with 3 oz. water, felt no effects during d., and slept quietly, but next m. felt severe pressing headache in frontal region and round orbits, increasing gradually during d. until e., when he felt sleepy earlier than usual.

6. KNESECKE took, July 14th, $\frac{1}{2}$ gr. of powder at 8 a.m. After 2 h. slight confusion of head, as if from coryza, came on, accompanied by slight pressure in r. half of forehead over r. eyebrow, and lasting 3 h.—15th. 1 gr., felt after 1 h. slight confusion of whole head with gentle pressure in forehead, lasting 2 h. Before dinner felt great desire for food, but on sitting down appetite had much diminished.—16th. $1\frac{1}{2}$ gr. at 8 a.m. From 9 a.m. till 12 head was painfully confused, accompanied by stabbing pains in whole forehead and pressing pains in r. occiput. Towards 11 a.m. abdomen was distended for several m., and at mid-day there was lack of appetite. After dinner felt

lassitude and weariness, lasting all d., worst from 2 to 4 p.m.; felt disinclined for usual occupation, and fell asleep over it (contrary to custom), sleep being sound but unrefreshing. Lassitude and somnolence increased between 2 and 4 p.m., but a certain feeling of indifference lasted still longer, and he did not regain his usual cheerfulness all d. During early part of p.m. pulse was somewhat slower and smaller than usual. Similar effects followed dose of 2 gr. but lasted until following d., when he still felt disinclined for all exertion. He then took 3 gr. at 8 a.m. After $\frac{1}{2}$ h. felt head empty, confused, and painful; in forehead, especially over eyebrows, pain was stabbing, in occiput and on r. side more pressing; in r. eye felt pressure from within outwards as if eyeball were protruding from socket; these symptoms hindered power of thinking and were accompanied by moderate acceleration of pulse; they lasted 2 h. At 10 a.m. felt slight movements in abdomen, causing distension in umbilical region with some cutting lasting 15 m. Appetite keen before dinner, but slight on sitting down. Two h. after midday meal had a second evacuation of abundant thin fæces. Felt as before great lassitude and somnolence; thinking and speaking were difficult. Slept very soundly at night, but awoke still feeling tired, and this lasted more or less all d. (*Ibid.*)

6. KUMMER, on Aug. 3rd, took 19 dr. in 1 oz. water, and felt soon afterwards pressing pain in frontal region, not lasting long; towards 9 a.m., drawing pain in l. lumbar region, also lasting only a few m. After 18 dr., felt, very soon, confusion of head as after debauch, lasting steadily all d. and frequently changing into true, pressing, frontal headache, especially of r. side; thinking also accomplished with difficulty. Towards 10 a.m., and again at 3 p.m., cutting pain in r. side of abdomen occurred, but only lasted few m. in each case. Appetite somewhat increased. After quiet n. felt confusion of head quite as great as on previous d., and this lasted till dinner; it was repeated on following d., but soon changed into true, pressing headache, especially in forehead and eyes, so that movement of eye and eyelids became painful; headache became more acute on going upstairs or other active movement. After dose of 27 dr., felt only qualmsiness and inclination to vomit. After 36 dr., taken at 8 a.m., felt nothing until 1 p.m., when he noticed gentle, pressing, frontal headache, aggravated by bright sunlight, but lasting only short time. After 41 dr. noticed nothing but nausea until 3 p.m., when dull, frontal headache confined to r. half set in, and gradually spread to r. eye, causing latter to be very sensitive to light; pain increased by movement of eye; towards e., all pains vanished and head felt quite free. After 18 dr., vigorously shaken with 4 oz. water, taken at 8 a.m., nausea occurred at 11 a.m. and later cutting in umbilical region, both lasting only about 15 m. At 5 p.m., cutting pains recurred and lasted $\frac{1}{2}$ h. On repeating same experiment, felt, soon afterwards, rumbling in abdomen, and from 2 p.m. till e. frontal headache, spreading first to r. and then to l. eye and aggravated by bodily movements. (*Ibid.*)

7. LIEPERT, after gradually increasing doses, taken without effect, took 180 dr. in 1 oz. water at 8 a.m.; at noon, and again at 7 p.m., had a half-liquid stool, although he suffered usually from constipation. (*Ibid.*)

8. MEUBER, soon after 8 dr. in 1 oz. water, was seized with slight giddiness, lasting $\frac{1}{2}$ h. Same symptom was experienced more severely after 16 dr., whilst after 24 dr. giddiness lasted several h. continuously. After 32 dr., taken at 5 p.m., felt more severe giddiness, mingled with occasional single stitches in head, lasting till 10 p.m. Sleep was restless and disturbed by dreams. Next m. felt quite well. A dose of 40 dr., taken next d., caused, very soon after swallowing, giddiness so severe that he staggered in walking, and could hold himself upright with difficulty. Single stitches passed through head, ringing in ears set in, and objects before him were apparently in motion. Power of concentration of ideas was almost lost. Vertigo diminished during p.m., but lasted, with other effects, until late in e. These symptoms were accompanied by nausea, abundant flow of saliva, and loss of appetite. Next d. suffered from pressive headache, increased by taking food. This gradually diminished, but recurred from time to time for 3 d. (*Ibid.*)

9. PIENITZ took 50 dr. on June 15th, at 8 a.m., and felt soon after weariness in limbs, somnolence, and lack of appetite, lasting whole d. Towards 8 p.m., in addition to above, heaviness and confusion of head came on with painful pressure over eyes, besides pressure in eyeballs themselves, especially on looking at light, sleepiness, and accelerated, though small, pulse. On awaking next m., after quiet n., felt heaviness of head and pressure in and over eyes. At 10 a.m. had bitter eructations, nausea, loss of appetite, and two loose stools. By 8 p.m. felt quite well. (*Ibid.*)

10. SEYFFERT, besides slight confusion of head, transitory vertigo and headache, and slight salivation, all coming on immediately after dose, experienced only persistent constipation even after raising dose to 100 dr. (*Ibid.*)

11. STRÖPER, after 9 dr. of strong tinct. (1 to 8), experienced dull, pressing headache spreading over whole head, and lasting 4 h. After 14 dr., same symptom occurred, but was not continuous. After lasting $\frac{1}{2}$ h., pain suddenly vanished, and then returned after a like period, and this was repeated all d. Same effects followed 18 dr. After 27 dr., had same headache, but lasting only 2 h. and not recurring. After 40 dr., taken Aug. 14th, at 8 a.m., felt no headache, but crawling and burning in anus and urethra, in latter especially on micturition; these lasted all d., being sometimes severe and accompanied by stinging pains, at other times much milder. Micturition more frequent than normal; stools natural. (*Ibid.*)

12. ORTO, 4 h. after taking $\frac{1}{2}$ gr., felt only slight frontal headache over eyes, lasting 3 h. After 1 gr., felt same symptom, but coupled with pain in occiput, spreading over mastoid process and at times extending to auditory apparatus, for hearing appeared obtuse. These symptoms lasted till 4.30 p.m., and were succeeded by a noticeable pressure in thorax behind the sternum, which lasted till 10 p.m. On July 20th, at 8 a.m., took 1 $\frac{1}{2}$ gr. About 10 to 15 m. later felt decided rumbling and gurgling in bowels, accompanied a few m. later by fixed pressing pain in region of stomach, lasting 10 m. Increased flow of saliva also came on soon after taking drug and lasted $\frac{1}{2}$ h. Dinner was eaten with relish, and bowels acted a second time during e. At

10 a.m., pressure in forehead came on, spreading first to one part of head, then to another, but not remaining in any one spot; pain spread alternately to below orbits and into cheeks, but did not affect sight, and passed off at midday. At 9 p.m. same symptom recurred, but more acutely, and lasted till 11 p.m. After 2 gr., same symptom soon occurred, but was rather a heavy feeling than actual pain, and lasted till 11.30 a.m. At 4 p.m. it came on again almost as severely, and lasted more or less till 8 p.m. On 22nd, at 8 a.m., took 3 gr.; during first h. felt constant but fruitless urging to stool, but from midday till e. several evacuations of natural stools took place; appetite was keen; 1 h. after dose, discomfort in head as from coryza came on, dull pressure in forehead spreading downwards into nostrils, and for 10 m. there was feeling as if an acute coryza were commencing; as this feeling in nose diminished, it spread to other parts of head and so alternated till 10 a.m.; it was repeated from 11 till 12.30 more severely, and then finally vanished. On 23rd, at 8 a.m., took 4 gr. After 15 m., urging to stool came on, gradually increased, and during d. bowels acted several times, but stools were natural in appearance. During p.m. noticed nothing unusual except occasional palpitation. At 8.30 p.m. was suddenly seized with pressure in head, spreading, as before, first to one spot and then to another. Slept well in spite of pain, but woke with it in m., though not so severe, and felt unrefreshed by sleep. By 9 a.m. it had increased to actual pain, and lasted to a moderate extent till 3 p.m. Appetite appeared good, but on attempting to eat felt as if already satisfied. Bowels acted again several times; feces normal. Felt this d. great lassitude and weariness as if he had overwalked himself; was obliged to yawn constantly, but did not sleep during d. (*Ibid.*)

13. J.M.C. took $\frac{1}{2}$ gr. on July 14th at 8 a.m.; after $\frac{1}{2}$ h. noticed peculiar earthy taste in mouth as from eating chalk; this lasted till 11 a.m., and was repeated from 4 till 6 p.m. During a.m. felt great thirst; this troubled him again in n., together with inward restlessness and increased internal warmth. After 1 gr. noticed same peculiar taste and thirst. From 5 till 8 p.m. suffered pressure in stomach alternating with pressing pain in region of coeliac ganglion (as if he had taken camphor). Took $2\frac{1}{2}$ gr.; soon afterwards noticed peculiar movements in stomach, at one time "drawing" as if walls of stomach were being stretched, at another "pressing," though neither was actually painful. Stomach felt alternately full and empty, latter feeling accompanied by bulimia. Towards 10 a.m. these were accompanied by painful feelings proceeding from stomach to spleen, and so on round to spinal column. At 11 a.m. these changed to transient stabbing pains, spreading also from epigastrium to thoracic cavity, but not affecting thoracic viscera. Towards midday, stabbing and burning in region of spleen set in again, lasted $\frac{1}{2}$ h., and was repeated several times during d. Between 10 and 11 a.m. felt pressure and drawing in sublingual glands, as if they were becoming inflamed and swollen. Between 10 and 11 slight empty feeling in head. Next d. took 2 gr. fasting. Appetite was at first excited, then diminished. From 9 till 10 a.m. felt pressure in stomach, cutting in umbilical region, and

general bearing-down feeling towards anus. About 11 a.m. was seized with gnawing canine hunger, with occasional nausea and inclination to vomit, lasting $\frac{1}{2}$ h. During p.m. bowels acted thrice, stools being small and soft. At 8.30 a.m., confusion of head, changing at 9 a.m. into pressing pain in vertex, set in. At 10 a.m., this spread more towards forehead and l. eye, although whole head was included. Burning and lachrymation commenced in eyes, especially l.; eyelids swelled and Meibomian glands secreted much mucus. Between 12 and 5 pain was absent; it returned at 5 but gradually decreased, only some pressure and heaviness of head remaining at bedtime. Slept tolerably, but awoke with inflammation of l. and irritation of r. eye, with increased secretion of mucus in both, diminishing gradually during d. On repeating same dose felt same effects upon abdomen, with feeling, in addition, as if diaphragm were being pushed upwards; frequent belching of flatus also occurred, and somewhat relieved pain. At 10 a.m. was suddenly seized with feeling as if whole body was about to burst into sweat; this did follow, but was only partial; head symptoms were only felt during a.m. of 2 following d., and eyes were unaffected. On 2 following d. a few cramp-like pains in stomach were noticed, and salivary glands on these d. and later secreted white frothy saliva more abundantly than usual. Repeated same experiment a second time. After 1 h. considerable cutting feeling in abdomen, which was relieved by scanty liquid stool occurring $\frac{1}{2}$ h. later; with exception of some movements at epigastrium coming and going remained well until 4 p.m., when he was seized with the pressing headache, especially in r. half of forehead, spreading to r. eye and causing feeling as if r. eyeball were being pushed out. At same time burning in eyes, lachrymation and flow of mucus from Meibomian glands took place. At 6 p.m. had feeling as of pushing from epigastrium into thorax, with cutting and constricting pains in hypogastrium. All these symptoms ceased at 8 p.m., and next d. only felt frequent painful attacks in stomach and increased flow of white frothy saliva, both lasting till e. of 3rd d., when they finally ceased. (*Ibid.*)

II. *Poisonings.*—1. A paralytic stiffness in the lower extremities, with involuntary twitchings in them; great anxiety; coldness of the whole body with dilatibility of the pupil, were the symptoms produced in a young man of 20 by an over-dose of Ign. His head was free, his consciousness perfect; but on account of the anxiety he could not express himself properly. Intelligence of a somewhat unpleasant nature aggravated his condition; the same was the case from drinking coffee and smoking tobacco. (HAHNEMANN, *Lesser Writings*, tr. Dudgeon, p. 379.)

2. G. CAMPBELL made a patient, of melancholic constitution, take \mathcal{D} j of the powder for a vomit, being troubled with a flux, weak digestion, and frequent vomiting, with some belching, as also a great deal of wind; which he no sooner took than he was seized with a trembling all over his body that continued 3 h., together with an itching, and terrible spasms, so as not to be able to stand upon his legs; these spasms were most violent and troublesome in his jaws, so as to cause the risus

sardonicus; and yet there was no alteration in his pulse, no vomiting, or any other symptoms attending it; at length he grew better.

b. Another patient had the like trembling and convulsions, together with a very great oppression in his breast, a swimming in the head, fainting and cold sweat, caused by his swallowing a whole fresh nut, as a remedy for hypochondriacal pains with which he was afflicted.

c. Another had taken the third part of a nut, and was for 3 h. in the like condition as the two former; only that besides involuntary convulsions he felt a tingling pain, and the like, especially in his head. (*Med. Museum*, iii, 434, 1764.)

3. BAUCHNER took for coxalgia, which had resisted many other remedies, *Ign. sicut.* a few dr. in a tumbler of water, a mouthful every 3 h. After 2 or 3 doses he had these symptoms: Invisibility of the letters of a word at which he is looking and greater distinctness of the letters near it. The middle letters of the word seemed effaced with chalk, whilst the first and last syllable of a long word or the first and last letters of a short word were more distinct. This lasted 1 h. (*A. h. Z.*, lvii, 164.)

INDIGO.

A dye prepared from leaves and stems of *Indigofera*, L. Nat. Ord., *Leguminosae*.

1. *Proving.*—1. BLAUFIUS took, Dec. 11th, 4 a.m., 1 gr. After 1 h. great urging to urinate as many as 4 or 5 times in the h. Spasms in parotid gland, much saliva, pressure and noise in ears. All d. glans penis and prepuce cold, urine colourless.—12th, 2 a.m., 2 gr. As yesterday, only greater urging to urinate.—13th, Urging to urinate continues this d. and next, declined the 3rd d. During this time he had drunk very little.—Jan. 30th, 4 a.m., 1 gr. 10 a.m., pulse stronger, palpitation of heart, congestion of head; itching in skin, particularly of face.—31st, 1 gr., same symptoms as yesterday, and, in addition, some small heat spots, especially on l. side of face to neck, which lasted 2 d. (*MARTIN'S PROVINGS*, *Hem. Viertelj.*, x, 81.)

2. FRIES took Dec. 12th, 13th, and 14th, 1 gr. Loss of appetite all 3 d.—13th. Nausea after breakfast; in e., dull headache and great itching in various parts of body, especially r. elbow.—14th. Noon and afternoon, tense pain in cardiac region; in e., headache and itching as before.—15th. After breakfast, headache in r. temple, vertigo and inclination to vomit; increase of these symptoms till e., when they went off after dancing.—16th. Same symptoms but slighter; frightful dreams. (*Ibid.*, 81.)

3. GRÄF. Jan. 30th, 1 gr. No effect.—21st, 2 gr., after some d. the whole face and all the body covered with papules. (*Ibid.*)

4. GÜNTHER. Dec. 11th, 6 a.m., 1 gr. 7 a.m., violent sneezing for ½ h., then profuse epistaxis till 8 a.m. In afternoon and following n. frequent urging to urinate, with scanty and painful discharge, urine rather turbid.—12th, 6.30 a.m., 1 gr. At noon great nausea, followed by severe vomiting of mucus. All d. and n. frequent urging to urinate, with a peculiar itching in urethra and scrotum.—13th, 7.30 a.m., urging to urinate, with burning in urethra.—14th. Same symptoms.—15th. Better.—16th, Urging to urinate worse, very sleepy in e.—17th. Urging slighter.—Jan. 30th and 31st and Feb. 1st, 2d, 3d, 1 gr. Great heat, especially in face, great anxiety, increased flow of urine, itching in all limbs, restless at n., in m. refreshing sleep. During d. very weak. (*Ibid.*, 81.)

5. HILBERT. Jan. 22nd, 6 a.m., 1 gr. Soon slight pressure in stomach. Afternoon, shooting in upper maxilla and upper lip.—23rd, 2d, 1 gr. Noon, tickling in l. cheek, soon afterwards drawing pain in l. temple. 6 p.m., urging to stool, continual pain in r. side of sinuiput. 11 p.m., violent cutting in stomach, with great

Stulence, urine turbid, pain in bladder when urinating.—14th. From 5 a.m. violent cutting in abdomen, with flatulence and urging to stool lasting till noon, went off in afternoon. Tickling feeling alternately in various parts of face, especially about inner canthus of eyes and about alve nasi; very cheerful humour till bedtime.—15th, 7 a.m., 1 gr. After soup at 10 a.m. suddenly cutting and pressure in stomach, soon going off. Agreeable feeling about eyelids and nose. Weakness in limbs, frequent sneezing, especially about 11 p.m., after which great irritation in nose.—16th, m., in bed, pressure and cutting in stomach, recurring after taking soup, weariness of limbs. Afternoon, repeated violent sneezing. E., tickling in face, great desire for work, repeated sneezing, some blood discharged from nose, great irritation in root of nose.—17th, m., 1 gr. E., considerable headache, with redness and heat of face.—18th, 1 gr. 9 a.m., quick pulse. 3 p.m., strong pulsation like a jumping in region of 4th and 5th ribs. 3 p.m., slight headache, which recurred more severely at 11 p.m.—Feb. and, 1 gr. 10 a.m., quick pulse, throbbing in r. side of chest; great pulsation in l. elbow.—19th. Two pimples on forehead and one on r. side of lower jaw, with pain. Inflammation of Meibomian glands in l. lower lid, slight headache, toothache, noise in ears and humming in forehead.—27th. Several pimples on neck and l. corner of mouth; pressure in eyes for several d. (*Ibid.*)

6. HORN. Dec. 11th, 6 a.m., 1 gr. All d. chilliness.—13th, 6 a.m., 1 gr. Chilliness, constant urging to urinate, urine turbid; very tired and ill.—14th. Third feeling continues, also urging to urinate, must do so every h., though he has drunk little, urine turbid, sexual desire very much diminished.—15th. Secretion of urine much increased, must urinate 24 times during d., but not during n. Micturition, with contraction in urethra and pain in bladder; urine very slimy and turbid.—16th. Urging to urinate less, urine clearer and passed with little tension. Sexual desire increased.—17th. Urging to urinate less frequent, but still oftener than normal, no pain. Nerves much affected; good appetite; urine clearer, but still has sediment; frightful dreams. (*Ibid.*, 23.)

7. KURTZMAN. Dec. 19th, 1 gr., after $\frac{1}{2}$ h. repeated violent sneezing, thereafter wrapping pain in trachea, which goes gradually lower till it seems to be in the Great ramifications of the bronchia, excites coughing, which brings away small lumps of viscid mucus; all symptoms went off in $\frac{1}{2}$ h.—19th, 1 gr., same symptoms as yesterday. After 8 d. took 1 gr., no symptoms. After 24 d. felt frequent urging to urinate, with burning in bottom of bladder, increased sexual desire.—Jan. 19th, 1 gr., immediately wrapping in fauces. After $\frac{1}{2}$ h. pressure in l. eye, transient. Soon afterwards chilliness all over skin, cold hands. Dying to stool, with liquid stool. Afternoon, prickling feeling in l. leg where the calf-muscle goes into tendon.—Feb. and, 1 gr., after $\frac{1}{2}$ h., urging to stool, liquid stool, flatus, chilliness all over skin, cold hands for $\frac{1}{2}$ h. Afternoon, drawing shooting pains in course of l. muc. thoracoid.—19th, 1 gr., same symptoms as yesterday. (*Ibid.*, 26.)

8. MARTIN. Dec. 11th, m., 1 gr. After $\frac{1}{2}$ h. frontal headache, pressing pain in r. hypochondrium. After $\frac{1}{2}$ h. tearing pain on back of l. hand, pulse spasmodic, 76. After 1 h. itching on back of both hands, eruption of wheals, which soon disappear, but recur in e. During d. copious micturition, with pressure in abdomen; urine clear.—12th, m., 1 gr. After 1 h. much flatulence and urging to stool; during d. increased micturition.—Jan. and, m., 1 gr. Feeling of lateral contraction of tongue; much sneezing after $\frac{1}{2}$ h. Contractive stiches in chest; rheumatic pains in forearm; itching on back of l. hand and appearance of 2 pimples. Much yawning.—Feb. and, 6 p.m., 1 gr. Flat taste. After 10 m. in open air dyspnoea like chest-cramp; pressure in stomach. E., great drowsiness. At n. dream of flying some feet above earth on the back.—19th, m., 1 gr. Afternoon, increased flow of urine; at night restless dreams.—4th. In e. An itching vesicle on back of l. hand; next m. same on back of r. hand.—5th, m., 1 gr. Increased flow of urine.—July 15th, 10 a.m., 1 gr. Afternoon, increased secretion of urine, 10 p.m., same dose. Fullness, flatulent movement in bowels. Next m. woke unusually early with uncomfortable oppressed feeling in upper part of abdomen, great irritability of senses, headache; discharge of much flatus; violent cutting pains about navel. Noon, unusual vertigo and headache, fulness of abdomen, much flatus. The vertigo and frontal headache and a kind of pause last all afternoon till c. Next m. long sleep, with agreeable dreams about travelling. (*Ibid.*)

9. **OSLER.** July 27th, 9.10 a.m., $\frac{1}{16}$ th gr., and same dose at 4 p.m. Oppression, anxiety, quickened circulation, and congestion of head, not for long.—28th, 6.30 a.m., 1 gr. No effect. (*Ibid.*, 28.)

10. **REICKMANN.** July 28th, 6 a.m., 1 gr. No effect.—30th, 6 a.m., 2 gr. Only a little eructation.—Aug. 30th, 6 a.m., $\frac{1}{16}$ th gr. 2 a.m., nausea, eructation, repressed inclination to vomit, but without vomiting; rumbling in stomach. 4 p.m., a vesicle on tongue, took again $\frac{1}{16}$ th gr. 11 p.m., great fatigue after a short walk, dulness of senses.—31st, 6 a.m., 1 gr. Nothing but some mucous expectoration. (*Ibid.*)

11. **VULPIUS** took, Dec. 14th, 1 gr. No effect.—15th, 1 gr., chilliness all over body, with violent headache lasting all d. Spasmodic twitching in r. lower eyelid.—16th, 1 gr., all d. great drowsiness. (*Ibid.*)

12. **WERTHER.** Dec. 12th, 6.30 a.m., 1 gr. 9 a.m., formicating pain in pit of stomach, going down to umbilical region and lasting till 11.30 a.m. 6 p.m., continued tired feeling in r. knee, which lasted till next m.—13th, 6 a.m., 1 gr. Increase of last symptom.—13th, 1 gr. 10 a.m., recurrence of pain in pit of stomach for $\frac{1}{2}$ h.—14th, itching in glans penis; c., shouting in urthra.—15th. This pain increased, especially in c., and lasted till next d. (*Ibid.*, 29.)

13. **WILCHER.** Aug. 25th, after breakfast, took 1 gr. Soon nausea, then flatulence, thereafter pain in r. zygoma and orbit. After 2 h. pain in l. side of occiput, under l. humerus, and especially in l. index and in r. short ribs, which soon went off. Pressive, often tearing pain in r. upper teeth and l. molars. About noon, eructation and no appetite. After dinner slight tired feeling. In e. pain in l. eyeball.—26th, 1 gr., nausea, flatulence, eructations, pain in l. side of occiput, which darts through head to orbit. The toothache persisted, was pressive and intermittent. Appetite still nil. The pain in eye and ribs continued. Cross in c., when he took 1 gr. N. quiet; next m. woke earlier than usual, with nausea and weariness. Occasional subvultus tendinum in all limbs. Itching in hypogastric region and inside of thighs. The pain in eye and occiput, in teeth and l. parry, lasted some d. (*Ibid.*)

14, 15. Indigo has also been proved by **LAURKE** (*A. A. Z.*, 24, 25) and **NEUNZIG** (*Ann. d. Sam. Kl.*, iii, 249), but their results are too voluminous and trivial alike for reproduction here.—Eds.

II. **Painings.**—1. **LOXLEY** treated 26 patients with I. for epilepsy, beginning with scruple, increased gradually to $\frac{1}{2}$ oz. and so doses. "At first the patients vomited frequently, without any straining or derangement of the digestive organs; after a few d. this ceased and the patient had 6 or 8 stools a d., sometimes accompanied with slight colicky pains; after a short time the purging diminished, the matter passed assumed a fluid character, and this state continued as long as the I. was administered, without the appetite or digestive organs being injured." (*Lancet*, 1836-35, iv, 335.)

IODUM.

Iodine. "Obtained principally from the ashes of sea-weeds, and purified by re-sublimation" (*B. H. P.*).

I. **Proving.**—1. **HANNEMANN**, *Chronic Diseases*, part iii of original, vol. of translation. Contains 376 symptoms from self and 5 others, and 348 (mainly "curative") from authors.

2. Desirous of knowing the effects of Iod. on man, I took, fasting, 10 centgr. in substance, with no effect save the horrid taste and some nausea. Next d. I took 20 centgr. I immediately felt constriction and heat of throat, which lasted $\frac{1}{2}$ h., and soon began to vomit yellowish fluid in which the Iod. could be perceived. No other disturbance of function was noticed. On the 3rd d. I took, fasting, 30 centgr.

Immediately heat, constriction of throat, nausea, eructations, salivation, and pain at epigastrium; after 10 m. somewhat copious biliary vomiting and slight colic, lasting 1 h. and then yielding to two emollient enemata. Pulse, previously 70, became 85—90, and fuller. Respiration was ordinarily free, but every now and then an effort seemed needed to expand the chest; slightly increased heat of skin; urine was of deeper colour, but normal on testing. Next d. I felt nothing but slight fatigue. (ORFILA, *Toxic.*, sub voce.)

3. HEISTERBERGK, 2 h. after taking 7 dr.* in $\frac{1}{2}$ oz. of water, felt rumbling in intestines and considerable hunger, although he had eaten shortly before taking dose. The rumblings were repeated frequently for a whole h., and then vanished. Same symptoms followed after 8 dr., and in addition loose motion same e. and next m. After 9 dr. same symptoms occurred, and in addition gnawing hunger coming on 2 h. after dose and lasting 2 h. (JÖRG, *Materialism.*)

4. KNESCHKE, 20 m. after taking 3 dr., noticed slight pressure in region of vertex lasting 10 m.; next meal was eaten with unusual zest, and towards e. loose motion was passed. On April 12th, 1824, at 9 a.m. took 4 dr. in $\frac{1}{2}$ oz. of water. At 10 a.m. felt slight confusion of head coupled with some pressure in r. half of forehead, lasting 15 m. At 11 a.m. felt greatest desire for food and was obliged to satisfy it. Bowels acted a second time during e., contrary to custom. After 5 dr. taken as before felt after $\frac{3}{4}$ h. head slightly confused, and pains in whole frontal region. This lasted 1 h. and was followed by acute feeling of hunger, relieved only by midday meal. Felt obliged to eat again during afternoon, and in e. ate again ravenously. Same train of symptoms followed doses of 6, 7, 8, 9, 10, and 11 dr. (*Ibid.*)

5. OTTO began with 1 dr. taken in $\frac{1}{2}$ oz. water. After 4 h. was suddenly seized with pressing pain in r. thorax, increased by each inspiration and lasting near 1 h. After 2 dr. noticed immediately salty taste like that of seltzer water in mouth, lasting all this d. and next. After 5 h. felt scraping sensation in pharynx like that caused by eating hips, lasting 1 h. Appetite and digestion increased for 2 d. Took 3 dr. on April 12th at 9 a.m. Salty taste occurred almost immediately and lasted all d., more intensely than after small dose. After 15 m. transient headache. After $1\frac{1}{2}$ h. increased inner warmth of abdomen, especially in region of stomach, and later slight cutting pain, both symptoms together not lasting more than $\frac{1}{2}$ h. Appetite was increased, alvine evacuations pappy and increased in quantity though not in frequency. On 14th, at 9 a.m., took 4 dr. After 15 m. pain in occiput which vanished again immediately. At 11 a.m. movements in region of stomach and small intestines, ending $\frac{1}{2}$ h. later in feeling of distension; also at 12 a.m. pressing occipital headache, relieved by rest and aggravated by walking and other bodily movements, diminishing somewhat at 4 p.m., when it was succeeded by feeling of great emptiness in head, which passed off at 7 p.m. During p.m. some rheumatic pains in nape of neck and arms were noticed.

* Of 10 per cent. tincture; Kneschke, Otto, Seyffert, Siebenhaar, and Jörg, used same preparation.

Appetite at midday and in e. was increased. Next d. at 10 a.m. felt same sensation in stomach and intestines, followed by feeling of hunger in same region. Salty taste was hardly noticed, but appetite and alvine evacuations were still increased. On 17th, at 9 a.m., took 5 dr. At 10 a.m. feeling of irritation in alimentary canal, especially in stomach (as if peristaltic movements were quicker and stronger than usual), changing after $\frac{1}{2}$ h. into feeling of distension, but mild and transient. For short time had bitter taste in mouth, but not salty taste; in head felt for few moments suspicion of commencing occipital headache. For short time chest felt constricted. Appetite for dinner increased. At 2 p.m. slight feeling of congestion towards head, followed by headache lasting $\frac{1}{2}$ h., latter repeated towards 5 p.m., though less severely. Appetite for supper increased. Stools abundant and pappy. Next d. at 9 a.m. felt remnant of irritation in stomach and small intestines; towards e. for 1 h. had slight headache; bowels were constipated all d. and only opened next d. after considerable straining, stools being hard. After 6 dr. only symptoms noticed were salty taste, accompanied by increased thirst and unusual hunger, all lasting 2 d. After 7 dr. salty taste occurred and lasted 36 h., very slight constriction of chest; only abdominal symptoms were increased; heat and very troublesome hunger at midday and e.; bowels not opened; increased quantity of mucus in nostrils and of saliva in mouth, latter obliging him to spit out frequently. Next d. appetite was still keen; bowels acted during a.m., stool being loose; urine smelt very ammoniacal, and secretion of mucus in mouth and nose was still much increased.

6. Otto repeated his experiments in August, beginning with 5 dr. on 20th; same abdominal symptoms were noticed; during p.m. constriction of chest came on, and lasted $\frac{1}{2}$ h., during which deep inspiration caused pain, and heart beat stronger and quicker, arterial pulse being smaller and more frequent. Next d. took 6 dr.; abdominal symptoms were repeated, with great hunger and thirst; during p.m. same chest symptoms appeared, and from noon till e. he passed urine six times, urine being bright yellow, thin, and watery, and each time abundant; nasal mucus and saliva were also much increased. Next d. last-named symptoms continued to same extent; thirst was not quite so marked, but hunger remained same; during p.m. felt headache for short time. Urine and feces normal. After 8 dr. same symptoms were repeated, and in addition feces were somewhat liquid. Next d. nasal mucus and saliva were still abundant, and alvine evacuations were more liquid than usual. After 10 dr. same abdominal symptoms occurred, coupled after 1 h. with slight urging to stool; other symptoms followed as before, except that circulation was not affected. After 12 dr. besides foregoing symptoms felt rumbling in intestines, but without inclination to stool. Chest symptoms were repeated, but circulation was not affected; no head symptoms were noticed, and urine was normal; nasal mucus and saliva were increased as before. Bowels acted several times, feces being thin. On following d. there was still increased appetite, abundant flow of nasal mucus and saliva, and several thin evacuations of bowels. On 28th concluded his experiments with dose of 15 dr. taken at 8 a.m. At 9 felt confusion of head,

passing on, towards 10, to pressing headache, which lasted till noon. Hunger and thirst and abdominal symptoms followed as before, and during p.m. same chest symptoms, but without circulation being affected. Secretion of nasal mucus, saliva, and urine were also much increased. During p.m. frequent urging to stool, followed by several liquid stools, accompanied with more than usual feeling of movement in intestines, but without actual pain. (*Ibid.*)

6. SEYFRZAT, after 8 dr., noticed only increased flow of saliva, lasting 1 h., and increased appetite for dinner. Same symptoms followed 12 dr., but hunger was not so great. After 10 dr. noticed unpleasant sweetish after-taste, appetite considerably increased; during p.m. a loose evacuation (he was habitually constipated) and abundant secretion of urine causing frequent micturition. After 12 dr. same symptoms occurred, with exception that first urine passed after dose was darker than usual, and yellowish-green in colour. On August 26th, at 8 a.m., took 15 dr.; soon afterwards noticed same unpleasant after-taste and transient nausea; at 9 a.m. some transient unpleasant almost cutting sensations in abdomen; at noon increased appetite for dinner; during p.m. a loose evacuation and frequent micturition, that passed first being again greenish-yellow in colour. After 18 dr. same symptoms followed, with exception of cutting sensations in abdomen, and increased flow of urine, which were absent; flow of saliva was also somewhat increased, and feeling of hunger lasted all d. (*Ibid.*)

7. SIENENHAAR, after 6 dr., noticed secretion of mucus in windpipe, increased flow of urine, and faeces softer than usual. Took 8 dr., and noticed after 2 h. increase of urine, lasting 24 h.; appetite was slightly increased; bowels acted three times during d., stools being soft in consistence. He then took 10 dr., and noticed that all secretory organs were active, mucus in nose and windpipe was increased, and urine, besides being increased in quantity, was more dense than usual, and yielded a very dark deposit on standing. Appetite and bowels were affected as before. (*Ibid.*)

8. JÖNG took 4 dr. at 8 a.m.; at 9 a.m. was seized with confusion of head lasting 1 h., and then changing to slight pressing pain, most prominent in temples; this pain became easier from time to time, but kept returning, and lasted in this way till late in e. Along with this pain unusual movements in abdomen began, proceeding from stomach downwards, and accompanied later on by cutting sensations. At one time it seemed as if these movements pressed upwards towards chest and compressed it considerably, and shortly afterwards more downwards towards pubes, bladder, and testicles. After 5 dr. felt same movements in intestines (after 1½ h.), accompanied by frequent eructations having taste of sulphuretted hydrogen, and by inclination to stool. During p.m. felt repeated sensation of pressing and constriction of chest, as if from breathing sulphurous acid, and towards e. frequent dry cough. On Aug. 29th, at 8 a.m., took 6 dr., which caused irritation of larynx and trachea, latter feeling raw, lasting all d. At 8.30 fell into a peculiar condition; felt whole body seized with a peculiar quaking feeling, proceeding from stomach towards periphery, and causing sensation as if he would begin to tremble or to sweat all over.

Whole body became actually warmer, the feeling being as if heat were greatest in region of stomach and spread thence over rest of body. A few m. later this was accompanied by pressing feeling in cardiac region and weight at chest, whereby breathing was embarrassed; pulse-beats were 6 or 7 above normal; this condition of general malaise lasted over 15 m. Towards 9 a.m. movements in intestines began, as before, accompanied by some cutting in umbilical region, lasting 1 h., and followed by pappy evacuation. At 9 a.m. was suddenly seized with pressing headache, especially in r. temple, but soon passing off, and followed immediately by confusion of head, proceeding apparently from spine through nape of neck upwards to head, and lasting 2 h. At same time felt painful pressing mixed with stabbing in region of larynx and sublingual glands, lasting 10 m., but returning several times during d. At 9.30 a.m. felt pressure at chest, amounting occasionally to pain, and causing frequent deep and dry cough. From 10 a.m. had frequent calls to urinate, but quantity passed each time was small, and at same time felt considerable irritation of genitals, viz. frequent urging and pressing downwards towards testicles and repeated tickling in glans penis, all lasting till e.; during p.m., in addition to these symptoms, had frequently recurring pressing headache, especially from l. side of head towards forehead; constriction, pressing and burning in chest, with much dry cough, rheumatic pains in arms, neck, and buttocks. Bowels acted four times during d., stools being pappy and leaving behind each time for a while slight burning feeling in anus. Slept badly, and next m. found raw feeling and dryness of windpipe still present. On 30th, at 8 a.m., took 7 dr; very soon felt fulness and distension of stomach, quaking^g inside abdomen, with its attendant symptoms as before; these lasted nearly $\frac{1}{2}$ h.; at 8.30 confusion of head came on, changing at 10.30 to pressing and occasionally stabbing headache, changing its locality from time to time, and lasting till e. In region of larynx at same time a pressure was felt, not exactly painful, extending to pharynx and giving impression that latter and tonsils were swollen. At 9.30 constriction of chest came on, changing at 10 a.m. into pressing, lasting till midday; at 3 p.m. stabbing in chest became troublesome and lasted 4 h. During whole d. there was tendency to dry deep cough. Abdominal, renal, and genital symptoms were less marked than after previous dose; p.m. also frequent rheumatic pains, especially in arms; nasal mucus was increased. After 8 dr. taken Sept. 1st most of symptoms followed as before, but more mildly. Between 4 and 6 p.m., whilst out walking in the sun, felt rather acute pressing pain in under surface of occiput. Between 9 and 11 a.m. felt severe cutting in abdominal region, with perceptible forcing downwards in intestines, and same in rectum, flatus and feces being evacuated with ease in considerable quantity. At 9 a.m. pressure and stabbing in chest, with desire to cough, came on, and during d. frequent dry raw cough was present, but was relieved entirely by going into the open air in hot sun. Stools were frequent and soft. From Aug. 29th till Sept. 2nd had peculiar taste in mouth (bordering upon "salty"), walls of oral cavity felt drier than natural, although not actually dry. Gums became gradually redder, and teeth more covered

with mucus and yellowish. Feeling in abdomen was on the whole pleasant. (*Ibid.*)

9. *a.* From 10 dr. = $\frac{1}{2}$ gr. Stool accelerated, of peculiar smell; pain in hæmorrhoids comes before and remains after stool. Indolence of mind, cares only for mechanical work. He always feels as if he should think of something, he knows not what, and nothing comes to his mind. Increased mucus from nose, which is stopped up, but there is no coryza. Frequent yawning; increased thirst for water. Peeling of lips. In the m., when fasting, mouth very slimy. Erections without sexual desire. Nose opener than ever before. Itching, painful piles. Difficulty of thinking and irresolution. Great appetite. Soft, easy stool. He can scarcely wait for dinner and eats very much. After drinking wine, very warm, well, excited, but always as if he would soon be tired. Boring pain on a spot on r. side of scrotum. Great activity of testicles. Flush of burning heat over r. thigh. Burning pain in rectum. Increased colour of face, red hands. Lips painfully dry. Legs go to sleep readily. Excited and yet heavier, lazy, cross. A flat, jelly-like blister on l. knee.

b. From 5 dr. = $\frac{1}{2}$ gr. Burning in œsophagus. Pain in l. side of crown. Eructation of air. Jerking, shooting pain over pubic arch. Painful pressure in inner canthus of l. eye. Painful stitches in abdomen on r. side anteriorly under ribs on inspiration; recurs several times when breathing deeply. Increased appetite. Excited p.m.; drowsy e. Nose much wider and drier m., all d. stopped up; sense of smell nearly gone; frequent sneezing as before coryza. Frequent discharge of flatus. Wakes early feeling well. After again going to sleep emission with dreams, thereafter very exhausted. (*HARRING, Arch., xiii, 2, 182.*)

II. *Poisonings.*—1. A man addicted to intoxication took, July 21st, 7.30 p.m., 2 oz. tinct. = 96 gr. I. Soon, burning and pains in fauces and later in abdomen, especially in stomach, followed by vomiting and liquid stools. After 2½ h. he lay in bed with upper part of body raised, face very pale, features sunken, eyes projecting, sparkling, not watery, pupils moderately dilated, sensitive to light; temperature cool, especially of upper extremities, nose icy cold, skin covered with cool sweat; abdomen soft, not distended; bladder empty. The burning pains in stomach and umbilical region not increased by pressure; buccal cavity pale, dry; at the root of uvula a narrow, red arch, convexity towards hard palate; walls of pharynx dry, slightly reddened, velum and tonsils normal; the expired air smells strongly of iodine, and after $\frac{1}{2}$ h. smells distinctly of brandy. Is perfectly conscious; noises in ears and heaviness of head; great precordial anxiety causing him to change position frequently; collapse and prostration; respiration quickened; sharp sound in upper lobes but no râles; voice weak; radial pulse hard and thin, carotid pulse small and weak, r20, whilst the heart beats violently, occasionally intermitting. The vomiting comes on with slight retching at first every 10 to 15 m., later at longer intervals, quick but not very copious; what was vomited was at first dark-coloured, after taking starch and magnesia water vomited thick fluid slightly blue but more white. Drinking and movement seem to

aggravate it; after each vomiting transient relief, only some nausea in the intervals; great precordial anxiety. Stools with colic and urging, they are very liquid and reddish brown with great odour of iodine.—22nd, n. sleepless. In m., increased precordial anxiety; respiration quicker; cool temperature; pulse small, 132; great collapse and pallor of features; speech stammering, voice hoarse, swallowing difficult; considerable pain in epigastrium, extending to the meteoric abdomen, back, and œsophagus; vomiting less frequent; about 3 a.m. the vomit and stool contained much pure blood; hardly 3 tablespoonfuls of urine in 24 h., of dark brown colour, smelling strongly of I.; great restlessness in bed; he died perfectly conscious at 4 a.m. on 22nd.—*P.M.* Jan. 24th. Very little blood in sinuses of head, but a good deal in large veins and in capillaries of pia mater; cerebral convolutions very prominent; cortical matter of brain pale and bloodless, inner substance tough, elastic. Hard and soft palate much injected; on uvula and velum distinct orange-coloured spots, formed by a thin but firm membrane which is easily detached; these spots are confluent on the posterior wall of pharynx and extend while gaining in intensity over œsophagus and trachea; under the membrane the m.m. is hyperæmic but not swollen. The surface of the epiglottis covered with a strong pseudo-membrane; m.m. eroded, dark red, with a number of congested vessels; the submucous layer œdematous but stiff; the ventriculi Morgagniani closed by swelling and by a similar pseudo-membrane, the m.m. here dark red and injected; similar but discrete patches of membrane on the vocal cords and the parts of the larynx beneath them, but the trachea free. The whole of the bronchial tubes down to their finest branches inflamed and covered by viscid mucus, the m.m. swollen and injected; on cutting into lungs there appear numerous small mucous points. Intense acute emphysema betwixt all lobes and lobules of lungs; the parenchyma itself emphysematous, as also the veins. Heart large; l. ventricle thick in its walls; l. auricle contains blood, partly fluid, partly coagulated; in r. ventricle a large clot. The œsophagus down to stomach covered by a false membrane, orange coloured, pretty firm, which can be peeled off; the connective tissue below m.m. in some places phlegmonous, purulent. Stomach contains a moderate amount of orange-coloured slimy fluid, its m.m. similarly coloured, very swollen; the mucous glands show a capillary exudation in the centre of each acinus; round about the m.m. is studded with small points as if infiltrated with exudation. Duodenal and intestinal m.m. has a similar appearance. (*HERRMANN, Petersb. med. Zeitsch.*, 1869, 11 and 12.)

2. A girl, æt. 16½, was tapped for ovarian dropsy on Feb. 5th and again on July 17th. As the fluid again collected it was drawn off, Nov. 29th, at 10.38 a.m., and mixture of 5 oz. tinct. iod. with an equal quantity of water and 1 dram. iod. pot. injected and allowed to remain for 10 m. in the sac. It took 10 m. to flow out. The patient was put to bed, and on account of pain got ½th gr. morph. acet. At 5 p.m., having drunk a great deal of water and some milk on account of the great thirst, she vomited. Her cheeks were blue, icy cold, extremities also cold, pulse hardly perceptible, it had risen from 84 to

90. 7 p.m., vomited again, the vomit of a grass-green colour, pulse 96. Thirst continued, urine very scanty.—30th. After midnight vomited, pulse intermittent, 120. On account of pains in abdomen and sleeplessness she got $\frac{1}{4}$ th gr. morph. 10 a.m., pulse hardly to be felt in carotids. Sleep twice disturbed by vomiting of clear fluid. Hands and face cold, thirst intense. 1 p.m., pulse 136, temp. $37^{\circ}0'$, complains of dryness of mouth and throat. 7 p.m., pulse 132, resp. 20. Vomited sour, grass-green stuff. Even while vomiting, mouth remains dry. Afternoon slept, on waking talked incoherently; urine scanty.—Dec. 1st, 9 a.m., pulse 132, resp. 24. Vomited twice in the n. The first time the vomit was bluish green, the second grass green, both sour and clear. Gastric region very painful to touch for some h. after vomiting. Pulse could only be felt in carotids. Cheeks bright red and hot. She had no recollection of having been delirious yesterday. 1 p.m., pulse 132, resp. 20, temp. not above $37^{\circ}1'$. Pulse very full and soft, can easily be felt at wrist. No vomiting since m. Complains of pressure in back. Mouth very dry, great thirst. 7 p.m., pulse 132.—2nd, 9 a.m., pulse 144. Vomited towards m. Menstrues came on 9 d. too early. A bright red, papular eruption on neck and bosom, which faded about noon and left here and there slight desquamations. 1 p.m., pulse 132, resp. 24, temp. $38^{\circ}3'$.—3rd, 9 a.m., pulse 132, resp. 26. Complains of difficulty of swallowing, fauces dark red, parotid glands swollen, making face appear very broad. On clavicles, large reddish-yellow spots. 7 p.m., pulse 140, resp. 24, temp. $38^{\circ}6'$. After some spoonfuls of milk, vomited.—4th, 9 a.m., pulse 120, resp. 24, temp. $37^{\circ}2'$. Vomited frequently in n. After an enema, 5 liquid stools. Complained of difficulty of breathing. The spots on clavicles darker yellow. Catamenia still going on though scanty. 1 p.m., vomited brown stuff.—5th, 9 a.m., pulse 108, resp. 24, temp. $36^{\circ}6'$. Vomited once at n. and again in m. Complains of short breath. Stomach tender, distended, as also abdomen. 6 p.m., pulse 112, resp. 22, temp. $36^{\circ}7'$. A papular eruption from clavicles to groins, at latter place the spots (size of a pin's head) become more red and confluent. Tonsils red. Nose and mouth dry. Gastric region painful on pressure.—6th, 9 a.m., pulse 96, temp. $36^{\circ}9'$. The spots extend to knees. 7 p.m., has vomited again, urine scanty, clear, amber coloured.—7th, 9 a.m., pulse 66, resp. 24, temp. $36^{\circ}7'$. Complained of pain in throat, sores on lips and gums. Tongue slightly furred. Tonsils red. Parotid glands swollen. Spat twice bloody saliva, though she had no cough. Feels pretty well, wants to get up. Eruption has disappeared, got some roast meat for dinner. 7 p.m., pulse 60, resp. 24, temp. $36^{\circ}6'$. Had during d. 7 thin stools and vomited 3 times, was rather hoarse.—8th, 2 a.m., died suddenly. The *P.M.* revealed nothing of importance. The kidneys only seem rather pale, the cortical substance containing small opaque bodies of brownish or ruby-red colour, and their pelvis exhibited red spots the size of a pin's head. (Roser, *Virchow's Archiv*, xxxv, 19.)

b. A gentleman, æt. 70, had an enlargement of the abdomen which was obscure in its nature, and variously diagnosed as dependent on liquid effusion or a solid growth from the under surface of the liver,

Attacked one d. with rigors and sudden, violent pain, he became jaundiced and collapsed, and when seen by me was semi-comatose and apparently dying. Some obscure fluctuation being detected in the enlargement, a trocar was inserted and 21—23 pints of thick, grumous fluid, with some pus, were drawn off, and 16 oz. of pure tinct. of iod. (B. P.) injected, allowed to remain 20 m. in the sac, and then some of it to escape. Severe effects soon followed the injection,—salivation, soreness of mouth and throat, sickness, eructations, headache, giddiness, tinnitus aurium, *muscæ volitantes*, &c., accompanied by palpitation and pyrexia; pulse was 140, weak and irregular, temp. 101·8°. Epistaxis occurred twice during the first 36 h.; tightness across chest and pain at epigastrium were complained of, and frequent thin watery stools were passed; the general condition was one of extreme nervousness, prostration, and unrest. On 2nd and 3rd d. temp., which was highest p.m., varied from 101° to 104° and pulse from 110 to 140. Pains in limbs and in loins set in, and were felt also in the long bones, which presented all the evidence of periostitis; synovial effusion distended the l. knee-joint; urine, which was at first pale and profuse, became scanty and bloody, and both it and saliva contained large quantities of iod.; salivary glands were painful and swollen, and palate and fauces sore and inflamed; there was constant short, dry cough, with more or less aphonia. All these symptoms continued to increase until the end of the 4th d., when an eruption, somewhat like measles, appeared, with apparent relief to many of the urgent symptoms. By the 5th d. the periostitis had considerably subsided, and by the 9th d. most of the other symptoms had disappeared. Iod. was, however, excreted by the urine for about 16 d., and albumen for 25 d. During the whole time nourishment was taken well. After this severe attack convalescence proceeded favourably. (PHILLIPS, *op. cit.*)

4. Two h. after the injection of a small quantity of the tinct., diluted one-half, into a traumatically-distended tunica vaginalis (the fluid which it contained having first been withdrawn), FONSAGRIVES saw a swelling of the scrotum, attended with high fever. During the remainder of the day there also appeared irritation of the bronchial tubes, discharge from the nose, redness of the eyes, œdema of the epiglottis, and increased flow of saliva. The fever lasted 5 d. (LEWIN, *op. cit.*)

5. On Nov. 24th, 1824, I was called to see a robust man of over 40, who for a large goitre had taken without precaution and without consulting anyone a considerable quantity of tinct. When I visited him, he had violent agitation, extreme heat, palpitations, coated tongue, pasty mouth, pulse nervous, tremulous, alternately soft and hard, but always very frequent. He told me that at n. he had erections so constant and violent that he could have satisfied the desires of twenty-five women; the following days were marked by heat so great that (in November) he remained day and night naked on his bed in a cool room, yet complaining that he burned. A very fatiguing diarrhœa had been set up, obliging him at first to go to stool every ½ h. This became moderated, but the inflammatory symptoms increased. He was bled several times, and his blood showed a marked buffy coat;

after this his tongue became dry, he drank largely, and complained constantly of thirst and of burning all down the digestive tract; sleep was very restless, dreams distressing, he woke with a start. He emaciated fast, his eyes became cavernous; he had, from the beginning of his illness, a remarkable trembling of the whole body, but especially of the arms; the urine, seldom clear, was often red and sedimentous. Upon the palpitations supervened faintings, with cold sweats. He continued thus for 5 weeks, when he died suddenly. No autopsy could be obtained. (ZINCK, *Fourx. Compl.*, xviii, 126.)

6. Z— was called to make a *P.M.* examination of the body of a lady, whose illness had supervened upon the abuse of the tinct., taken for a long time for goitre. Much serum flowed out on opening the peritonæum. The intestines were distended, much inflamed in certain spots, and presenting in others the tint which precedes sphacelus. The stomach showed at its exterior over two thirds of smaller curvature some excoriation; internally, a general redness, and near pylorus ulceration; at point corresponding to external excoriation coats were pierced with small holes as if made by pins. Liver was a little increased in size, pale, and of lilac hue; spleen of natural dimensions, but of dark grey colour, and sprinkled with little black spots. Whole abdominal contents were glued by inflammatory adhesion. Similar appearances were observed in the chest. (*Ibid.*)

7. A spare woman, æt. 51, having a goitre as large as a fist, took for its removal during 2 mo. ℞s of U. S. P. tinct. (= about 15 gr. of iod.). March 6th, 1864, Dr. Hawks was called to see her. She said her strength had failed rapidly during last fortnight; was unable to ascend stairs; no appetite; frequent nausea; pains in various parts but principally in chest; dyspnoea, palpitation, and dry hacking cough. He found sallow, distressed countenance; small, very quick, and irregular pulse; crowing in nares, like vibrations of a string, not synchronous with heart; bowels regular; urine red and turbid, usual quantity; tongue brown and dry; skin cool; much thirst; resp. 30; hands and feet cold; dyspnoea, cough, palpitation and pains all increased by movement. Pains were sharp, quick, piercing, and movable, but there was constant heavy oppressive pain in region of heart. An effort to expand chest produced cough, but no pain; tenderness of epigastrium; food distressed her; trembling of whole body; sleeplessness; some emaciation. Perfect rest was ordered; a starch, milk, and sugar diet; arsenicum and phosphorus as medicine. By 13th nervous excitement had subsided, but emaciation had advanced; goitre was sensibly diminished. On 16th, attempt to engage in some domestic work brought on a sort of shock, and she had to be carried to her room. She had much nausea, for which she took veratrum. 17th.—Nausea relieved; nervous erethism worse than before; palpitation so severe as to shake whole body; tongue hard, dry, and brown; pulse very small and irregular; cough severe, sputa thick, yellow, and greenish; rattling in bronchizæ; great restlessness and anxiety; anxious pressive feeling in precordia; frequent syncope; skin cool; resp. 30; thirst; tenderness in epigastrium; sleeplessness; emaciation progressing and goitre diminishing. Hyocyanus and phosphorus. On 20th nervous agitation

was less, but thirst still severe. Arsenicum and hyoscyamus. She improved up to 27th, when, after eating an egg and several raw oysters, all symptoms returned; pulsatilla. 28th.—Symptoms show a typhoid character; palpitation more spasmodic or convulsive; cough more severe, and usually ending in vomiting of a thick, tenacious mucus; tongue red tipped; syncope oftener than formerly; pulse very irregular and intermittent. Rhus and arsenicum. 31st.—Dyspnoea and cough worse. Phosphorus and rhus. April 3rd.—Slight chills; cough and oppression of chest worse; towards n., slight increase of heat of skin, which feels harsh and dry; dulness on percussion, no true respiratory murmur on either side. 5th.—Slight chill in m. and hot skin towards n., going off with sweat; sputa brown and streaked with blood; cough and dyspnoea worse, and syncope more frequent; metallic click discovered in upper part of r. lung. Phosphorus and hepar sulph. From this time she continued to fail, hectic being more pronounced; on 8th was suddenly attacked with convulsions, followed by nervous rigors; by 10th these had subsided, but she got excited in telling some story, palpitation and agitation increased, and she died at 6 p.m. *P.M.* was refused. Emaciation was very great; goitre nearly gone; skin saffron yellow. (J. Hawks, M.D., *N. Y. State Hom. Med. Soc. Transactions*, vi, 331.)

8. A blooming young lady, æt. 18, of pale habit, consulted her physician for goitre. Iod. was prescribed externally and internally, the dose being gradually increased to 15 dr. of tinct. thrice daily. Six weeks thereafter she was scarcely to be recognised, so great was the change; her form was sunken, the mammary glands had entirely disappeared, the countenance was pale and sallow, with blue circles under the eyes. She complained of oppression of the chest, dry cough, palpitation, loss of appetite, and pressure at stomach. The menses, which had always been regular, were suppressed at the next period after taking the medicine, after which time they became profuse, and finally she had at intervals of every 3 or 4 d. a discharge of thin watery blood from the vagina. She was treated with ars. and china, followed by ant. crud. and hepar sulph., and at the end of 6 mo. recovered her health again. (*A. A. Z.*, xliii, 119.)

9. A healthy young lady, æt. 19, had a goitre, for which she took Iod., 5 dr. of tinct. m. and e., gradually increasing the dose, and used an ointment of Iod. and K. iod. From ʒvj—ʒviij of Iod. were taken, and a corresponding quantity of the ointment applied, during the treatment, which lasted 5 mo. No effect was experienced for 3 mo., when each dose (now 7—9 dr.) caused burning and sensation as if throat were filled with vapour of sulphur, obstructing breath. After 4 mo. treatment goitre had considerably diminished in size, but patient had become seriously affected by medicine. She was attacked first by shortness of breath and cough, chest seemed oppressed and as if too narrow; burning in throat became constant, forcing her to drink often in order to obtain relief; there was moderate perspiration during d., but so profuse at n., especially about neck, that it might be wrung from the clothing (this debilitating sweat continued for nearly a year). Patient was only able to walk slowly a very short distance, and even

effort of speaking was very exhausting. Oppression of chest became nearly constant, with burning, tearing, and sticking pains, which for first half year extended from chest to both shoulders, but afterwards were confined exclusively to l. side. Emaciation was extreme, with sallow complexion; at n. pains in all limbs, restlessness, alternating with anxious and frightful dreams. Menses gradually decreased in quantity during treatment, and on 2nd d. were accompanied by tearing and cutting pains in abdomen; finally, they ceased altogether, and at times when they ought to have appeared she for 3 mo. had only the pains. They then returned, and at end of 2 years had become normal, save for the pains. But patient was still much emaciated, very irritable, and suffered from continual tearing pain in extremities, mostly upper ones. L. arm is thinner than r., and, indeed, seems completely atrophied; motion is impaired, and attended with pain in shoulder. (VANSEKTERVA, *Med. Jahrbücher*, iii, 202.)

10. a. A young English lady, at a boarding-school in Paris, took I. for gonorrhoea by advice of her brother, a medical student. The remedy succeeded, as usual, in greatly diminishing the tumour; and for some time no bad effects were apparent. A small hard knot only remained in the situation which had been occupied by a considerable swelling before; and the desire to get rid of this little tumour was the cause of the remedy having been pushed too far. Its deleterious effects first showed themselves by gnawing pain in the upper part of the stomach, great anxiety, and oppression. These symptoms were disregarded, and the remedy was persevered in for a week longer, during which time the patient became very much emaciated; she was frequently affected with vomiting, pain in abdomen became more frequent and more severe, and thirst was very distressing. I was sent for early one m. in consequence of an alarming diarrhoea which had come on during the n. I found her suffering the most excruciating pain at stomach, violent cramps, and convulsive action of muscles of arms, back, and legs, from which she had scarcely any intermission. Vomiting and purging were almost incessant. The dejections were bloody, slimy, and very scanty, but at first had been copious and feculent. The matter vomited was of a dark green colour streaked with blood. The tongue was loaded with a thick crust, resembling in colour the matter vomited. The countenance was pale, contracted, and with that peculiar expression which announces abdominal suffering. The pulse was small, hard, and frequent, scarcely indeed to be numbered. The whole appearance of the patient was such as to excite well-grounded fear for her life. During 10 d. she remained in a very doubtful state, subject to frequent severe attacks of diarrhoea, with intense pain of the bowels. Her emaciation during this time was most extraordinary. The expression of her French nurse, "*décharnée*," was literally applicable to her; her arms and body were almost fleshless—her breasts, which had been large, were now perfectly flat—the calves of her legs had quite disappeared, and her thighs were not much thicker than her wrists when in health. I never witnessed anything like such extenuation in so short a space of time.

b. By the steady and very liberal use of opium she recovered to a

certain degree; but when I last saw her, many months after her illness, she remained subject to frequent very violent spasms of the stomach. Her nervous system had been much shattered. She repeatedly declared to me that she seldom enjoyed an hour's respite from the most wretched depression of spirits, and since her illness had never felt anything like her former buoyancy of mind. The few moments of ease she knew were purchased by large doses of laudanum, to the habitual use of which her sufferings had forced her. She was still very pale, and her emaciation, though much less, was yet very great. (GARDNER, *Essay on Iodine*, 1824.)

17. *o.* There is an effect of I. to which I have alluded in the case just quoted, but which is so extremely common when the remedy has been pushed to an overdose, that it deserves to be noted at greater length. The anxiety and depression of spirits are so great and persevering as to warrant my considering them as the peculiar effect of the drug, and not the consequence of the great debility which attends the violent and inordinate action of this medicine on the constitution. It is an affection very different from hypochondriacal melancholy, inasmuch as it dwells principally on the present, and has no reference to the future. Patients have generally described it to me as a sense of sinking and faintness, which were peculiarly oppressive, and I have heard them complain of it while suffering the most intense pain, as the part of the complaint which was yet the most difficult to bear. This symptom frequently makes its appearance in a lesser degree even when the medicine acts in a kind and salutary manner.

h. In certain persons I. cannot be exhibited so as to affect the constitution in any manner, without in some shape or other producing unpleasant nervous symptoms, such as dimness of vision, indistinct hearing, fallacious touch, insomnia, breathlessness, palpitation, and all the countless forms of inward nervous derangement. But the symptom most worthy of attention is a degree of tremor which generally comes on when the patient is under the full influence of the drug. This symptom may be reckoned a good gauge of the degree of nervous excitement which has taken place, and it is seldom or never absent when that excitement has proceeded to any considerable degree. It generally begins by a slight trembling of the hands, resembling that which occurs from the poison of lead; and if the medicine be incautiously continued, the larger muscles of the arms, legs, and back become affected. When in this state the patient can with difficulty walk, and his progression is a tottering uncertain motion. He cannot carry anything straight to his mouth, but the hand moves in a zigzag manner, and with difficulty arrives at the mouth at last. This complaint is generally attended with a hurried articulation, and a small thready pulse. There is commonly great suffering at stomach and confined bowels (in one case a most obstinate suppression of urine). If the medicine be rashly persevered in when this affection has begun to appear, it will go on progressively for weeks and months even though its exciting cause be abstracted; and when at last it does begin to diminish, the amendment is so slow and gradual that the patient is scarcely conscious of it. I saw two cases of this kind with Dr. Peschier, of Geneva, in which the

patients had suffered more than 12 months, and yet their sufferings had undergone little mitigation. This affection differs from chorea. The patient has no difficulty in keeping the affected limbs steady, if not called upon to exert them; and in general exertion is irksome and painful. Like chorea, however, it is always attended with a constipated condition of the bowels. (*Ibid.*)

12. Dr. Manson notices that in one example the remedy brought on such troublesome convulsive movements that the man asserted they were "like to twirch him out of bed," and begged for its discontinuance. An analogous example is related by Sir A. Cooper, where 30 dr. of tinct., in divided doses, gave rise to the most unpleasant convulsions, the hands and feet fell into incessant motion, and the patient declared that the whole n. long he resembled a person in the act of fighting or wrestling. Sir B. Brodie asserts that he has known it to occasion paralysis. (COGSWELL, 'Iodine and its Compounds,' 1837.)

13. I occupied, 37 years ago, a small student's room, in which I remained for 4—6 h. by d., and for 7—9 h. at n. While absent from it the room was well aired. I was at that time a great collector, and among other objects of interest I had amassed was a phial of the then new substance, Iodine, which stood on a shelf in my room, closed with a cork, and containing about 10 grm. of the metalloid. During the winter months I experienced the first symptoms of a malady which for a time puzzled the faculty. I grew thin to such a degree as to disquiet my friends and fellow-students; and the professors whose classes I attended of their own accord questioned me closely on the subject of this extraordinary emaciation, which was as mysterious to me as to them. My skin became pale or rather dull. Sleep, till then natural and regular, was slow of coming on, insufficient and bad, frequently broken by dreams which rapidly succeeded one another. I felt a general excitement, which became greater and greater the longer I remained in my room; the open air calmed me. Thirst was augmented, but digestion remained normal; I felt the need of taking food frequently, to restore failing strength. The sense of general lassitude increased *pari passu* with the emaciation; pulse was quick and small. But the most pronounced and annoying symptom was priapism, lasting nearly all n. and frequently accompanied by a painful sensation in the penis. I also felt stiffness and sometimes even pain in lumbar region (there was no albuminuria).

As I have said, both my teachers and myself were at fault as to the cause of these symptoms. During March the mystery was cleared up. I found that the cork which had closed the phial of iodine had become corroded by the drug, which had in consequence completely evaporated. I analysed the air of my room by means of starched paper, and the blue reaction showed the presence of I. in it. (*L'Hom. Militante*, 3me année, p. 399; a communication to the Editor.)

14. (Besides the local irritation caused by the tincture in the *primæ viæ* (already sufficiently illustrated), and the corresponding disturbance of the emunctories during the elimination of the alkaline iodides (see *Kali iodatum*), Dr. RILLIET describes a third form of iodiam. In the cases he gives in illustration the medicinal agent was generally iodide of

potassium in minute doses. One or more of these will be given under the head of that substance, but the general train of symptoms is so obviously the result of iodine itself that his description will be given here.—[Ens.]

a. The third kind of iodism is a specific intoxication produced by the drug or its compounds, more frequently seen from small than from large doses, and in cases of good general health rather than in those of diathetic derangement, more frequent also in some countries than in others, extremely rare in children, and the more to be feared the further advanced are the patients in age. It is the malady described by Coindet under the name of "iodic saturation," by others as "iodic cachexia," or simply "iodism." I adopt this last term, joining with it the word "constitutional" the better to indicate the nature of this morbid state. This iodism may exist in all degrees of severity, but for convenience of description and for practical ends I shall class it under three heads: slight iodism, moderate, grave or very grave.

b. Slight iodism.—After the employment of the drug for a shorter or longer time, patients, while congratulating themselves on the diminution of their goitre (if they have one), notice that they are getting thin and pale, and that they are weakened; or rather, their friends notice these things, for they themselves are often deceived by the maintenance, even the augmentation, of their appetite. Upon the emaciation soon follow palpitations, prostration of strength, depression of spirits, sleeplessness, and a nervous susceptibility of more or less pronounced character. These symptoms may remain stationary, and disappear on the cessation of the drug. Sometimes they consist only of loss of flesh and palpitation.

c. Moderate iodism.—Here, it may be from the medicinal malady not being recognised, the symptoms increase, the emaciation, sadness, insomniæ, disposition to be frightened, and the palpitations, get worse; the appetite fails, or, on the other hand, increases to bulimæ. Some patients complain of painful sensations in the stomach and at the attachments of the diaphragm; they are constipated; the countenance expresses prostration or a certain degree of excitement. The most careful examination finds no organic cause for this *ensemble* of symptoms, which persists for a longer or shorter time, but end by gradually disappearing under appropriate treatment and the discontinuance of the drug.

d. Grave iodism.—In this form the symptoms are distinguished only by the rapidity of their supervention and their intensity. The goitre (if present) diminishes or disappears in a few d.; at the same time general emaciation comes on, sometimes with frightful rapidity, so that in a few weeks, even in 8—10 d., the patients are hardly recognisable; they have become 20 years older. The marasmus is general, but it falls mainly on the glandular organs; the mammae and testicles waste. The pulse is quickened; it is rather small than full, and faster at times than at others. The skin of the face is pale, yellowish, or greenish; the countenance expresses sadness or anxiety; the eyes, deeply sunken, with dark circles, are sometimes fixed, sometimes rather wandering. The weakness is great; the voice is broken; they tremble, and are breathless at the least movement. The nervous

symptoms are very distressing,—inquietude, terror, ready weeping, have taken the place of repose of mind, and nightmare is substituted for sleep. Here also no organic change can be detected; and the appetite persists or even becomes exaggerated or perverted. The patients seldom keep their bed, and here again, under proper treatment, in a few weeks or months there may be a return to health; but not without traces of the past conflict lasting for some time or for all time. Permanent atrophy of the breasts in women, and of the testes in men, remain to bear witness to the shock the system has sustained. In rare cases, moreover, in spite of all that is done the symptoms persist and grow worse, the brain is more and more implicated, and death supervenes in the midst of advanced marasmus. (RILLIET, *Mém. sur l'Iodisme constitutionnelle*, Paris, 1860.)

15. The following are the symptoms I have observed from iodic saturation:—Acceleration of pulse, palpitation, frequent dry cough, insomnia, rapid emaciation, loss of strength; in others only swelling of legs and tremors, or a painful hardness of the goitre; sometimes wasting of the mammæ; remarkable and sustained augmentation of appetite. Treatment has removed these symptoms more readily than I could have expected, but some patients have for a long time retained their thinness, muscular weakness, and pallor. (COINDET, père, in *Ibid.*)

16. The earliest symptom of iodism is a slight pallor spread over the face, and a drawn look on the features. The patient complains of a feeling of general weakness, and a need of restoratives, which a cordial or a little succulent food relieves for a time. Let a meal be delayed, then there is malaise, drawings, often even sharp pain at the epigastrium; let it be a full one, and digestion is laborious. The case soon gets worse; tremor of the hands comes on, at first slight, then more and more pronounced; there is a very distressing nervous condition which the patients can hardly describe, an internal agitation like that which bad news will cause, or like the disturbance which follows a regretted quarrel or a remorse; it is impossible to fix the attention on one's reading, drawing, &c.; there are tears or impatience at the least contradiction. Emaciation makes progress day after day till it reaches marasmus; the pulse quickens and becomes exceedingly feeble; the least exertion causes oppression, palpitation, vertigo. On the other hand, the most attentive examination fails to discover any material lesion. There is no thirst, and the renal secretion is normal. I have been consulted on behalf of a considerable number of these cases, and no one has died; nevertheless the cure has been slow and difficult. After 6 mo. of persevering and judicious treatment traces of the malady are still perceptible. (COINDET, fils, in *Ibid.*)

17. Generally speaking, when Iod. begins to disagree with a patient one of the foremost among the bad symptoms is the sensation of giddiness, or headache, or perhaps of both united. One of Dr. Manson's patients suffered so much from giddiness, in consequence of taking 15 dr. doses of the tinct., as to be for 2 or 3 d. confined to bed; another was rendered drowsy, and complained of feeling intoxicated; and in a third any quantity of the tinct. above 15 dr. was always pro-

ductive of headache and drowsiness. Giddiness was likewise remarked by Dr. Ashwell, in a female affected with a hard tumour of the uterus, to whom he was prescribing Iod., both topically and internally. M. Lugol also, in the performance of some experiments, found many individuals to become affected with stupor and symptoms of intoxication in consequence of accidentally inhaling iodine vapours. (COGSWELL, *op. cit.*)

18. A bronchocele, dating from puberty, in a young man of 18, was treated successfully with Iod. "It is worthy of remark," says the reporter, "that under the use of this medicine the genitals became as it were atrophic, and that erections and pollutions, to which the patient had formerly been very subject, were never observed during this time." (*Lancet*, 1828-9, i, 448.)

19. A patient took Iod. for induration of stomach, and there came on gradually complete impotence with wasting of testicles, which symptoms disappeared on leaving off the Iod. (RÜSLER, *Med. Corresp. d. Würtemb. aerat. Ver.*, vii, No. 23, 183; in *Frank's Mag.*, ii, 757.)

20. A girl, æt. 13, affected from childhood with indurated glands, took for that and a hard swelling over r. nipple 10 to 18 dr. of tinct. 3 or 4 times a d. After 3 weeks there came on suddenly voracious hunger and a leucophlegmatic swelling of both eyelids, with much lachrymation and bodily weakness. After leaving off the Iod. these symptoms disappeared. The glands were cured, but the hard swelling in breast remained. (MURZEX, *Hufeland's Journ.*, liv, pt. 4, 63; in *Ibid.*)

21. A youth, æt. 19, who had a goitre for three years, took Iod. for a long time. The goitre disappeared, but he got a numbness of upper and lower extremities and much trembling of hands. These symptoms yielded to cold baths. (FORMBY, *Hufeland's Journ.*, liv, pt. 6, 95; in *Ibid.*)

22. A woman, æt. 34, took Iod. for goitre. After 4 d. there came on fever with dryness of skin, quick, soft pulse, delirium, subsultus tendinum, floccification, skin cook. The goitre diminished in size. After 14 d. was able to leave her bed, though still weak. A repetition of the Iod. caused after 3 d. fever, with similar symptoms. (NAUMANN, *Hufeland's Journ.*, lv, pt. 1, 69; in *Ibid.*)

23. A delicate, nervous woman, æt. 28, affected with goitre, after taking Iod. for several d., had palpitation of heart, vertigo, twitchings of facial muscles, great prostration, constant feeling of constriction in goitre, incessant urging to urinate, a febrile state with alternate chills and heat, complete anorexia, loss of sleep, emaciation. After taking volatile stimulants for 8 d. she recovered. (SCHMID, *Hufeland's Journ.*, lviii, pt. 2, 124; in *Ibid.*)

24. A strong man, æt. 25, 8 years ago took for goitre (which had been partially removed by iodine ointment) 6, 8, and upon the 8th d. 10 dr. tinct. When he had taken 2 doses of the last quantity and had drunk half a pint of wine he was suddenly attacked by pale face, cold sweat, trembling of limbs, constriction of chest, constant inclination to vomit, without actual vomiting; anxiety, headache, and at last fainting. From that time his digestion, which had heretofore been excellent, was

quite ruined. During the next 2 years he had every d. or every other d., after the ingestion of the slightest meal, indigestion with a headache that often made him unconscious. In after years he got better, but had to be extremely careful of his diet. He is better when he drinks cold water. Milk always disagrees. (SCHNEIDER, *Hufeland's Journ.*, xci, pt. 1, 84; in *Frank's Mag.*, l. c.)

25. A lady, æt. 26, of nervous, irritable constitution, wishing to commit suicide, swallowed 2 drm. tinct. Iod. Immediately burning and dryness from throat to stomach, with tearing pains in epigastrium and futile efforts to vomit. Seen 2 h. later the sufferings had increased, face red, eyes watering, pulse contracted, small, concentrated; extremely acute pains in stomach, aggravated by the slightest pressure. The stomach seemed in a permanent state of contraction. After drinking a quantity of warm water she vomited. On this the pains left the stomach and went into the abdomen, especially along the colon. After a few d. was quite well. (MONTCOURRIER, *Rec. period. de la Soc. de Méd.*, ciii, pt. 3, 333; in *Frank's Mag.*, iii, 533.)

26. A woman, æt. 32, hysterical, took for goitre various preparations of iodine. Each time after 14 d. use of the medicine the goitre diminished, but at same time there occurred increased sensitiveness of retina, a kind of photophobia, so that by d. objects appeared in a flaming, fiery red illumination, which dazzled the eyes, and in e. artificial light could not be borne. These symptoms went off on leaving off the Iod., but the goitre then became larger. (*Med. Zeit. v. Ver. f. Heilk. in Preussen*, 1834, No. 19, 89, in *Frank's Mag.*, i, 65.)

27. A woman, æt. 28, of irritable temperament, and irritability of larynx and lungs, took for goitre at first 4, then after 8 d. 5 dr. m. and n. No effect was produced on goitre, but on 16th d. pains in larynx, cough; pressure in stomach and quick pulse after eating anything. After leaving off the med. for some weeks she again took it in small doses, then 6 dr. None of the former symptoms appeared, but her complexion changed from yellow to brown, and in a few d. the skin seemed as if smoked. This lasted a considerable time. (VOGEL, *Rust's Mag.*, xiv, pt. 1, 158; in *Frank's Mag.*, i, 515.)

28. A woman, æt. 20, took for goitre tinct. Iod. for several months. The goitre disappeared, but there occurred pressive shooting pains in hepatic region, loss of appetite, irregularity of menses, and emaciation. In May there came on quartan ague; during the pyrexia constant diarrhœa. After the 8th attack of ague she became so weak she had to keep her bed. After 3 d. she had continued fever with dry tongue, great restlessness, little sleep, and very small, quick pulse. On sitting up in bed she fainted, the pain in liver more severe and constant; it was hard but not much swollen. The pain continued, and she died. (SUTTINGER, *Ibid.*, xvi, pt. 1, 113; in *Frank's Mag.*, i, 516.)

29. A woman, æt. 26, otherwise healthy, took for goitre 10 dr. tinct. Iod. 3 times a d. After taking it for 10 weeks had to leave it off on account of pregnancy. Four months after delivery, as she did not nurse her child, she again took Iod. in the same way. After taking it three months with no effect on goitre, she rubbed in iodide of pot. When she had taken the med. 5 months and applied it externally 2

months, she noticed a complete disappearance of the mammæ, with great emaciation of the body but without any diminution of the goitre, which, indeed, was rather larger. (REICHENAU, *Ibid.*, xxii, pt. 2, 291; in *Frank's Mag.*, l. c.)

30. A strong tinct. of Iod. was applied to some indurated parotid glands in a young Indian of 17. Five h. after, Iod. was seized with vomiting and purging of yellowish fluid containing flocculi; and next m. all the symptoms of iodism were present,—rapid, feeble pulse, peculiar restlessness and anxiety, intense thirst, burning sensation in abdomen, vomiting and purging, with suppression of urine. His mind was perfectly clear throughout. Death occurred in 30 h. *P.M.*, mucous membrane of stomach and small intestines was studded with small ecchymoses; liver and spleen large (but he had had malarious fever a month previously); lungs contained some frothy, sanguineous fluid, and were somewhat congested. (GILLISPIC, *Mrd. Times and Gaz.*, 1864, ii, 488.)

III. *Experiments on animals.*—1. A young setter dog commenced with taking $\frac{1}{2}$ gr. twice daily, in the form of pill. The dose was gradually raised, and by the 4th d. amounted to $1\frac{1}{2}$ gr., when the animal began to betray a much sharper appetite, suffer the saliva to drop involuntarily, and void urine and fæces in greater abundance. On the 6th d., his daily allowance had risen to 4 gr., which quantity was quadrupled by the 17th d., when—73 gr. having been taken in all—the drug was discontinued. On d. succeeding last dose, the animal scarcely retained any power of locomotion, and in the act of walking, or rather crawling, kept one of the hind feet constantly uplifted. He took little food, and what he did take was with little apparent appetite. In a couple of d., however, he began to revive and walk with less difficulty; and on the lapse of 5 d. from cessation of the Iod., when the symptoms arising from it were much abated, he was destroyed by means of prussic acid. The viscera of the chest presented nothing abnormal except congestion of the lungs, probably attributable to the manner of death. The intestines, before being handled, had for their general aspect a diffused crimson-red tinge, an uncommon degree of contraction, in many places actual constriction, as if with a cord, and here and there a few bluish-grey, oval spots. The stomach was of its usual dimensions, and nearly filled with the food last taken. Its lining membrane presented numerous small rugæ overspread, and having their interspaces filled, with rather tenacious mucus, the sides and apices irregularly marked with dotted patches of crimson, or else brownish-red, vascularity. The lining membrane of the intestines, for about 3 ft. from their origin, was remarkably vascular; oval spots, about the size of a chestnut, then began to occur at every 3 or 4 in., on side opposite to mesentery; a similar spot at junction with colon was 2 or 3 in. in length, and was expanded at its lower termination over the whole circuit of the gut. These spots were not injected; they appeared to consist of the agminated glands enlarged, as sometimes noticed in the early progress of fever. The colon was of a leaden colour, deepened at the longitudinal rugæ into black. No unnatural appearances could be traced in the other organs. (COGSWELL, *op. cit.*)

2. A few years ago M. Benedikt made a series of experiments on frogs, by which, however, our knowledge of the remote action of Iod. was not essentially advanced. Like many other poisons, it paralyzes voluntary motion in frogs, and produces this effect apparently by affecting the spinal cord. (BOEHM, in *Ziemsen's Cyclopædia*, xvii, 297.)

Kali iodatum.—Iodide of potassium. KI.

I. *Proving.*—1. HARTLAUB and TRINKS. (Without name of observer, but probably from Nanning.) In m., very anxious and lachrymose, as if some evil were impending, for 2 h.; very peevish and excited, everything goes wrong, and she is ready to quarrel with everyone (17th d.); she is frightened at every trifle (5th d.); she is very talkative and quarrelsome (12th d.); the usual head symptoms, but without vertigo, and some irritation of eyes; an indescribable pain extends out from l. ear, and if she only moves hand towards ear, without touching it, the pain creeps over whole side of face (e.); violent jerking or shooting in r. eye-tooth, scarcely to be endured, frequently lasting for an h., but worst after going to bed till midnight, and at 4—5 a.m., relieved by warmth, aggravated by cold, pain at times so great that it seems as if tooth would break off, or as if a worm were gnawing at it (25th d.); after taking accustomed cold milk in m., sudden extremely painful dragging in both groins, so that she was obliged to bend double, frequent yawning, great weariness in thighs, violent griping in abdomen even to thighs, excessive restlessness so that she could not remain in any position, coldness with goose-flesh, anxiety and warmth in head, —followed by eructations and rumbling in abdomen, and stoppage of the catarrhus (which had begun), then nausea and pressure in stomach, with urging to vomit, aggravated by moving about, shivering in feet and hands, with heat and sweat in face (14th d.); diuresis. (*Arzneimittellehre*, iii, 36.)

2. Dr. COLBY took 15 gr. at one dose. At n., after retiring, but before going to sleep, had terrible spasmodic pain at root of tongue, extending to both sides of throat. For about 15—20 m. pain was excruciating, causing fear that death was impending. There was a sensation as if spasm would close pharynx. (*N. Engl. Med. Gaz.*, vii, 25.)

II. *Possings.*—1. F. R., æt. 35, was admitted at 9.30 a.m. on Oct. 9th in a semi-comatose condition. His face was swollen and deeply congested, and the eyelids puffy and red, as in facial erysipelas. Lips and tongue were extremely livid, tongue being swollen and protruding between teeth. Very little air entered lungs; there was croupy breathing, and on one occasion cough was typically laryngeal. Pulse was scarcely perceptible. Tracheotomy was performed with great relief. When seen at noon some pustules were observed on face and neck and a papular eruption on back of hands and flexor surface of fore-arms. Temp. was 99.4°, pulse 100, resp. (easy) 36. Eyelids were less swollen but there was great chemosis. There had been no rigor, pains in loins, or vomiting; but there was considerable headache. On inquiry it was found that he had had two similar attacks 3 years ago, with sore-throat and pustular rash, but with unaffected breathing. Each

had followed administration of K. iod. This time he had taken same—6 doses of 10 gr. each—for renal affection and rheumatism. After 4th dose he thought he had caught a violent cold, and went to bed. At 7 a.m. on next m. but one he woke up with sensation of choking and could scarcely articulate. In this state he was brought into hospital. Next d., m. temp. was 102.4°, pulse 130, resp. 21; e., temp. 102.8°, pulse 136, resp. 24. Besides pustules, which looked very like those of variola, there were spots over ear, hæmorrhagic-looking, and evidently containing bloody serum. Uvula was elongated, and mucous membrane somewhat swollen, as if œdematous, but there was no eruption on palate or pharynx. Next d. he was better; laryngoscopic examination showed slight congestion of epiglottis and vocal cords. On 13th temperature was normal and rash had almost disappeared. Cannula had been removed after 48 h. (FENWICK, *Lancet*, 1875, ii, 698.)

2. A syphilitic child, æt. 5 mo., was given K. iod. After taking one dose of 2½ gr., in about ½ h. mother noticed it "turn black" about mouth and chin, and similar appearances followed on upper part of face. On being brought to hospital there was observed a large, hard, dark discoloration of lower lip with separate dark spots of purpura around it. There were a few hæmorrhagic spots on l. arm above elbow; none elsewhere. While it was watched patches perceptibly increased in size, until in an h. or so scalp and face were well covered. Next d. purpura had become more general, and on 4th d. child died.* (MACKENZIE, *Med. Times and Gaz.*, 1879, i, 173.)

3. A man, æt. 28, with history of venereal disease, and now suffering from swelling of feet, pains in tibiae, and ecchymatous ulcerations on legs, got 20 gr. of K. iod., to be taken twice daily. After only 3 doses, he complained in e. of heat, and of burning sensation in face and hands, which were observed to be reddened; and medicine was discontinued. Seen next d., p.m., it was found that since previous e. an eruption of very large bullæ had made its appearance; some were 1½ in. in diameter; they occupied back of neck, forehead, face, and back of hands. Some were filled with clear serum, others were turbid, and of reddish or purplish colour, from admixture of blood, while skin around them was somewhat reddened and œdematous. In course of 2 d. most of them had become ruptured, and were drying and disappearing. In evidence of the fact that this eruption was produced by the drug, patient reported that on 3 previous occasions during last year he had taken the iodide, and always with the same unpleasant results. After disappearance of eruption he has felt better, and syphilitic symptoms have improved. (BUMSTAD, *Amer. Journ. of Med. Sc.*, N. S., lxii, 99.)

4. HUTCHINSON describes an eruption resembling hydra as resulting from K. iod. It is sudden and symmetrical and prefers the face and forearms. There are vesicles and small bullæ, from the size of a shot to that of a pea, or even to that of half a small cherry, and usually

* "Kuess is said to have frequently observed hæmorrhages from the lungs during iodine treatment; while in a few cases metrorrhagia, or habitual increase of the periodic menstrual flow, has been observed."—BOTKIN, *op. cit.*

surrounded by an erythematous and sometimes inflammatory swelling of the skin. In the earliest stages the papules resemble those of small-pox. The vesications become larger, lifting up a very delicate layer of epidermis, which presents no central depression. Their contents become grey and opaque but not distinctly purulent. Although there is no umbilication, yet a peculiar appearance is sometimes assumed by the vesication spreading at its margin and sinking at its centre, the patch then becoming sometimes as large as a shilling. (*Trans. of Clin. Soc. of Lond.*, 1875, p. 152.)

5. The irritative effects on the skin which occur in distant parts of the body after the external application of Iod. also show themselves in many cases after the internal administration of K. iod. In the latter case, however, the multifurmy of the eruptions is much more marked than in the former. This particular incidental effect of K. iod. has been well known ever since its introduction into the materia medica, and one therefore finds almost innumerable observations on the subject in literature. They all go to establish as a fact that it often produces eruptions, from simple erythema to petechiæ, with or without fever, occurring either alone or in combination with other abnormal effects of Iod., and disappearing, as a rule, very soon after the use of the remedy is suspended. These eruptions, according to Fischer (*Wiener med. Wochenschr.*, 1859), are divisible into four principal forms.

a. Erythematous form.—The skin, particularly on the forearms, and also on the face, is reddened, either diffusely, or in circumscribed spots, and its temperature elevated. After discontinuing the drug, this disappears in a few h.; but if its use be persisted in, the eruption may pass into that which is most common—

b. The urticaria-like form.—Usually on abdomen and extremities, but also on other parts of the body, there appear, without fever, intensely red wheals, but slightly raised, surrounded by an areola, generally collected into groups, only distinguishable from a genuine urticaria by their more intense colour, which is usually described as rose red, and becoming pale on pressure. They disappear after the use of Iod. is stopped, without desquamation.

c. The nodulo-pustular form.—This is more rarely observed, and occurs most frequently in scrofulous individuals, usually upon the upper half of the body. An itching spot forms, of a deep red colour, which is soon transformed by exudation into a papule, or a bluish-red nodule, with or without an areola. This may persist; but as a rule there is developed upon it a coloured vesicle filled with clear fluid, or a pustule, which may burst or dry up; while the papule, on omission of the drug, slowly disappears with desquamation, often leaving behind a bluish-red or marbled pigmentation of the skin. As intermediate forms pure vesicles, acne-like pustules (iodine-acne), and even furuncles are observed.

d. The eczematous form.—This is very rare, and appears especially on the hairy scalp, and in the neighbourhood of the scrotum.

e. The petechial form.—Fournier describes this eruption, which he calls *iodisme pétéchiale*, as very rare. He saw the eruption, which has also been mentioned by Ricord (see II, §, a), in the majority of cases

during the first 3 d. after the use of K. iod., more rarely from the 3rd to the 6th d. In some individuals it always appeared as soon as the drug was administered, and in one case a new eruption occurred every time the dose was increased. It appeared exclusively on the legs (save once only on the trunk), more profusely on the extensor than on the flexor surfaces. It never attacked the knees or the feet. There are usually as many as 100 discrete patches on each leg. They are miliary, usually of pin-head size, rarely as large as a bean, and cause no general disturbances of any kind. The eruption usually reaches its height in 2—3 d., and lasts at most 2—3 weeks. (J. SWIN, *op. cit.*)

[Fournier adds that all the subjects—15 in number—in whom he had observed the affection enjoyed either a flourishing or a medium condition of general health; and while all were syphilitic, two thirds of them were exempt from any specific manifestations of the disease at the time when the iodide, which was only administered as a preventive, produced the purpuric eruption. "Iodic purpura" has also been observed in subjects of chronic rheumatism and of cancer—see *Med. Times and Gaz.*, 1879, i, 280, 502, also following case.—Eds.]

6. a. It is well known that iod. of pot. occasionally produces a petechial rash, limited generally, as in the following case, to the legs. A case of this kind occurring in University College Hospital, it was considered a good opportunity to learn whether other iodides act in a similar manner and equal degree. The subject was a lad of 17, convalescent from acute rheumatism, and free from fever, to whom, from Dec. 4th, K. i. was given for a few lingering pains in 10 gr. doses thrice daily. On 9th a petechial rash broke out on front and sides of legs and ankles. The spots were numerous, and varied in size from a pin's head to a split pea. Neither on this nor on any subsequent occasion did any spots appear on any part of the body above the knees. Rather sharp blows over the shins did not bruise. The shins were a little tender. Slight coryza preceded the spots by a few d. The medicine was discontinued on m. of 10th, and by 15th spots disappeared. On 18th he began medicine again, and on m. of 20th rash reappeared more abundantly than at first, and coryza set in same e. Similar results followed a third course, after temporary discontinuance of the drug.

b. On Jan. 4th, 4 d. after last disappearance of rash, iod. of ammonium was given in same doses. After 2 doses—in 6½ h.—petechial spots broke out on both legs. He took a 3rd dose, and then the medicine was discontinued, and the spots disappeared on the 9th. He took later iod. of sodium in 10 gr. doses thrice daily for 4 d. without appearance of any petechiæ or coryza. He then began iod. of ammonium. In 2 h. after 1st dose a few spots were visible on both legs, and next d. they were more numerous and well marked. No other effects save the petechiæ and the coryza were produced by either iodide. (RINGER, *Pract.*, viii, 129.)

7. Dr. WALLACE treated many syphilitics with K. i., using (to adults) a mixture of ʒij to ʒviij of water, a tablespoonful 4 times a d. As incidental effects he noted the following:

a. " Its most common effect, by far, is an increase of appetite, combined with an increase of strength and of spirits.

b. " I have sometimes noticed this medicine to cause an increased secretion of saliva, sometimes an increased action of the bowels, and in some cases a remarkable increase of perspiration. I have also known the bowels to be constipated by its use. The most remarkable instance of salivation occurred in a child of 4.

c. " An effect of this medicine which is not very uncommon, and is sometimes troublesome, is a state of throat which the patient calls sore-throat, saying he feels as if he had caught cold; or else a state of stomach described by the patient as like heartburn, along with which there exist sometimes other symptoms of indigestion, such as flatulency. In some cases there was great indigestion caused. I have also not unfrequently observed a state of irritation of the Schneiderian membrane, testified by a considerable discharge from one or both nares, and uneasiness extending along the nose to the forehead.

d. " Sometimes patients, particularly delicate females, under the influence of the drug, lose the power of sleeping as much as is natural to them. A state of watchfulness, in fact, comes on, often accompanied by feelings in the head which are variously described by different persons. They are, however, seldom so severe as to deserve the name of headache.

e. " On one occasion two females took, by mistake, double doses. There resulted in both sickness, soreness of throat, colicky pains, vomiting and purging to a slight degree, frequent pulse and exhaustion. In both these symptoms disappeared on the following d.

f. " Several patients, while under the full action of the drug, were attacked with an acute pain in the anterior and lower parts of their l. side, precisely in the centre of the superficies formed by the false ribs, accompanied by some cough and difficulty of breathing. All these patients were bled, and in all the blood was buffed and cupped. There was considerable pain, in one case with dry and brown tongue. In all cases this affection went off without much trouble.

g. " In a patient, where the drug had already caused indigestion, with remarkable acidity of stomach, soreness and constriction of pharynx, and emaciation, on resuming the remedy there gradually came on severe headache, rapid and quivering pulse, and a recurrence of the indigestion; also a peculiar state of the eyes, the pupils being dilated, and both globes in a state of incessant motion, as in a child with congenital cataract. He was quite unable to fix them on any object, and kept his hands constantly over them as if to shade them from the light, yet he said the light did not hurt them. He was very soon seized with symptoms of hemiplegia, this being preceded by muscular tremblings. He continued 2 or 3 weeks in an apparently hopeless state; the paralytic symptoms, however, then went off; he gained strength, his eyes lost their restless character, pulse became slower and stronger, and headache ceased. I think these symptoms were due to the drug, for they have some resemblance to those which occurred in certain cases where Lugol had given baths of I. dissolved in alcohol. Dr. Jahn, of Meiningen, has also related a case analogous

in many respects, particularly in the quivering of the eyes." (*Lancet*, 1835-6, ii, 7.)

8. *a.* The skin is unquestionably the tissue most readily impressed by *K. iod.* Nothing is more common than to see patients under its influence affected with divers eruptions, and more particularly with those of a pydracious character, resembling the pustules of acne, but more widely spread. There are, however, hardly any acute eruptions which may not be simulated by *K. iod.* One man may have an eczema, another a herpes, others simply an erythema, which in two recent cases has taken the form of *e. papulosum* in some parts, of *e. nodosum* in others. In a case of cancer of the face, where the drug has been given in strong doses, we have seen it on several occasions develop an impetigo on the hairy scalp and a rupia like *r. cachectica* on the legs and forearms, these symptoms subsiding as soon as the drug was discontinued but reappearing on its resumption. I have several times seen *K. iod.* give rise to a veritable purpura hæmorrhagica. Several patients only experienced heat, pricking, and sometimes a certain amount of itching.

b. The activity of the digestive functions is generally increased, as is also the appetite, hence embonpoint is frequently the result. In certain circumstances injurious effects are produced, one of the most constant of which is pain in the greater curvature of the stomach. This is sometimes very severe, without, however, increasing the thirst, impairing the appetite, coating the tongue, or producing the least reaction of the circulation. The pain is not increased on pressure; it seems, indeed, to be owing entirely to *gastralgia*. The appetite is sometimes so enormously increased that it must be regarded as morbid. In some cases actual phlegmasia occurs, either of the stomach or of the alimentary canal; hence vomiting, diarrhœa, and all the symptoms of poisoning. It must be observed, however, that the most frequent action on the mucous membrane of the intestinal canal is a sero-mucous secretion. There is an analogous effect on the other mucous membranes.

c. The author has frequently observed ptyalism occur, which may even become as great as the most severe mercurial salivation; it generally, however, resembles that which occurs in pregnant women. The saliva is not very viscid. The mucous membrane of the mouth may be a little irritated, but inflammation and ulceration are never produced. The salivary glands are not swollen; the patients only complain that the saliva has a saltish taste, resembling that of the drug. The breath has never a peculiar odour.

d. The functions of the kidneys are generally increased in activity, in a few cases morbidly so, in others they are diminished. In these instances either of increase or decrease of the urinary secretion, the urine is not changed, except that the iodide is present in it.

e. The circulation does not seem to be perceptibly affected by the use of this remedy. In some cases when fever was present, this was relieved, sometimes even cured. The author does not consider that this was owing to the direct action of the iodide on the febrile symptoms, but that the disease of which the fever was only a symptom being relieved, it consequently ceased. In some cases which may be

considered as exceptions the circulation was rendered more active, yet apparently not directly, but in consequence of the increased action in the digestive apparatus. With regard to the blood itself, its plasticity seemed to be diminished, thus predisposing to hæmorrhages, which sometimes took place from the nose, lungs, and intestines.

f. Its action on the conjunctiva is already universally known. Considerable chemosis and great tumefaction of the eyelids were sometimes observed. The secretion is increased, yet with little or no tendency to suppuration. These effects are more frequently observed at the commencement of the employment of the remedy than when it has been used for some time, and do not occur twice in the same individual.

g. All authors are agreed with regard to the increased secretion from the Schneiderian membrane. The bronchæ were sometimes found to be affected. The symptoms were those of simple bronchitis; the expectoration ended, however, as it had begun, without ever becoming purulent.

h. The nervous system was affected in some few cases, particularly the brain. The excitement was similar to that produced by spirituous liquors; indeed, some authors have designated it iodic intoxication. In such instances the locomotive organs of many patients were attacked. Some had spasmodic cramps, slight subsultus tendinum. Guillon informed the author that a medical friend of his believed he had observed a double amaurosis in one man, whose wife, while using the drug, had been similarly affected.

i. The action of the medicine on the mucous membrane of the urethra appeared to be not less striking. Ill-cured gonorrhœas sometimes returned, others grew worse. The same phenomena were observed in the mucous membrane of the vagina and uterus. (RICOAN, *Bull. de Thérap.*, xxiii, 161.)

g. a. If *K. iod.* is continued for a long time, or if the patient manifests great susceptibility to its action, we produce a condition termed "iodism." Many persons can take the drug in very large quantities for an almost indefinite time without the induction of iodism, while very small doses, even of a grain or part of a grain, produce it in others. The tissues most frequently and most severely influenced are the mucous covering of the eyes and lining of the nose, frontal sinus, and mouth, with the skin of the face. Some slight running at the nose is first noticed, with occasional sneezing, and a little frontal headache, these symptoms becoming more marked when the conjunctiva is injected, and the tears flow abundantly. The loose tissues about the orbit become swollen, reddened, and œdematous; and occasionally a peculiar rash appears on the skin of the face, at first noticed around the eyes, after which it attacks the nose and neighbouring parts, and then the chin. The parts in the order here stated are severally most severely affected. The nose is sometimes reddened, especially at the tip, and is rather swollen. The rash does not always present the same appearance. It is often very much like acne, and is always hard, shotty, and indurated, but the papules may be broad and large, and covered with what looks like a half-developed

vesicle or pustule. In the mouth there is redness and injection of the lining of the cheeks, of the throat, soft palate, and tongue, an increased growth and separation of the epithelium covering these parts, and an augmented flow of saliva.

b. With some persons the stomach is at the same time deranged, although in the author's own experience this organ often escapes when the face is affected, and *vice versa*. When the stomach is singled out by the iodide, it induces nausea and a sensation of sinking at the epigastrium, with loss of appetite and sometimes watery diarrhoea. A grain or even less may thus affect the stomach.

c. K. iod. sometimes produces distressing depression of mind and body, rendering the patient irritable, listless, dejected, wretched, and unable to take moderate exercise without fatigue, and perhaps with a tendency to fainting. The appetite is generally very bad. These symptoms may arise from a very small dose, and may occur without coryza or irritation of the stomach. (RINGER, *op. cit.*)

10. Iodides are eliminated very rapidly by the kidneys, salivary glands, probably by all mucous membranes, and by the skin. During the process of elimination iodine is occasionally set free and causes local irritation. This is especially marked in the mucous membrane of the nose and in the skin, but it may occur also in the conjunctivæ, bronchi, and stomach. The irritation of the nasal mucous membrane gives rise to the symptoms generally known as iodism. They consist of running at the nose, and frontal headache, which probably depends upon swelling of the mucous membrane lining the frontal sinuses. There is also frequently running of the eyes. Not unfrequently, the bronchial mucous membrane becoming congested, there is cough and pain in the chest. These symptoms are most readily produced by doses of 2—5 gr., and they may usually be arrested either by discontinuing the medicine or increasing the dose. When the dose is raised to 10 gr. the symptoms usually disappear, and I have only seen one case in which they persisted after the dose had been raised to 30 gr. In some persons the congestion is not confined to the nose, but extends to the back of the throat and to the larynx, so that serious symptoms of suffocation may follow. It sometimes gives rise not only to congestion of the bronchial mucous membrane and cough, but to hæmoptysis, exudation into the pleural cavity, and even pneumonic consolidation. (BAUNTON, *op. cit.*)

11. Of the much-dreaded atrophic influence upon the generative organs a single example presents itself, in a case of cancer recorded by Mr. Nesse Hill (*Ed. Med. and Surg. Journ.*, 1826, p. 282). In the space of 4 mo. a large carcinomatous ulcer of the breast had almost completely cicatrised under the use of K. iod. in the form of ointment, and taken in small quantities internally. By this time both mammae are stated to have completely disappeared. (COGSWELL, *op. cit.*)

12. About the year 1840 I treated a young woman with K. iod. for chronic rheumatism; but, the glands in the neck enlarging, the medicine was omitted. Again in 1854 I gave the iodide to a young lady affected with amenorrhœa; after continuing the medicine for 3 weeks the glands in the neck suddenly enlarged, and that to a degree

highly disfiguring. At least 2 mo. elapsed before the swelling showed the slightest symptoms of subsidence. (CARTWRIGHT, *M. H. R.*, xii, 411.)

13. A man, æt. 62, very bilious, and from his youth affected with gout, got for sciatica \mathfrak{ij} of *K. iod.* in \mathfrak{ij} of water with directions to take, m., and n., 2 table-spoonful. After about 8 d. there came on an extremely rapidly growing swelling of the thyroid gland with some sensitiveness to the touch and feeling of oppression. He was, however, ordered to continue the medicine, and in the second week he got all the signs of endocarditis, oppression, weakness, almost amounting to fainting, tumultuous throbbing, intermitting and unequal beats of heart and pulse, tensive pain across chest. Anorexia and vomiting also set in. On omitting the medicine and taking merc., ars., and sepiä, all these symptoms subsided. (GOULON, *A. N. Z.*, xlv, 63.)

14. I took *K. iod.* some time back for a rheumatic affection of the acromio-clavicular joint. I began with 3 gr. ter die. After 3 d. 1 gr. per dose was added, and then another. On m. after the 5 gr. doses had been taken I awoke with uneasy feeling of l. eye. I found edge of orbit at external part tender on pressure, and on inspection eyelids were found swollen and infiltrated on that side. The following m. the r. side was similarly affected; the tenderness was evidently seated in the periosteum of the orbit and exclusively at the outer part. On 3rd d. a strange sensation was felt, as of a pain extending from outer edge of one orbit to that of the other; and on this I discontinued medicine. (ROODS, *Lancet*, 1860, i, 479.)

15. A man, æt. 40, affected with contraction and callosity of bowels, took *K. i.* by spoonfuls of a mixture of *K. i.* \mathfrak{ss} , \mathfrak{zj} . dist. \mathfrak{zj} , mucilag. $\mathfrak{3j}$. After each dose he felt in a few m. a peculiar change in his system; congestion of head, vertigo, contraction of throat, dryness of mouth, anxiety, constant oppression of chest, cough, trembling of limbs and staggering as if drunk, so that he had to go to bed. After 1 h. all these symptoms went off. The pulse was tense, hard, not quick. (HORST, *Hufeland's Journ.*, xcvi, pt. 4, 97; in *Frank's Mag.*, ii, 763.)

16. A lady, between 25 and 30, who in her childhood and first youth had taken with advantage iodic preparations—especially the Wittegg springs—for anorexia and a disposition to somnolence, being unable to procure this mineral water, replaced it by pilules each of which contained about 28 centigrammes of *K. iod.* Of these she took 6 daily. The only iodic symptoms were, from time to time, salivation and nocturnal agitation. After taking the pilules for several weeks, Madlle. X—was seized with a violent gastralgia, which came on suddenly, and lasted several months, accompanied by palpitation and costiveness. The patient left Geneva for the south, and at first her health improved; but little by little the change of air lost its good effect; the anorexia and gastralgia reappeared; and the menses, which had previously been copious, were suppressed. Madlle. X—, remembering that *Iod.* always revived her appetite, had brought with her the prescription for her pilules; but the druggist, being unable to decipher it, gave her tinct. of *Iod.* instead. The lady writes:—"I took 10 dr. in half a glass of *rau sucré*. After some h., I began to feel some effect

on the brain; I was as if I had caught cold, had to use my handkerchief frequently, the saliva flowed freely, and there was a sort of contraction in the jaw, which made me clench my teeth; the gums swelled and inflamed, with a general sensation of toothache. There was great excitement of circulation, with violent determination to head and heart, and general trembling. The n. was sleepless, but I craved food and digested it well, which I had not done for some time. Next d. I wished to continue my medicine, diminishing somewhat the dose, but the same baleful effects followed in the circulation and nervous system, the stomach only continuing better. I ate a little, and drank some lemonade to refresh my mouth, when I immediately felt a very sharp, though only transient, pain at the pit of the stomach. I wished to persevere with the treatment; but after 4 d. I had to interrupt it, the blood being always in commotion, especially towards head and heart, gums always inflamed, face swollen, nervous tremor, sleeplessness. (RILLIET, *op. cit.*)

17. M. V—, æt. 50, tall and stout, and in good health. He had from youth a goitre, which was very slowly increasing. I prescribed 10 centigr. of K. iod. to 120 grm. of water, a dessertspoonful every m. fasting. After the first dose, M. V— felt an indefinable sense of anguish, of painful drawing together, in the l. hypochondrium, on a line with the greater curvature of the stomach. The same sensation recurred on the following d. On the 6th d., finding himself far from well and growing thin, he left off the medicine. I saw him 2 d. later; he was so changed that at first I did not recognise him. The most remarkable thing was a fixed, wild, uncertain look; an expression of sadness and lassitude, a discoloured complexion, cheeks wrinkled and pendent. A general feeling of debility and discouragement made work impossible to him; he had difficulty in walking and keeping upright; he was inclined to sadness and tears. His sleep was not good, but he had no nightmare. His voice was broken, a little tremulous at times, and a similar tremor affected the limbs; these and the trunk shared in the emaciation of the face. The goitre had shrunk to $\frac{1}{2}$ of its original size. This occurred in April, and in spite of the discontinuance of the medicine and the most appropriate treatment, it was not till the winter that he regained his usual health (and therewith the goitre in its former dimensions). (MAENOUR, in Rilliet, *op. cit.*)

18. A man of 52, of good constitution and health, had for some years had a goitre which was interfering with respiration. I gave him pilules of K. iod., each containing gr. $\frac{1}{2}$, and he was to take one daily. However, in 16 d. he had taken 60 pilules (= 12½ centigr.), when he came to consult me. He had an earthy complexion; the face and neck were emaciated; eyes sunken and dark-circled; he had an anxious look (very characteristic). Bulimia had set in for some time; there was burning during digestion; pulse was quick and small, palpitation very annoying, and he was tormented by agitation and general nervousness. The goitre had in great measure disappeared. These symptoms were from no other apparent cause. Under a régime of ice and cold milk they subsided within 2 mo., but the goitre returned to its former size. (D'ESPIRE, in *Ibid.*)

19. Twenty-nine persons, all in good health, took with the salt used at meat and for cooking a $\frac{1}{100,000}$ th part of K. iod. as a prophylactic against goitre. They consumed altogether 210 kilogrammes, i. e. 21 gm. of K. iod., or 40 centigr. to each person. Three of these persons showed symptoms of iodism, two ladies of 60 or more, and a gentleman of 45. The latter, in good health and easy circumstances, took the iodised salt from May to July, and again from August to January (1851-2). At the beginning of December he began to be indisposed, and did not entirely regain his health till March. The symptoms were emaciation, palpitations, lassitude, sadness, and moral impressions of a distressing character, quite unreasonable and tending to become fixed ideas. There was an indescribable feeling of malaise in the bowels, without anorexia or dyspepsia. Not suspecting the salt, which from accidental circumstances he had suspended since January, he resumed its use during August and September, during which he must have taken about 10 centigr. of K. iod. At the end of September he was attacked afresh and severely. The symptoms he had previously manifested were reproduced in much greater intensity. The chief of them were,—marked emaciation, though the appetite was maintained; sense of malaise in the stomach, especially at n., accompanied by constipation; palpitations; trembling; fixed look; bad complexion; emotional susceptibility, leading even to tears; disturbed sleep, from which he awakes with a start under a sense as of some heavy calamity; he dreads beginning each d., and the details of daily life are an almost insupportable burden. Though a very tender father, his children were a trouble to him; he had to make a strong effort over himself to retain them about him, and to avoid being irritable with them. Physical signs in chest and abdomen were entirely absent.

The salt was discontinued, and iron and a generous diet prescribed. In November an erythematous eruption appeared on the abdomen, and from this time patient gradually recovered. One of the two ladies affected had similar symptoms; the other only emaciation, palpitation, and insomnia. (RILLIET, *op. cit.*)

20. A lady of 40, in excellent health, took for goitre 2 pilules daily, each containing gr. $\frac{1}{4}$ of K. iod., some time previously having taken over a gramme in a fortnight with nothing but advantage. This time, when she had taken 20 pilules, she was suddenly seized with severe vertigo, to which she was not at all subject. This did not recur, but it was soon followed by a persistent dimness of vision, black objects floating before the eyes, with hemiopia or micropia. At the same time she had neuralgic pains in the r. side of the face and trembling of the limbs. She grew sensibly thinner, slept badly, and was plunged into a profound sadness, feeling herself so very and so unaccountably ill. Her appetite, however, was actually increased, even to bulimia. She would not see a doctor, but after 3 mo. gradually recovered her health. (*Ibid.*)

III. *Experiments on animals*—1. a. DEVERGIE administered to a dog, through an opening in the œsophagus, \mathfrak{v} ij in \mathfrak{v} ij of water. Efforts at vomiting ensued, the animal seemed prostrated and died on the 3rd d. Upon dissection the gastric mucous membrane was found red,

especially at the greater extremity of the organ, and numerous dark striae ran in various directions. Some spots of ecchymosis existed in the submucous tissue. In another experiment $\mathfrak{z}\text{ij}$ were employed and a ligature was applied to the œsophagus. After some indications of pain, the animal became quiet, and grew more and more dull, until, on the 3rd d., it died in a state of complete relaxation. In addition to the lesions found in the first case there were superficial ulcers of the mucous membrane. In other cases submucous emphysema was observed in the stomach.

b. In the experiments of Stenbearauch, who gave rabbits $\mathfrak{z}\text{ij}$ — $\mathfrak{z}\mathfrak{j}$ dissolved in water, the symptoms were slow respiration, a feeble pulse, diuresis, spasms, and death in 1—4 h.

c. When a solution is injected into the veins of an animal, death takes place very speedily and is preceded by convulsions. Experiments upon larger and smaller animals (horses and rabbits), performed by various persons, have furnished almost identical results. In most cases the blood is of a bright red colour and shows but little tendency to coagulate. (STILLÉ, *op. cit.*)

APPENDIX

VOL. I.

Acidum hydrocyanicum.—After II. 12, insert the following:

13. Hydrocyanic acid, in doses of from ʒ to ʒʒ dr. at intervals per diem, and cyanide of potassium combined with carbonate of iron in doses of from ʒ to ʒʒ gr. per diem, caused in 83 patients affected with phthisis, epilepsy, hypertrophy of heart, dropsy, lumbago, and some epidemic malady not described:—in 22 cases heat in stomach, in 16 headache (1 only at night, in 2 the pain was over left eye), in 25 transient perspiration, in 22 itching and prickling in various parts, such as gastric region, limbs, tips of toes, whole body, chest, scrotum, neck; in 20 vertigo, in 20 long and profound sleep, in 9 nausea, in 9 colic, in 7 a kind of syncope, in 7 complete insensibility like that from alcohol, in 6 a kind of febrile rigor, followed by general heat; in 5 borbotygmus, in 2 heat in œsophagus, in 2 anorexia, in 4 diarrœa, in 4 pains in various parts, in 4 sleeplessness, in 4 sparks and flashes before eyes, in 4 roaring in ears, in 4 diuresis, in 3 partial heat, in 3 true rigor, in 3 dimness of vision, in 3 convulsions, in 2 coma or narcotism, in 2 delirium, in 2 numbness in arms and legs, in 2 increased appetite, in 2 vomiting, in 2 diarrœa, in 2 flatulence; in 2 each the following symptoms: tinnitus aurium, stupefied expression, slow pulse, cough with expectoration, dryness of mouth, constipation. (SANDRAS, *Recueil périod. de la Soc. de Méd.*, cx, 289; in *Frank's Mag.*, iii, 344.)

14. A peasant, *æt.* 30, took ʒ dr. Immediately he fell unconscious to the ground. In a few m. he recovered his senses and complained of vertigo, rigor, trembling of limbs and vomiting. In 6 h. he went to his work. (ABELSMANN, *Hausen's rhein. Jahrb.*, i, Suppl., 242; in *Frank's Mag.*, iii, 5.)

15. A girl, *æt.* 13, who had never menstruated, after a fright had epileptic fits daily. After taking ʒ dr. H. acid, 3 times in 1 d. she got febrile symptoms: considerable heat, thirst, loss of appetite, sleeplessness, pulse 120, great exhaustion; this lasted 14 d., during which she had no epileptic fits. After cessation of fever the fits recurred. She then got again H. acid, at first in doses of ʒ to ʒʒ dr., but when she again got ʒ d. she had hilarious delirium. Usually quiet and retiring, she danced and sang with a stick in her hand all about the room, and her pulse became quick. This lasted 3 d., when she became quiet and the pulse slow. (ERDMANN, *Abg. med. Ann.*, xxiii, 1292; in *Frank's Mag.*, iv, 73.)

16. A girl, *æt.* 18, got, for a spasmodic cough which attacked her every winter, H. acid. Two dr. somewhat relieved cough; when she got ʒ dr., after 4 doses she had colicky pains and loose bowels; next d. complete loss of appetite and such weakness that she had to keep her bed; pulse quick and uneven both in rhythm and strength; periodical headache, which returned next d. and lasted many h.; sleeplessness, all the muscles of the body were in a trembling state (not a rigor), dyspnoea with quick small pulse. Placing the flat hand on the forehead and pit of stomach suppressed the attacks, but not for long; warm baths were more efficacious. These attacks lasted 9 d., with longer and shorter intervals. The cough was much benefited. (*Ibid.*)

17. A young woman, *æt.* 19, subject to indigestion, took by mistake ʒ of a mixture containing 40 dr. Hydr. ac. Immediately she leapt convulsively from her

reat, was completely senseless, with fixed eyes, dilated, insensible pupils, the teeth firmly set. Stomach-pump was used, sinapisms to pit of stomach and calves, frictions, ammonia and brandy injected into stomach, but she remained insensible; weakness and paralysis continued unaltered. After cold douches to head and back she began to move, had convulsions, and writhed and groaned as if in agony. After this she began to move, and in a few h. was sensible and collected. For some d. she was weak and complained of weight, pain and heat of head and some gastric disturbance, but recovered completely. (BANKS, *Edin. Med. Journ.*, xviii, 44.)

18. The author was called, May 23rd, at 7 a.m. to A. W.—, nr. 24, who had taken an uncertain quantity of Hydr. ac. Feeling chilly, he went after $\frac{1}{2}$ h. to bed. His breathing became irregular, sometimes moaning, jaws fixed, teeth firmly closed, face covered with cold sweat, eyes open, eyeballs turned upwards, pupils rather contracted and insensible, gurgling noise in throat, pulse weak and quick. Cold douches to back and alcohol and chloride of lime internally. Pulse became quicker and hardly perceptible, heart's beats scarcely to be felt, limbs cold, integuments of neck and chest livid and yellowish. Forearm stiff and fixed, face flushed, breathing irregular and moaning. Venesection to 10 oz. Convulsions increased, he raised himself up in bed supported by his r. arm, drew up the lower extremities, with fierce look and fixed eyes, he uttered 3 frightful groans and turned his body to the l. with his face downwards. Hot bottles were placed about him. In another $\frac{1}{2}$ h. he complained of heat in throat and thirst; then rigors came on, which yielded to coffee and brandy; he vomited frequently, and in e. had pain in throat which hindered swallowing, salivation and frequent cough; well in a few d. (GARSON, *Edin. Med. Journ.*, lix, 71.)

19. An apothecary, nr. 32, took $\frac{1}{2}$ oz. concentrated prussic acid. He was found in bed, lying on his back, quite dead, the fingers spasmodically clenched, the heels drawn inwards, nails bluish red. P.M. (at h. after death).—Strong smell of the acid. Face yellowish white, features swollen, eyes closed, limbs flexible. All the organs of the cavities of the body (except the spleen, kidneys, and pancreas), the vessels of the dura and pia mater, the serachnoid, plexus choroideus, cerebrum and cerebellum, lungs, trachea and bronchia, pleura, heart, heart's cavities, pharynx, œsophagus, stomach, intestinal canal, especially the ileum, all the large veins of abdomen (the vena cava superior less than the v. c. inferior), the jugular veins, the vessels of the penis and scrotum filled with coagulated dark blood. The cerebral sinuses contained about 4 oz. dark blood, the base of the brain a little bloody serum, the trachea and bronchia frothy bloody mucus, pericardium a tablespoonful of bluish-red fluid, the gall-bladder a tablespoonful of thick brownish-yellow bile. The muscular tissue all over was dark brownish red. (ДОМЛЮТН, *Casper's med. Wochenb.*, 1817, No. 34, 317.)

20. A man, nr. 32, who had poisoned himself with H. acid lay with open eyes, dilated pupils, and red froth on lips. P.M. (3rd d.).—Face swollen, abdomen very distended, and in umbilical and iliac regions covered with blisters containing a yellow watery fluid. The penis was of monstrous size. On cutting through scalp a considerable quantity of dark fluid blood flowed out. Vessels of surface of brain filled with dark fluid blood. At base of brain and medulla oblongata, in some places between pia mater and arachnoid, exudations of serous fluid in blisters the size of half a walnut. Cerebral cavities contained no fluid, and the plexus choroideus destitute of blood. Lungs and liver full of dark fluid blood; r. ventricle empty, l. contained a moderate quantity of dark fluid blood; some serum in pericardium, much gas in bowels, a little mucus strongly smelling of the acid in stomach. (СЕНУШАНН, *Casper's med. Wochenb.*, 1817, No. 51, 321.)

21. A strong robust thief, nr. 16, swallowed about 40 gr. of Hydr. ac. He staggered a few paces, then sank down and fell to the ground without making any sound. After 3 m. the doctor found him stretched out straight, completely lifeless, pulseless, and breathless; after a few m. he had several extremely strong expirations, during which the ribs were almost retracted to the spine, and the chest appeared hollow outwards. Hands and feet very cold, features sunk, complexion dirty pale, eyes half open, bright and clear but insensible, mouth closed, abdomen and chest covered with clammy sweat, forehead and face cold and dry. In $\frac{1}{2}$ m. he had a severe snoring respirations with convulsive movements of pectoral muscles. After 4 h. he was taken to the morgue, and then he had one more expiration which sounded like ah! P.M. (next d.).—Countenance as if quietly sleeping, eyes half open and brilliant, the whole back stiff, mouth closed. On cutting through scalp and skull

considerable flow of blue-black blood; brain and all its membranes, base of skull and tentorium cerebelli, congested with dark blood; on l. side of skull $\frac{1}{2}$ a tablespoonful of red watery fluid. Intestines red, and here and there inflamed; m.m. of stomach with gangrenous spots and very friable, liver and spleen congested, lungs red and with black spots externally, internally full of blackish blood; r. auricle and l. ventricle filled with black blood. (*HUSELHANO'S Journ.*, 21, pt. 5, 25.)

21. A boy, æt. 3, ate some bitter almonds, and complained of pains in belly, could not stand, vomiting. On raising him up, eyes were closed, he was unconscious, cold and limp. When the doctor saw him he was lying on the sofa, face quite pale; lips, nose and ears white and cold; body cold and limp, abdomen soft, but cold to touch; pulse scarcely to be felt, heart acts with diminished force, breathing scarcely perceptible, mouth firmly closed, could not be opened; made no response to his mother's calls; on being shaken he again vomited; after an emetic recovered in a few d. (*ROSSI, Med. Zeit. v. Ker. f. Heilk. in Preussen*, viii, 159; in *Frank's Mag.*, i, 13.)

22. A man, æt. 70, subject to hernial colic, took for an attack an emulsion of 6 oz. of bitter almonds. Of these he consumed $\frac{1}{2}$ lb. in 36 h., and had greenish-yellow complexion, face wet with sweat, deeply-set eyes, difficult breathing, oppression of chest, small pulse, dry, dirty tongue, blue and bluish-red colour of skin, especially of scrotum, where the colour was greenish yellow, gangrene of penis, limbs drawn up towards abdomen, head drawn down between shoulders, scanty and painful micturition, rare stools, dazed head, heaviness of limbs, especially of r. thigh. A solution of carbonate of potash in water removed these symptoms in 22 h. (*WOLFF, Horn's Archiv. f. med. Erfahr.*, xi, 36; in *Frank's Mag.*, ii, 22.)

23. Three children, two of them girls, of 3 and 4 years, and the third a boy of 6, ate each about 4 to 6 bitter almonds in a cake. After 3 m. first the youngest became sick, vomited her breakfast and became unconscious, unable to speak or move; this lasted about 1 h. Then the elder girl, without warning, fell backwards in such violent convulsions that her parents thought she had a fit of epilepsy from which she had suffered in former years. On raising her up she vomited violently and recovered her senses, but remained rather stupefied for nearly 3 h. The boy who had ate fewest of the almonds had only a little transient nausea. (*PIERRE, Med. Nat. Zeit.*, i, 73; in *Frank's Mag.*, iv, 236.)

24. An aged hypochondriac took one m. about 3iss Aq. lauroe. After 3 h. he had paralysis of hands and feet, head hung forwards and he could not raise it; involuntary stools and urine, extremities motionless and cold but not insensible, pulse small, voice hoarse, consciousness unaffected. In e. he quietly died of paralysis of lungs. P.M. — Blood dark and greasy. (*HAYN, Hufeland's Journal*, xciv, pt. 2, 90; in *Frank's Mag.*, ii, 372.)

25. A physician took a teaspoonful of a mixture of K. cyan. ʒij, Aq. cham. ʒij, Sacch. alb. ʒij; he swallowed about $\frac{1}{2}$ of it, and spat out the remainder. He felt in his œsophagus a peculiar astringent sensation like that caused by alum; this was followed by pressure in sinuiput with vertigo and loss of equilibrium, dimness of vision so that he could only imperfectly see the outlines of objects, great inclination to vomit, rushing sound in ears, almost complete loss of consciousness; he could not take a deep breath, his senses left him as in syncope. After swallowing a little milk he had retching and copious vomiting with relief. He could hardly stand up after 1 h., his head was dazed and heavy, the vertigo continued, the astringent feeling in throat and nausea persisted till midnight. After uneasy sleep, next m. great corporeal exhaustion remained. (*WEIDNER, Casper's Wochenst.*, 1845, No. 40, p. 657.)

Acidum platanum.*—P. 65, l. 21, for "S." read "J.;" and p. 66, l. 20 from bottom, for "G." read "E."

P. 67, l. 9 from bottom, for "23 h." read " $\frac{1}{2}$ h.," and after "(1 h.)" add "with sensation as of a hand pressing on r. parietal eminence." In same, l. 7 from bottom, for "in m." read "p.m.," and for "all d." read "for some time in m." In last l. for "10th" read "12th."

* These corrections are due to a communication from Dr. Geo. Taber to the *Hom. Physician* for Aug., 1885.

Aconitum.—P. 207, l. 1 from bottom, for "quiet" read "unquiet."

Esculus Hippocastantum.—After l. 13, insert the following:

24. a. Dr. NEIDHARD took 3 gr. Immediately after, slight nausea with pressure in the stomach; for 1 h. tickling cough from larynx with expectoration of white phlegm; is not so soon sleepy in e., as is habitual to him; unusual pain in e., on micturition; all n. dreams and frequent awaking; constant discharge of flatulence; a very copious evacuation from bowels at n. and also one in m.; pain in sacral region; wakes up unusually early in m.

b. Same took 10 dr. of tinct. at 2 a.m. For ½ h. dull pain in r. side of forehead, extending gradually also to other side; almost simultaneously sensation of warmth and sick stomach, lasting ½ h.; for ¼ h. sensation of inward strength extending to sacrum. About 12 commenced oppression in region of heart with palpitation. Next d. appearance of red bloodies with itching on l. knee and different parts of body. The third d. a kind of rheumatic pain in l. knee, just as he had once many years before. The pains pass off in afternoon. Took 30 dr. at 3 a.m.; very fine tickling in larynx; hawking of tough viscid phlegm. The whole n. erections, without voluptuous dreams or seminal emissions. (*Communicated.*)

Allium Cepa.—P. 216, l. 13, for "Prolius" read "A map, et. 30." Prolius was the observing physician.

Ammonia.—Dr. BUCK took 10 gr. of Amm. carb. 4 or 5 times a d. for 3 d. After first 2 doses burning in pharynx and sense of warmth at epigastrium. After 3rd, weight at stomach and slight nausea. After 4th, above symptoms increased, with slight epigastric tenderness. On 5th d., after 1st dose, nausea; after 2nd, considerable secretion of mucus in mouth and nose. After 3rd, repetition of food, flatulence, and depression. After 4th, flatus, colicky pains in stomach and small intestines, marked depression. On 3rd d., after 1st dose, frontal headache, slight giddiness, pain and tenderness at epigastrium, marked flatulence, and nausea. After 3rd dose, headache, depression, flatulence, anorexia, griping, tendency to diarrhoea (which passed off), nausea. After 4th dose, distinct wheezing in chest, pain in stomach as from indigestion, great depression, constant flatus, and repeated eructation. With great difficulty he kept himself from rejecting last dose; there was acute burning in pharynx and oesophagus, throat was sore and irritable, tenderness and pain in stomach, depression, flatus, &c. About 5 or 6 next m. he was disturbed with colicky pains, resulting in diarrhoea, which continued during d., and depression and great lassitude were marked. Tongue had become flabby and white with creamy coating. (*M. H. R., May, 1832.*)

Apte.—P. 230, l. 2 from bottom, for "Ser." read "Sr."

After l. 17, insert the following:

15. c. Miss H— is actively engaged in bee-culture, and has frequently been stung; but until now the accident has never been followed by constitutional symptoms. In the early part of this summer (1832) she was stung one d. through gloves on end of one of r. fingers. In less than 2 min. she felt intense bodily heat, instantly accompanied by violent itching all over, "as if stung by a thousand mosquitoes." Itching was most intense in l. palm, where and elsewhere flesh was raised in hard lumps. Simultaneously came feeling of fierce and uncontrollable restlessness; she could not keep still an instant. She appeared excited, but did not feel so, restlessness being wholly physical. Violent and continuous sneezing set in, with profuse watery discharge from nose and eyes; eyes were bloodshot, face of dark red or purplish hue, and head and face felt and looked swollen. Miss H— next experienced stiffness of lower jaw (soon amounting to sense of absolute fixation), which extended to tongue and throat, rendering speech difficult and unintelligible, and causing in throat extremely uncomfortable constriction, with single, spasmodic, hacking cough at short intervals. There was some difficulty in breathing, especially on inspiration. Her medical attendant found throat, especially uvula and arches of palate, enormously oedematous, most so on l. side, deflecting uvula to r. Restlessness and excitement gave place in short time to profound depression, approaching syncope; but

swon recurred, and then the two states alternated frequently and briefly, till after 6 h. they subsided. Next d. patient was well as usual.

5. A month later she was stung, about 7 p.m., on upper and inner part of l. thigh. Sting was drawn out, and for 10—15 min. no symptoms appeared; but then came stiffness in throat with difficult articulation; then terrible restlessness, more intense than ever. Dyspnoea was extreme and alarming; she felt as if she must tear away all clothing from neck, and walked the floor in greatest distress for breath, face purple, head thrown back, eyes bloodshot and protruding; each inspiration was accompanied by a crowing sound, which could be heard across street. Sneezing was less marked, but there was some watery secretion from nose and eyes; great obstruction of nose, with inability to breathe through it. Jaw felt stiff and fixed as before; throat was even more oedematous, and distress extended below larynx to upper part of lungs, which soon became very sore and sensitive. The most marked feature of the present attack was the violent cough, which came on about $\frac{1}{2}$ h. after sting; it seemed excited by constricted feeling in throat, but reached down to sore place in lungs, causing great distress; it was deep, hard, and ringing, and continued without intermission for $\frac{1}{2}$ h. Her physician also mentions twitching of muscles of extremities, which was controlled by warm foot- and hand-baths. He states that pulse (as before) was very small and frequent. This attack had no period of profound depression, but only quiet waking weak feeling after violent symptoms were past, with desire to be let alone. Ledum was administered with benefit, and at midnight she was comfortable enough to go to sleep, and slept quietly during remainder of n. Next m. uvula seemed to fill up throat and rest upon tongue, but this gradually improved. Some stiffness of jaw and throat still remained; traces of cough continued through summer; and soreness in upper chest had not gone by end of September. [CAROLINA HASTINGS, M.D., *N. Engl. M. Gaz.*, Nov., 1887.]

Apocynum cannabinum.—After l. 2, add “(*Ibid.*, p. 313);” and after l. 9, “(*Ibid.*, p. 314).”

Araña solipennis.—P. 332, l. 16, after “bed” insert “At 3 next m. took a dr. more.”

Arnica.—After II. 17, insert the following:

13. An excitable but otherwise healthy man, in the prime of life, took for headache pulse, rad. arnic. gr. vj. After 1 m. terrible palpitation, which became so violent that he could hardly utter a word; look fixed and anxious, general coldness of body, and very severe vertigo, increased together with the anxiety and stupefied feeling by vomiting; the jaw hung down. Vinegar removed all the symptoms in $\frac{1}{2}$ h. [HÄHNELMAN, *Hufeland's Journ.*, v, pt. 1, 8; *Leipz. Krä.*, 376.]

Arsenicum.—P. 444, after II. 52, insert the following:

52 bis. At a meeting of the Pathological Society in December, 1887, Mr. Jonathan Hutchinson made a communication on arsenical cancer, of which the following abstract appeared in the *British Medical Journal* on the following Saturday:

Arsenic Cancer.—“Mr. Jonathan Hutchinson, F.R.S., desired to make the proposition that the internal administration of arsenic in large doses over long periods might produce a form of cancer which was of the epithelial variety, but presented certain peculiarities. He showed a drawing of the foot of a gentleman who had taken arsenic for psoriasis for many years; a corn on the sole of the foot ulcerated, and at first had the appearance of perforating ulcer. Perfect immobility was not followed by any improvement. The palm of the hands also became affected, small corns developing. The growth in the foot was cured, and the patient recovered. The patient was now under the care of Professor Chiene; the microscopical examination was inconclusive. He also showed drawings of the hands of an American physician who had taken arsenic for long periods in considerable doses. A rough condition of the palms and soles developed, though the psoriasis was cured. These early growths in these cases he observed, parenthetically, were corns, not warts, and the growths were never papillary. This patient then got on the front of the wrist of the left hand a growth in the subcutaneous tissue, the other hand also became affected; the growths perforated the skin and fungated; they had the appearance of

a syphilitic lesion, but the patient had never had that disease. The growths were scraped away and also excised; microscopical examination was again at first inconclusive, but the opinion finally leaned to the view that the disease was cancer. The patient then came to Europe, and in deference to the opinion of several surgeons, antisyphilitic remedies were fairly tried, but gave no result. Both hands were amputated; the patient died eighteen months later. Nodules of epithelial cancer were found in the axillary glands on the left side, in both lungs, in the supra-renal capsules, in a rib, and in other parts. He also showed drawings from another case of a lesion of the palms, exactly resembling the corns seen in the other cases. This patient had a cancerous growth in his neck, and took arsenic in large doses for months together; the skin became muddy and thick, and patches like psoriasis developed upon the elbows and other parts, but in the palms and soles the corny masses formed but were not followed by cancer. About five years ago Dr. Clifford Allbutt had given him the particulars of a case of a young lady who had taken arsenic for pemphigus for many years with occasional intermissions. An ulcer had developed on the crest of the ilium, the glands enlarged, a tumour formed in the thigh, and the patient died at the age of 25, owing to the enlargement of these growths. Mr. Hutchinson also mentioned a case which had been under the care of Mr. Warren Tay and himself. The patient was a clerk, aged 34, who had taken arsenic for a long time for psoriasis. The palms of his hands and soles of his feet were speckled over with corns when he applied at the Skin Hospital; finally, epithelial cancer of the scrotum appeared, and was excised; the patient was then lost sight of. He thought the facts he had brought forward warranted him in advancing the theory that the cancer in these cases was due to arsenic, with the hope that attention might thus be more generally directed to the point."

P. 454, l. 10 from bottom, for "irritation" read "irritation."

Arum triphyllum.—P. 478, l. 25 from bottom, for "1st" read "1st."

Baptisia.—P. 512, l. 25 from bottom, for "dry on rubbing" read "dry, and on rubbing it."

P. 513, l. 8 from bottom, for "bars" read "bars."

Barium.—The following case is a fuller account of it, p. 7. A woman, æt. 43, took by mistake in the m. ð ca. Bar. mur. for stomach derangement. Soon she got nausea, retching, spasmodic distortion of facial muscles, twitchings of hands and feet, followed by vomiting of a slimy watery fluid. Her anxiety and spasmodic retching increasing she went for a neighbour, who found her sitting doubled up on the bed. She could not lie down, appeared to be terribly anxious, and said in a weak, hoarse voice, "I feel I have killed myself! I shall die!" The convulsions increased, the ineffectual retching continued, and she died in strong convulsions 2 h. after taking the drug. P.M. next d. at 11 a.m. Large and small omentum very red, their vessels full of blood, stomach contracted, *ansa brevis* full of blood; peritoneal covering of stomach dark reddish brown and highly inflamed; $\frac{3}{4}$ inches from the cardia and 9 lines from the lesser curvature posteriorly an oval hole penetrating the coats of stomach, its edges much swollen and the m.m. of stomach for a inches round it much thickened and covered with bloody mucus. All the m.m. of the stomach inflamed and covered with coagulated blood and mucus, the muscular coat not softened; the cardia, pylorus, and duodenum, together with jejunum and ileum, much inflamed, their membranes dark reddish brown and congested with blood; all the colon down to rectum morbidly contracted, so as to appear to have only half the calibre of the small intestine. The colon was inflamed throughout and contained several ounces of a thick, slimy, brownish-red fluid mixed with coagulated blood; the m.m. thickened and covered with bloody mucus. Many echinoid spots, 1 inch long, $\frac{3}{4}$ inches broad, all throughout the colon. Fauces, and œsophagus slightly inflamed. The liver was adherent to diaphragm, and when cut into exuded thick blackish blood; gall-bladder contained a gall-stone, the bile pale yellow, very watery; spleen full of similar blood. Lungs marbled dark blue, exuding much dark blood when cut into; some serum in pericardium, heart soft, coronary arteries, vena cava, and arteries of heart filled with thick black blood. Vessels of dura mater and sinuses distended with

blood, also the cerebral vessels and plexuses. (Most of the above appearances were evidently old-standing disease.)

Balladonna.—After II. 11, insert the following:

10. A boy, *et. 6*, found a plant of Bell. and ate some of the berries. In *e.* he sprang out of bed and was delirious, he spoke incessantly, was gay, and frequently laughed; he was quite unconscious, and did not know his parents. He did not sleep all *n.*, ran about the room, threw away a piece of bread offered to him, imagining it was a stone. Pulse very slow, full, pupils enormously dilated, insensible to light, abdomen distended. Six leeches were applied. In *e.* he was quite sensible, pupils still dilated. On waking, *m.*, complained of pain in head and legs. (GOLDACHMUT, *Casper's Wochensch.*, No. 62, 687, 1834.)

11. A girl, *et. 5*, ate 2 berries. Soon afterwards bowels moved several times. Increased torpor of whole body, burning skin, hurried movements of hands, and very red face. These symptoms soon subsided. (GЕРАХИ, *Casper's Wochensch.*, No. 42, p. 1116, 1833.)

12. A widow, Clara D—, *et. 50*, a man, M—, *et. 75*, and his wife ate each 24 berries, and a man, G—, ate a large number of berries. After 2 h. all had pains in umbilical region, extreme thirst, dryness of mouth and œsophagus, with constrictive feeling in throat. Soon afterwards constant laughing, maniacal hilarity, they leaped up, danced, and made curious gesticulations and various movements of the body with great rapidity. These attacks ended in loss of consciousness and they fell to the ground. After 6 to 7 h. their condition was the following:—The eyes half closed, threatening expression, the conjunctiva injected with bluish-red blood, the iris almost invisible; cheeks purple, lips dry, skin burning with partial sweat, respiration deep, sometimes yawning, pulse contracted, very quick, intermitting; swallowing difficult, so that liquids in small quantities could only be partially ingested, the rest was ejected with increase of convulsions; the facial muscles were extraordinarily mobile, the convulsions varied in degree, sometimes stopped altogether, then recommenced, the extremities performed the movements of the ordinary avocations, the old woman went through the movements of spinning, her husband seemed to be chopping wood. After tartar emetic they vomited some of the berries. Next *m.* Mrs. M— was conscious, she urinated frequently and had several stools, convulsions and dysphagia had completely ceased, the skin was uniformly moist, pulse freer but still intermitting, pupils still dilated; she had occasionally delirium with hallucination. That *n.* slept well and woke next *m.* quite well. Clara D— was in same state except that the tongue was studded with numerous aphthæ, followed by detachment of epithelium. For several *d.* she had anxiety, palpitation, and frequent flushing of face. Both women suffered long from anorexia, weariness of all limbs, great weakness of lower extremities, and they had no recollection of their symptoms. G— next *d.* had a cessation of the symptoms, but he lay in deep coma; the pulse was full, regular, skin moist, great congestion of head, and obstinate constipation. He was bled and purged. In *e.* epigastric region distended and very tender. Next *m.* he sat up in bed, was awake for several h. and spoke. During *d.* he had alternations of unconsciousness for a short time and delirium for a long time; pupils less dilated, eyes not injected but watering, the tongue furred, and it and neighbouring parts so dry he could hardly articulate; body soft; after a clyster several normal stools, no more convulsions. In *e.* pulse contracted, quick, skin hot, face red, great restlessness, could with difficulty be kept in bed, passed several times pale urine, at length raveling respiration, meteorism, and death after 72 h. M— died sooner. The first *n.* he had blue patches in face, rattling respiration, meteorism, and death from paralysis of lungs after 37 h. P.M. (next *d.*)—Incessantly distended with gas, inflammatory redness of stomach slight, greater in small intestines and mesentery. Bladder contained ½ pint urine, its peritoneal covering inflamed. Heart's cavities filled with black coagulated blood, heart's substance very friable, lower lung lobes and a large portion of diaphragm inflamed, bluish red. (*Ibid.*)

13. A corporal, *et. 19*, of melancholy temperament and delicate constitution, ate in *m.* 3 berries. Same *e.* came into hospital in a stupified state but with consciousness entire. He sat up in bed, displayed great anxiety and restlessness, and turned head to and fro; eyes wide open, projecting, rolling, squinting, almost insensible to external impressions, pupils normal, expression disturbed, wild, face red, swollen, convulsive

movements of muscles of L. half of face, especially l. angle of mouth, violent spasms in throat, unconsciousness, trembling of limbs. Head not very hot, heat of body not much increased, pulse small, slow, intermitting, breathing rather quick, tongue furred, gastric region painful to touch; skin, especially on chest, spotted scarlet red; complained of pain in forehead, throat, and epigastrium. Asked where he had pain, he pointed to forehead, throat, and epigastrium. He rejected with loathing a glass of sugared water; when urged to drink some only a few drops were swallowed, the rest was ejected from the mouth by convulsive contraction of the muscles of deglutition. He was bled, an emetic was given, and caused vomiting and purging. The symptoms mentioned declined, the eyes recovered their sensitiveness for external impressions, and he could speak. He soon had dryness, scraping, and painful constriction and burning in mouth, throat, and stomach, and intense thirst, which he could not allay on account of the difficulty of swallowing. His head was heavy, darkness before eyes, he was anxious and restless, had burning in urethra and urinary tenesmus without being able to urinate. (FINCK, *Med. Annal. v. Puchts, Gletsch und Nigels*, vii, pt. 3, 445; in *Frank's Mag.*, iii, 106.)

16. Theresa and Josepha H., æt. 8 and 5, æt. Aug. 31st, in the wood an unknown number of berries of B. After 4 h. they became stupefied, restless, lost consciousness, and struck about violently. At 5 p.m. the doctor found them extremely restless, unconscious, striking out so violently with hands and feet that it required considerable force to restrain them; pupils so dilated that the iris appeared like a narrow line, vision completely extinct, eyes staring, projecting, quite insensible to light; complete loss of speech and hearing; subsultus of tendons of inner side of forearms, pulse quick. Tart. em. in solution was administered. As soon as the spoon was put to their mouths they closed their jaws and rejected the medicine; they refused to admit the liquid with force, but at length swallowed it without difficulty. They got a teaspoonful of castor-oil every h. and eructa. Berries were discharged upwards and downwards in considerable numbers. At 10 p.m., the muscular movements stopped, and at midnight they fell sound asleep, during which the pupils were still dilated and insensible, skin dry, pulse slightly quick. After 24 h. the speech returned, the pupils acted slowly and slightly to light; the hearing was perfect, the sight imperfect, they did not perceive small objects, or saw them imperfectly as if through a mist.—Sept. 2nd. Josepha was cheerful and talkative, she remembered having eaten the berries, but not her return home. Theresa was quite conscious and could recognise all objects. The appetite of both returned; they had frequent stools with remains of berries in them.—5th. With exception of dilated pupils they were quite well. (MILLON, *Pflanzfahret. f. d. prakt. Heilk.*, Prag, 1845, iv, 90.)

17. A boy, æt. 16, ate a handful of dried berries. He was brought in afternoon to hospital. He was in the highest state of mania, very restless, he jumped up on table, bed, and stove. Skin red, slight fever, pupils dilated. He got tart. em. and Glauber's salt. When he drank he was observed to do so with difficulty. Next d. he suddenly jumped out of the window without hurting himself. Thereafter he was purged. After 3 d. he had recovered but was still dull. He said he had vomited frequently after eating the berries, but knew nothing of what subsequently occurred. (KAZEMAN, *Bair. Med. Correspond.*, v, 333; in *Frank's Mag.*, iv, 53.)

Bismuthum.—After II. 24, insert the following:

13. In a case of cardialgia with vomiting, 3 powders, each containing 1½ gr. B. and 4 gr. Magnes. carb., were given, 1 every 3 h. The cardialgia disappeared but there came on Night salivation with considerable swelling of inside of cheeks, of l. gum and l. side of tongue. In the course of the d. the mouth affection increased to very severe inflammation with a good deal of whitish excretion and fissures in the parts named, and besides these was developed an inflammatory (?) headache with active fever. Bleeding from the arm and 12 leeches removed these symptoms in a few d. (LÖWENSTERN, *Med. Zeit. Rurlands*, iii, 38; in *Frank's Mag.*, iv, 52.)

Bromium.—P. 607, l. 23, for "Heimrdinger" read "Heimendinger."

Cardinalium.—P. 661, after II. 2, insert the following:

3. A slender lad, about 14, was brought to hospital and March, 1866. On

admission, he was in perfect collapse, with cold, clammy skin; radial pulse scarcely perceptible; respiration feeble, slow, and sighing; no stertor; considerable chemosis of both eyes, to such an extent as to prevent closure of lids, and completely hiding pupil; lips everted; mucous membrane of mouth pale and sodden; tongue swollen, greatly resembling the distended belly of a frog. He lay apparently unconscious, though when shaken and roused by dashing cold water on face he replied rationally, in a hoarse voice, to any questions put to him; there was extreme restlessness and throwing about of limbs; deglutition impeded, with considerable difficulty could he be got to swallow a little milk and water (this was due, in all probability, to a constriction of pharynx similar to that seen in *struthium*). He died in about 1½ h. from taking fatal dose, which, supposed to be Epsom salts, was found to be chloride of calcium. Examination of contents of stomach did not reveal evidence of poison, or any indication of cause of death. (NORMAN CHEVRE, *Méd. Jurisp. of India*, p. 297.)

Calceos caustion.—At end of I. 1 insert "*Hygie*, v. 270," and at end of I. 2 and 4, "*Ibid.*"

Camphora.—After I. 25, insert the following:

26. 4. BACONII took 22 gr. in a small quantity of *zist. bedr. terrestr.* After a few m. the pulse rose from 70 to 79 and upwards, salivation, heat of temporal arteries, distension of jugular veins, tinnitus aurium, increased muscular power. After 2 h. these symptoms gradually subsided.

b. 26 gr. in brand. After 5 m., salivation, pulse rose to 75 and in ¼ h. to 82, general oppression. Took 5j followed by ʒss salpêtre. After ¼ h. the intellect was disturbed and the gait became tottering. After 1½ h. weakness, during which he felt happy.

c. 5j caused pyalism and quick pulse followed by congestion of head. (DELOMBE, *Rec. périod. de la Soc. d. Méd.*, *bris*, pt. 2, 238; in *Franz's Mag.*, iii, 463.)

After II. 25, insert the following:

27. A girl, *æt.* 5, swallowed about 8 or 10 gr. After 20 m. she grew pale, became cold, her look staring, then she became faint, speechless, and senseless. Soon, the head was drawn towards r. shoulder and remained so; the rest of the body was relaxed, senses extinct. Sometimes the arms moved involuntarily; the eyes were turned upwards; foam before mouth, respiration hardly perceptible. Coffee caused vomiting. Opium ʒ gr. by mouth and consciousness restored her. (HAMBURGER, *Hofland's Journ.*, 7, pt. 2, 6; *Lesser Wundt.*, 375.)

28. A man, *æt.* 69, took for chronic rheumatism 2 drms. at 5 a.m. After 3 h. excitement like intoxication in 2nd stage; afterwards burning in mouth, œsophagus, and stomach, throbbing in cerebellum, painful drawing along medulla spinalis, noise in ears, glittering before eyes, precordial anxiety, subultra tendinum in r. thigh and leg, with loss of consciousness. After 1½ h. profuse sweat. (SIGISM. LANG, *Med. Zeit. v. Ver. f. Heilk. in Preussen*, vii, No. 2, p. 123; in *Franz's Mag.*, 4, 30.)

29. A man, *æt.* 73, addicted to spirituous liquors, and affected with cancer of lip, drank 4 oz. of sp. of C., containing 160 gr. C. at 6 p.m. At 7 p.m. he was found in a glowing heat, pulse full and quick, face very red and bloated; eyes sparkling, head confused and burning; great anxiety, very restless, tossed about in bed and tried to get up, but soon lay back again; he complained of violent burning in stomach, great precordial anxiety, very severe headache, vertigo and vision of sparks, sight often dim and many illusions of vision. The heat was insupportable. The diseased lip, which was previously painless, was now very painful, and felt very sense. Consciousness not disturbed. After taking an emulsion of almonds and some vinegar the burning in stomach went off, he had profuse sweat, and slept for 3 h. Urinary secretion suppressed. He soon recovered. (WINDY, *Russ's Mag.*, xxv, pt. 1, 38.)

30. A strong, healthy woman took for a sprain a strong dose of C. in brandy, which caused great congestion of head, incoherent talking; later she lay in a comatose state, frequently starting and limbs trembling; tongue bright red, buccal cavity quite dry and hot; pulse febrile, hard, tense; skin hot, dry like parchment. She

was bled, leeches applied, mustard poultices to feet and cold compresses to head, emetics and clysters. A state like typhoid fever then came on, she had obstinate constipation for 6 d., followed by excessive diarrhoea. On the 22nd d. critical sweat broke out, smelling of camphor. (*PLUZZAL, Oest. med. Wochenschr., 1863, No. 19, 308; in Frank's Mag., 1, 704.*)

Cannabis indica.—P. 737, l. 22, for "beet" read "foot." L. 4 from bottom, after "this" add "condition of heart."

P. 736, l. 32. For this sentence substitute "Remembered events that had happened, ideas that had passed through his mind when a child, as about toys." L. 44, after "short" insert a comma. L. 46, for "1 p.m." read "1 a.m."

P. 717, l. 20, for "talked nonsense and" read "knew he was talking nonsense, but."

VOL. II.

Carboneum sulphuratum.—(Additional poisonings.)

9. J. N.—, et. 24, was admitted to the Manchester Royal Infirmary on May 5th, 1886, under the care of Dr. Ross.

a. Previous History.—The patient is an unmarried man, and never suffered from any serious disease up to the date of his present illness. He has always been well clothed and fed, has never indulged in any alcoholic excesses, and has for a considerable time before admission been a total abstainer. He has never been infected with syphilis. The patient is of Irish extraction, but has lived in Salford for the last eleven years. During the greater part of the time he has been in this country he was employed in a calico-printing works; but being out of work about eight months ago, he obtained a temporary engagement in an india-rubber factory. In his new situation he was employed in the "curing room," where he inhaled the fumes given off from certain chemicals used in the process of manufacturing, and said to consist chiefly of bisulphide of carbon. After working for a few weeks in this place the patient suffered from a burning sensation in the hands and face, and these were also hot to the touch and of a red colour. He found, however, that when he put his hands in cold water they immediately turned of a livid colour, and became cold and numb as if they were dead, or, as the patient at another time expressed it, "they looked just as if they had been frost-bitten." In consequence of the effect cold water had upon his hands, and to a less extent upon his face, he was obliged to wash himself in warm water. On getting home at night he suffered from a fidgety and restless feeling, which prevented him from being able to sit still for more than a few moments at a time. After working for a few weeks longer the patient experienced tingling sensations and numbness in his feet and hands, his legs began to feel heavy and feeble, and he noticed a considerable degree of weakness at both wrists. He continued, however, at his work for some weeks longer, but owing to the progressively increasing weakness of his limbs he was at last obliged to desist. The patient now rested for two or three weeks, and during this time made a rapid, and, he believes, a complete recovery, and then returned to his old work in the "curing room." He was, however, not many weeks at work before he felt the old uncomfortable sensation in the hands and feet, while the weakness soon became much greater than it had previously been. He now experienced the greatest difficulty in walking, and could scarcely hold anything in his hands, which, besides being feeble, trembled a good deal, more especially when he attempted to grasp anything. The senses of sight and hearing remained unaffected, but everything seemed to smell of the vapours of the factory even when he was away from his work, and his food seemed either to be tasteless or to taste only of the gas. The patient loathed the sight of food, he lost a stone in weight, and observed that the wasting of his legs and arms was out of all proportion to that of the rest of his body. On leaving his work in the c. he often

* For these corrections we are indebted to Dr. Berridge's paper in *Hom. Phys.* for Jan., 1887. As regards the omissions he notes, we venture to think that we have given an amply sufficient series of observations for illustrating the action of the drug.

walked like a drunken person, and talked a good deal of nonsense. He had at all times a stupid feeling, and his memory failed almost completely, while at n. he was restless and his sleep was disturbed by horrid dreams. In the m. he felt thoroughly miserable and depressed, and was glad to get back to his work, as inhaling the gas brought some relief, at first at least, to his feeling of wretchedness. The patient at last got so feeble that he could scarcely walk at all, and for the last four weeks he ceased to go to his work. He, however, got a temporary engagement at a tarpaulin manufactory, but he soon found that he was unable to do the work owing to the weakness of his hands.

4. *Present condition.*—The patient is a tall and fairly well-nourished man, but the muscular masses of the extremities are considerably wasted, the emaciation being specially marked in the muscles of the leg and those of the forearms. When the forearms are held out horizontally in the prone position the patient experiences considerable difficulty in maintaining the hands extended on the forearms and the fingers at the metacarpo-phalangeal articulations, while the slightest pressure on the backs of the hands overcomes the contractions of the extensors and causes flexion at the wrist. When he grasps any object the hand becomes bent forwards on the forearm, and the greater the effort the patient makes to compress the object the more pronounced does the flexion at the wrist become, thus showing a predominance in the strength of the flexors over that of the extensors. The triceps muscle is flabby and wasted, and only acts feebly in extending the forearm against resistance. The supinator longus, the flexors of the arms, and the shoulder-muscles are comparatively unaffected. The patient can only extend the small toes very feebly at the metatarsophalangeal joints, and when he is sitting on a chair with his feet flat on the ground he is unable to raise the ball of either foot. When sitting on a table with the legs pendulous the toes drop so that the backs of the feet are almost in a line with the anterior surfaces of the legs, or only form very obtuse angles with them. On being seated on a chair the patient can with considerable effort extend the leg on the thigh and raise the heel from the ground, but the slightest pressure on the leg, the thigh being supported, causes flexion at the knee-joint. The patient can draw the knees together with considerable force by the action of the adductors of the thighs, but separation of them is only effected in a feeble manner by the abductors. Flexion of the leg on the thigh is performed with great power, but the patient experiences considerable difficulty in attaining the erect posture, having to assist himself with his arms either by holding some article of furniture, or by grasping his thighs and pushing up the trunk as is done in pseudo-hypertrophic paralysis, thus showing that the extensors of the body upon the thighs are feeble. On standing erect the patient maintains his feet about fourteen inches apart in order to widen his base, and on being got to place them side by side along their inner borders he sways slightly from side to side, and these swaying movements become greater when the eyes are closed, but he can still maintain the erect position, although with manifest effort. The gait of the patient is the one which has been compared by Charcot to that of a high-stepping horse, and by Schullz to that of a dancing master. The chief peculiarity of this gait is caused by the fact that the muscles which produce dorsal flexion of the foot are paralyzed. Let us suppose that the patient has advanced the r. foot and planted it firmly on the ground. The abductors of the r. thigh now contract and the line of gravity is transferred to that side, so that it passes through the arch of the r. foot, which is now the *active* one. The weight of the body having been removed from the l. limb, which is now the *passive* one, the heel is slightly elevated so that the toes alone rest on the ground, while there is the slightest possible flexion at the knee-joint, and a still less at the hip-joint. In ordinary locomotion a slight dorsal flexion of the foot would now be produced, the toes of the passive foot would thus be raised from the ground and the limb would swing forwards by its own weight without muscular action. The patient, however, is unable to produce dorsal flexion of the foot, and, consequently, compensatory movements have to be effected in order to clear the toes off the ground. These movements consist of an unusual degree of flexion of the thigh upon the trunk, and of the leg upon the thigh, which causes a shortening in the length of the whole limb. The heel of the passive foot becomes raised from the ground in direct proportion to the elevation of the knee-joint by the flexion of the thigh on the body, but owing to the paralysis of the anterior muscles of the foot the toes continue to drop until their further depression is arrested

by the anterior ligaments of the ankle-joint. The consequence of the continued dropping of the toes while the heel is being elevated, is that an observer, standing behind the patient, sees more of the sole of the foot at each forward step than in ordinary locomotion, and, on standing laterally, notices the drop of the toes and the unusual elevation of the knees with each advancing step. When the patient is laid in bed the feet assume the position of a double ankle drop. The small toes are hyperextended to a very slight degree at the metatarso-phalangeal joints, and flexed at the phalangeal joints, but the big toe is flexed at both the metatarso-phalangeal and the phalangeal joints. The patient can voluntarily extend, to a slight degree, the small toes at the metatarso-phalangeal joints, and can produce a little eversion of the foot, but he is quite unable to produce dorsal flexion at the ankle-joint, extension of the big toe, or inversion of the foot on either side. These observations show that a slight degree of motor power remains in the long extensors of the toes and the peroneal group, but that the extensors of the big toe and the tibialis anticus are completely paralysed. The consequence of this distribution of the paralysis is that the sole of the foot is not only directed backwards towards the plane of the bed, owing to paralysis of the muscles causing dorsal flexion of the foot, but that it also has a slight inclination outwards, or is somewhat everted, because the peroneal muscles have still retained some degree of motor power, while the tibialis anticus is completely paralysed. The paralysed nerves and muscles react to a moderate strength on the faradic current, and, indeed, it can hardly be said that the faradic contractility is even lowered. The extensors of the toes on the r. side give a minimum contraction on cathodal closure to 20 cells and on anodal closure to 15 cells, and on the l. on both cathodal and anodal closure to 20 cells Leclanché. In the extensors of the thigh and those of the forearm anodal closing contraction is equal to or greater than cathodal closing contraction. The reflex of the sole is absent, but the other cutaneous reflexes are normal. The patellar tendon reactions are absent. The patient complains of a feeling of numbness and tingling in his toes and feet and in the tips of his fingers, but the sensations of pain, touch, and temperature are found to be normal, or nearly so, to objective examination. Pinching of the skin over the external aspects of the legs appears to cause an unusual degree of pain, but there is no undue sensitiveness of the muscles on palpation. The patient complains that he has no proper taste for his food, but he readily identifies salt and sugar when placed on his tongue. He also says that his smell is blunted, but he recognises camphor when a piece is applied to his nostrils. The sense of hearing is normal.

c. May 17th.—The condition of vision was examined by Dr. Little this m., and he reports as follows: "The patient does not complain of any defect of vision. The acuteness of vision is normal in both eyes, and the fundi are apparently healthy. The perimetric chart of the field of vision for the r. eye shows a considerable restriction for all colours. A general examination of the l. eye shows that it is similarly affected." Beyond the muscular wasting no *trépidic* changes are noted. The hands, when warm, are reddish, and are moist and clammy to the touch, but when placed in cold water they immediately assume a livid colour, and become cold, looking just as if they had been frost-bitten, or in the early stage of Reynaud's symmetrical gangrene. The patient lost all sexual desire a few weeks after he began work in the "curing-room," and even at the present time he never has any erections. The loss of this function was not preceded by a stage of sexual excitement. No marked psychical symptoms have been observed, although the patient complains very much of loss of memory.

d. The treatment adopted consisted of rest, good nourishment, massage, and galvanism. A tonic mixture was prescribed, with the view of aiding digestion. During a residence of a month in the Royal Infirmary the patient improved considerably, but he was still unable to produce dorsal flexion of the feet, and the patellar-tendon reactions remained absent. He was now sent to the Convalescent Hospital at Cheshire, and 6 weeks afterwards appeared as an out-patient at the Infirmary, when scarcely a trace of the previous paralysis could be detected. The patellar-tendon reactions had reappeared, but were still sluggish, and dorsal flexions of the feet, although capable of being effected, were not produced with normal strength. The patient soon afterwards disappeared from observation. (*Med. Chronicle*, Dec., 1886.)

20. P. S.—, æt. 36, was admitted to the Manchester Royal Infirmary, under the care of Dr. Russ, on May 23th, 1886.

a. *Previous History*.—The patient is of Irish extraction, but he has lived in

Pendleton for the last twenty-four years. He is a moulder, and was always engaged at his own trade until work was scarce at the beginning of last winter, and up to that time he enjoyed good health, never being laid up for a day with any kind of illness. The patient has always been well fed and clothed, and although he is not a total abstainer, he has never indulged in alcoholic excess, and was not a heavy smoker. He has never married 3 years, and has one child, who is living and healthy. His wife never had miscarriages or still-born children, and there is nothing in his history pointing to syphilis. About 9 months ago, being out of work, he obtained employment in an india-rubber factory, and worked in the "curing-room," where he was exposed to fumes supposed to be bisulphide of carbon gas. He worked for 3 months in this place before he felt any ill effects from the gas, but at the end of this time his appetite completely failed, his food tasted of the gas, and everything about him seemed to smell of it. He soon found himself unable to read, the letters seeming to run into one another. He also became deaf in the l. ear, but he thinks the r. was not at any time much affected. His lower limbs now felt heavy, and he became so feeble in a short time that he could scarcely walk, and occasionally fell down. About the same time he experienced tingling sensations and numbness of his hands; they also began to tremble, and his grasp was so weak that he could scarcely hold anything. He also experienced similar tingling sensations in the toes, and his feet felt so numb and dead that it seemed to him as if he were treading on something soft instead of on solid ground, and walking, at all times somewhat uncertain, became specially insecure in the dark or on closing his eyes. His sexual appetite failed entirely after working for a few weeks in the "curing-room," and this loss was not preceded by a stage of undue excitement. On putting his hands in cold water they immediately became numb and white as if they were frost-bitten. It is difficult to ascertain from the patient's description whether he suffered from genuine cramp in the legs or from pains shooting along the course of the nerves, or from both of these disorders. He suffered at first from some kind of pains in the lower extremities which caused him on going to bed to wish for a frequent change of the position of his legs, and greatly disturbed his rest, while the attacks of sleep he obtained were disturbed by horrid dreams, in which he fancied himself surrounded by cats and other animals. In the m. he got up drowsy and unrefreshed, and suffering from an intense headache, chiefly limited to a spot in the forehead and between the eyes, which lasted with more or less intensity throughout most of the day. He was, indeed, so utterly miserable and mentally depressed on getting up that he wished himself dead, and at the same time had a longing to get back to his work, as he found by experience that the inhalation of the fumes would bring temporary relief to his sufferings. After breathing the gas for a short time his mental depression gave place to a joyous feeling which was but short-lived, being replaced in the afternoon by an indescribable feeling of apathy and wretchedness. The patient's memory failed very much, his recollection of recent events being specially defective. He sometimes found himself talking nonsense while at his work, and he occasionally fancied that he was surrounded by cats, but he does not think that in this respect he was affected to anything like the same degree as some of his fellow-workmen. He says that some of the workmen when under the effects of the gas become very loquacious, and at other times talk a great deal of nonsense. One man on coming to his work in the m. told his comrades that he was in Liverpool the previous n., a statement which could not possibly have been true. Another workman, apparently to escape from some imaginary danger, jumped through a window, ran across an open court, and having crept under a joiner's bench, tried to hide by covering himself with shavings. One or two of the workmen have gone quite mad, and have been sent to a lunatic asylum.

5. *Præter conditiones.*—When the patient is seated on a chair, with his feet flat on the ground, he is unable to raise his toes off the ground by dorsal flexion of the feet. He has sufficient strength to extend the leg on the thigh, and to raise the heel off the ground, but the slightest pressure on the front of the leg suffices to cause flexion at the knee-joint when the thigh is supported. When the forearms are held out horizontally, the hands being in the prone position, the patient can, with much effort, maintain the hands extended upon the forearms and the fingers extended upon the hands, but the slightest pressure on the backs of the hands causes flexion at the wrists, and on the backs of the fingers flexion at the metacarpo-phalangeal joints. When the patient is laid on his back in bed there is double ankle drop; the big toe is flexed

into the sole at both joints, but the small toes are slightly hyperextended at the metatarsal-phalangeal and flexed at the phalangeal joints. It is, indeed, unnecessary to describe in detail the distribution of the paralysis in the case of P. 5—, inasmuch as it corresponds in almost every particular to that observed in the case of J. N—, just reported, the gait of the former being also to like that of the latter as to make a separate description superfluous. When the patient stands with his feet approximated and with closed eyes, he sways from side to side and maintains the erect posture with manifest effort. The following reactions were obtained in the affected nerves and muscles to electrical examination:—The faradic irritability was diminished in the extensors of the forearm, and in those of the legs and thighs, as well as in the nerves which supply these muscles, but all the nerves and muscles reacted to a moderately strong current. The patient complained of numbness and tingling of the hands and feet, and there was a slight diminution of the sense of pain, as tested by pricking, and of touch, as tested by separate points, in the outer aspects of both legs and feet, but the temperature did not appear to be affected. The various forms of cutaneous sensibility were found to be normal in the remaining parts of the body. Moderate compression of the affected muscles did not cause pain. On being asked to touch, with closed eyes, his nose, with the tip of his index finger, he touched somewhat wide of the mark at first, but effected the movement accurately with a little practice. The reflex of the sole was absent, but the cremasteric and other cutaneous reflexes appeared to be normal. The patellar-tendon reactions were absent. The patient is able to distinguish salt, sugar, and quinine, when placed upon the tongue, and he also recognises camphor when applied to his nostrils, but he says that both of these senses are very much blunted, and that everything seems to taste or smell of the gas. He hears the ticking of a watch on the r. side when it is two feet from the ear, but not on the l. side until contact is made. There is no undue collection of wax in the external meatus, and no discoverable disease in the tympanic membrane or external ear.

c. During the patient's residence in the infirmary he improved considerably. The patellar-tendon reactions reappeared, but were still sluggish. The extensors of the forearm acquired a considerable degree of motor power, but the muscles which produce dorsal flexion of the feet still remained comparatively paralysed, and the gait of the patient presents the high-stepping action which is so characteristic of paralysis of these muscles. After a month's residence in the infirmary the patient was discharged much improved, and an effort made two months later to get him to present himself for examination, especially as to the condition of his vision, proved fruitless. The treatment was the same as in the case of J. N—. The pupils are dilated, but contract readily to light and to accommodation. The patient says that he cannot read because all the letters run into one another. His colour vision is defective; purple he calls white, and is unable to distinguish red from blue. The patient's hands look as if they were frost-bitten, when dipped in cold water, but besides the wasting of the muscles there are no trophic disorders. No decided psychical disturbances are apparent, although the patient is morose and discontented, and says that his memory is still very defective.

d. May 27th.—The patient was sent to Dr. Little to-day for examination, and the following report of the state of his vision was obtained:—"Sight failing for about six months. Vision of r. eye is equal to 12, and of l. to 16 Jaeger. Refraction shows a slight degree of hypermetropia. An ophthalmoscopic examination showed that the r. optic disc is distinctly pale but clear, while the l. is pale with a faint haze at some points in the margin. The fundus of each eye is healthy in other respects. The field of vision is much contracted in each eye for white and blue, while red and green are absent." (*Ibid.*)

Caution.—For the following note upon the chemistry of this drug we are indebted to Mr. Wyborn. In describing it as we did we followed Dr. Black (*Brit. Journ. of Chem.*, xlv, 476).

"A solution of ammonia, with some ammoniacal derivatives such as amides and amines (artificial alkaloids) and oxidised organic matters. If incautiously distilled, traces of alum, lime, or potassium sulphate may be mechanically carried over into the receiver. At the temperature produced by the slaking of lime water is decomposed, oxygen and hydrogen being being set free in the nascent state. Oxygen in this condition acting upon organic matter in the air combines with it and forms various

compounds, and, again, nascent hydrogen is by an indirect process or otherwise combined with the nitrogen of the air and thus ammonia is formed. Amides are derived from ammonium salts by abstraction of water. Amines are derived from hydrocarbons by substitution of amidogen (NH_2) for an equivalent quantity of hydrogen by various processes, and from more complex nitrogen compounds by decomposition."

Cedron.—(Additional provings.)

10. A. W. W.—, man of 20, in good health, Dec. 1st, 1866, at 7 a.m., took 5 dr. of tinct. In 20 m. felt flush or feverish glow over body, pulse 100 beats quicker, burning and smarting in mouth and fauces. At noon 6 dr., with same result. At 5 p.m., 15 dr. Pricking and tingling in throat and fauces, seeming to extend some way down œsophagus; bad taste in mouth; slight pain in temples; febrile symptoms as before. All had disappeared in 2 h. and.—At 7 a.m., 30 dr. Besides former symptoms, metallic taste and pain in bowels—these for but a few m. At noon, 50 dr. Besides former symptoms, some pain in region of kidneys, profuse secretion of urine, smarting and burning in urethra. At 6 p.m., 60 dr. Only few results was uneasy feeling in lumbar region, with feeling as if there was a drop of urine in glans penis. 10th.—Again took 60 dr. at 7 a.m. Profuse secretion of urine; warm feeling over surface of body; pain in kidneys; burning in mouth, fauces, œsophagus, and stomach, as if m.m. was raw; colicky pain in small intestine; continued pain in temples, passing from side to side; pain and burning in urethra when not voiding urine; feeling as if there was a drop of urine in urethra, or a constant dropping from it. (Dr. STENKETT'S PROVINGS, *West. Hem. Obs.* ii, 15.)

11. S. M. P.—, man of 24, healthy and not susceptible to medicine, Dec. 1st, at 7 a.m., took 5 dr. of tinct. At 10, sharp cutting pain in both elbows; pain under scapula and in pelvis. At noon, 15 dr. at 4.30 p.m., 30 dr., after which profuse discharge of light-coloured urine. and.—At 7 a.m., 50 dr.; at noon, 60 dr., after which sharp darting cutting pains under both ribs, continuing till 4 p.m.; also profuse secretion of urine, with numb, uneasy sensation in urethra. At 6 p.m., 100 dr., which caused in ½ h. all above-named symptoms, with pain in r. side for ½ h. 1st.—Pains in side and under scapula returned at 3 p.m., although no medicine was taken; also at 4 p.m. next d., though less severely. 5th.—At noon 60 dr. Pain under floating ribs and r. scapula, also in elbows; abundant glassy mucus in nose; copious urine. (*Ibid.*)

12. S. S.—, man of 27, in good health, but very susceptible to drugs, Dec. 1st, at 7 a.m., took 10 dr. of tinct. In few m. burning and scraping in mouth and throat, with profuse discharge of thin saliva. At ½ tingling sensation in mouth. At 9 took 20 dr. Caused same symptoms as before, with heat over entire body; pain in occiput and forehead; slight pain in kidneys. At noon, 25 dr. In 2 h. severe pain in kidneys, and soon after profuse discharge of thin, clear, transparent urine. At 3.30 p.m. severe shooting pain over l. eye; numbness in r. leg; numbness and dead feeling in r. hand and forearm, so that he could not hold pen; felt debilitated. At 4 p.m., 25 dr. Some pain and numbness again, lasting 2 h. and.—At 7 a.m., 40 dr. Caused all previously noted symptoms, with excessive pain and burning feeling in kidneys and along ureters, as if boiling water were passing through them; colic and cramp in small intestine; slight nausea; pressure on chest, as from a heavy weight; malaise; profuse secretion of clear, thin mucus in bronchi, acid tears, seeming to scald cheeks. These symptoms passed off in about 4 h. At 9 took 40 dr. Could not sleep; restless and very nervous; all above-noted symptoms again present save pain in temples, and continued till 5 a.m. next d. 3rd.—At 7 a.m., 50 dr. New symptoms were profuse discharge of thin, clear, acid mucus from nose; smarting and burning in eyes, with great discharge of tears. At 11 took 65 dr. Pulse somewhat accelerated; pain over r. eye and in temples, with numb, dead feeling in legs, as if much enlarged; sleepy and drowsy. At 6 took 75 dr. Severe sharp, gripping, cutting pain in lower abdomen; profuse secretion of saliva, with metallic taste. Last-named symptoms increased in r. and lasted through n. into next d. 6th.—Having got well again, took at noon 150 dr. No new symptoms. At 7.30 p.m., 150 dr. Only new symptom present was a sort of jerking and twitching of tendons of legs, especially of tendo Achillis and in r. foot. All old symptoms likewise pre-

sent. 7th.—Took 200 dr. Neuralgic pains, soon followed by numbness over entire body, with smarting and burning in nose, were produced by this dose, with all urinary symptoms much aggravated. These distressing pains continued with more or less severity for nearly 3 d., by end of which they were all gone, having disappeared gradually. 12th.—200 dr. All old symptoms, strongly marked, came on in about 1 h. Urine very high-coloured, and, on standing for some time, threw down a branny precipitate. 15th.—500 dr. during d. Burning in mouth, throat, and stomach; colic and cramp in small intestines; pain in kidneys, burning in urethra and along ureters, profuse secretion of urine; oppression on chest; numbness of hands, arms and legs; and all previously noted symptoms, were present during next d., and those affecting kidneys lasted for 2 d. They did not pass away as rapidly as they came on, and seemed to take a deeper hold on the structures affected than had been the case before.

b. Same proved powdered nut. Dec. 18th took 3 gr., on 19th 15 gr., on 20th 30 gr. Symptoms were not different from those produced by Ginc., but seemed longer in coming on. 21st.—Took 160 gr. Profuse secretion of tears, which instantly ran down face; also burning in urethra, and thin glycy discharge d. and n., with feeling as if ants were crawling over body. Pain in kidneys was excessive. 22nd.—Took 200 gr. Before-noticed symptoms came on again 10-day, and lasted some 16 h. For 2 d. more or less pain in kidneys, with slight derangement of biliary secretion, evinced by colour of urine and by stools. (*Ibid.*)

P. 49, l. 3, for "urine" read "wind." L. 6, before "All" read "Nearly." L. 9, for "very small" read "rather small than large." L. 19, for "burning" read "stiffness."

Chininum.—At the time of preparing our article on this drug we were unable to obtain the originals of I. 9—12, and had to take them from the French version of the *Rev. de Med. Sympliciter*. We have since been more fortunate, and comparison with the authors' *ipsumque verba* enables us to furnish the following corrections:

P. 124, l. 1, after "was" read "during every stool;" l. 11, before "sensation" add "with;" l. 3 from bottom, after "head" add "of face."

P. 125, l. 1, between "restless n." and "urine" insert "5th;" l. 3, for "burnt" read "broken up;" l. 4, for "to" read "9;" l. 12, for "a.m." read "p.m.;" l. 19, for "6 p.m." read "10 p.m.," and for "dense" read "saturated;" l. 23, for "dense" read "saturated;" l. 23 from bottom, for "feebleness" read "qualmishness;" l. 6, for "stomach" read "abdomen;" l. 5, for "malaise" read "nausea;" l. 1, for "calculi" read "gravel;" l. 1, read "a dark nucleus."

P. 126, l. 1, for "clearer scales" read "lighter-coloured coat;" l. 6, after "Satulence" insert "a p.m., call to stool, with colting in bowels;" l. 7, for "dense" read "saturated;" l. 21, delete "horizontal;" l. 16, for "round" read "through middle of."

P. 127, l. 11 and 13, for "84" read "45;" l. 14, for "pinching" read "prickling;" l. 20, for "stools" read "stool;" l. 21, read "looked like glands of shape of many pointed blackberries;" l. 25 from bottom, for "swollen" read "lustreless;" l. 14, for "sediment like a lemon" read "clay-coloured sediment."

P. 128, l. 16, for "malaise" read "nausea;" l. 2 from bottom, for "mesenteric" read "umbilical."

P. 129, l. 14 from top, before "and" insert "Sept.;" l. 19, for "lemon coloured" read "clay coloured;" l. 27, for "malaise" read "nausea;" l. 23, for "to give discomfort" read "to crack."

P. 130, l. 10, for "1250" read "1230;" l. 10 and 15, for "malaise" read "nausea."

Analysis of crystals in Piper's urine passed on Oct. 14th (p. 124): Crystals as clear as water, four-sided prisms with four-sided facets of terminal points, $\frac{1}{2}$ gr. from 20 oz. urine. They consisted of phosphatic salts of magnesia and ammonia, no lime; whether the form of crystal which differed from that of pure phosphate of ammon. and magn. showed the presence of soda could not be determined.

Noack: analysis of crystals in urine of Aug. 18th (p. 125); also Leonhardi,

Aug. 12nd (p. 117): Sand like, round or oval, and kidney shaped; under microscope gland shaped, with light-coloured exterior and dark nucleus. One of the largest showed under microscope several rings of lighter colour. They contained urate of ammonia and purgative of ammonia mixed with phosphates.

Naark: analysis of crystals in urine of Aug. 20th (p. 116); also Leonhardi, Aug. 24th (p. 12*) - Crystalline conglomerations like yellow sugar candy, as on 18th, only more earthy.

Leonhardi: analysis of crystals in urine of Aug. 15th—24th (p. 127): Rhomboidal, flat, roundish, sherry coloured, clay coloured and brownish-yellow crystals, double pyramids, glandular, and many pointed, single pillars, uric acid and phosphates.

Leonhardi, Aug. 28th (p. 127): Clay-coloured sediment containing brilliant water-clear crystals, of pillars and dice with many facets, of urate of ammonia, phosphates, and Ca . sulph. (†).

Chininum arsenicosum.—After L. 1, insert the following:

r. Dr. FRITZ took 15 gr. of 5, trit. at 3 p.m., Nov. 15th, 1882. In 25 m. peculiar pain at base of l. chest, dull and with sense of pressure, as though caused by flatulency, quickly coming and going several times. At 8.30 took 10 gr. more, and repeated this dose at 1.40 and 9. At 10.45 sharp stitching pain at base of r. chest in front, very persistent and worse during inspiration. 16th.—After good n., at 9.30 a.m. took 10 gr. 10.30, some aching pain 2 in. below umbilicus and 1 in. to r., seat could be covered with end of finger, transient, but recurring; position did not affect it. Also felt sore aching pain in 1st phalanx of l. and later of r., thumb; same also near l. elbow and knee. 2.15, aching tired pain in l. biceps, for some h. 2.20, took 10 gr. 2.45, aching along front of lower two thirds of l. tibia; violent but transient aching in l. great toe and little finger, and in region of l. olecranon. 6, palms dry and hot, dull confused headache, pain in both frontal and occipital (in latter region at protuberance). Pains in extremities also continuing, suspended medicine. 17th. —Felt better, still had pain, but less severe. He continued to feel them, gradually growing less, for several d. 18th.—Feeling very well, at 2.15 p.m. took 30 gr. in water. At 3.15 pain as before at back of r. thigh and in calf; also persistent acute aching in 1st joint of l. ring finger. 4, sore aching in l. forearm, and in l. sole at root of little toe; dull aching in l. chest 2 in. below and 1 in. to l. of nipple, unaffected by breathing. These aching fleeting pains continued for a d., attended with feeling of tiredness, then gradually ceased. (*Hahn. Monthly*, May, 1882.)

Additional provings made with hydrochlorate (*Ch. muraticum*)*

25. B.—, æt. 26, strong and healthy, on July 12th commenced to take \mathcal{Q} . h. 0.005 grm. every m.—11th. No symptoms observed.—12th to 14th. Diarrhoeic stools 3 times a d. (probably caused by too new beer). Diarrhoea ceased on 14th.—16th. Towards noon slight pain in l. temple till e.—19th. After a restless n.—waking out of confused dreams—feels poorly; is exhausted, apathetic, listless. In m. has slight shooting pains in l. frontal and temporal regions, lasting till noon, but the weakness and prostration last all d.—20th. From this time he took daily 0.01 grm. \mathcal{Q} . h.—22nd. Sleep restless, disturbed by dreams. In m. headache recurs, especially severe over l. supra-orbital border. Still bodily weakness, disinclination for mental work. No stool to-day. Urine not very copious, but frequent urging to pass it; it is turbid and deposits a sediment.—23rd. Sleep again disturbed and not sound, but feels better. Headache is still present but slight. Stool normal.—27th. No stool. In m. slight eructation, feeling of fulness in epigastrium, colicky pains in

* In the following provings the pulse and temperature were carefully noted; but as no appreciable changes were noted in them we have omitted the record.—Eds.

abdomen, flatulence all d.—28th. The disorder of digestive apparatus continues till a copious loose stool is passed at noon.—30th. Towards m., after restless sleep frequent waking with precordial anxiety; he has the headache in l. temporal and supra-orbital regions. 1 h. after taking the dose palpitation of heart and excitement; this lasts $\frac{1}{2}$ h., during which time he walks restlessly up and down in room. After this the previous prostration, weakness, and apathy come on and last all d.—31st. Sleep still disturbed by confused dreams. Headache returns but is slighter. Feels pretty well.—Aug. 1st. No stool, feeling of fulness in epigastrium, empty eructations, flatulence all d. The headache in l. frontal and temporal regions recurs punctually in m., and for $\frac{1}{2}$ h. there is along with it slight shooting pain behind l. ear. This goes off, but headache persists. 4 p.m., heart's beats increased in quickness for $\frac{1}{2}$ h., with some anxiety and excitement. P. 96.—2nd. In m., headache and pain behind ear recur and last almost all d. Stool at noon, but without allaying the disagreeable full feeling in epigastrium and flatulence. Appetite poor.—3rd, 4th. The headache recurred both m., and lasted till noon.—5th. Feels well, hardly a trace of headache.—6th. Headache recurs more severely m., lasting till noon. No stool. M., eructations, flatulence, rumbling in belly, colicky pains. Bad appetite. Last dose of Q. taken this m.; in all 0.22 grm. Q. was taken. During next week he had slight l. semilateral headache every m., lasting till noon, when it went off. On 7th a copious stool, after which digestion went on properly. (SCHULZ, *Virchow's Archiv*, 1887, cix, 25.)

26. C., æt. 26, subject to catarrhal affections.—July 11th commenced taking daily 0.005 grm. Q.—19th. Noticed nothing except a slight increase of appetite. He now took daily 0.01 grm. Q. h.—22nd. Restless n., many dreams. M., slight pains in region of r. supra-orbital border, going off in course of forenoon, but recurring in afternoon for a short time.—23rd. Slept better, but the pain in r. supra-orbital region came on in m., lasted a short time, and recurred frequently during d.—28th. During last 4 d. the supra-orbital neuralgia did not recur; to-day he felt poorly, sleep restless, frequent waking with anxiety from confused dreams. As a consequence felt in m. very weak and prostrated, frequent violent drawing pains in temporal and supra-orbital regions, increasing in intensity during d. and not going off entirely. Disinclination for mental work all d. Appetite not good. No stool.—29th. Slept better but still weak, apathetic. The pains in l. (?) half of head recur, but not so frequently as on previous d. No stool, pressive sensation in epigastrium, frequent empty eructations. Took at noon a spoonful of castor-oil, which caused a stool in afternoon, after which the stomach affection went off. During d. appetite not very good. E., voracious hunger for sour things, which, however, he resisted, and it went off after 1 h.—30th. About 1 h. after rising there occurs for about $\frac{1}{2}$ h. singing and buzzing in ears; after its cessation shooting pains in r. meatus lasting all d., as did also the supra-orbital pains, which came on in m.—31st. Feels better than the previous days. Headache almost completely gone, but still has the slight shooting pain in meatus.—Aug. 1. No stool,

rumbling in bowels, slight colicky pains over whole abdomen, flatulence, appetite increased to voraciousness, frequent urging to urinate. Mere traces of the head pains.—2nd. Restless sleep, frequently disturbed, head pains more intense, eructations, pressure in stomach which does not go off after stool at noon, flatulence all d. Urine very scanty, although there is frequent urging to urinate. Slight and transient precordial anxiety and palpitation p.m. Appetite middling.—3rd. Though he has slept well is weak and prostrated. Appetite very bad, inclination to vomit. Urine as yesterday. No head pains.—4th. Feels better though still no appetite. No stool.—5th. The last dose was taken on 4th; in all 0.205 grm. (*Ibid.*)

27. J—, æt. 22½, in good health. From his ninth to twentieth year had a tendency to epistaxis, but not since.—Nov. 26th. Began n. and m. 0.005 grm. Q. h. daily.—28th. No stool.—30th. In m. much flatulence, pappy stools, one m. after rising, the second after dinner. Feeling of fulness in stomach as though whole epigastrium were filled. After a walk p.m., about 8 p.m. extreme drowsiness combined with feeling of weight in head.—Dec. 1st. Yesterday's symptoms continue. Flatulence but no stool m. Slight heaviness in scaput, going off p.m. E. a pappy stool.—2nd. Stool only after dinner, not affecting feeling of fulness in stomach. 2 p.m., weight in eyes, lids can only be raised by an effort. 4 p.m., conjunctivæ slightly injected, expression of eye dull.—3rd. With yesterday's symptoms (the stool after dinner is liquid) there comes on p.m. some palpitation, congestion of blood to head, face red and bloated, conjunctivæ injected, flickering before eyes. Slight epistaxis at 7 p.m., after which congestive symptoms were relieved.—5th. No stool on 4th, but one pappy stool after dinner on 5th. On both d. palpitation at 2 p.m., lasting 1 to 1½ h. Conjunctivæ injected and lids adherent in m. since 3rd, feeling as if eyeball were too big for orbit, feeling of sand in conjunctivæ. Both d. slight epistaxis.—6th. To yesterday's symptoms are added a marked increase of urine with constant urging to urinate. The palpitation lasted ¼ h. only.—8th. Stool in m. Urging to urinate continues. Slight mucous discharge from urethra with strong erections. Better after a walk, but could not get rid of symptoms by mental work. After dinner, palpitation, heaviness in eyes, and feeling as if eyeball rubbed against orbital walls.—9th. Stool after rising, normal. Eyelids heavy, conjunctivæ injected. Urinary secretion increased, urging to urinate tiresome, inclination to erections, and mucous secretion from urethra. After dinner transient palpitation.—10th. From to-day the dose was doubled. Urging to urinate continues. Normal stool, m., after much flatulence.—11th. M., on going upstairs epistaxis. Eyelids heavy, eyeballs feel too large for orbits. 11 a.m., pain comes on over orbits, gradually increasing, it has often a jerky character, goes off from r. side after a longish walk, but remains on l. side till 6 p.m. At same time complete disinclination to work, numbness and fatigue in head. Severe palpitation after dinner.—12th. Heaviness in head and eyes as yesterday, relieved by a walk. No med. taken to-day. Tendency to erections recurs.—13th. Flatulence, constipation. The feeling in eyes continues. Last n. many uneasy dreams. Quantity of urine increased,

but urging and erections diminished. Orbital pains continue. In afternoon a liquid stool. Irritable and depressed, general malaise, better after a walk. Expression of face like that of a person given to excess in alcohol.—14th—16th. The symptoms of the 13th continue with equal intensity. The orbital pain is especially severe and jerking on stooping. Stupid feeling, disinclination for work, all somewhat relieved by a walk. On 15th after rising a peculiar numb feeling in both ears, as though he heard sounds through a curtain; this lasted $\frac{1}{2}$ h. The climax of the action of the drug occurred on 16th. Awoke in m. with same symptoms of head and eyes, which increased by noon to an intolerable height. Inclination to vomit relieved after dinner. Humour irritable, face oedematous. In afternoon violent jerking pains in head only slightly relieved by a walk. Feeling as if about to vomit, 9 p.m., humour a little better, extreme weariness, must go to bed. No more Q. taken after this. Had taken in all 6.26 grm.—17th. For the first days he felt no change in symptoms, the orbital pain especially was persistent. He set out on his travels on 21st, felt much better, but on 22nd all the disagreeable symptoms of previous week returned, with the exception of the urging to urinate. For many days after getting home the orbital pain recurred regularly about 3 p.m. and lasted till 5 p.m. (*Ibid.*, 31.)

28. K—, æt. 24, strong, a great smoker.—Nov. 26th. Began taking daily 0.005 grm. Q. h. m. and e.—Nov. 27th—28th. These 2 d. he could not smoke. Half a cigar caused him to feel extremely ill, cold perspiration broke out, and there was inclination to vomit. On 28th toothache of a rheumatic character in sound teeth, the pains increased when cold air or cold liquids came in contact with teeth; increased urging to urinate, especially after going upstairs.—29th. Toothache continues, not coming on at any particular time, but coming and going. Urging to urinate continues.—Dec. 3rd. Toothache and urging to urinate continue. For the last few d. there is general relaxation and disinclination for work. There came on a peculiar nervous restlessness which drove him out of the house; he was unable to remain in his room he felt so impatient. He was no better in the open air, his restlessness was intolerable. Along with this a peculiar confusion of head, not pain. On the 3rd the restlessness became aggravated to perfect anxiety, which caused him to start at every step heard on the stairs, and at every knock at the door. These states became relieved in e. Though he took his dinner as usual, about 6 p.m. voracious hunger set in, which was completely satisfied with a little bit of bread, so much so that he could eat no supper.—4th. N. disturbed by anxious dreams. The symptoms of the previous d. recurred with increased intensity.—5th. Same symptoms.—6th. Took no med. this m. Somewhat better. Voracious hunger e. Urging to urinate, and toothache as before.—7th. Better, but not quite well. Urinary and teeth symptoms continue. No med. taken this e. These symptoms continued with varying intensity during the whole proving, which lasted till 15th. The urging to urinate lasted 8, the toothache 10 d. after leaving off. He took in all 6.18 grm. The pulse and temperature were not sensibly affected. (*Ibid.*, 36.)

29. H—, æt. 25, Nov. 27th, began to take daily 0·01 grm. Q. h.—29th. In afternoon, confused head, which increased gradually to actual frontal headache. Constipation.—30th. The headache reappeared at the same h. with flashing before eyes. Very little urine passed, no stool till e.—Dec. 1st. Headache as before, pressure with vertigo. No stool.—2nd. Afternoon headache with noise in ears. Appetite increased sometimes to voracity, but was allayed by very little food. Constipation. Headache relieved by drinking beer.—3rd. N. restless, many confused dreams. The confusion of head increased during d. to complete stupidity with general prostration. In m., slight nausea with heartburn. At noon, after a very hard stool, transient cutting in bowels.—4th. Slept very ill; while lying awake at n. heard his name called loudly and repeatedly. During d. the pulse intermitted occasionally.—5th. A bad n. The weakness and stupidity increased during d. The digestion seemed retarded, so that he had in e. eructations of the food eaten at noon.—6th. When reading, great flickering before eyes.—7th. He observed that he was much more easily affected by alcohol than previously; 2 to 3 glasses of beer made him quite tipsy. Very irritable the last few d.—10th. As no alteration in symptoms occurred, he took for 8 d. double the dose of Q. h. The stools remained irregular; every other day bowels were opened 2 or 3 times. The urinary secretion and desire to vomit now became increased. Disposition irritable; the former depression gave place to excitement. The intolerance of alcohol increased every d. The headache went off, but noise in ears frequently occurred. The nights were always bad, the dreams became of an anxious character; he often woke in a state of anxiety and fright, having dreamed he was being chloroformed to death. After leaving off the Q. the symptoms gradually declined. Pulse and temp. not sensibly affected during proving. He took altogether 0·58 grm. (*Ibid.*, 51.)

30. E—, æt. 23, strong and healthy except that he is subject to palpitation. He began, Nov. 26th, to take daily, m. and e., 0·01 grm. Q. h.—27th. In e. felt extreme exhaustion.—28th. About 9 p.m. excessive exhaustion and prostration, head confused.—29th. Slept well, but on rising feels the weariness and heaviness of limbs. This went off during d., but suddenly recurred in e. as on previous d. Head confused and violent vertigo. This increased on looking at bright objects and became so intense he had to go to bed at 9 p.m.—Dec. 1st. Though yesterday he was quite well and slept well last n., he felt very unrefreshed on waking. He felt extremely prostrated, had no inclination for work, was apathetic. After the m. dose these symptoms increased. He had also a tiresome nausea. Rather better after a walk. After his walk he felt weak, as after recovery from a long illness. Better in e.—2nd. No symptoms.—3rd. Well during d. till e., great malaise, ill-humour, headache. No symptoms until Dec. 10th, when he began taking double the quantity of Q. h. Well during d. till e., when symptoms of gastritis came on. Tongue thickly furred, appetite bad, all food is disrelished.—11th. Gastric symptoms relieved.—12th. Gastric symptoms gone, felt very well, but appearance did not correspond. Face bloated, eyelids swollen as if after alcoholic excess. During fore-

noon frequent attacks of vertigo, vision indistinct, gait unsteady. Depressed spirits, melancholy. In e., quite well again.—13th. Forenoon, well. Afternoon, headache till e. Very excited disposition till he went to bed. At 9 p.m. he was so tired he had to go to bed.—14th. Unrefreshed by his good night's sleep. Violent headache and feeling of great physical exhaustion. Could not get up on account of violent attack of vertigo; disagreeable chilliness all over body, eyeballs heavy, tongue furred and pale, too large for mouth. No appetite, *great factor ex ore*. No desire to evacuate either bladder or bowels as usually occurs in m. About 8 a.m., profuse perspiration of disagreeable sour smell broke out and lasted till 12 a.m. On rising now, no vertigo but headache continued. Anorexia and general prostration. The sensation of thirst much diminished, a mouthful of water produces the same feeling of satiety as formerly a full glass. Pulse small and difficult to feel. Though there was still no desire to urinate, he forced himself to do so, and nearly a litre of urine of dark colour and intense sour smell was passed. Took the second dose at noon. The weak feeling and headache lasted all d. Occasional noise in ears. No appetite till 4 p.m. No stool to-day. He took no more Q. after this, total quantity taken 0.48 gm. The symptoms soon went off. (*Ibid.*, 55.)

31. G—, æt. 21½, experimented in the same way as the others. The only remarkable symptoms he observed were that he was easily intoxicated by a couple of glasses of beer, whereas formerly he could drink five without being materially affected. One n. he dreamt of worms, lice, and other vermin. He had occasional urging to urinate, sometimes to the extent of 9 times a d., but the quantity of urine was not increased. He frequently had roaring in ears and itching of skin of back. (*Ibid.*, 59.)

32. D—, æt. 23, strong and healthy.—July 11th. Commenced taking 0.005 m. and e.—12th. No effect.—13th. At 3 p.m. sudden quickening of heart's beats with excited feeling. Quieted in e.—15th. Appetite increased, urine scanty, brown, and with sediment.—17th. Same state of urine. In m. slight headache soon going off. Urine copious and clear. 6 p.m., much itching in chest, back, and arms, lasting 1 h.—19th. On rising, m., pretty severe pain in l. supra-orbital region, which went off during a walk. No stool. E., itching on chest and back.—20th. Bowels open by pills. The supra-orbital pain comes on 1 h. after rising, and goes off in course of m. From this time the dose of Q. was doubled. 3 p.m., palpitation and præcordial anxiety for ½ h.—22nd. No stool. The supra-orbital pain comes on in m. and lasts all d. Afternoon, slight noise in ears with dulness of hearing, going off in ½ h.—23rd. Restless sleep, malaise all d.—24th. The pain in head very severe from m. Prostration, no inclination for work, some excitement. No stool.—25th. Bowels opened by pills. Urine clear and copious. No headache. Excitement continues. Afternoon, in spite of dinner, voracious appetite for salt things for ½ h.—26th. Very restless sleep. Wakes with a start, præcordial anxiety and great prostration. Recurrence of pain on l. of forehead, particularly in supra-orbital region,

lasting till noon. No stool, urine copious and clear.—27th. Normal stool, urine clear, r. eyelid red and swollen.—28th. Swelling of eyelid increased. Irritation and itching all d. in both meat. ext. Urine clear and abundant.—29th. Sleep disturbed by toothache, especially on l. side in upper and lower teeth. M., general prostration, lasting all d., increasing in e. Urine turbid and scanty.—30th. From 10 to 1 a.m. sleep sound and calm, and then wakes with anxiety and intense pain in l. orbit and ear. Pain in teeth recurs, and is aggravated by closing jaws. Great thirst, noise in ears, vertigo on rising. For 1 h. sleeplessness, then drowsiness, strange confused dreams until 7 a.m.; then great fear; then good sleep from 7 to 9 a.m. On waking great prostration, tending to vertigo. Agitation, nausea, great desire to vomit without result. 10 a.m. easy stool. Headache gone, but pain in teeth continues, hindering mastication. Very acute pain under l. ear. Urine scanty, turbid, contains urates. After a siesta of 2 h. pains all go off.—31st. Sleep disturbed by pain in head and tooth. Body prostrated, head empty. Headache goes off, toothache slighter. The pain under l. ear continues. Eyes fatigued by reading. A small furuncle on r. upper eyelid is lanced, and a quantity of pus is discharged. No med. to-day.—Aug. 1st. Symptoms all relieved; pain confined to meatus externus. After another dose vomiting. No stool.—2nd. Pain in meatus increased, lasts all d. No stool. After the evening dose vomiting.—3rd. No sleep on account of violent pain in teeth and l. frontal region. Feels very ill. Face bloated, high coloured. Gets better during d. Bowels moved by pills. After dinner disagreeable sensations in ears as if stopped with cotton wool. E., eructations and violent pain in temples with strong pressure in skin, which makes it impossible for him to work. All this removed by a walk.—4th. The sufferings which were in abeyance during n. recur in m. Eyes feel as if not open enough, or as if something pinched the upper eyelids down, and prevented distinct vision. This recurred several times during d. The last dose of Q₂ was taken this m.; total amount taken 0.37 grm. No effect was observed on pulse, temp., or digestion during proving.—5th. Symptoms nearly gone. During the next week, when no Q₂ was taken, from Aug. 5th to 12th, the neuralgia of 5th pair still continued, generally in m., in supra-orbital region; the pain in teeth came on at n., but these pains were not intense, and did not prevent sleep. Pain in meatus and eyes went off after few d. But several d. later there came on great sensitiveness of gums, which bled at the slightest touch. This lasted 2 weeks. The neuralgic pain in fifth pair went off entirely in the latter half of August, but at the end of this month they returned during the n. of the same intensity, duration, and type as when taking the Q₂. They spread over the supra-orbital region, l. temple, and both upper and lower teeth of l. side. They commenced in teeth, spread over head, and ended in nape. Soon the dental neuralgia increased in intensity, and was only allayed by acupuncture and cold water. The sleep was bad, frequently broken, but in m. the pain was gone. After this the neuralgia came on every n. about 3 a.m. From 3 to 6 a.m. the pain was agonising. There was no pain during d. This state of things lasted 1½ weeks. Arsenic in

large doses was given for a length of time without effect. Ferr. oxid. in small doses was more successful, and after taking it for a week the neuralgia disappeared. (*Ibid.*)

Clonta.—After II. 3, insert the following:

4. Four children, *æt.* 11, 7, 6, and 5, ate some of the root. The youngest white eating it began to stagger, fell down unconscious, and had a violent epileptic attack. The 6 years old child had also a milder epileptic fit. The other 3 vomited most of the root, had no convulsive attacks, but complained of stupefaction and weakness. In all the temperature of the skin was lowered, the pulse small and slow. The 3 black children got emetics and vomited freely, these only remained listless, dryness, and thirst. At 8, they had profuse sweat and next m. were well. The youngest did not vomit, the convulsions continued and increased in severity, face dark red, lips blue, bloody foam at mouth. After 4 h. of this state, the child was bled and the emetic acted, consciousness returned, the convulsions ceased, then came on lethargy, which lasted all next d., and then recovery took place. (BENNEWITZ, *Med. Zeit. v. Ver.-f. Heilk.* in *Prussien*, 7. No. 17, 51; in *Frank's Mag.*, 1, 19.)

5. Four children, *æt.* 3, 5, and 6, ate in forenoon some of the root. The 3 years old child had pain in abdomen, vomiting, and convulsions, and died at 5 p.m. The other 3 children got emetics, which brought away some of the root. They were very cold, face pale and distorted, very dilated and insensible pupils, violent pains in abdomen, and general convulsions. In 2 there was complete loss of consciousness. The third complained of noise in ears and vertigo, and then fell into a state of stupor. In one child the respiration was very weak and scarcely audible, in the others it was irregular, snoring, and sometimes interrupted by hiccup. Heart's beats irregular, sometimes intermitted for a considerable time, then several violent beats ensued. (MAYER, *Ibid.*, 25, No. 40, 128; in *Frank's Mag.*, 1, 19.)

6. Seven boys, *æt.* from 24 to 16, ate some of the root. After $\frac{1}{2}$ h. the first child complained of vertigo and staggered like a drunken person, then fell quite unconscious, and had a fit like epilepsy. When brought to the hospital was in a state of tetanus and trismus, very cold, breathing irregular, and he died. The second boy fell down, when walking, in a stupefied state, got up, and continued to get home. He was sufficiently conscious to call for his mother, and then fell down, clonic convulsions and trismus ensued, and he died. The third and fourth boys had tetanus and trismus; they got an emetic and recovered. The 3 others had eaten less of the root and were only slightly affected. P.M. of the boy who died first. Abdomen moderately distended, green spots on its r. side and on the neck, posterior surface of legs red. Cornea dull and sunk. On sawing through skull, diploe much injected with black fluid blood. All the vessels of pia mater and the arteria meninges media full of blood, as also all the sinuses. Cerebral substance showed numerous bloody points. In r. lateral ventricle half a teaspoonful of serum, none in l. Plexus choroidei distended and redder than normal. At base of skull a teaspoonful of dark red fluid; about $\frac{1}{2}$ oz. of similar fluid flowed out of spinal cavity. Dura mater of spine red, and contained serous fluid; its pia mater moderately distended. Grey substance darker than usual. Lungs dark blue, with red spots; lungs much distended, containing much dark red blood. Larynx, trachea, and bronchi red. Bronchi contained much red mucus. In each pleural cavity $\frac{1}{2}$ oz. of serum. Pericardium anteriorly adherent to heart. Cavities of heart and large arteries empty. Mucous membrane of posterior wall of stomach red for about three inches. Spleen somewhat softened and containing much blood. R. kidney coagulated. (VELTEN, *Casper's Wch.*, 1840, No. 19, 108.)

7. The wife of a labouring man found, March 19th, a root of C. which she took for celery, and the same e. she boiled it up with potato soup, of which the whole family partook at supper. (The family consisted of a man, *æt.* 51, his wife *æt.* 36, 3 sons, *æt.* 14 and 10, and 3 daughters, *æt.* 7 and 3.) After $\frac{1}{2}$ h. all complained of pain in belly, nausea and vertigo. The man went into open air, but returned at 3 p.m. with the most horrible pains in belly and sickness, and found his wife and children in similar suffering. He could not help them, but fell down beside them unconscious. The doctor came at 10.45 p.m. and found the man lying with cold and stiff arms and legs, breathing slow and laboured, pulse could not be felt, mouth firmly closed with foam upon it, insensibility of the whole body. He died in $\frac{1}{2}$ h. The

woman related in broken words what she had done. An emetic was given to all the survivors which caused them to vomit. The mother and oldest boy got a purge ofenna, Glauber's salt ad tart. em., for these intolerable pains in bowels which caused copious purging, after which they got coffee and lemon-juice.—21st, 7 a.m. they complained of vertigo and great prostration. At 10 a.m. the oldest boy had twitchings of facial muscles and convulsions, with violent pains in bowels, abdomen distended and very painful to touch. Leeches were applied and antispasmodics given by mouth and enemata, and by the 16th he was quite well. P.M. of the man showed the abdomen much sunken, stomach contained much of the soup, its m.m. was normal, the duodenum was contracted to the thickness of a bass fiddle-string, the bladder contracted and empty. (ALLMAN, *Neue Zeitsch. f. Nat. und Heilk.*, i, pt. i, 195.)

Climisifuga.—The following provings have been made with *Macrotin*, the resinoid prepared from C.

1. *Provings.*—1. E. P. SEIP, M.D.—“The following provings were made with the 3rd trit., 1 or 2 gr. being taken 3 times a d. with a gradual increase in the quantity until 25 gr. a day were taken.” [This is all the information given; and the symptoms are presented in schema form without even an indication of their respective subjects. On inquiry Dr. Seip tells us that the day-books are lost; that the provers were four ladies and himself, the majority of the symptoms having been experienced by the latter.—EDS.]

a. *Mind.*—He is constantly troubling himself about something. More or less fear; apprehensive; thinks she has some incurable disease. She feels miserable; words cannot express how badly she feels. Mind is dull, heavy; cannot collect her thoughts long enough to write a few lines. Fear of impending danger. She sits for a long time without thought, moving her hands and feet; frequent sighing. Melancholy; at times very irritable; relieved when menstruation sets in. Great forgetfulness, with inability to concentrate her ideas, which makes her very angry. Suspicious of everybody; thinks she has not told the truth in regard to herself.

β. *Head and Face.*—Pain in occiput in m. Severe sharp pain over l. eye, extending through head to occipital protuberance. Throbbing headache p.m., increasing towards e., worse during motion, must be perfectly quiet. Headache, preceded by lachrymation. Dull headache, commencing in occiput, gradually extending to vertex and forehead, temporarily relieved by pressure and by sleep; next d. soreness in eye-balls, aggravated by pressure. Headache in e., relieved on setting in of nausea and eructations. Face suddenly becomes flushed and hot.

γ. *Mouth and Throat.*—Dry, sticky feeling in mouth. Tongue slightly coated, yellowish; sense of taste impaired. Tongue is pale and feels heavy. Dryness in throat, causing frequent hawking and coughing.

δ. *Stomach and Abdomen.*—Nausea and eructations in e. Faint feeling in epigastrium, extending over whole chest and head, followed immediately by throbbing sensation over whole body. Faintness at epigastrium on meeting anyone he knows, like that produced by a sudden fright. Sharp cutting pain in umbilical region early in m., relieved after large papaceous stool. Alternate constipation and diarrhoea.

ε. *Genito-urinary System.*—Frequent urination, copious or not. Suppression of menses for 4 weeks. Pulsating pain in back, relieved by pressure and after menstruation. During menstruation bearing-down pain, with sensation of tightness around hips. Menses scanty and dark; clotted; afterwards increased in quantity. Dysmenorrhoea; pain not relieved for several h. since flow has commenced. Dark circles round eyes the week before menstruation, which disappear when menses have set in. Mammeæ feel sore, and extremities heavy, before menstruation.

ζ. *Chest and Back.*—Sudden sharp pains a little below l. nipple. Darning pains in chest, both sides, with palpitation. Pain in l. chest, extending through to back. Pain as if in heart, extending down l. arm to fingers, with palpitation. Frequent palpitation at n. in bed, or from least excitement or exertion. Sensation in neck as if muscles were too short. Pulsating pain in lumbar region, relieved by supporting back. Pain in whole back, as if all its muscles were bruised.

η. *Extremities.*—Dull pain in r. arm from elbow to shoulder. Pain in l. shoulder shooting down to fingers. Weakness in both arms, and inability to move them. Heaviness of legs as if very tired. Pain in l. knee, inside patella, and in r. ankle. Muscles feel as if too short. Pain in muscles of thigh.

4. Sleep.—Sleeplessness till 2 a.m. Disturbed sleep; dreams much of trouble and danger. When falling asleep, starts up suddenly for fear he will fall, or to avoid danger. Dreams of being on heights and in danger of falling. Wakes up at n. with palpitation.

5. Generalities.—Great restlessness; must move about, and mind feels easier for doing so. Desire to move constantly about, but feels so weak and tired as hardly to be able to get on his feet, yet after walking awhile he feels better, but soon relapses into his previous feeling of weakness. Whole muscular system seems exhausted after least exertion. The acute pains are aggravated by motion. (*Trans. of Amer. Surg. Assn. Med. Sec.*, 1873.)

2. G. Hale, in his *New Remedies*, speaks of its curative powers in rheumatism, and the affection being characterised by muscular pains, no desire to do anything, extreme restlessness, and frontal headache. These peculiar symptoms prompted Dr. Wallace, of Allegheny, to take the remedy, in hopes of curing himself, being then troubled with rheumatism, and in doing so he made the accidental proving I am about to relate. His symptoms were violent frontal headache, tongue coated brownish-yellow, pain in the eyeballs, taste sweetish, nausea, no appetite, pains principally muscular, affecting the extremities, pain in small of back, tenderness in region of liver, indisposition to do anything, nervous and restless; pulse 86. All pains and nervous symptoms made worse at n., ameliorated during d. Knowing that these symptoms bear a striking resemblance to Macrotoin, as described in Hale's *New Remedies*, on Dec. 22nd, at 11 a.m., he took 1 gr. in about a h. had a tickling in throat, then nausea, followed by coughing up a blood-streaked mucus, after which the contents of the stomach were vomited up. In a short time after this the frontal headache became worse, also the rest of the rheumatic pains, in a marked degree; the muscles of the thigh were so sore, that it was with great difficulty he could move them; the tenderness in region of liver intense. The cough, nausea, and vomiting ceased after a h., but the rheumatic pains continued all the time; the nervous symptoms added, at n., new misery to the disease, and only at n. When in bed, the covers seemed too warm for the body, but the feet were cold, so he would get out and warm his feet at the fire, moving about continually with a feeling as if delirium would soon set in, or he be deprived of his mind. These symptoms continued until m., when they were ameliorated.

3. 23rd.—Thinking the remedy indicated, and not attributing any of his sufferings to Macrotoin, he tried another dose of 1 gr. with same effect; nausea, cough, and vomiting, followed by aggravation of rheumatic pains more severe, and at n. by greater restlessness. 24th.—Took 1 gr.; same effect; in addition, ankles began to swell, cough much worse, more blood expectorated, voice becoming husky. 25th.—Took same dose, persevering in the remedy because the symptoms were more prominent than ever. The tongue had cleaned; the dose had the same effect, with additional suffering; he was now so bad from rheumatic pains as to be confined to the house, and the nervous excitement at n. prevented all sleep. 26th.—Having suffered so much, and suspecting that Macrotoin was affecting him, 1 gr. was put in a glass of water, and of this a teaspoonful was taken every a h. The same aggravations took place as previously; his sufferings were now so severe that he gave up the remedy. No improvement was visible except the tongue, and that was clean; the pulse was now 120; the rheumatic pains and nervous symptoms so terrible as to make his friends believe he would lose his mind. 27th.—Took belladonna, 6th, in m., and thus, 6th, in afternoon. 28th.—No better; the same symptoms remain. Having procured some Macrotoin, 12th, took a dose every a h. with good effect. 29th.—Improvement; continued Macrotoin. 30th.—Improvement; one dose every d. 31st.—Improving, and continued until well, taking daily two doses. After being well, and thinking that perhaps Macrotoin did not make the aggravations, he tried three doses in 3 successive d., with a renewal of all his former symptoms. (*R. B. WILLIAMS, M.D., U. S. Med. and Surg. Journ.*, ii, 243.)

Coatum.—P. 174, after III. 2, add "*(Journ. of Amer. Med. Assoc., Jan. 17, 1915.)*"

After II. 6, insert the following:

7. A man applied a 4 per cent. solution to gums for toothache. He did not spit it out, and thinks he must have swallowed 30—40 dr. Within ½ h. was seized with

fairness and giddiness; then palpitation came on, and he complained of tingling and numbness, dryness at back of throat, and sensation of heat and flushings moving over body, especially spine. Suddenly venereal rash appeared over hairy, most marked on neck. Pupils natural and responsive to light, but vision somewhat dimmed. After emesis, which was very difficult to urinate, the patient felt better for a few m., and seemed brighter; but symptoms soon recurred, and he felt so weak that he thought he was dying. He did not smell strong ammonia held to nose. Was walked about, but tottered so much that he had to be supported. Constantly felt desire to have use of bowels and bladder. Mind remained clear, pulse quick, weak, and intermittent. (*Lancet*, 1816, i, 1149.)

Cocculus.—Drs. Chirone and Tetta thus sum up the result of their researches on the action of picrotoxin, in the *Annali Universali di Medicina e Chirurgia* for April, 1880.

1. Picrotoxin is capable of producing a true artificial epilepsy.
2. This epilepsy is independent of the psycho-motor centres; it is, indeed, more intense after their removal.
3. The picrotoxin acts first on the medulla oblongata and on the commissural fibres between the brain and spinal cord, and then on the spinal centres themselves.
4. The convulsive movements of the limbs produced by picrotoxin are due first to action on the medulla oblongata, propagated to the spinal cord.
5. Conchondria is capable of producing epilepsy of cerebral origin, picrotoxin epilepsy of spinal origin. (*Brit. Med. Journ.*, Feb. 18th, 1881.)

Colchicum.—P. 329, l. 20, for "S—a" read "my." L. 28, for "chill" read "chills." L. 29, for "and" read "then," and for "then" "there." L. 36, for "yellowish, skinny" read "jelly-like." L. 39, for "lively" read "great." L. 3 from bottom, for "Scramonio" read "Colchico," and for "2761" read "2763." P. 341, l. 21, after "stool" read "and vomit." L. 22, for "This" read "Vomiting." L. 23, for "all n." read "for a d." In reference for II, 9, add "II. 761."

After II. 10, insert the following:—

11. A woman, æt. 35, on June 2nd, 7 p.m., drank 5 oz. of a tinct. made by macerating 2 roasted and pulverised roots of C. in a bottle, half of white wine and half of brandy. Immediately she had violent pains in stomach. After ½ h. she got milk about a pint, then an enema with a gr. tart. em. which caused violent vomiting. At 1 a.m. she was found cold, pale, lying on back, gastric region very sensitive, abdominal integuments seemed hotter than rest of body, lips violet, eyes closed, pulse thready and very slow, breathing very laboured. She was perfectly conscious and said she wished to die; there were severe cramps of the soles. She constantly vomited a small quantity of colourless and inodorous fluid. She had previously vomited much brown fluid, evidently the poison. Sinapisms to soles, warm aromatic friction on limbs, effervescent drinks—3rd, 6 a.m., great prostration, heat in epigastrium less, hollow eyes, vomiting ceased, pulse increased in strength and rapidity, cramps in soles diminished. 3 p.m., pulse could only be felt in carotids, consciousness intact; at 5 p.m. she died, 12 h. after taking the poison. P.M. after 72 h. Body very thin, eyes sunken, surrounded by dark rings; liver, spleen and heart full of black blood, stomach and bowels not examined. (*CAFFE, Obs. d'empoisonnement par la triature recente des bulbes de Colchique.*)

12. A man took, May 12th, 6 p.m., about 1 oz. of C. leaves. About midnight he felt ill, had colicky pains in bowels, inclination to vomit and actual vomiting, urging to stool and diarrhoea. A surgeon gave a dose of opium and afterwards a powder of Rad. Ipec. ʒss. Tart. em. gr. ij, Sacch. alb. ʒj, a small quantity every ½ h. The vomiting and purging were now so violent that nothing more could be given. Seen the following d. at 9 p.m. his state was as follows:—Features distorted, the muscles supplied by nerv. facialis spasmodically affected causing risus sardoniacus; pupils very dilated, little affected by light; tongue moist, its root bluish; he was very patient and docile, contrary to his usual habit; rheumatic drawing in nape, some

* These corrections failed to be made while printing was going on owing to the mislaying of a proof-sheet.

pressure in throat; burning feeling in plexus solaris; abdominal muscles spasmodically contracted; vomiting and watery diarrhoea, but not so frequent; occasional tenesmus; temperature of skin much diminished; pulse slow, hard, tense, rather thrady; urine suppressed; cramp in fingers and calves.—13th, 3 a.m., delirium and carphologia. 7 a.m., staring, waken, dull eyes; risus sardonicus; tongue quite blue; breath cold; difficult speech, extremities striped bluish black, pulse imperceptible, skin of extremities warm, of abdomen cold; suddenly spasmodic movements in muscles of nape and mouth, death. (BIARROSS, *Méd. Correspondanteb. d. Wurtemb. Aerat. Ver.*, ix, No. 51, 409; in *Frank's Mag.*, ii, 69.)

13. A girl, æt. 20, suffering from tumor albus genu sinistri took, June 4th, 10 a.m., from 4 to 5 oz. tinct. After a short time she had violent pains in epigastrium, repeated vomiting, stool only after enemata, feeling of tightness of chest, extreme dyspnoea, progressive coldness, very painful cramps in feet, especially l., with very violent pain in diseased knee, pulse grew gradually smaller, contracted, intelligence undisturbed till death, which occurred 22 h. after the poison had been swallowed, P.M. 4½ h. after death. Putrefaction had set in. Abdominal integuments and skin of nose green, rigor mortis very strong, sugillations over body and limbs. Vessels of pia mater and cerebral substance greatly injected, especially in posterior 2/3 of hemispheres, not in anterior fourth, which was softer than the rest of brain, of a green colour and putrid smell. Lungs normal, in both ventricles of heart black coagula with pale red diverticula among columnæ carneæ. Stomach much distended with gas and containing a few spoonfuls of greyish inodorous fluid, m.m. grey, softened and easily detached. Duodenum contained a little of the same liquid, its mucous glands the size of mustard seeds, in lower third of ileum violet-coloured plaques formed by agglomeration of mucous glands. Liver large, pale, olive coloured, soft. (OLLIVIER, *Arch. gén. d. Méd.*, xli, pt. 4, 633; in *Frank's Mag.*, iii, 138.)

14. A boy, æt. 4, May 24th, e., swallowed a quantity of seeds. In n. had violent pain in bowels and frequent vomiting.—22th, 1 p.m., he lay in a state of sopor on his back with half-shut eyes and audible rapid breathing, features sunken. Hippocraic, dull look, pupils slightly dilated, eyes staring, tongue bright red, its root covered with mucus. On touching abdomen he woke out of his sopor, but it immediately returned. Abdomen distended, tense and hard. The stools 12 h. after poisoning contained seeds of C. Passed a large amount of urine, and had occasionally pains in calves and feet. Vomited food and pale green mucus, pulse small, contracted, skin dry, body hot, extremities cold, great exhaustion, general prostration, unquenchable thirst. After 40 h. gastritis had become developed. Leeches and demulcent drinks, 6 p.m., vomiting continues, hiccup; sometimes transient excitement; extremities cold, face pale, forehead covered with clammy perspiration, a large quantity of urine passed, only one stool, breathing quick, sobbing, pulse small, great faintness. 11 p.m., forehead covered with clammy sweat, occasional faintness, waxy complexion, short sobbing respiration, retching, vomiting; violent burning thirst, heart's beats hardly perceptible, icy cold extremities, died between 12 and 1. P.M. on 31st. Face pale, both eyes open, pupils dilated, cornea dim, jaws firmly closed, neck bluish red, hands clenched, abdomen much distended, sugillations all over back. Redness of peritoneum and external surface of bowels; m.m. of stomach softened and in some places perforated in holes the size of a farthing to a penny; great softening of m.m. around holes, which are as if eroded; rest of m.m. red, sunken and easily detached. Small intestines as far as valvula coli, red, swollen and soft, liver hard, red in places, green bile in gall-bladder. (FRANQUE, *Nauvater Journ.*, iii, pt. 4, 313; in *Frank's Mag.*, ii, 353.)

15. A man, æt. 40, suffering from chronic rheumatism, took in e. ʒiij of wine of seeds, went to bed and fell asleep. Woke at 2 a.m. and had a copious stool and a second towards m. Soon after the first pressure and anxiety in præcordia, frequent vomiting of yellowish-green fluid; this increased during d. so that he vomited all the food he took after severe retching, or quite easily and by jerks. Thirst extreme, especially for cold drinks. After continuous vomiting for 14 h. great weakness and exhaustion; face pale and features sunken, blue rings round eyes, skin cool, pulse small, tense, urinary secretion scanty. Next d. hiccup. (BANKWITZ, *Hufeland's Journ.*, xxiv, pt. 4, 107; in *Frank's Mag.*, ii, 699.)

16. An unmarried lady, æt. 57, who had suffered for 4 months from pains in

epigastrium and abdomen, got by mistake on Sept. 16th, 7 a.m., 70 grm. tinct. with 15 grm. Glauber's salt. After 5 m., frightful pains in stomach and bowels, with extreme anxiety and great excitement. Face pale, pinched, eyes surrounded with dark rings, stomach and abdomen intolerably painful, complaints of oppression and strangulation, pulse 50, weak, vomiting of viscid stuff, several liquid, blackish, very foetid stools with violent colic. She got 5 centigr. of tart. em., which caused her to vomit and the vomiting was promoted by drinking warm water. All this between 8 and 9 a.m. Iodine water allayed the pains. 10.30 a.m., the vomiting continued and was accompanied by convulsive movements in the cold limbs, hands violet coloured. 8 p.m., prostration, vomiting, and diarrhoea, convulsive movements in limbs, subvultus tendinum, extreme restlessness, pains in abdomen, pulse 63, only a few drops of urine passed.—17th, m., symptoms continue, pulse 84, general heat, tongue dry, great thirst, urinary secretion quite suppressed, but the convulsive movements and strangulation gone. Leeches to epigastrium, cataplasms, liniments and leane. In afternoon much better, very copious micturition.—18th. Improvement goes on.—20th. No more fever, but diarrhoea continues.—Oct. 1st. Quite recovered from the poisoning. (LEBOY 022 BARREAU, *Bull. de l'Acad. Nat. de Mèd.*, xiii, 1013.)

Comœlœdia.—P. 370, title, for "Comœlœdia" read "Comœlœdia." After L. 4, add—

5. a. May 11th, 1875, took 20 dr. of tinct. at 10.30 a.m., and same at 12.30. Appetite for dinner, at 1 p.m., less than usual. At 3 p.m., while reading, had aching in lower incisors passing to r. cuspid and bicuspid teeth, lasting 5 m. Walking in open air at 3.30 p.m., had acid, rancid eructation. Took 20 dr. 4.30 p.m.; at 5.30, at rest, had *scorveta* in l. lung.

6. Took 10 dr. June 17th, 1875, at 6.30 a.m. At 70, while resting, had winc of fulness in face over superior maxilla, and sensation as of purple over r. nostrum. Itching inner side of l. thigh, then above r. eye and then on scalp. Evacuation of air lasting of drug. Itching at inner border of l. gastrocnemius, relieved by rubbing. Tingling itching on r. side of upper lip, then crawling itching in r. malar region, then itching moving downwards from r. commissure of mouth, then itching on palmar side of r. carpus, moving toward palm of hand, then itching at angle of lower jaw, r. side. At 10.35, itching of eyebrow. At 11.40, biting, corrosive itching on r. forearm, over belly of palmaris longus; itching on r. side of face near angle of jaw, on posterior aspect of r. forearm, on dorsal aspect of 1st phalanx of r. index finger. Cheerful condition of mind during forenoon. No appetite for dinner at 12.30, 18th.—Slept soundly, arose refreshed and cheerful. Took 20 dr. 30 m. before breakfast at 4.10. Soon after tense feeling in abdomen as if full of flatus. After walking in open air, while sitting, had bubbling in hypogastric region, also (later) pain there as from flatus. While walking, 8.30, sudden lameness and loss of strength in l. ankle. While resting, 10 a.m., corrosive burning on side of lower lip. At 3.30 p.m., after a walk, sitting with r. leg extended on table, empty lameness just above instep, relieved by walking. Immediately after, while sitting, drawing crampy sensation in hollow of r. foot, passing up to outer ankle and along border of gastrocnemius to knee, relieved by walking, returning while sitting, feet resting on floor, passing slowly upward from outer ankle to knee, then in tibia where it became a numb aching, as if foot would cramp, relieved by continued motion. 19th.—Took 25 dr. at 6.30 a.m. At 9.15 sensation as of scabby eruption on median line, lower lip, close to vermilion border. At rest at 2.30 p.m., had lame, aching pain in r. upper arm, and, soon after, lame aching pain in r. knee and sharp pain passing through r. shoulder to scapula. At 3.10, intermittent, pressing outward pain at l. sacro-iliac articulation, sensitive to pressure, relieved by walking, with lameness and soreness. Pain along outer side of r. thigh. Separation of expansion in œsophagus, as of air ascending slowly from stomach. At 3.50, drawing pain in r. knee extending into anterior muscles of thigh; then pain under lower part of l. scapula; sense of drawing in r. anterior wall of chest; aching in lower incisors that leaves them very sensitive to pressure from upper teeth. During afternoon had itching on different parts of the body. (Further record lost.) 23rd.—Took 20 dr. at 4.10 p.m. While at rest, numb, drawing sensation in instep, extending to knee, followed by sense as of warm air, like an aura, ascending halfway to knee. The numbness and drawing concentrated at instep, where it remains a short time, and again the

area ascends slowly to the knee; the tibia and fibula ache; sense of increased temperature and fullness in leg. The numb drawing moved over the dorsum of the foot to the toes where it terminates in a prickling. Relieved by motion, returns when it ceases.

c. Jan. 22nd, 1878, 1.30 p.m., took 3 dr., and at 11 p.m. same. At 11.30 next m. had crampy aching in r. instep, relieved by motion. Intermittent pressing outward pain in r. knee, relieved by motion. At 7.30 a.m. took 3 dr. and 3 at 1 p.m. At 7.30 pulsating pain in head of r. tibia, relieved by motion. At 4.45 p.m. took 4 dr. At 5.20, while sitting, pulsating pain in head of r. tibia, sensitive to pressure. Aching in r. upper molar tooth and gum, worse by cold. At 5.50 p.m. took 4 dr., retired at 11. 11.30 p.m., while lying on r. side, aching in r. temple, followed by aching and sense of fullness in r. side of face. Soon after, aching in ankle and r. forearm, deep, pulsating pain in r. gluteal region, near tuber ischii. 12th.—11 m., took 3 dr. 12.30 p.m., dined. 1 p.m., immediately after dinner, aching in body of last r. lower molar. Heat and fulness in interior of r. ear, at same time short, cutting pain in gum of first l. lower molar. 2.30 p.m., took 3 dr. 4.15 p.m., while at rest, drawing sensation and aching, commencing suddenly in r. axilla, moving down inner side of arm to elbow. 4.30 p.m., pulsating pain in interosseous tissue at palmar aspect of l. forearm, near wrist, extending to little finger, when it becomes drawing, crampy pain; then drawing sensation extending up forearm from wrist. 4.50 p.m., pulsating, deep pain in posterior and upper part of r. thigh. 5 p.m., pulsating pain in r. gluteal region near tuberosity of ischium; sensitive to pressure. 6.30 p.m., pulsating pain near upper extremity and outer side of r. fibula. Immediately after, pulsating pain in r. thigh. Sleep was dreamy and refreshing, more like a clairvoyant state. After midnight dreamed of birds singing, which awoke me and caused me to listen with intense interest, but stillness and darkness reigned supreme.

d. Feb. 6th, 1878, 3 p.m., took 10 dr., and same at 10.15 p.m. on retiring. Soon after, lying on l. side, drawing sensation and aching in upper part of r. forearm, pulsating deep pain in r. gluteal region, just above tuber ischii, seeming to be in periosteum; sharp pain just above crest of r. ilium, after which pain in r. gluteal region returned, then sharp pain just above crest of l. ilium, drawing and aching in r. foot, drawing and aching in anterior muscles of r. forearm, pulsating, deep pain in r. gluteal region, sensitive to pressure, drawing and aching in anterior muscles of l. forearm. Drawing in outer side of l. foot extending to plantar aspect, as if foot would cramp, drawing and aching in l. leg, not relieved by motion. Same aching and sense of drawing in r. forearm near elbow; return of pain near r. tuber ischii, aching in r. leg, pulsating, deep pain in r. thigh, at inner border of sartorius. Aching on extremities and face. Sleep last n. was light and dreamy; after midnight dreamed I entered a beautiful garden, from which I passed into low woodlands, in eastern border of which was a sluggish, broad, shallow stream of water, so cross which dryshod required some exercise of mind. This m. arose refreshed, light-hearted, and cheery. Feb. 7.4 a.m., took 10 dr. 10 a.m., while standing before hear stove, return of pain near r. tuber ischii. 11 m., aching in r. leg. 1.30 p.m., took 10 dr. 1.40, pain in r. side of abdomen, moving downwards, following course of rectus muscle. Pain in r. anterior wall of chest near axilla. Pulsating pain at l. pubic bone, continuing several h., generally relieved by walking, sometimes felt while walking; pain seems to be in periosteum; sensitiveness on pressure. Aching and sense of drawing in outer hamstring of r. leg. 4.15, pain above l. eyebrow. 4.25, return of aching and drawing in hamstring. 5, pulsating, raw pain near sternal border of l. mamma, seeming to be in cartilage of 5th rib. 6, drawing sensation in r. big toe, as if toe would cramp. Drawing in muscles of upper r. arm, then in dorsum of r. foot, then in plantar region of same, shifting from place to place as rapidly as symptoms can be written. Aching in r. temple and r. orbital border. 8th, 1.30 p.m., while wearing, lancet pain suddenly attacks r. metacarpus, terminating in lame aching and drawing sensation in metacarpal region of thumb and index finger; drawing sensation in r. anterior wall of chest and r. arm, passing down arm to elbow. 2.15, pulsating pain at l. sacro-iliac articulation. 4.50, numb aching passing down outer side of r. leg to foot, aching and sense of drawing in outer hamstring. 5.5, pulsating pain in sacro-iliac articulation, leaving lameness felt when walking. 9th, 10 a.m., transient drawing pain passing through r. carpus, leaving wrist lame on motion. 2.35 p.m., sharp pain passing down r. temporal ridge and external angular process. Immediately after, sharp pain at r. supra-orbital ridge

close to supra-orbital notch; sharp, broad pain passing from lower angle of r. scapula to locality of serrations of the serratus magnus; pulsating pain at posterior aspect of coccyx. 9.45, after a walk in open air, and while in room reading, sharp pain suddenly pierces palmar aspect of l. carpus, traversing dorsum of 1st and 2nd fingers, becoming a drawing pain in its progress to metacarpo-phalangeal articulations of these fingers, then involving all the metacarpo-phalangeal articulations of the hands, drawing fingers closer together and thumb towards palm of hand. Whole hand is numb, looks and feels swollen, its temperature is increased. Continued motion relieved drawing, but not numbness, which continued 15 m. 9.52, during numbness of l. hand, sharp pain in dorsum of 1st phalanx of r. index finger, shooting to articulation of its 1st and 2nd phalans. 10th, 2.55 p.m., while writing, pain in upper and posterior part of l. thigh. 2.45, sharp, sticking pain in r. elbow. 3.33, drawing pain in dorsal aspect of metacarpal region of r. thumb.

7. Feb. 15th, at 11.45 a.m., put 2 oz. of cold water and 20 dr. of 7M dec. into a Fullgrat's inhaler and inhaled for 20 m. 2.5 p.m., eructation of sour, acrid water. 2.45, stinging itching on r. scapula. 3, hicoughed several times; immediately after gaped several times. 3.30, inhaled again for 20 m. 3.40, while inhaling aching in r. forearm, commencing in belly of flexor carpi radialis, extending through 25m. Arm is sensitive to pressure. 3.45, sense of drawing in r. forearm, extending to metacarpus. 3.47, crampy sensation increasing to aching in 1st phalanges of r. hand, continuing 20 m., relieved by motion of fingers. 4.10, pulsating pain in neck of r. femur, seeming to be in capsular ligament, ceasing while walking, returning when at rest. 4.15, stinging in small spot on dorsum of 1st phalanx of r. 2nd finger. 5, aching in r. anterior wall of chest, extending through to r. scapula. 10.30, inhaled 20 m. Aching at base of r. antrum of Highmore, then at base of l. antrum. 23, retired; soon after while lying on l. side, aching at lower third of sternum, continuing several m. Immediately after, expansive, intense distress in epigastric region, like heartburn, extending through to posterior border of l. scapula, continuing 3 h., ameliorated by lying on r. side. 16th.—At n. while in bed, pulsating pain in neck of r. femur. This pain felt several times during d. 17th, 10.10 a.m. After walk in open air, soon after entering my office intense acid eructation, producing momentary strangulation. 10.50, while walking in open air, sticking pain from without inward in region of cartilages of 6th and 7th ribs. 1 p.m., pulsating, deep pain in neck of r. femur. This pain seems in capsular ligament at inner border of ilio-femoral ligament, and continues 20 h., relieved by walking. 4 p.m., aching in r. temporal bone, commencing in temporal ridge and extending to occiput; whole base of head is very painful on moving head, also sterno-mastoideus and trapezius muscles. 4.16, chest-like pain in r. foot below outer ankle terminating in an aching. 9.30, aching in l. forearm. 18th, 2.25 p.m., drawing, crampy sensation in r. anterior of chest and axilla, extending down 25m to fingers and terminating in jerking of little finger. 3.45, drawing, crampy sensation in muscles of r. upper arm. After short interval, similar sensation in r. elbow. 19th, 2.30 p.m., inhaled 20 m. While inhaling, drawing, crampy sensation at outer border of r. mammary gland, extending to axilla and arm. 5, inhaled 20 m. 5.5 p.m., return of pain in neck of r. femur, continuing several h. Meibomian glands of upper lid of r. eye are inflamed. 10.25, inhaled 20 m. While inhaling aching in os frontis and orbital bones. While in bed, sore aching in anterior wall of chest, in muscles of r. arm, and in coccyx. Sticking pain in metatarsal joint of big toe, at plantar aspect. 20th.—During d. aching in anterior wall of chest. 2.30 p.m., inhaled 20 m. 3.15, intense aching at posterior aspect of middle of sternum. Inflammation of Meibomian glands continues. 4.30, while at rest in warm room, transient pain passing upwards over inner ankle of l. foot, followed by severe flatulent pains in hypogastrium and emission of flatulence, followed by pain in abdomen. 6, severe flatulent pain in abdomen, preceding and during a diarrhetic stool, followed by feeling of weakness and perspiration on face and neck. 7.15, after walk in open air and being seated in warm room, itching in r. side of trachea, producing dry, hacking cough. Soon after, itching in l. side of trachea, causing dry, hacking cough. Drawing sensation in upper r. arm, followed by aching in l. side at floating ribs. 9.45, crampy aching below r. scapula. Crampy aching in r. wrist. 9.50, lame aching at inner side of r. thigh, just above knee, followed by wiry or thread-like pain in r. instep. Immediately after, sore aching at r. scapula. 10.55, took 3 dr. 21st.—During forenoon, aching in both sides and upper arms; r. 20d

wore. 4.35 p.m., took 12 dr. Several times during afternoon sense of weakness, with heat and perspiration on face and neck. Dull aching in forehead, and on moving head a sense of fulness, rigidity, and lameness of muscles of neck. 10, pain in epigastrium as of flatus; at same time aching in dorsal region. Wandering pain in r. side of abdomen; aching in ramus of r. maxilla. 23rd, 9 p.m., intermittent aching in r. tibia. Inflammation of Meibomian glands has subsided. 24th, 4.30 p.m., severe aching at internal condyle of r. arm after a walk in open air and while standing in open air, continuing 5 m. At same time and while arm is resting on a support, sense of drawing at inner side of l. upper arm. 3.30 p.m., after light exercise in open air and while in room, aching in l. maxillary articulation, leaving sense of fulness; immediately after, aching in r. maxillary articulation, terminating in sharp pain. 5.23, after short walk in open air, having entered a warm room, aching in r. maxillary articulation and whole of r. side of head. 5.30, while at rest in warm room, sore aching of gum of r. upper molar teeth. 7, while riding on horseback, drawing sensation in muscles of r. upper arm. 9.20, while seated in a warm room, immediately after supper, intense crampy aching in l. knee, continuing 2 m.; not relieved by motion. 30th, 3.44 p.m., while at rest in a warm room, atmosphere loaded with moisture, south wind, drawing, crampy sensation at dorsum of r. foot, in region of external tarsiform bone, spreading outward and over the cuboid and forward over metatarsal bone of little toe, moving upward to region of anterior ligament, where drawing, crampy sensation ceases and becomes a bruised aching, extending to external malleolus. Sometimes it extends up tibia and fibula, producing feeling of fulness in these bones. When walking there is lameness. 5.57, drawing, crampy sensation in l. carpus, then in anterior muscles of r. upper arm. 31th, 3 p.m., while at rest in house, return of aching in r. ankle. (J. HYDE, M.D., *American Observer*, iii, N.S., 593.)

Cuprum.—After II. 37, insert the following:

32. A boy, 21. 38, Feb. 20, swallowed a copper coin, thereafter he had repeated vomiting 21 n. The next 3 d. he complained of constant pain in throat and down oesophagus, disinclination for food, and occasional vomiting of mucus, with which his throat was filled, and which caused rattling respiration. He could only take soup, vermicelli, and cakes. Voice weak, pulse rather quick, face pale and dejected, complained of pain in stomach, about navel, and in throat; frequent severe cough, night sweats, and when asleep flow of mucus from mouth; urine sometimes milky, stools hard and scanty. Then there came on suddenly crampy cough and dyspnoea with quick and irregular pulse. The cough afterwards changed to simple catarrhal cough. After 1st d. he had epistaxis at n., whereby he lost about 4 oz. of blood. After this the cough returned and was dry and mostly at n., when the fits of coughing gave him no rest. Respiration so affected that he can only breathe with his head bent forwards, and his speech is much broken. After ether, laudazum, snopium to naup, these symptoms were temporarily relieved, but recurred the following n. Tact. em. was given, which caused vomiting and perspiration with amelioration. In this way 1 month was passed. In the 2nd month he had anorexia, frequent vomiting of food and mucus, pain in stomach and abdomen, and night sweats. His throat and chest remained full of mucus, breathing rattling, cough and broken speech. Sometimes the vomiting ceased for several d. but always recurred. The child played about as usual and went to bed and got up at the usual time. In the 3rd month various changes were made in his diet; he retained fluids but always vomited meat. He became weak and thin, his face had an expression of dejection, sadness and pain. He could take and retain milk, and on this he now lived and grew fatter and more cheerful; but constipation came on and was only removed when he again took solids. In the beginning of June he felt very well, and on coming from school at 5 p.m., after eating an egg and some bread with chicken liver and heart, he began to cry, drank a little water, and vomited the soup along with a portion of his supper. After this his health became all that could be desired. (LAFONT-GOUST, *Nouv. Journ. de Méd.*, xi, ps. 1, 9.)

33. A boy, et. 5, swallowed some d. ago a large thick copper coin (Kreutzer = 2 farthing). He looked rather blue, but presented no morbid symptoms for several d. The last 3 d. however, he seemed very restless, cried about pain in his belly, had much thirst, slept little, and had a pale yellow coppery complexion. The stomach

is distended, painful to pressure, abdomen tense as a board, blue rings round eyes, dry tongue, the skin, in spite of the long walk he had to see the doctor, lifeless and dry; obstinate constipation, little appetite, pulse small, hard, contracted, suffering expression of face. An appropriate diet and purgatives were ordered. The stool showed traces of copper. He recovered perfectly. The copper coin was not found. (*Bing, Med. Correspond. Zürich, Strass., v, 107; in Frank's Mag., iv, 102.*)

34. a. Oct. 1816.—F. H., 27, 16, swallowed a quantity of pulverised blue vitriol, mixed with water; $\frac{1}{2}$ h. afterwards was brought into the hospital. We found a small, frail youth, his skin pale, lips pale, bluish at the corners and internal edges, tongue coated, bluish, cold. Extremities cold, with cyanotic nails, pulse small, accelerated, the temperature of the skin generally not reduced. Patient complained of being thirsty, a choking and constricting sensation in pharynx, coppery taste in mouth, pain in epigastrium, which is sensitive to pressure. *B. infus. ipecat.*, and, after copious vomiting, *magnesia usta in aqua*, milk and albumen as antidotes. The vomited matter was of a bluish colour, afterwards copiously mixed with mucus and magnesia. After $\frac{1}{2}$ h. 4 pultaceous greenish-yellow stools, without the least trace of blood. The scanty urine, passed per catheter, contained neither albumen nor blood. During the 6. patient was very restless, groaned, moaned, and complained in the morning of severe headache, pain in epigastrium, burning in mouth and oesophagus. He vomited no more; diuresis scanty, containing blood, albumen, and some bilious pigments. 14th.—Skin and conjunctiva of sericæ colour; pupils equal; pulse frequent; temperature of skin diminished; visible mucous membranes remarkably pale. Patient feels very weak, and complains of oppression in chest, and restlessly throws himself about in bed. Stool pultaceous, brown-red, with streaks of blood, and tenesmus during stool. Urine scanty and containing much blood. Percussion and auscultation give nothing abnormal; sounds of heart weak and limited; on the base of the heart a slight friction-sound; liver evidently enlarged, abdomen drawn in, lower extremities flexed over abdomen. 16th, 17th.—Symptoms same; icterus decreases, debility increases. 18th.—Greatest apathy, cold sweat on forehead and extremities; pulse small, filiform, and patient dies, with all the symptoms of total collapse, during the day.

6. 10th.—*Post-mortem* examination.—1. Scalp and bones of cranium normal; the dura mater tense, pale, very little blood in sulci and blood-vessels; arachnoides and pia fine and tender, its blood-vessels nearly empty; cerebral substance firm, very pale, bloodless, shining when cut into; the ventricles not dilated, empty; on the base of the brain some serum; cerebellum and medulla extremely pale and bloodless, and all the blood-vessels nearly emptied of their blood. 2. Mucous membrane of mouth and larynx pale, tongue not injured, with a brownish coating; jugular veins contain only a few drops of thin, fluid blood; in the pale larynx a slimy fluid; oesophagus pale. 3. No fluid in chest; lungs without adhesions, pale; the left upper lobe œdematous; the lower lobe swelled, hard, brittle, filled with a large quantity of small, vesicular, foamy fluid; the right lung also pale, œdematous at the edges; substance pale and full of the same fluid as left lung. 4. Pericardium contains some serum, which gives no reaction to copper; heart of usual size, flabby, valves closing, hardly any blood in the cavities; in the vena cœdens only some fibrinous coagula; muscles of the heart very pale, soft, and friable. 5. No fluid in abdomen; stomach and intestines full of air, peritoneal coat of slaty colour. 6. Spleen of usual size and consistency, moderately full of blood. 7. Liver of usual size, capsule smooth, substance yellowish brown, soft, friable, fatty, moderately full of blood; in the gall-bladder only a few drops of dark tough bile. 8. Kidneys swelled, capsules tense, cortical substance yellow; pyramids compressed, pale brown; some urine in vesica; mucous membrane normal. 9. Stomach strongly distended, its coating tough, coronal vessels only moderately injected; in its cavity about 2 lbs. of a brown, slightly acid-reacting fluid. Its mucous membrane thickened and covered with tough mucus, along the large curvature rather of a greenish colour. On the base of the stomach a round eschar, of the size of a small penny, where the mucous membrane is changed to a dirty brown, florulent, and easily-detached eschar, showing plainly the muscular coat after its detachment. 10. Mucous membrane of small intestines normal; that of the colon swelled, pale gray, containing sticky, thin fecal masses. (*Moscicka, Wiener med. Wochenchrift, No. 16, 1871.*)

Culture—P. 491, after "H. 1," supply "(*Ibid.*)"

Digitalis.—P. 307, l. 9 from bottom, for "Materialien" read "Materialien."

After II. 32, insert the following:

13. A boy, *æt.* 10, took for anasarca after scarlatina (6 weeks after the commencement of the scarlatina) 3 gr. fol. dig. divided into 6 equal doses.—April 15th, 7 a.m., he took the first dose, which had no apparent effect; at 6 p.m. the second dose. After 10 m. complained of violent dull headache above and between eyebrows. The pain went off for a few m., and returned with equal intensity, and this went on for more than 1 h. 7 p.m., suddenly complained of loss of vision, which lasted 10 m. The vision then returned, and he was cheerful, pupils somewhat dilated, pulse rather quick, frequent yawning. 9 p.m., drowsiness passing into stupor. 11 p.m., convulsive movements of extremities and facial muscles, which increased on returning and recurred at shorter intervals. 12 p.m., general convulsions, tonic alternating with clonic convulsions, with longer and shorter intervals, heart and carotids beat violently, irregularly, pulse 110, involuntary emission of stools and urine, temperature elevated. This state lasted 1 h. Warm baths, antispasmodic enemata, and skin irritants were employed. At 2 a.m. he became quieter, the convulsions gradually subsided, the heart still beat violently, pulse 120.—16th, 6 a.m., sat up in bed with discomposed features, widely-opened eyelids, staring eyes, very dilated pupils, gives incoherent answers, speaks a great deal, mostly saying the same thing over and over again, very hurriedly and with weak voice, but does everything he is told. Tongue clean, urine pale, heart's beats more regular, only every 5 or 6 m. there comes on a violent contraction of heart and simultaneously twitching movements of extremities and facial muscles, pulse softer, fuller, 100, temperature normal, skin moist. The anasarca is quite gone. 10 a.m., he fell into a quiet sleep, which lasted 3 h., from which he woke with signs of returning consciousness, but he still speaks shortly and hurriedly but sensibly, his hands tremble, and he has some difficulty in taking hold of anything. Eyes still wide open, sight weak, circulation nearly normal, the convulsive movements have ceased, but he often starts suddenly as if in fright. 3 p.m., again fell asleep, and the n. was passed quietly.—17th, Still vertigo and mist before eyes, eyelids open, pupils dilated, and he is very weak. In a few d. well. (Saxena, *Méd. Jahrb. d. k. k. Ost. Staaten*, 1859, 2, pt. i, 129; in *Frank's Mag.*, i, 313.)

14. A sailor, *æt.* 26, affected with anasarca of legs, hypertrophy of heart, and insufficiency of mitral valve, came under treatment Sept. 6th, and up to Oct. 19th he had taken Dig. in powder 42 gr. and 3ij gr. iv in infusion. The toxic symptoms after this quantity were but slight: confusion of head, loss of appetite, and an inclination to vomit, the pulse sank to 40 and became intermittent. These symptoms soon went off when the medicine was discontinued. On Oct. 25th violent symptoms of poisoning presented themselves, confusion of head, anasarca, inclination to vomit, and colicky pains, vomiting of the medicine and of a greenish-bitter fluid, pulse 40. On leaving off the medicine these symptoms went off in 24 h. By the end of October the anasarca was gone, but on Jan. 12th it returned in great intensity. Dig. was again given. After taking 3j in infusion he had on 22nd confusion and heaviness and stupefaction of head, misty vision. The medicine was discontinued, but after 24 h. (Jan. 23rd) he was stupefied, answers questions at first shortly, then not at all, pupils not much dilated, breathing slow, heart's beats strong, auscultation revealed an intense follicular noise, obscuring the heart's sounds; the first seemed to pass into the second. Urging to stool and urine roused him for a little, but he again fell into the previous state. Pulse 50, intermittent.—24th. Lethargy; he lies unconscious, with hot head, eyes staring, immovable, glassy, all the organs of sense seemed in obeyance, sight, hearing, taste and smell were lost, skin insensible, the lower jaw could with difficulty be separated from the upper, respiration very slow, stool and urine suppressed. Tetanic stiffness of whole body and limbs, pulse 40, weak and intermittent. This state lasted 48 h. Patient slowly recovered consciousness, vision misty, confusion of head. These symptoms also went off, but he got pleurisy of l. side, for which he had antiphlogistic treatment, and recovered in 7 d. The dropsical symptoms returned, and he died Feb. 16th. (Mason, *Verstärkerich, f. d. prakt. Heilk.*, Prag., 7, 31.)

Euphorbia.—III. 1. It is to Marsset (*Traité de Paris*, 1814) that we are indebted for a detailed study of *Euphorbia pilulifera*; he experimented with it on

frogs, rabbits, &c., and, in doing so, employed the aqueous or hydro-alcoholic extract, dissolved in distilled water. The following are the physiological effects noted in batschians, &c.:—Cardiac and respiratory movements initially accelerated, then gradually slowed. Respiratory preceded cardiac arrest; death always occurred with the thorax in expiration, and the heart in diastole. The autopsies disclosed lesions comparable to those found after death by section of the vags. The drug had no sensible effect on striped or unstriped muscular fibres, the brain, cord, sensitive or motor nerves, salivary, sudoral, urinary or intestinal secretions. The hepatic secretion was slightly augmented and the gall-bladder increased in volume. Pulmonary hyperæmia and emphysema was induced in some cases. The gastric mucous membrane was in a state of local congestion only in those animals which had swallowed the drug. That this hyperæmia was of local and not reflex origin is therefore beyond doubt, and the more so, since Vulpian has shown that the vaso-motor effect of the pneumogastric on the stomach is nil. Marsuet concludes from the foregoing that the active principle of *Euphorbia pitulifera* extends itself on the respiratory and cardiac nerve-centres, initially as an excitant, afterwards as a depressant; that it seems to be eliminated by the liver, and that gastric hyperæmia is a local phenomenon. (*Phys. and Surg. Investigator*, July 5th, 1885.)

After H. 2, insert the following:

3. Katherina P., a charwoman, had been subject to epileptic fits since puberty, which were removed by the expulsion of a large number of ascariæ, took a quantity of the *E. vermicosa* at the recommendation of a female friend. She was suddenly attacked with griping in bowels, attended by vomiting and purging. The vomiting became so severe that she could not bear the slightest solid or liquid food. Next m. said she was better, but the vomiting continued and some blood was vomited, and soon afterwards she died. P.M.—Eyes sunken, closed, dim, an expression of pain on face, m.m. of mouth and tongue pale, with a few vesicles on it, arms limp, legs stiff, nails blue, brown mucus exuded from anus. The sinuses of dura mater contained much blood and polypus-like coagula, under dura mater some serum, pia mater congested, some frothy serum between it and arachnoid; several cerebral vessels contained much air. Substance of brain firm and full of blood; in cerebral chambers a little bloody serum, the central plexuses studded with water-blisters, the pineal gland large and firm, the mucous glands brick-red coloured, soft, at base of brain 1 oz. serum. Lungs showed old adhesions, the bronchial ramifications contained much mucus. Heart small and flabby, its cavities and large blood-vessels filled with viscid blood. Liver full of blood, spleen small. M.m. of fauces red, studded with vesicles, œsophagus contracted, pale. Stomach filled with chocolate-coloured fluid, its inner surface red in patches, some parts blackish, many small groat-like vesicles in groups the size of a lentil, containing clear serum or air. Duodenum slightly reddened. Small intestines with patches of dark red colour, and containing two round-worms. Large intestine distended with air, covered with white, viscid cream-like fluid, containing one round-worm. Rectum red, covered with brown mucus. (*Centr. med. Wochenst.*, xxi, pt. 4, 621; in *Frank's Mag.*, i, 742.)

4. A healthy woman, æt. 66, had a lentil-sized wart at outer canthus of l. eye for many years, which she rubbed with the juice of *E. vulgaris*, some of which got into eye. After 2 h. she felt tearing-shooting pain in wart, which spread over eyebrow and lids; both lids swelled, the upper lid hung down motionless, both hot. She applied milk compresses. At n. had violent headache and shooting pains in interior of eye. After 1½ h. the l. eye, eyebrow, and temporal region swollen, red and hot, not very painful to touch; the upper lid hung down over lower lid as far as lower border of orbit, was œdematous and immovable, lachrymation, shooting pain in its interior, frequent vision of sparks. On attempting to raise the lid hot tears gushed out; photophobia, the sclerotic covered with fine vessels, so that it appeared pale-rose-coloured and was swollen; cornea rather dim, pupil very small, drawn upwards, the internal vascular ring of iris dark brownish red, vision impeded by photophobia and tears. Consumption for 2 d., fever, pulse 16. Leeches to temples and inner canthus, milk compresses, blisters on nape, and a senna purge, followed by more leeches and blisters, calomel and collyria, were followed by amelioration in 4 d. On 5th d. could see again and she recovered perfectly. (*Clarke's Centr. med. Wochenst.*, xxii, pt. 3, 480; in *Frank's Mag.*, i, 743.)

Iodum. After I. 3, insert the following:

10. Dr. Lorenz, assistant physician at Miliseb, publishes in the *Deutsche med. Wochenschrift*, No. 45, 1884, as a peculiar case of iodine poisoning the following proving, and I consider it proper to record, as a part of our *matéria medica*, the symptoms which he observed after its external application on himself.

On May 16th, 1884, at 6.30 a.m., he painted 3 times in succession the back of the r. hand and arm with 5 cent. iodine, in a space as large as the palm of the hand, for an insignificant sprain. From 6.45 till 7.30 he kept in the open air; afterwards, while sitting in his room, he observed the sudden appearance of a violent coryza, with lachrymation and pressing pains in the eyes, soon followed by violent cough and tendency to vomit, together with difficult, almost wheezing, respiration, feeling as if the larynx was constricted externally, and great lachrymation. His feet now began rapidly to swell, so that he could no longer bear the pressure of well-fitting boots, and upon their removal he saw that the soles of the feet were considerably swollen, and walking was in consequence extremely painful. Slight feeling that his head was not right. After ¼ h. the coryza, lachrymation, and cough had completely ceased. Temp. 37.7° C. Pulse and cardiac impulse now decreased in force. At 9 a.m. a slight fainting fit, which soon passed away. Heart-sounds very weak, but without any accompanying friction-sound or murmur. The apex-beat and pulse could not be felt. He had no longer complete control of the tongue, as was shown by stuttering and the production of sounds other than those intended. He also heard slowly, so to say, as he required some time to get a clear understanding of what was said to him, in order to answer, as well as to give expression to the answer. He lay upon his bed, and when, feeling better, he left it to walk about the room, there was momentary vertigo, followed by complete loss of consciousness; on coming to, there were convulsive movements of the arms and legs, and the head was drawn backwards. After the motions had ceased he returned to bed, as on standing up once more he experienced the feeling of an approaching attack of vertigo. Coryza, cough, and lachrymation had disappeared completely, and there was a slight frontal headache and a violently itching iodine-eranthem. Temp. 37.2° C. Pulse could not be felt. Soon after profuse sweating came on, lasting for about ½ h., whereupon the itching and headache passed off and extreme weakness followed. Another fainting fit occurred, lasting 1 h. (the former one continued 45 m.), leaving a dull pain in the occiput. After taking some Hungarian wine the heart could be faintly heard and felt. At 4 p.m. the pulse was quite weak, and with long intermissions; at 6 p.m. it was 124 to the m., and at 8 p.m. 100. On the 2nd d. there was only weakness after a restless sleep. Slight attacks of vertigo on rising. Temperature normal. Pulse 76 to 80. The 3rd d. was passed out of bed. The exanthem had disappeared. On the 4 following d. during the m., on any quick change of place, and especially on quickly standing up from sitting, there occurred a momentary slight vertigo. On the afternoon of the 5th d. he was in his usual good health. (BUCHMANN, *A. A. Z.*, cxi, No. 4.)

The following corrections in our chemical formulae have been supplied by Mr. Wyborn; and we give them upon his authority, which we need not say is excellent. (The asterisk indicates that the line is counted from the bottom.)

Vol. I.	Page 16, line 3,	for HFI	read HF.
"	" 32, "	22,	" 1'7 read 1'16.
"	" 19, "	20,	" NO ₂ read HNO ₂ .
"	" 236, "	23,	" Al ₂ O ₃ ·H ₂ O read Al ₂ O ₃ ·3H ₂ O.
"	" 270, "	24,	" (SbO ₃) read (Sb ₂ O ₃).
"	" " "	" "	" (Sb ₂ S ₃ +Sb ₂ O ₃) read (Sb ₂ S ₃ +Sb ₂ O ₃).
"	" " "	" "	" (2SbS ₂ +SbO ₃) read (2Sb ₂ S ₃ +Sb ₂ O ₃).
"	" 350, "	27,	" AgNO ₂ read AgNO ₃ .
"	" 519, "	27,	" BaCO ₂ read BaCO ₃ .
"	" 546, "	26,	" C ₁₇ H ₁₄ NO ₂ read C ₁₇ H ₁₄ NO.
"	" 570, "	30,	" Bi ₂ O ₃ ·2HNO ₂ read Bi(NO ₂) ₂ ·H ₂ O.
"	" " "	" "	" Bi ₂ O ₃ ·HNO ₂ read Bi(NO ₂) ₂ ·5H ₂ O.
"	" " "	" "	" BiO ₂ read Bi ₂ O ₃ .
"	" 589, "	24,*	" C ₂ Br ₂ OH read C ₂ Br ₂ OH·H ₂ O.
"	" " "	" 23,*	" CHBr ₂ read CHBr ₃ .
"	" 664, "	21,	" Ca(C ₂ H ₂ O ₂) ₂ read Ca(C ₂ H ₂ O ₂) ₂ .
"	" " "	" 16,	" CaCO ₂ read CaCO ₃ .

Vol. I.	Page 70, line 16, for	Monobromide of camphor	read	Monobromo-camphor,
"	" " " 18, "	(C ¹⁰ H ¹⁶ O ¹⁴ Br.)	read	(C ₁₀ H ₁₆ BrO).
Vol. II.	" " " 18, "	9, "	read	(C ₁₀ H ₁₆ O ₂).
"	" " 123, "	12, "	(C ₂₀ H ₃₂ N ₂ O ₂)H ₂ SO ₄ .7H ₂ O	read (C ₂₀ H ₃₂ N ₂ O ₂) ₂ H ₂ SO ₄ .7H ₂ O.
"	" " 147, "	22, "	(C ₂₀ H ₃₂ N ₂ O)SH ₂ O ₄ .xH ₂ O	read (C ₂₀ H ₃₂ N ₂ O) ₂ H ₂ SO ₄ .2H ₂ O).
"	" " 151, "	8, "	CCl ₂ CH(OH) ₂	read CCl ₂ CH(OH) ₂
"	" " 170, "	17, "	for curinum omitted	read C ₁₅ H ₂₇ NO ₂ .
"	" " 161, "	21, "	C ₂ H ₁₂ NO ₂	read C ₂₂ H ₂₂ NO ₂ .

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