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INCLUDING
DISEASES OF THE
KIDNEYS, SKIN, NERVES, EYE, EAR,
NOSE AND THROAT,
AND
OBSTETRICS, GYNECOLOGY, SURGERY
BY SPECIAL AUTHORS

BY
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PREFACE

THIS work is designed to be a pocket-companion for the general practitioner. The presumption is that those who make use of it already have a thorough and comprehensive knowledge of medicine, and refer to it only for the purpose of refreshing the memory. Thus it becomes a book for ready-reference, and prompts to the study of larger volumes at greater leisure.

A departure has been made by including all the "specialties." Although this is often done in large "systems" of medicine, never before has it been attempted in a "Pocket-Book." Here again the effort has been to present that part of each subject of which the general practitioner would be most apt to be in need. To this end the author has been favored by the assistance of well-known specialists, who are experts in their several lines. This gives to the work a range and a value impossible of attainment in the product of a single author.

In addition to the indicated medicines recommended in each disease, careful attention is given to *adjuvant treatment*. Still another feature is that the *dosage* of each medicine is given, in connection with the name of the drug itself. It must be understood, however, that this expresses only the practice and preference of the several authors. It is not intended to be arbitrary. It must be accepted as being merely suggestive. The recommendation is submitted, to those who use the book, that the dosage be varied in accordance with the results of individual experience.

Although standard literature has been widely consulted, yet, in a work of this character, with its condensed style, it has not been thought necessary to make reference to sources. Hence all such quotations have been omitted.

DR. LESLIE W. BEEBE desires to acknowledge the kindness of DR. CHAS. ADAMS and DR. A. G. BEEBE in favoring him with criticisms of his work.

TO DRs. WILLIAMSON, LAIDLAW, THOMAS, COFFIN, HORNER, SWAN, COPELAND, GARRISON, KORNDORFER, WILLARD and BEEBE, the author makes grateful acknowledgment. Their cheerful co-operation and many expressions of interest have rendered his task a delight and the association a personal pleasure. The high value of their carefully prepared contributions, which he himself fully appreciates, will, he is assured, be fully attested by the profession, to whose hands the work is now committed.

CH. G.

CHICAGO, September, 1899.

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MEDICAL PRACTICE.

SECTION I.

DISEASES OF CHILDREN.

DIPHTHERIA.

(DIPHTHERITIS.)

Etiology.—Infection by the Klebs-Loeffler bacillus.

Contagion.—It is communicated from person to person, by fomites, by a portion of membrane or secretion, and it is capable of conveyance by inoculation.

Incubation.—Two to five days; rarely eight to twelve.

Diagnosis.—The appearance of the false membrane is the pathognomonic symptom, though this may be absent in mild cases. The exudate is first a thin, whitish pellicle, usually on the fauces or tonsils; it rapidly increases in thickness, and spreads in area; it is firmly adherent to the underlying mucous membrane. Demonstration of the specific bacillus is confirmatory.

Differential Diagnosis.—*Follicular Tonsillitis*:—The secretion is confined to the tonsils; it is not an *adherent* membrane, but occupies the crypts of the tonsils, and is easily separated *without* hemorrhage.

Other Diseases that have been confounded with diphtheria are: Pharyngitis of the following forms—scarlatinal, herpetic, ulcero-membranous, pultaceous and gangrenous; also faucial erysipelas and pseudo-membranous croup. Also *pseudo-diphtheria*, streptococcus-pharyngitis.

Important Symptoms.—*Patellar-tendon Reflex*:—It is usually lost early; it is of great diagnostic value. *Lymph nodes*:—Those especially about the neck are enlarged early. *Fever*:—The temperature is not a reliable guide.

Pulse:—When weak and irregular, it is of grave import.

Albuminuria:—Occurs in one-half to two-thirds of all cases; from a trace to a large quantity; the latter is unfavorable. *Paralysis*:—As a rule it is a late symptom; pharyngeal and palatal are most common; the heart, or any muscle of the body may suffer.

Complications.—Otitis; parotitis; broncho-pneumonia; pleuritis; emphysema; myocarditis; endocarditis; pericarditis; thrombosis; embolism; hemorrhages; nephritis; enterocolitis.

Sequelæ.—Chronic catarrh; anemia; cardiac affections; multiple neuritis; paralysis.

Prognosis.—Always guarded. *Unfavorable Symptoms*:—Persistent vomiting; membrane extensive; laryngeal or nasal forms; great adenitis; offensive odor; scanty urine; much albumen; multiple paralysis; weak heart's action; irregular pulse; broncho-pneumonia; hemorrhage; toxemia; mixed infection.

Causes of Death.—Cardiac paralysis; laryngeal stenosis; uremia; toxemia; edema of the lungs; asthenia; inanition.

TREATMENT.

Antitoxin.—It should be given in all cases as soon as the diagnosis is made. After the third day reaction is deficient, owing to cumulative effect and to mixed infection.

Dose.—*Age*, one year: Mild case, 500 U.; severe, 1,000 U.; grave, 1,500-2,000 U. Two years: Mild, 1,000 U.; severe, 1,500 U.; grave, 2,000-2,500 U. Three years and older: Minimum, 1,500 U., up to maximum of 3,000 U.

Repetition.—Do not repeat so long as improvement continues; if there is no improvement, repeat in 8 to 12 hours.

Injection.—*Location*:—Thigh, outer aspect; sides of the abdomen; inter-scapular region. Inject *slowly*. Use strict aseptic precautions.

NOTE.—Many physicians make favorable reports of Antitoxin administered internally. It is worthy of trial.

The Syringe.—Cleanse with carbolic acid; boil, and cleanse again before using.

Mercurius cyan.^{3x}—Malignant diphtheria; extreme prostration, early; pulse intermittent, small, quick and high—130-140+; moist skin; fetid breath; saliva thick; tongue coated, brown or black; membrane extensive, yellow, brown or black; also, croupous form; nasal form, with great prostration.

Kali bich.^{2x}—Especially in *nasal* and in *laryngeal* diphtheria. The pseudo-membrane is thick and yellowish; the secretions are tough and stringy. Sthenic or asthenic cases.

Merc. iod.^{3x}—Much swelling of the cervical glands; much tenacious mucus; ulcers; tonsils much swollen; great putridity.

Cantharis.^{1x}—Mucous membrane dark red; and as if blistered; burning pain in the throat; sense of constriction; blood in the expectoration; extreme prostration; cold extremities; urine scanty, bloody, or albuminous.

Apis.^{3x}—Tissues of the throat edematous, with stinging pains, dryness and burning; mucous membrane glossy and purple; exudation dirty gray; edematous swelling of the face and neck; scanty urine. Great prostration; sometimes stupor.

Bromine.^{Tr.}—Laryngeal diphtheria; croupy cough, with dyspnea; asthenic cases.

Arsenicum.^{3x}—Cases in which there is blood poisoning, with great prostration; the throat much swollen; pseudo-membrane dark; great fetor; thin, excoriating discharge from the nose; restlessness; scanty urine; offensive diarrhea.

Arsenicum is not related to the diphtheritic process, but to the toxemia, due to secondary streptococcus-sepsis.

Muriatic acid.^{1x}—Excoriating secretions.

Phytolacca.^{Tr.}—Great aching pain in the back.

Lachesis.^{3x}—Mucous membrane dark purple.

Gelsemium.^{1x}—This is the leading remedy for post-diphtheritic paralysis, especially in ocular paralysis, pharyngeal or laryngeal paralysis, cardiac paresis, or paralysis of small muscles. *Dose*:—Three drops of 1x every three hours. **LOCAL TREATMENT.**

Object.—The object of local treatment is to (1) favor

separation of the membrane; and (2) disinfect the parts.

NOTE.—Local applications have no specific effect on the disease process; they only dissolve the membrane or disinfect the parts.

Steam.—The steam atomizer should be used persistently; it favors separation of the membrane. Use a soft towel, overlaid with rubber-cloth or oil-silk, to protect the face and neck of the patient from the cool moisture caused by the condensed steam.

Papoid.—Papoid will promptly dissolve the membrane. It may be applied (a) on a swab; (b) by insufflation, or (c) hot-water gargle. Use several grains each time.

Hydrogen-Peroxide.—It will dissolve the membrane. Use fifteen volume solution. It is not a germicide.

Kali bich.—As a disinfectant use *Potassium bichromate*; make a watery solution, gr. j. to oz. j. Use in hand-atomizer or steam-atomizer. Use persistently, especially in the laryngeal form.

Kali perman.—In the nasal form use *Potassium perman.*, one grain to the ounce.

Nasal.—In nasal diphtheria cleanse the nares thoroughly and frequently; every hour. Use the nasal douche when possible; or, spray apparatus, with saline, or weak permanganate solution.

Laryngeal.—With threatening laryngeal stenosis intubate at once.

GENERAL MEASURES.

Quarantine.—Isolate the patient; maintain rigid quarantine. Remove other children from the house.

Sick-Room.—Use an airy, upper room. Remove carpets, rugs, drapery, upholstery; good ventilation; keep a moist atmosphere; temperature about 73° F.; burn all rags and soiled linen.

Attendants.—Physician, nurses, and those coming into contact with the sick should gargle several times daily with dilute alcohol.

Prophylaxis.—Children who have been exposed should receive a dose of 300 U. *Antitoxin*.

Disinfection.—Sterilize all articles used by the patient, by boiling. Put all secretions, and the like, into carbolic solution, 1:20, or bichloride, 1:1,000. Attendants should wash the hands in carbolic solution, 1:40. Let no milk or food stand in the sick-room.

The Patient.—Until convalescence is established keep the patient quiet, and recumbent; if the heart is weak or irregular, much longer. Guard the patient from drafts of air or changes of temperature.

Diet.—It is of the utmost importance to keep the patient well nourished. Let the diet be liquid in form, highly nutritious, easily digestible, and of sufficient variety to tempt the appetite.

Milk.—Give in any form, raw, boiled, or peptonized.
Egg-nogg.—An egg beaten up in a glass of milk; sweeten, and spice with nutmeg; add a teaspoon of whisky. Omit the yolk if the patient prefers. **Punch.**—Equal parts milk and hot water, with one teaspoon whisky to the glass. Mutton broth; chicken broth; oyster broth; beef peptonoids; trophonine; panada. A glass of scalded

milk, with one tablespoon of coffee; sweeten. Give plenty of water to slake thirst.

Precaution.—If there is pharyngeal paralysis, do not let the patient take a mouthful of solid food until the muscles are fully restored. If impossib'le to nourish by the stomach, use nutrient enemata.

Cardiac Paresis.—Watch the heart; if paresis threatens give stimulants. *Indications:*—Faint second sound; *pulse*—weak, dicrotic, irregular or intermittent. Cyanosis.

Stimulants.—*Alcoholic:*—Whisky; brandy; wine (sherry; tokay; wine-whey). *Dose:*—From 1 to 4 drams, according to urgency. Dilute the brandy or whisky with 4 to 8 parts water.

Strychnin sulph.—To be used when the condition is urgent. *Dose:*— $\frac{1}{50}$ gr. every 2 or 3 hrs.; reduce to $\frac{1}{10}$ gr. as the effect is obtained.

Glonoïn.—*Dose:*— $\frac{1}{100}$ — $\frac{1}{50}$ m.

Oxygen.—By inhalation in cyanosis from respiratory embarrassment.

SCARLET FEVER.

(SCARLATINA).

Contagion.—The period of contagion is from the appearance of the eruption till desquamation complete; contagion may last as long as there is post-tetinal dropsy. Contaminated objects may infect after (period of twenty years well authenticated).

Incubation.—From two to eight days; except from a few hours to several weeks.

Stages.—Incubation; prodromal; eruption; desquamation.

Varieties.—(I.) Regular Form; (II.) Irregular Form; (III.) Malignant Form.

Symptoms.—*Onset:*—(a) chill; (b) vomiting; (c) delirium; (d) convulsions. *Rash:*—Appears first about neck and shoulders; extends over trunk and extremities; reaches its height on second, sometimes third, day; subsides in reverse order. *Desquamation:*—Usually begins on third day; may anticipate or delay; lasts 7 to 10 days.

Complications.—Convulsions; ulcerative stomatitis; angina; otitis media; adenitis; cellulitis; erysipelas; carditis; pericarditis; peritonitis; arthritis; nephritis; uremia.

Nephritis.—May appear at any stage; usually in the half of first or early in second week; patient is safe till six weeks after convalescence.

Prognosis.—Always guarded. *Unfavorable signs:*—Persistent vomiting; hyperpyrexia (106° +) and prostration; anæmias; diphtheritic or gangrenous stomatitis; nephritis, or much albumen. *Prognosis favorable:*—In the very young.

Causes of Death.—Usually from: (a) convulsions; (b) septic cases, with asthenia or septicæmia; (c) late nephritis.

TREATMENT

Gelsemium.^{1x}—Early in the disease, when the patient is and apathetic; prostration; weak

Belladonna.^{1x}—Violent vomiting with the onset; *rash*, smooth, bright red; great restlessness; cerebral congestion, with brain irritation, the symptoms varying from startings in sleep and twitching of groups of muscles, to violent delirium, with shrieking and jumping out of bed. The throat symptoms severe; fauces and tonsils bright red, glistening; tongue with characteristic “strawberry” appearance; or, thin coating, the elevated papillæ showing through. Pulse, full, strong, accelerated. Glands of the neck may be swollen. Sleep is disturbed, the muscles twitch, there is grinding of the teeth; chewing motion of the mouth.

Belladonna is of use only in sthenic cases; in the malignant or adynamic other remedies must be sought.

Rhus tox.^{2x}—When in the regular form of scarlatina, the eruption is miliary, the rash containing small red points, or fine vesicles. In scarlatina with a typhoid-like condition; eruption dark and mottled; high temperature; parotid and cervical glands enlarged; tongue red and glazed, or brown, dry and cracked; sordes form on lips and teeth; restlessness; low, muttering delirium; epistaxis; thin, offensive discharges from the bowels. In adynamic cases.

Apis mel.^{3x}—In adynamic cases, with high temperature, drowsiness, great restlessness and nervousness; throat very red, or purplish, and swollen, with fine vesicles on the mucous surface, followed by ulceration; tongue cracked, sore, ulcerated; miliary rash, with irritation of the skin; early prostration; stupor; urine scanty; albuminuria; edematous swelling. Adynamic cases, and for the nephritis.

Ammonium carb.^{1x}—Miliary rash; throat swollen; dark red, with tendency to ulceration; lymphatic glands of the neck, and the parotids swollen; with involvement of the cellular tissue; adynamic cases, with somnolence.

Mercurius iodatus.^{3x}—Ulceration of the throat; much glandular swelling; fetor; salivation; great prostration.

Ailanthus.^{1x}—Scarlatina maligna; rapid and severe onset, with violent vomiting, headache, photophobia, face dark red and hot; pulse small and rapid; delirium; stupor; dark, livid, miliary rash, in patches; excoriating discharges from mouth and nose; swelling of the throat.

Arsenicum.^{3x}—The eruption is delayed; or, having appeared, there is sudden retrocession with pale and cold surface, small pulse, great prostration. With the retrocession of the eruption the child may have convulsions, with stupor, and moaning and restlessness. Also, cases marked by putrid sore throat, scanty urine, fetid, involuntary diarrhea. Also, for nephritis, of the sub-acute form.

Cuprum aceticum.^{2x}—Disappearance of the eruption; with violent convulsions, spasms of the flexors; face red or purple; frothing at the mouth; teeth clenched; distortion of the face.

Lachesis.^{6x}—Great prostration; swelling of the throat, with ulceration; fetid breath; quick, feeble pulse; low, muttering delirium.

Muriatic acid.^{1x}—Rash scattered, interspersed with petechiæ; skin bluish or purplish; feet blue; thin, excoriating discharge from the nose; vesicles about the nose and mouth; throat raw; breath fetid.

Cantharis. Tr.—Nephritis, with acute symptoms; urine scanty and high colored; albuminuria; threatened uremia. *Dose*:—Ten drops of Tr. in $\frac{1}{2}$ glass water; teaspoon every 1 or 2 hours.

Aconite. Tr.—Scanty urine, with congestion of the kidneys; high fever; rapid pulse; thirst and restlessness; great nervous erethism.

Repertory.—*Malignant Form*:—Ailanth.; Merc. cyan.; Cuprum acet.; Hydrocyanic acid. *Anginose Form*:—Merc. iod.; Apis; Arsen.; Ammon. carb.; Muriatic ac.; Lachesis; Rhus. *Toxemia*:—Arsenicum; Rhus; Lachesis. *Retrocession of Eruption*:—Arsen.; Cuprum ac.; Camphor. *Nephritis*:—Canth.; Apis; Arsen. *Adenitis*:—Rhus; Lach.; Merc. iod. *Otitis Media*:—Bell.; Gels.; Hepar s.; Merc. *Ulceration and Gangrene*:—Arsen.; Merc. cyan.

GENERAL MEASURES.

Quarantine.—Isolate and quarantine the patient. Remove other children from the house. The nurse should be quarantined with the patient. The physician should remove his coat and overcoat, and put on a rubber coat, or a muslin gown, when he visits the sick-room. On leaving he should wash face and hands, and use Formalin disinfectant to his clothing. The virus of scarlatina is extremely persistent; excessive measures of disinfection are demanded during and after the attack.

The Patient.—Allay itching of the skin by sponging with a mild carbolic solution. During desquamation give a daily warm soda bath; use Vaseline with 5% Boric acid inunction to the skin. To guard against nephritis keep the child in bed one week after the fever has subsided. Preventing the patient "taking cold" is of paramount importance in this disease.

Retrocession of Eruption.—Put the patient in a hot bath (100°) for ten minutes; take out and wrap in warm blankets. Repeat if necessary.

Hyperpyrexia.—With a *sustained* temperature of 104° or 105° F., give cool sponging, or the soda bath. In septic cases, or with cerebral symptoms, repeat the soda baths so as to keep the temperature below 103° F.

Diet.—During the course of the disease a sustaining diet; after the attack, to favor free action of the kidneys, preferably a liquid diet, with plenty of pure water, for several weeks.

The Throat.—In ulcerous or gangrenous forms use antiseptic sprays and gargles.

MEASLES.

(MORBILLI; RUBEOLA.)

Contagion.—It is highly contagious, from the beginning of the catarrhal symptoms; the infective period lasts four weeks from the onset. Children at the breast usually

escape. All others are very susceptible. Conveyance is usually direct.

Incubation.—The period varies from seven to twenty-one days; average, twelve days.

Stages.—Invasion; Eruption; Desquamation.

Early Diagnosis.—Several days before the appearance of the eruption diagnosis can be made by *Koplik's sign*: On the buccal mucosa, especially opposite the back teeth, from six to twenty small, bluish-white, rounded, slightly elevated macules. They last six or seven days.

Complications.—Purulent conjunctivitis; stomatitis; diphtheritic pharyngitis; membranous laryngitis; rheumatism; endocarditis; cancrum oris; gastro-intestinal catarrh; ileo-colitis; broncho-pneumonia.

Sequelæ.—Purulent otitis; ophthalmia; enlarged lymph-nodes; phthisis pulmonalis.

Prognosis.—Generally favorable. *Unfavorable symptoms*:—Malignant character; diphtheritic pharyngitis; dysentery; broncho-pneumonia, usually indicated by persistent high temperature after disappearance of the eruption. Broncho-pneumonia most common cause of death.

TREATMENT.

Aconite.^{1x}—For the early fever, with hot skin; injected eyes; photophobia; restlessness. In mild cases no other medicine is needed.

Gelsemium. Tr.—In the early stage; fever active; coryza, with excoriating discharge; hoarseness; croupy cough; patient lethargic and drowsy.

Pulsatilla.^{1x}—In mild cases, when the catarrhal symptoms are pronounced; fluent coryza and profuse lachrymation; loose cough; entero-colitis.

Euphrasia. Tr.—Eyes and nose much affected; profuse lachrymation, the discharges hot and burning; profuse bland discharge from the nose (if it is acrid, *Arsenicum*). *Dose of Euphrasia*:—Forty drops of Tr. in $\frac{1}{2}$ glass water; teaspoon every hour.

Veratrum vir. Tr.—The eruption delays, and convulsions occur. Also in the febrile stage, congestion of the lungs. *Dose*:—One drop of Tr. every hour.

Ipecac.^{3x}—Vomiting when the eruption is delayed or suppressed. Epistaxis.

Camphor. Tr.—Fulminant variety; sudden collapse; the surface cold and livid; stiffness of the body; great prostration. *Dose*:—1 m., frequently repeated.

Bryonia.^{1x}—The eruption delayed, or suddenly suppressed, with labored breathing, oppression of the chest, dry cough; stitching pains.

Arsenicum.^{3x}—In malignant cases, or those that become adynamic, with hot skin, pulse quick and small; great anxiety, restlessness, prostration.

Tart. emet.^{2x}—Retrcession of the eruption, with cyanosis; sopor; râles in the lungs. Also, for a complicating broncho-pneumonia.

Repertory.—*Retrcession of Eruption*:—Bryonia; Camphor; Verat. vir. *Eyes*:—Euphrasia; Pulsatilla. *Broncho-Pneumonia*:—Tart.emet.; Phosphorus. *Laryngitis*:—

Kali bich.; Gelsem. *Cerebral Congestion*:—Belladonna; Cuprum acet. *Low Fever*:—Rhus tox.; Baptisia. *Adenitis*:—Merc. iod. *Pulmonary Congestion*:—Verat. vir.; Bell.

GENERAL MEASURES.

Sick-Room.—Keep an *equable* temperature, 75° F. Good ventilation; the patient *must* be supplied with plenty of pure air. Isolate the patient.

The Patient.—Keep the child in bed; avoid exposure and changes of temperature. For itching and burning of the skin, carbolized Vaseline. For high fever, cool sponging or cold pack.

Eyes.—Protect from strong light by screens or shades. Use collyrium of *Euphrasia* Fl. Ext., oz. ss. to aqua oz. viij. Anoint edges of the lids with Vaseline. If the inflammation is intense, the eyes hot and burning, apply iced cloths.

Retrocession of Eruption.—Put the patient into a hot mustard bath for ten minutes; take out and wrap in warm blankets.

The Mouth.—Cleanse the mouth with swab or mouth-wash, using dilute Listerine.

The Lungs.—The greatest danger is to the lungs. Examine daily. During the disease, and in convalescence, protect from exposure to the infection of pneumonia and tuberculosis.

RUBELLA.

(RÜTHELN; GERMAN MEASLES.)

Diagnosis.—The eruption resembles measles, and sometimes scarlatina. Swelling of the post-cervical glands is one of the most constant features.

Treatment.—Little is required; Aconite or Belladonna may slightly modify. Isolation may be observed.

VARICELLA.

(CHICKEN-POX.)

Diagnosis.—The vesicles are not apt to become pustules except in those of depraved constitution, from infection due to scratching. The eruption is never confluent. The back is the favorite seat. It appears on the hairy scalp, and often several are found on the mucous membrane of the mouth or pharynx.

Treatment.—Rhus tox 3x; Mercurius 3x; Tartar em. 3x

General.—Isolate. To allay itching, sponge with weak Carbolic-acid solution, or apply carbolized Vaseline. Bathe to keep the skin clean. Prevent scratching.

CEREBRO-SPINAL FEVER.

(EPIDEMIC CEREBRO-SPINAL MENINGITIS.)

Etiology.—It is due to infection by the *diplococcus intracellularis* (*Weichselbaum*).

Varieties.—(a) Abortive; (b) Intermittent; (c) Fulminant.

Symptoms.—*Onset*:—Sudden; chill; vomiting; excruciating pains in head, back, extremities; fever; delirium; stupor or coma. *Nervous*:—Opisthotonos; hyperesthesia; nystagmus; ptosis; strabismus; blindness. *Fever*:—Irregular; sometimes hyperpyrexia (106°–107° F.) *Skin*:—

Petechial (sometimes purpuric) rash; herpes facialis.

Kernig's Sign.—With the thigh at right-angles to the body (the patient either on his back, or sitting on the edge of the bed) the leg cannot be extended, owing to marked flexor contractures. This sign is diagnostic.

Lumbar Puncture.—For purposes of diagnosis make microscopical and bacteriological examination of the spinal fluid. *Method:*—Sterilize the patient's back in the lumbar region, the hands of the operator, and the needle. Use an antitoxin needle 4 cm. long, 1 mm. in diameter. Use a longer needle in adults. Place the patient on his right side, with knees drawn up, the uppermost shoulder being depressed. The operator should press the thumb of his left hand between the spinous processes of the second and third lumbar vertebræ. Enter the point of the needle about 1 cm. to the right of the median line, level with the thumb nail. The direction of the needle must be slightly upward, and toward the median line. At a depth of 3 or 4 cm. (in adults 7 or 8 cm.) the needle enters the subarachnoid space; the spinal fluid begins to flow drop by drop. It should be caught in a sterile test tube. In order to obtain a larger quantity the syringe may be attached to the needle and the fluid aspirated.

PRECAUTION.—In inserting the needle, if it meets with bony obstruction, withdraw it somewhat, and thrust again, directing the point toward the median line. *Never* "work around" with the needle-point.

Complications.—Bronchitis; pulmonary edema, or hypostasis; atelectasis; broncho-pneumonia; parenchymatous degeneration of liver or kidneys; arthritis; inflammation of eyes or ears.

Duration.—In abortive and fulminant, one to three days; others, two to three weeks.

Convalescence.—Often interrupted and protracted.

Prognosis.—Always guarded; often grave. *Unfavorable:*—Violent onset; involvement of lungs; active cerebral symptoms; coma; inactive pupils; purpura; constantly rapid pulse. The mortality rate is high.

Sequelæ.—Paralysis of various kinds; persistent cephalalgia; deafness from otitis media, or inflammation of the auditory nerve; defects of vision.

Causes of Death.—Often occurs in coma; asphyxia; pulmonary edema; necremia.

TREATMENT.

Veratrum vir. Tr.—The attack comes on with violent vomiting; severe cephalalgia; pain in epigastrium; convulsions; head retracted; pupils dilated; pulse slow; heart's action irregular and labored. *Violent onset, with vomiting and headache.*

Gelsemium. Tr.—Onset with languor and drowsiness; fever; dimness of vision; eyes injected; vertigo; pulse soft and feeble; sighing respiration; general muscular weakness; dry skin. *Dose:*—Give freely until perspiration is induced; 3 drops Tr. every hour.

Cicuta. Tr.—Nystagmus, with dilated pupils; convulsions; twitching of the facial muscles; jerking of the hands and arms; hyperesthesia; deafness; face pale;

retraction of the head; dysphagia; coma. *Convulsions and insensibility.*

Belladonna. Tr.—Violent headache, especially at the base of the brain; head retracted; throbbing carotids; face congested; cutaneous hyperesthesia; sensitive to noise and light; grinding of the teeth; spasm of muscles; pupils dilated; vision lost; unconsciousness. *Intense cerebral congestion, convulsions, delirium, stupor.*

Cuprum acet. 2x—Violent headache; vomiting; convulsions; cold perspiration; unequal pupils; muscular rigidity; trismus. *Cerebral symptoms prominent; collapse.*

Rhus tox. 3x—Low, typhoid-like condition; mind dull and clouded; great prostration; dry, brown tongue; diarrhea. *After the first week.*

Arsenicum. 3x—Purpura; diarrhea, with foul discharges; great prostration; irritable stomach; nervous restlessness.

Helleborus. Tr.—Coma, from cerebral effusion.

Camphor. Tr.—Collapse at the onset.

Opium. Tr.—Deep coma; slow breathing; fixed eyes.

Actea rac. 1x—Late pains and spasms.

GENERAL MEASURES.

Preventive.—Wholesome food; pure air; good sanitation; proper hygiene.

Sick-Room.—Keep it *quiet*, darkened, but well *ventilated*.

Hot Bath.—At the onset, with high fever and hot, dry skin, with or without convulsions, it is important at once to induce *free diaphoresis*. Immerse the patient in a hot bath—105° F.—for about ten minutes; remove him to a bed and wrap in warm blankets, and give *Gelsemium*, until there is *free perspiration*. Then dry with soft towels. Repeat when the condition again demands it. In a number of cases I have had favorable results with this method.

Ice-Bag.—When there is intense cerebral congestion and severe cephalalgia apply an ice-cap or cold water bag to the head and back of the neck. Always remove cold applications when temperature approaches normal.

Leeches.—With intense cerebral congestion, apply two leeches back of each ear. I have several times seen great relief follow this measure.

Diet.—Nourishing, regular diet is important; give broths and milk. Nutrient enemata if necessary.

Nursing.—Guard against bed-sores; watch the bladder, and catheterize when necessary. The bowels should be regularly evacuated.

Precautions.—Watch the lungs, the bladder, nervous symptoms, and the special senses.

Electricity.—After the attack: Galvanism to the spine; Faradism to paralyzed muscles.

Convalescence.—It demands critical attention. It is apt to be prolonged, it has many sequelæ, and relapses are common.

PERTUSSIS.

(WHOOPIING-COUGH.)

Contagion.—Infective period *may* last three months.

Stages.—(a) Incubation (seven to fourteen days); (b) *catarrhal*; (c) *paroxysmal*; (d) *decline*.

Complications.—Broncho-pneumonia; emphysema; collapse of lung; epistaxis, hemoptysis, and other hemorrhages; convulsions. High temperature denotes broncho-pneumonia.

Sequelæ.—Bronchitis; pulmonary phthisis.

Prognosis.—*Unfavorable*:—In infants; the cachectic.

TREATMENT.

Belladonna.^{1x}—Early stage; violent cough, without expectoration; worse at night; sore throat; injected eyes; epistaxis; *cerebral congestion*.

Ipecac.^{2x}—Violent cough; the child stiffens; loses its breath; face pale or blue; followed by severe *retching*, or vomiting of mucus.

Drosera.^{Tr.}—With the cough *constriction* of the chest; violent paroxysms of cough; worse at night; after the cough, vomiting.

Naphthalln.^{1x}—Spasmodic stage; violent and frequent paroxysms.

Carbolic acid.^{1x}—In the spasmodic stage; paroxysms of dry, hard, spasmodic cough.

Cuprum acet.^{2x}—The violent paroxysms of cough excite *convulsions*; face cyanotic; vomiting.

Coccus cacti.^{3x}—Secretion of thick mucus.

Corallium.^{3x}—Short, quick, ringing cough.

Hyoscyamus.^{Tr.}—Nightly paroxysms.

GENERAL MEASURES.

Inhalants.—The vapor of Vapo-cresolene; Terebene; creasote; carbolic acid (with caution). Bromine vapor.

The Patient.—Observe quarantine. Protect the child from exposure; use warm flannel clothing; young infants must be held in the arms during paroxysms.

Diet.—Nourishing food is important: milk, eggs, broths. Stimulants in depression. Enemata if necessary.

Fresh Air.—Free ventilation, with open windows; outdoor air when the weather permits.

Convalescence.—Avoid exposure to the influences of pneumonia or tuberculosis. In tedious convalescence change of climate often has a magic effect.

MUMPS.

(EPIDEMIC PAROTITIS.)

Period of Contagion.—From the earliest symptoms to at least ten days after subsidence of the swelling.

Diagnosis.—In parotitis the swelling is *in front* of the ear; in enlarged lymph nodes the swelling is *below* the ear. **Complications:**—In the male, orchitis; in females, congestion and swelling of the mammæ, ovaries, or labia majora. **Sequelæ:**—Nephritis; nervous affections; deafness; otitis media; suppuration of the parotid (due to accidental infection). All these are of rare occurrence.

TREATMENT.

Aconite.^{1x}—For the early fever, and later hyperpyrexia.

Belladonna.^{1x}—Delirium; cerebral congestion.

Merc. iod.^{3x}—Gland much swollen, red and painful.

Rhus tox.^{3x}—Dark red swelling; much accompanying edema of the tissues.

Pulsatilla.^{3x}—Orchitis; mastitis. **Hepar sulph.**^{3x}—Threatened suppuration. **Sulphur.**^{6x}—Slow resolution. **Baryta carb.**^{3x}—Induration.

GENERAL MEASURES.

Patient.—Confine the patient to the house, and, if much affected, to bed.

Local.—To the swollen gland, a light protective compress; if it is painful, a hot compress moistened with a lotion of dilute *Veratrum viride*.

Testicles.—Apply a suspensory bandage, and, if orchitis appears, keep the patient at absolute rest.

Mammæ.—If signs of inflammation appear, apply supporting bandages.

Diet.—Liquid food; swallowing is painful.

CATARRHAL LARYNGITIS.

(SPASMODIC CROUP; FALSE CROUP.)

Diagnosis.—Usually of sudden onset, often waking the child from sleep; short, barking cough, with stridulous, crowing inspirations; intense dyspnea; clutching at the throat; face congested; moist skin; rapid pulse; the dyspnea lasts for a minute or more, then gradually subsides. Such paroxysms are repeated several times in the night. During the day absence of paroxysms and marked remission of all symptoms. This history repeated for several successive nights.

Prognosis.—Almost always favorable; *very rarely*, severe and fatal. The chief clinical difference between this disease and true croup, is that in the latter the onset is more insidious, the development of symptoms more gradual and continues both *day and night*. In false croup, as a rule, the symptoms subside to a great extent through the day. In true croup a "croupy" cough sets in early, and is soon followed by aphonia.

TREATMENT.

Iodide-of-Lime.—If given early, this will cut short the attack in almost all cases. *Dose:*—Give the crude *Iodide-of-Lime* (*not Calc. iod.*); $\frac{1}{4}$ to $\frac{1}{2}$ grain, repeated every 15 to 30 minutes. When the dry cough becomes moist, then use other indicated medicines.

Aconite.^{2x}—Active fever; dry, metallic cough; dry, hot skin; thirst and restlessness.

Belladonna.^{1x}—Cerebral congestion; the skin red, hot and moist; the child drowsy.

Iodine.^{1x}—Violent spasmodic cough, with seemingly threatened suffocation, the patient becoming blue in the face; dryness of the larynx.

Hepar sulph.^{2x}—Hoarseness after the attack; secretion of mucus; child weak, with moist skin; with the cough, rattling of mucus in the larynx.

Kali bich.^{3x}—Stage of resolution; accumulation of tough, stringy mucus.

Benzoin.^{1x}—Hoarseness, with raw feeling in the fauces and larynx.

GENERAL MEASURES.

Compress.—Put a cold compress to the child's throat. Take a small, soft towel, or a napkin; wring it out of

cold water; fold it, and cover the child's throat with it, all except the back of the neck; cover all with a dry cloth, and pin in place. When this becomes hot, remove, and apply another cold compress. A full, hot bath is often helpful.

Sick-room.—Keep the atmosphere constantly saturated with moisture by the use of a steam atomizer, or other apparatus. Dry air irritates the larynx.

PSEUDO-MEMBRANOUS LARYNGITIS

(TRUE CROUP.)

Etiology.—The majority of cases are diphtheritic, and due to Klebs-Loeffler bacillus infection; in others, the infecting agent is usually the streptococcus.

Diagnosis.—At the onset the symptoms are mild, with gradual increase in severity, both night and day; fever is generally moderate; voice hoarse; later, aphonia; harsh, smothered cough; stridulous, sawing breathing, with increasing dyspnea, and finally laryngeal stenosis; in 50 per cent of cases, false membrane appears on the fauces or pharynx. Finally, if not earlier relieved, cyanosis, cold, clammy perspiration; clouding of the mind, and death. *Duration.*—From two to seven days, or more.

Prognosis.—Always grave; but proper treatment will save many lives that would otherwise be lost.

TREATMENT.

Antitoxin.—This is by far the most important remedy; should be given early in all cases. *Dose.*—800 to 1,000 U.

Iodide-of-Lime.—In some cases this will cure if given at the beginning of the attack. *Dose.*—One-half grain every 15 or 30 minutes.

Kali bi.^{3x}—Gradual onset; hoarse, dry, barking cough; tonsils red and swollen; wheezing breathing; thick and tenacious secretions; tongue with thick, yellowish coating; irritable stomach. *Dose.*—3x or 6x dilution.

Iodine.—Dry, short, wheezing cough; in scrofulous subjects. *Dose.*—2x; 3 drops of a fresh solution, every 30 minutes.

Bromine.—Rattling of secretions with the cough; great prostration early. *Dose.*—2x dilution, freshly prepared.

GENERAL MEASURES.

Quarantine.—Since it is difficult to determine early in the disease which cases are diphtheritic and which non-diphtheritic, all cases should be isolated.

Diet.—Feed with care, to maintain the patient's strength. If there is much prostration, use alcoholic stimulants.

Intubation.—Called for in almost all cases.

INTUBATION.

Importance.—Above all other diseases pseudo-membranous croup is the one in which many lives are saved by intubation.

Indications.—Do not wait too long. Do not wait until cyanosis appears. *If dyspnea steadily increases* and the temperature continues to rise, operate without delay.

Instruments.—(a) Tubes, gold-plated or hard rubber

(*b*) gauge; (*c*) introducer; (*d*) mouth-gag; (*e*) extractor. (Keep all instruments in an aseptic condition.)

The Patient.—Wrap the child in a blanket, with its arms to its sides and its legs well confined, to prevent struggling.

Assistants.—The child is placed in the lap of one assistant, with its head against the assistant's left shoulder. The second assistant, standing behind, holds the child's head firmly.

The Tube.—Select a tube corresponding to the child's age, as indicated by the gauge. If it is a very large child, use a tube belonging to a child one year older. Thread the tube with a loop of silk about a foot long.

The Gag.—Place the gag at the left angle of the child's mouth, and open it as widely as possible. Let it be held in position by the second assistant.

The Operator, seated on the edge of a chair, takes a position directly facing the child. Hold the introducer, with tube attached, in the right hand.

Introduction of the Tube.—Work all the time *in the middle line* of the patient's body, and work quickly. Use the index finger of the left hand as a guide. Pass the finger well back into the pharynx, then bring it forward until the upper part of the cricoid cartilage is felt as a hard nodule. In front the epiglottis and opening of the larynx will be felt. Pass the tube along the palmar surface of the left index finger, and guide it into the larynx, with an upward sweep of the handle of the introducer. Disengage the tube. Remove the gag.

Success will be indicated by sudden relief of the dyspnea, and a paroxysm of cough.

Removal of Thread.—When the tube is known to be in proper position, remove the thread. First, see that there is no twist in it. With scissors cut the lower strand well into the mouth. Place the index finger on the head of the tube for an instant as the thread is withdrawn.

POSSIBLE ACCIDENTS.

Tube in the Esophagus.—The tube may be inserted in the esophagus instead of in the larynx. This is due to the child's head being held too far forward or too far back. It is indicated by absence of relief of dyspnea. When it occurs, withdraw the tube by means of the thread, wait several minutes for the child to rest, then make proper insertion.

False Passage in Larynx.—The tube may be pushed into one of the ventricles of the larynx. This is due to *failure to keep in the median line*, and to too much force being used in the introduction of the tube. Only gentle effort should ever be made. The accident is recognized by the fact that the head of the tube projects above the epiglottis.

Membrane below the Tube.—Loosened flakes of membrane may be crowded down ahead of the tube. This *unfortunate* accident is announced by sudden and *alarming dyspnea*, with stoppage of breath and cyanosis. *The tube must be quickly withdrawn*, by means of the

thread, and the mouth-gag removed. The child must be inverted, and every effort made to excite cough. Artificial respiration, followed by tracheotomy, must be resorted to if the child does not at once revive.

Dislodgment of the Tube.—The tube may be coughed up and expelled, or swallowed. Neither accident is very serious. A tube in size next larger should be introduced. A swallowed tube will pass through the intestines without harm. When the tube is coughed up wait for a return of dyspnea before re-introducing.

Apnea.—Prolonged attempts to insert the tube may cause apnea. It should not take more than five seconds to complete the operation.

AFTER-TREATMENT.

Feeding the Patient.—This requires care. A nursing infant can usually continue at the breast. Older children should lie supine, on the edge of a couch, or on the nurse's lap, with the head and shoulders suspended toward the floor. In this position feed with a spoon. Give soft, semi-solid food—bread moistened in milk; junket; corn-starch; wine jelly; soft poached egg.

Time of Wearing the Tube.—In pseudo-membranous laryngitis, leave in from four to seven days. In very young children, longer.

Removal of the Tube.—For two hours prior to time of removal let no food be taken by the patient. Prepare the child as for its introduction. With the left index finger feel the head of the tube, steadying it with the thumb of the left hand over the larynx outside the neck. Introduce the extractor, and withdraw quickly but gently.

CAPILLARY BRONCHITIS.*

(BRONCHIOLITIS.)

Diagnosis.—The significant symptoms are:—Widely distributed sub-crepitant râles; feeble respiratory murmur; moderate fever; *rapid* respiration; *drowsiness*; cyanosis; feeble, rapid pulse; cool, clammy sweat. As broncho-pneumonia supervenes, all these symptoms become intensified, with rise of temperature.

TREATMENT.

Belladonna.^{2x}—Early in the attack. Intense congestion of the lungs; convulsions; skin red and hot, though moist; alternating stupor and delirium; eyes red and injected; throbbing carotids. The use of *Belladonna* must be limited to the congestive stage.

Tartar emet.^{2x}—This is the most important remedy. Loud râles; intense dyspnea; threatened suffocation; wheezing, and rattling of mucus; cyanosis; skin livid with cool perspiration; *drowsiness*; threatened paralysis of the lungs.

Ipecac.^{3x}—Mucous râles; spasmodic cough; in violent paroxysms, with retching and vomiting. The child becomes blue in the face in the paroxysms of suffocation.

*Although, clinically, it is difficult to distinguish this affection from broncho-pneumonia, yet since it is for the most part a disease of infancy and as such is much more grave than when it occurs in the adult, its separate consideration in this connection is of practical advantage.

cough. *Special indications*:—The retching and vomiting determine the choice of *Ipecac.* The cold surface, cyanosis and prostration are not as marked as in *Tart. emet.*

Veratrum album. *Tr.*—Rattling of mucus in the lungs; cold sweat; blue surface; great prostration; weak heart's action; involuntary micturition with the cough; attacks sometimes accompanied by vomiting and diarrhea. *Special indications*:—The great prostration, cold, blue surface, weak heart and threatened collapse.

Arsenicum. ^{6x}—Excessive anxiety; face gray, pinched, or edematous; constant restlessness, the child changing from bed to lap, and back again; burning heat; great thirst.

Ammonium carb.—In a late stage of the disease. Great accumulation of mucus in the lungs; continual cough, but nothing is raised; rattling of large bubbles of mucus; great prostration, with cold and blue surface, and feeble pulse. This belongs to the treatment of a more extreme condition than the one calling for *Tart. emet.* Its administration will sometimes bring about a favorable reaction. *Dose*:—One grain, in solution, well diluted.

Cuprum ars. ^{2x}—For accompanying vomiting, pain and diarrhea.

Senega. ^{2x}—Cough almost incessant, with viscid mucus secretion, and pains all over the chest.

Ferrum phos. ^{2x}—With the onset of the disease, in cachectic subjects.

Strychnin.—Threatened heart-failure in extreme conditions. *Dose*:— $\frac{1}{100}$ to $\frac{1}{60}$ grain; repeat in 4 hours. In children use strychnin with caution.

GENERAL MEASURES.

The general management of a case of this disease is of the utmost importance.

Sick-Room.—Temperature about 72°. The air should be kept moist by steam atomizer or a vaporizer. Ventilate thoroughly.

The Patient.—Change the position of the child frequently, from side to side in the crib, or take it up occasionally. If there is free secretion, at times hold it in a position with the head lower than the chest, to favor gravitation of matter towards the larynx. When respiration is embarrassed, work and knead the muscles of the chest; if the condition is critical, do so with vigor enough to make the child cry.

Diet.—Keep up nutrition by careful feeding. Give plenty of water. *Do not* let the stomach become distended with gas. Guard against constipation; a glycerin enema if there is accumulation in the lower bowel.

Applications.—Avoid the use of poultices, and impervious applications covered with oil-silk. A soft flannel shirt, tied with tapes in front, is sufficient. If there is acute pleuritic pain, apply a hot compress over the part affected.

Bath.—As soon as there are slight signs of respiratory failure, cyanosis, livid skin or drowsiness, give a hot bath. Put the child for a few moments into water of

100° to 110°. Take it out and wrap it in a warm blanket. Repeat as indicated.

Stimulation.—For weak heart, with small, flickering pulse, give alcoholic stimulant; $\frac{1}{2}$ oz. of brandy to 3 oz. water: 2 teaspoonfuls every half-hour.

Oxygen.—For suffocation and respiratory failure, inhalation of oxygen. Give freely and frequently.

ACUTE MILK-INFECTION.

(CHOLERA INFANTUM; CHOLERIFORM DIARRHEA.)

Etiology.—It is a toxemia due to the effects of a poison generated by the action of bacteria in milk, occurring in hot weather.

Symptoms.—Sudden onset, with severe vomiting and purging; vomit, first contents of stomach, then mucus and bile; stools, first contents of bowels, then serum; rapid emaciation; intense thirst; restlessness; weak, rapid pulse; cool surface; high rectal temperature; depressed fontanelles; stupor. Characterized by *sudden onset* and rapid development of all the symptoms.

TREATMENT.

Veratrum alb. Tr.—Vomiting and purging, the latter predominating; great exhaustion, or even a state of collapse; cold sweat on the forehead; colic, and cramps in the legs; stools profuse and watery.

Camphor. Tr.—Early and sudden collapse, with cold, blue surface; the child almost unconscious; voice weak and hoarse; stools painless; cold sweat on the face.

Arsenicum. $3x$ —Great *prostration*; extreme *restlessness*; unquenchable *thirst*; cool skin; face pale and cadaveric; vomiting and purging; frequent watery, offensive stools.

Zincum met. $6x$ —Late in the attack, a state of collapse; sunken features; open eyes; sunken fontanelles; deficient nerve power; absence of reaction; subnormal temperature.

Differentiation.—*Camphor* is for *collapse* occurring *early*, with a sudden and violent onset of the disease; *Veratrum alb.*, an attack accompanied by *pain*—colic and cramps; *Zincum*, profound *collapse*, with a condition of hydrocephaloid and an absence of reaction; *Arsenicum*, restlessness and intense thirst.

NOTE.—Medicines will act more promptly if given in hot water, instead of cold. Repeat frequently.

Hydrocyanic acid.—Paresis of the intestines; fluids roll audibly; respirations at long intervals, slow, deep, gasping. *Dose:*—The dilute C. P. acid, drop doses.

Secale. $1x$ —Profuse, watery stools after the violence of the attack has passed; great prostration; cold surface aversion to being covered.

Cantharis. $3x$ —Continued suppression of urine after the attack.

GENERAL MEASURES.

Diet.—Stop the milk. *Give no milk whatever*, of any kind, to a patient with cholera infantum. During the attack give no food. The stomach cannot care for it. The child can well go 24 hours without it. When feeding is resumed the best article is a mixture of *barley-water and cream*.

Sick-Room.—This is a hot-weather disease. Do not keep the child in the close atmosphere of a hot room. Seek the airiest and coolest upper room in the house.

Warmth.—Apply warmth to the surface. Surround the patient with hot-water bags or hot bottles. Put a hot dry flannel compress along each side of the chest, extending into the axilla, changing frequently. Put a hot-water bag between the thighs. Give hot-water rectal injections.

Thirst.—If drinking cold water excites vomiting, try hot water. Bits of ice are allowable.

Loss of Fluids.—To supply loss of fluids due to serous discharges, give subcutaneous injections of *normal saline solution*. In one pint of sterilized water dissolve 45 grains of sodium chloride. Inject warm into the cellular tissue of the abdominal wall, the buttocks, thighs or back. At least half a pint should be given, in divided portions, in the course of every 12 hours. *Method:*—Attach the needle of a hypodermic syringe to a few inches of rubber tubing, and this to the nozzle of a bulb syringe. Sterilize the syringe. Make the injection slowly. *Inject no air.* Each time measure the quantity injected. *Indications:*—Use this method always in collapse, in shrinking of the body, and in weak heart's action from loss of fluids.

Stimulation.—Give stimulants freely in states of exhaustion and collapse, with weak, soft, compressible pulse. Iced champagne; brandy or whisky in hot water; wine-whey. For infants under one year, brandy must be diluted with eight parts water; four years old, twice that strength.

Convalescence.—Return to the usual diet with care. Daily inunctions of olive oil to the wasted body. Plenty of fresh air and sunlight. Removal to lake, seashore or mountain will promote rapid recovery.

THE DIARRHEAS OF CHILDREN.

(GASTRO-ENTERIC INFECTION; ENTERO-COLITIS; "SUMMER DIARRHEA.")

This includes several distinct conditions, pathologically, yet the treatment is essentially the same in all.

TREATMENT.

Aconite.^{1x}—Early in the attack; after exposure to cold; or getting wet; tenesmus; restlessness; thirst; fever; full, hard, quick pulse.

Ipecac.^{2x}—Only in recent cases, before there is loss of flesh and exhaustion; continuous nausea is most characteristic; stools—green, and as if fermented; vomiting; there may be violent colic.

Podophyllin.^{3x}—The attack is *painless*; stools—profuse and gushing; prolapse of the anus with the stool; empty retching.

Croton tig.^{3x}—Yellow, watery stool; expelled suddenly and with great force; aggravated by food and drink.

Camphor. Tr.—The attack comes on suddenly; rapid *sinking*; *stupor*; prostration; face pale, livid; skin cold; vomiting.

Cuprum ars.^{3x}—Great frequency of the stools; cramps of the muscles of the legs; violent colic.

Chamomilla.^{3x}—Only in recent cases; the child is fretful, peevish and cross; only quieted by being carried; *tatulent colic*, with eructations; stools, small, frequent, offensive.

Belladonna.^{1x}—Recent cases, with fever; dry heat of the skin; drowsiness; sudden starting in sleep; frequent thirst; head hot; stools, green mucus, or bloody mucus.

Apis mel.^{3x}—Absence of thirst; abdomen sensitive to pressure; tongue dry; skin hot; stupor, with shrill cries; involuntary stools; hydrocephaloid.

Calcarea carb.^{6x}—Open fontanelles; face wrinkled and old-looking; profuse sweat on the head during sleep; cold extremities; emaciation; bloated abdomen; strong-smelling urine; stool large, watery, yellow; in "scrofulous" subjects; during dentition.

Veratrum alb.^{1x}—Vomiting and purging; *severe colic*; profuse, watery stools; great exhaustion; cold sweat.

Arsenicum.^{6x}—*Great prostration; extreme restlessness and unquenchable thirst*; cold extremities; face pale and cadaveric; skin dry and shriveled; stools thick, dark-green, or *dark, watery, offensive*.

Rheum.^{3x}—Mucous stools; sour; fetid; yellow; colic; sour smell of the whole body.

Mercurius.^{3x}—Stools green, slimy, bloody; cutting colic; swollen gums; tongue coated, white or yellow; thirst; sweat.

GENERAL MEASURES.

Diet.—In acute diarrhea, if the child is not already feeble or exhausted, for twenty-four hours give no food whatever. When feeding is resumed begin with barley-water, or barley-water and cream. Other articles of diet may be:—meat-juice; toast-water; albumen-water; wine-whey; koumiss. Return to a milk diet with caution.

Lavage.—At the beginning of treatment, wash out the stomach. Give a free enema, hot water with boracic acid; repeat once or twice a day.

Clothing.—In hot weather dress the child in a single cotton garment, with suitable additions at night, or when out-doors.

Napkins.—Remove as soon as soiled, and place in a disinfectant solution: Zinc-chloride, 1 lb.; water, 2 gallons.

The Skin.—For excoriations of the folds of the skin, dust with:—Boric acid, 1 part; powdered starch, 9 parts.

Baths.—When the child is hot and restless, give a sponge-bath of tepid water with one-quarter part alcohol.

Fresh Air.—Keep the child in a *cool, shaded place*, with an abundance of fresh air. If in the hot city, take the patient to the country, to the seashore, lakes or mountains. Keep it in the open-air most of the day.

STOMATITIS.

CATARRHAL STOMATITIS.

TREATMENT.

Aconite.^{1x}—When fever accompanies.

Belladonna.^{2x}—Bright redness, with dryness of mucous membrane.

Arum tri.^{3x}—The mucous membrane red and hot, with much pain and sensitiveness.

Mercurius sol.^{3x}—Mucous membrane and gums much swollen; profuse salivation; swollen glands.

Sulphur.^{3x}—Gastro-intestinal disturbance, with diarrhoea.

Local.—Absolute cleanliness of the mouth; in cleansing avoid friction that will injure the membrane. Gently wash the mouth with:—R. Boric acid, grs. 10, to water, oz. j. Generally cold food is least painful; in some instances this does not hold true.

APHTHOUS STOMATITIS.

TREATMENT.

Borax.^{3x}—An important remedy in this form. Mouth hot and sensitive, with easily-bleeding ulcers. Thirst, and vomiting.

Kali chlor.^{1x}—Obstinate follicular stomatitis, with extreme fetor; tough, stringy saliva; mucous membrane red and swollen; grayish ulcers.

Hydrastin.^{2x}—Vesicles, or aphthous ulcers; tongue swollen, with yellow coating; viscid secretions.

Local.—Maintain absolute cleanliness. As cleansing washes use:—*Borax*, 10 grs. to the oz. of water; *Kali chlor.*, 5 grs. to the oz.

ULCERATIVE STOMATITIS.

TREATMENT.

Mercurius sol.^{3x}—The most important remedy for this form. Great fetor; tongue swollen and indented; profuse salivation; offensive breath; teeth loose.

Argentum nit.^{2x}—Accompanied by gastric symptoms; eructations of gas from the stomach. *Dose:*—2x dilution, *freshly prepared.*

Baptisia.^{Tr.}—Intolerable fetor of the breath; mucous membrane dark purple; gums loose, flabby; watery, foul stools; feeble state and great prostration.

Hepar sulph.^{2x}—Mercurial stomatitis.

General Measures.—Careful constitutional treatment; give an anti-scorbutic diet. In obstinate cases, look for disease of the teeth or the alveolar processes.

Local.—Cleanse the mouth carefully and thoroughly. Use hydrogen peroxide, 1 part, to water, 10 parts. Follow with pure water; repeat several times daily.

Month-Washes.—*Potassium chlorate*, 3 grs. to the oz. *Baptisia*, tincture, $\frac{1}{4}$ to water $\frac{3}{4}$.

GANGRENOUS STOMATITIS.

(NOMA; CANCRUM ORIS.)

TREATMENT.

Arsenicum.^{3x}—For the general condition only. The local condition must have local treatment.

General.—Isolate the patient so that other children may not become affected. Give a supporting diet, and use stimulants in depression.

Local.—No time must be lost in experimental treatment. Begin at once to destroy the gangrenous area. *Rule:*—*Destroy not only the affected tissue, but also adjacent healthy tissue.* *Methods:*—Excise or curette thoroughly.

then cauterize with Nitric acid fortior. Or, use the Paguelin cautery. After operation, dress the wound with Iodoform, Ichthyol or Aristol. Cleanse the mouth with Hydrogen peroxide, or Kali permanganatum.

THRUSH.

(STOMATITIS MYCOSA.)

Etiology.—Due to a fungus, the *saccharomyces albicans*; conveyed to the child's mouth by the nipple or the nursing-bottle.

Diagnosis.—On the mucous membrane of the mouth a spot of grayish-white, or creamy color appears, elevated above the general surface; removal requires some violence, leaving a spot denuded of epithelium. The fungus spreads rapidly, and may assume the appearance of a layer of curdled milk. It generally appears in cachectic or debilitated subjects.

TREATMENT.

Local.—Cleanse the mouth, immediately after nursing or feeding, and at frequent intervals between, with an alkaline solution, applied by means of a soft cloth, using the finger or a swab.

Solutions.—Sodium sulphite, 1 dram; water, oz. iv. Sodium bicarbonate, a dram to the ounce.

RETROPHARYNGEAL ADENITIS.

(RETROPHARYNGEAL ABSCESS.)

Etiology.—It occurs in children of tuberculous diathesis, in the syphilitic, and after scarlatina, measles, etc. It has followed middle-ear suppuration (pus breaking through the anterior wall of the tympanic cavity, or through the semi-circular canal); also, scalding liquids; caustics; traumatism (fish-bone).

Diagnosis.—*General*.—Loss of appetite; restlessness; painful deglutition; *dyspnea*, gradually increasing; fever (more especially in adults); position of the head suggests torticollis. *Local*.—Congestion of the soft palate and tonsils, with tumefaction. When the tumor is *high*.—Nasal respiration obstructed; palpation detects a soft mass, feeling like adenoids; the rhinoscopic mirror reveals the tumefaction. When posterior to the base of the tongue, the tongue-depressor brings it into view. When it is behind the glottis it causes dysphagia, and pressure on the epiglottis may cause dangerous dyspnea. In all three locations it is usually to one side of the median line.

TREATMENT.

Medicinal.—*Belladonna*.^{3x}—Swelling sudden and rapid; throbbing pains. *Hepar sulph*.^{3x}—To hasten suppuration; *Hepar sulph*.^{30x}—To abort the process when seen early; chills and sharp sore pains. *Mercurius*.^{3x}—When pus has formed, to hasten suppuration; swelling of surrounding glands. **For the Pre-disposition:**—Calc. carb. ¹ Ferrum phos.^{3x} Silicea.^{6x} Kali hyd.^{1x} Calc. iod.^{3x}

General.—Build up the general health by baths, die exercise.

Local.—When seen early, ice-bags to the neck. **When fluctuation appears:**—Open without delay with a guard.

bistoury. Paint the part with 4% Cocain. At the *lowest* point, make a *small* incision first, so that the pus will escape gradually. *Immediately* on withdrawing the knife invert the child, to prevent pus finding its way into the larynx (fatal strangulation has occurred from spontaneous rupture, especially during sleep.) The opening can be enlarged with forceps-blades after the first free flow of pus, still keeping the child's head dependent.

After-Treatment.—Provide for drainage by keeping the incision patent until suppuration has ceased. Injections are usually unnecessary.

CONVULSIONS.

Predisposing Causes.—(1) DISTURBANCES OF NUTRITION:—Rickets; anemia; malnutrition; syphilis; debility (from exhausting diseases). (2) HEREDITY:—“Nervous” temperament.

Exciting Causes.—DIRECT IRRITATION:—Cerebral meningitis, hemorrhage, tumor, abscess, embolism, or thrombosis.

REFLEX IRRITATION:—Stomach or intestines (undigested food; worms); retention of urine; phimosis; burns; enlarged thymus; dentition.

TOXEMIA:—Uremia; the poisons of—scarlatina; pneumonia; malaria; gastro-enteritis; measles; typhoid; diphtheria; pertussis.

Diagnostic Hints:

Constitution.—If the child is weakly, wasted and cachectic, the irritation causing the convulsions is probably in the brain; if it is robust and apparently healthy, the conditions are probably reflex.

Urine.—Examine the urine in every case of doubtful origin, whether or not dropsy is present.

Dentition.—“Teething” is a rare cause of convulsions, *except in children markedly rachitic.*

Onset of Acute Diseases.—Convulsions in a child previously well, with no premonition, coming on suddenly, accompanied by fever, almost always indicates the onset of some acute disease—pneumonia, scarlatina, etc.

Brain Disease.—Convulsions occurring in brain disease are marked by focal symptoms—localized paralysis or rigidity; changes in the pupils; strabismus. Excepting in acute meningitis, it is not often marked by rise of temperature.

Stomach and Intestines.—Irritation of the alimentary tract is a frequent cause. Examine for constipation, improper feeding; worms; fits of passion.

Epilepsy.—Rare in young children. Indicated by—History of previous attacks; aura; sudden onset, with cry or a fall; biting the tongue; tonic spasm, then clonic. Convulsions with fever are rarely epileptic.

Entozoa.—The tape-worm and round worm sometimes act as the irritant. Their demonstrated presence is the only absolutely diagnostic sign.

Asphyxia.—This may be the exciting cause in:—New-born; pertussis; laryngitis; laryngismus stridulus; *lact in pneumonia.*

Prognosis.—The convulsions of childhood are seldom fatal. *Unfavorable* features are:—Convulsions prolonged, or frequently recurring; great prostration; feeble pulse; cyanosis; stupor.

TREATMENT.

Belladonna.^{1x}—Cerebral congestion; face hot and flushed; violent throbbing of the carotids; starting and jerking in sleep.

Ignotia.^{2x}—Tonic spasms, in those of highly nervous temperament; from fright or grief; dentition.

Chamomilla.^{6x}—Great irritability and “nervousness”; bowels bloated; restlessness, with moaning and groaning; one cheek red and hot; convulsions after a fit of anger.

Opium.^{3x}—From fright. **Cicuta.**^{3x}—From injury. **San-tonin.**^{1x}—From worms. **Nux vom.**^{2x}—From indigestion. **Verat. vir.** Tr.—Onset of pneumonia. **Cuprum.**^{3x}—Repercussion of eruptions. **Phosphorus.**^{3x}—For the rachitic.

GENERAL MEASURES.

Room.—Keep the child quiet; darkened room.

Bath.—Strip the child and put it in a warm bath (90° F.), with a cold sponge to the head (*if the head is hot*); let it remain in the water about 10 minutes. Mustard may be added to the bath.

Head.—Never make cold applications to the head if the face is pale and the head cool.

Mustard Pack.—To one quart of warm water add one tablespoonful of ground mustard, mixing thoroughly; dip into this a small folded sheet or large towel; take out, and while the towel is still dripping wrap the naked child in it; thus wrapped, lay the child on a blanket, and wrap the blanket about it, snugly. Let it remain until the skin is reddened—10 or 15 minutes. Repeat if the convulsions recur. The mustard pack is often preferable to the bath.

Digestive Disorders.—If there is undigested food in stomach and intestines, create vomiting by irritating the fauces with the finger, or by an emetic. Unload the lower bowel by a free enema.

Chloroform.—Chloroform, judiciously administered, may be used to stop the spasms if they are persistent in spite of other efforts.

Chloral hydrate.—If the convulsions are long continued, or of frequent recurrence, give chloral hydrate. *Dose:*—6 months, 4 grs.; 1 year, 6 grs.; 2 years, 8 grs. Dissolve in 1 oz. warm milk, inject high through a catheter, and retain by compression on the buttocks. It may be repeated, if necessary, in one hour.

Amyl nitrite.—By inhalation in the epileptic.

Glonoin.—When there is violent congestion of the head.

After-Treatment.—Regulate the diet; prevent over-feeding; correct constipation; in the rachitic, proper diet, plenty of fresh air and sunshine.

LARYNGYSMUS STRIDULUS.

(SPASM OF THE GLOTTIS.)

Etiology.—It generally occurs in rickety subjects.

Diagnosis.—The “crowing” inspiration, with absence

of hoarseness, cough and fever will distinguish it from croup.

Prognosis.—Generally favorable. *Unfavorable:*—In the very young; general convulsions; increasing frequency of the paroxysms; broncho-pneumonia.

TREATMENT.

Chlorine.—This is the most efficient agent. *Dose:*—Make a weak solution in water so that the odor is just detected; give teaspoon doses, p. r. n. Inhalation of Chlorine gas is also useful.

Iodine. *Tr.*—In markedly rachitic subjects; or when there is enlargement of the thymus.

Sambucus. *Tr.*—The face red and hot; hands and feet cold.

Cuprum.—Tetanic spasms; cyanosis.

GENERAL MEASURES.

Hydrotherapy.—Dash cold water into the face, or upon the chest. Apply a hot compress to the throat. Immerse the child for a few minutes in a warm bath (96° F.). Ice to the epigastrium, for a moment, during the spasm.

The Patient.—Keep the child semi-recumbent; make traction on the tongue; artificial respiration if breathing is suspended; plenty of fresh air at all times.

Intervals.—Treat for rachitis:—An open-air life, with abundance of pure, nourishing food. Treat sources of local irritation:—Enlarged lymph-nodes: adenoids; tonsils; thymus; uvula.

INFANTILE SPINAL PARALYSIS.

(POLIOMYELITIS ANTERIOR ACUTA.)

Diagnosis.—Three modes of onset: (1.) No premonitory symptoms; the child goes to bed apparently well; slightly restless in the night; the next morning the characteristic paralysis is discovered. (2.) Sudden vomiting; pains in the legs; hyperesthesia; fever 101° to 103°; in from 1 to 4 days paralysis is complete. (3.) In a small number of cases, convulsions; delirium; fever 103°, 104°; prostration; constipation; severe pains in the back and legs; in several days paralysis appears.

Age.—Under 5 years; most cases, in the second year.

Paralysis.—Most cases, one leg; next, both legs. The arms may be involved.

Symptoms.—Motor paralysis; loss of reflexes; atrophy of the involved muscles; relaxation of ligaments, and subluxation of the joint.

Prognosis.—Little danger to life; complete recovery of the paralyzed muscles is rare; as a rule the chances are to be judged according to the degree of faradic contractility.

TREATMENT.

Aconite. *1x*—Early; fever; restlessness; thirst; dry, hot skin; pains in the back and limbs; child screams when touched. Generally the period when this remedy is indicated has passed when the physician sees the case.

Belladonna. *1x*—Cerebral congestion; face flushed; pupils dilated; sudden onset and high degree of inflammation.

Gelsemium. Tr.—This is the most important remedy early in the disease. Pain in the back of the head and spine; disturbances of vision; loss of voluntary motion.

Causticum. 3x—Bruised pain when touched; numbness of lower extremities; slow pulse. This remedy has been often found useful.

Plumbum. 3x—In chronic cases; paralysis; atrophy of the muscles. This is the chief remedy after the acute stage has passed.

Electricity.—Electrical treatment should be used persistently, so long as there are the slightest signs of improvement. *Never use this agent in the acute stage; only after inflammation has completely subsided.*

Galvanism.—*Strength of current:*—Just enough to excite contractions, and no more. *Poles:*—The *anode*, with a large flat electrode, over the spine; the *cathode* to the motor points of the affected muscles. Use an interrupting handle or the *cathode*, and make interruptions twice a second, about twenty-five times. Exercise each muscle in this way. Do not over-stimulate the muscles by too strong a current or too long an application. Give treatments, daily, or every other day.

Massage.—Friction, kneading and passive exercise of the muscles is of benefit in promoting nutrition; give daily treatments.

Baths.—Bathe in hot water twice a day to stimulate the circulation.

Orthopedics.—Myotomy and tenotomy, and braces and other apparatus, for deformed limbs.

TUBERCULOUS MENINGITIS.

(ACUTE HYDROCEPHALUS.)

Diagnosis.—Usually, pre-existing tuberculosis of some other part of the body. *Early symptoms:*—Fretfulness; irritability; drowsiness; loss of appetite; constipation; headache; grinding of the teeth; vomiting; sharp cry in sleep. *Attack:*—Convulsions; stupor; cutaneous hyperesthesia; exaggerated reflexes; muscles of extremities, and of neck, rigid, with the head drawn back; pupils contracted; nystagmus; pulse slow, irregular; slight irregularity of respiration; temperature, 99° to 101° F. *Later:*—Coma; irregular pupils; strabismus; muscular twitchings; opisthotonos; retracted abdomen; *tache cérébrale*; pulse slow; Cheyne-Stokes respiration; toward the end, high temperature, 104°, 106°, or even higher. Death usually occurs in a state of deep coma, though sometimes in convulsions. (There are many variations from the course here indicated.)

Prognosis.—Always grave; recovery is exceedingly rare.

TREATMENT.

Iodoform.—This is the most important remedy, and is credited with having effected a number of cures. Most of the reported cures have followed the use of *Iodoform ointment*, used as an inunction to the scalp, the entire head having been shaved. It can also be given internally. *Dose:*—2x trit.; a tablet every hour.

Helleborus. Tr.—It belongs to the period of beginning paralysis; there is a state of general apathy. Boring of the back of the head into the pillow; eyes rolled up; lids half closed; head hot; slow, sighing breathing; sluggish action of the pupils; soporous sleep, with moaning and starting; automatic motions of one arm and one leg; twitching of muscles.

Apis. ^{3x}—In the early stage of irritability. Convulsions; soporous sleep, interrupted by piercing shrieks; strabismus; spasm of individual muscles; grating of the teeth.

Bryonia. ^{3x}—Stage effusion. **Opium.** ^{3x}—Deep coma. **Calcarea carb.** ^{6x}, **Sulphur** ^{6x}, **Calcarea phos.** ^{3x}—For the strumous diathesis predisposing to the disease.

GENERAL MEASURES.

Sick-Room.—This must be kept *absolutely quiet, dark,* and well ventilated.

The Patient.—Keep at absolute *rest*. Shave the head; apply cold compresses to the head so long as there is excitement, or the head is hot. Use with caution, and *do not apply after the stage of depression has set in*. Keep the extremities warm by hot-water bags, or hot flannels.

Diet.—Give bits of ice, and cold water. A sustaining diet—milk and broths.

RICKETS.

(RACHITIS.)

Etiology.—Due to errors in diet and hygiene. It follows feeding with impoverished mother's-milk, from prolonged lactation; condensed milk; proprietary foods; foods containing an excess of carbohydrates, but *deficient in fat and proteids*.

Symptoms.—Chiefly in the bones. Large head; narrow chest; prominent abdomen; swelling of the epiphyses of the wrists and ankles; curvature of the long bones; beading of the ribs; cranio-tabes. Sweating, especially about the head; constipation; marked restlessness during sleep. Various deformities. Anemia.

TREATMENT.

Dietetic.—Reduce the diet of carbohydrates:—Starches, sugars, proprietary foods. Give proteids:—Milk, eggs; red meats; cream; fats; fresh fruits.

Hygienic.—An abundance of fresh air and sunshine; cold sponge-baths; exercise.

Orthopedics.—Treat deformities surgically.

Medicinal.—**Calcarea carb.** ^{6x}; **calcarea phos.** ^{6x}; **Ferrum phos.** ^{3x}; **Phosphorus.** ^{3x}

SCORBUTUS.

(INFANTILE SCURVY.)

Etiology.—It is always due to faulty nutrition, from improper feeding, especially with condensed milk and proprietary foods.

Diagnosis.—Hyperesthesia, with acute pain on motion, about the knees and legs (it has been mistaken for *rheumatism*); the gums swollen and easily bleeding; *arthritic swelling*; *ecchymoses*; hemorrhages; cachexia; anemia. *Severe pain in the legs* usually first attracts attention.

TREATMENT.

Dietetic.—Give fresh cow's-milk; cream; beef-juice; orange-juice; lemon-juice; bread-and-butter; baked potato (if the child is over one year).

Medicines.—These are of secondary importance: Mercurius; Ferrum phos.; Muriatic acid; Phosphorus; Arsenicum.

ENURESIS.

(INCONTINENCE OF URINE.)

Causes.—The ordinary enuresis of childhood is a neurosis. It may be due to irritation of the nervous system in anemia; chlorosis; malnutrition; neurasthenia; chorea; epilepsy; hysteria; headache; neuralgia. Related to the genito-urinary organs:—cystitis; calculus; acid urine; phimosis; balanitis; constricted meatus; vulvo-vaginitis; adherent clitoris. Pin-worms, and fissure, or rectal polypus. Lastly, inheritance; and habit—a continuance of the infantile condition.

TREATMENT.

Sulphur. 6x—If there is no distinct condition calling for other treatment, it is well to begin the treatment with Sulphur. Many cures will be effected.

Belladonna. Tr.—For nocturnal enuresis; "habit" enuresis; want of control of sphincter vesicæ. Restless sleep; twitching of the muscles. *Dose:*—Drop doses of tincture; may be increased to 3 drops if necessary.

Santonin. 1x—This will effect a cure in most cases due to worms.

Equisetum. Tr.—This will cure many cases, even when due to vesical irritation. Tenderness over vesical region; frequent urging, with pain after micturition; incontinence of urine in old men; dribbling of urine in the insane. Diurnal, as well as nocturnal enuresis. *Dose:*—Give 6 drops of Tr. 4 times daily.

Causticum. 3x—Weakness of sphincter vesicæ; urine passes in first sleep. In the day urine passes on the slightest excitement; escape of urine when coughing.

Calcarea carb. 6x—In children of "scrofulous" diathesis—glandular enlargement; fair complexion; inclined to fat; the head sweats; prominent abdomen.

Benzole acid.—Nocturnal enuresis, with dark, offensive urine. *Dose:*—Dissolve 1 part pure crystals in 9 parts alcohol; 3 drops at a dose.

Valerianate of Ammonia.—Nervous, hysterical children. *Dose:*—10 drops.

Pulsatilla. 3x—In girls; involuntary, at night; profuse flow of pale, watery urine.

Gelsemium. Tr.—Partial or complete paralysis of the sphincter vesicæ; enuresis in nervous children. *Dose:*—Tr. or 2x.

GENERAL MEASURES.

General Health.—Attend to general condition with reference to:—Air; exercise; regular habits; avoidance of excitement; plenty of sleep; bathing, etc. Do not use a soft mattress, or heavy, warm covering. Remove sources of irritation in any part of the body. The bowels should be kept free.

Diet.—Easily digested food; light suppers; little drink late in the day; avoid meats, sweetmeats, condiments, tea, coffee.

Surgical.—Operate in cases of phimosis; paraphimosis; constricted meatus; adherent prepuce; vesical calculus, etc.

VACCINATION.

Age.—Vaccinate every child in infancy, and revaccinate at the age of puberty. After that, whenever exposure is liable to occur.

Location.—In boys, on the arm; in girls, for cosmetic reasons, on the leg, over the junction of the two heads of the gastrocnemius.

Material.—Use *pure bovine virus*, preserved in glycerine in sealed glass tubes.

Technique.—Make hands and instrument surgically clean. Make the part surgically clean, with soap and water, bichloride solution, and alcohol. With the sharp edge of the blade of a lancet scrape the skin down to the papillary layer, until serum exudes, but not so as to draw blood. Rub the abraded surface with the glycerinated vaccine. Let it dry; protect with gauze, and secure with strips of plaster.

Course:

<i>3rd day.</i> —Papule appears.	<i>10th day.</i> —Areola begins to fade.
<i>6th day.</i> —Vesicle with central depression.	<i>14th day.</i> —A brown mahogany crust has formed.
<i>8th day.</i> —Vesicle distended with lymph, and it has a wide, red areola.	<i>23rd day.</i> —Crust becomes detached.

Mixed Infection.—If through accidents beyond the control of the physician, mixed infection occurs, the infected wound must be burned out with pure Carbolic acid and treated as any other ulcer.

Bad results and mixed infection, except in the case of accident, are the fault of the physician. In twenty-five years' practice, including two epidemics of small-pox, I have never had any but typical results.

HEREDITARY SYPHILIS.

(CONGENITAL SYPHILIS.)

Diagnosis.—*Infection.*—The infection may come from either one, or both, parents. A healthy mother can bear a syphilitic child by an infected father.* *Symptoms.*—Generally the infant appears healthy at birth. First symptoms usually appear from second to sixth week. If they do not appear before three months, the child is apt to be safe. The *earliest* symptom is usually persistent coryza—"snuffles"; then, skin eruption; mucous patches; fissures; tenderness of joints; emaciation; face wrinkled, drawn, and "old" looking; sallow skin; onychia. Later symptoms:—Hutchinson teeth; osteo-periostitis; interstitial keratitis; subcutaneous gummata. *Colles' law.

Prognosis.—More unfavorable than the acquired form in adults.

TREATMENT.

Mercurius.—Give this medicine systematically and persistently. *Dose:*—*Merc. dulcis* 2x; one tablet every 3 hours. *Inunction:*—Blue ointment, two drams; spread on a flannel binder, wrap about the body. Let it remain 3 days; wash the skin and re-apply. The mercurial treatment should be continued for one year.

Kali hyd.—For changes belonging to tertiary syphilis. *Dose:*—Give to the verge of tolerance in each case. *Form:*—Saturated solution. Graduated dose.

TINEA TONSURANS.

(RING-WORM OF THE SCALP.)

Diagnosis.—Due to a fungus, the *trichophyton tonsurans*. First, a papule surrounding a hair; it increases to a patch one to two inches in diameter, sharply outlined, with rounded border. The hairs become brittle, and break off close to the scalp, leaving a bald spot.

Treatment.—Cut the hair short over the spot and for an inch about it. Wash thoroughly with carbolic soap, every second day. Apply a germicide-tincture of Iodine; Mercuric bichloride, Ichthyol. As a base for ointment use Lanoline 3 parts to Olive oil 1 part. Have the child wear an oil-silk cap.

ENTOZOA.

(INTESTINAL WORMS.)

TÆNIÆ.

(TAPE-WORM.)

Tænia Saginata.—From beef; the most common form. **T. Solium.**—From pork; rare. **T. Eliptica.**—From lice on dogs and cats; sometimes found, especially in infants.

Diagnosis.—The only certain sign is the discovery of the links in the stools. The symptoms are vague and indefinite. Sometimes, though rarely, symptoms resembling pernicious anemia develop.

TREATMENT.

Filix mas. (*Oil of Male Fern*).—Take *Ol. Filic Maris*, one dram. Divide into four capsules.

Mode of Administration.—Let the patient eat a light supper—bread-and-milk; no breakfast; give a saline laxative (*Citrate of magnesia*); after action of the bowels give one capsule, following with the three others at intervals of an hour; after the last one give *Castor oil*, one half ounce.

Punica gran. (*Pomegranate root*).—Use the *Pelletierin tannate*. *Dose:*—1 to 5 grains. Make an emulsion with water and syrup. Give in the manner described for *Filix mas*.

Kamala (*Rottlera*).—*Dose:*—1 to 2 drams. Give suspended in syrup. Give fasting, and follow by *Castor oil*.

Caution.—If, after giving an anthelmintic the head of the worm is not found, repeat the treatment several days later.

Cucurbita pepo semen (*Pumpkin-seed*).—Take the fresh seed; hull them; beat to a paste with powdered sugar

dilute with milk. Give in divided doses, fasting; follow with Oil.

ASCARIS LUMBRICOIDES.

(ROUND WORM.)

Santonin.—*Dose*.—The 1x trit. may be persistently given; or, to young children, tablets containing from $\frac{1}{4}$ to $\frac{1}{2}$ grain; to adults, 1 to 2 grains at a dose.

Naphthalin.—*Dose*.—Varying from 3 to 15 grains, of the crystals.

Cina.—For young children.

Mercurius.^{2x}—For the unhealthy state of the intestinal mucous membrane. Give *Merc. dulcis*.

Stannum; Ant. crud.—According to indications, for the state of the mucous membrane; tenacious mucus.

OXYURIS VERMICULARIS.

(PIN-WORM.)

Local.—Give a laxative; after action of the bowels, give a large soap-water enema. Then anoint the parts with Vaseline. Keep the parts clean. Re-infection is due to untidy habits in the care of the hands and the toilet of the finger-nails.

Medicinal.—Teucrium; Santonin; Cina; Merc. dulcis.

Laxative.—Use Rochelle salts. The habitat is the ileocecal region; this part of the bowel must be made free from the ova by the use of laxatives and flushings.

SPORADIC CRETINISM.

(MYXŒDEMATOUS IDIOCY.)

Etiology.—Absence, or impaired function, of the thyroid gland.

Symptoms.—The body dwarfed; subcutaneous tissue thick and boggy; head large; open fontanelle; nose broad; lips thick; protruding tongue; low bodily temperature; sexual organs undeveloped; mentally idiotic.

Treatment.—Thyroid extract is a specific. Give $\frac{1}{2}$ to 1 gr. (P. D. & Co.) desiccated extract, a dose twice daily. Begin with a small dose; increase gradually. It must be given for years. From time to time it can be suspended for several weeks, and then resumed.

SIMPLE ACUTE ADENITIS.

Etiology.—It occurs in connection with simple acute catarrh; otitis; ulcerative stomatitis; tonsillitis; carious teeth; eczema; vaccination (axillary); vaginitis (inguinal).

Lesions.—Congestion; edema; hyperplasia of the lymphoid elements. The cervical glands are most frequently affected. *Course*.—It may terminate in (a) resolution; or (b) suppuration.

Treatment.—Treat the nasal mucous membrane, or other avenue of entrance of the infection. Locally, cold applications. (Painting with *Iodine* does no good.) If suppuration is inevitable, wait till it points, then incise and treat on surgical principles.

Medicinal.—*Hepar s.*³⁻¹²—*Calcarea.*^{6x}—*Merc. iod.*^{3x}—*Silicea.*^{6x}

INFANT-FEEDING.

Artificial Feeding. *Principles:*—The food must contain the same constituents as woman's milk; in the same proportions; and approximately of the same chemical composition.

Modified Milk.—Cow's milk must be the basis; it must be modified by:—(a) decreasing the proteids; (b) increasing the sugar; (c) slightly increasing the fat.

Top-Milk.—Set fresh milk in a tall clean glass vessel in a cold place for 3 hours. The upper $\frac{1}{2}$ of this is "top-milk." Obtain it by ladling off the top, or syphoning out the bottom. It gains 2 % fat.

Proteids.—To decrease the proteids, a *diluent* must be added. In the first 9 ms. the diluent should be boiled water, with $\frac{1}{3}$ part lime-water. After 9 months the best diluent is barley-water. The diluent should have added to it $\frac{1}{3}$ part lime-water.

Sugar.—To increase the sugar, use a solution of milk-sugar. To prepare, first dissolve the milk-sugar in boiling water, and strain through absorbent cotton. Prepare this daily. (Cane-sugar can be used when milk-sugar is not obtainable, but in only $\frac{1}{2}$ the amount.)

Fat.—Use fresh cream. Top-milk contains sufficient cream.

Preparation.—Prepare a sufficient quantity of modified milk at one time to last 24 hours; have as many bottles as there will be feedings; fill these, plug with non-absorbent cotton, and keep them in the refrigerator; as each one is wanted, heat it by placing it in warm water.

Home Modification.*—*Age:*—Under 1 month. *Proportions:*—Top-milk, $\frac{1}{3}$; Diluent, $\frac{2}{3}$; sugar, 6%. *Quantity:*—For the 24 hours, 20 to 30 ozs., varying according to the weight and vigor of the child. *Example:*—

Take top-milk, 6 ozs.; diluent, 18 ozs.; milk-sugar (in watery solution) 4 teaspoons. Mix. Divide into 10 bottles, and plug with cotton. Each feed must be no more than 2 ozs. Throw out any surplus.

Age:—Six months. Gradually increase the proportion of milk and decrease the proportion of diluent, until, at 6 ms., they are half-and-half.

Quantity:—Total for 24 hrs., about 40 ozs., 20 of milk and 20 of diluent; with milk-sugar 7 drams. Divide in bottles.

Gradually increase the proportion of milk with the age of the child. At 18 ms. whole milk can be given. But after 9 ms. the sugar should be decreased.

Rules.—No rule is arbitrary. Vary according to results, and the weight, vigor and digestive power of the child. The only true test that the child is thriving on the diet is *gain in weight*.

Indications.—If there is no gain in weight, and no indigestion, lessen the amount of diluent. If there is vomiting immediately after feeding, reduce the quantity of food given.

* In Chicago, New York, Brooklyn and Boston there are milk laboratories, where physicians' prescriptions can be filled.

Sugar.—Too much sugar causes:—Erucltations of gas; thin green, acid stools. Too little sugar, slow gain in weight.

Fat.—Too much fat causes:—Vomiting of a sour mass 1 or 2 hours after feeding; fat in the stools. Too little fat, obstinate constipation.

Proteids.—An excess of proteids causes:—Habitual colic.

Barley-water.—Before the age of 9 ms., when the child is in good health, the diluent used may be boiled water. After that age, use barley-water, or some other starch preparation. If there is constipation, oatmeal-water.

Condensed Milk.—When it is absolutely necessary to use condensed milk (as while traveling), get the best and highest priced. *Preparation:*—For very young infants, 1 part condensed milk to 12 parts water; six months, 1 part milk to 8 parts water. In each case add cream.

Sterilized Milk.—Sterilization of milk (heating to 212° F. for 90 minutes) so alters it that it is no longer proper food for a child. Children lose weight when fed on it.

Peptonized Milk.—This may be used as a temporary expedient, but its continued use does harm.

Pasteurization.—In hot weather the milk may be pasteurized (heated to 167° F. for 20 ms.). This method does not unfavorably affect the milk.

Bottles.—Keep on hand a dozen. Let them be wide-mouthed, cylindrical. In cleansing, rinse with cold water, then wash with hot water and soap, with a brush. Before filling with milk, boil for 20 minutes.

Nipples.—Use the simple, plain black rubber nipple. Cleanse thoroughly, and keep in a solution of boric acid. Never use nipple with a rubber tube.

In General.—Bear in mind that what agrees with one child will not agree with all. No rule is arbitrary. Do not be afraid to go outside the beaten track. The one criterion is—*gain in weight on the part of the infant.*

Rules.—The *intervals* for feeding, and the *amount* at different ages, are here given. An adherence to this will prevent over-feeding.

Age.	Intervals of Feeding.	Number of Feedings in 24 Hours.	Average Amount at Each Feeding.	Average in 24 Hours.
1st week.	2 hours.	10	1 oz.	10 ozs.
1 to 6 weeks.	2½ hours.	8	1½ to 2 ozs.	12 to 16 ozs.
6 weeks to 6 months.	3 hours.	6	3 to 4 ozs.	18 to 24 ozs.
6 months.	3 hours.	6	6 ozs.	36 ozs.
10 months.	3 hours.	5	8 ozs.	40 ozs.

SECTION II.

DISEASES OF THE LUNGS AND PLEURÆ.

PNEUMONIC FEVER.

(PNEUMONIA; PNEUMONITIS; LOBAR PNEUMONIA.)

Etiology.—Infection: by *diplococcus pneumoniae* (Frænkel).

Stages.—(a) Congestion; (b) Consolidation; (c) Resolution.

Diagnosis.—It must be differentiated from (1) Pleurisy with effusion; (2) Broncho-pneumonia; (3) Acute pneumonic phthisis; (4) Typhoid; (5) Cerebral Meningitis.

TREATMENT.

Veratrum viride. Tr.—This is the most important remedy in the stage of engorgement, to which its use must be limited. In my own experience, and in that of others, it has apparently cut short oncoming attacks of pneumonia. It must be given early, immediately following the chill. It is of no avail after hepatization has begun.

Indications.—Stage of engorgement; severe and long-lasting chill, followed by intense pulmonary congestion, with great arterial excitement; dyspnea; full, hard pulse; throbbing headache; livid face; dry tongue; vertigo.

Dose.—Five minims is a maximum dose; 1 to 3 usually enough. In children, $\frac{1}{4}$ to 1 minim.

Precaution.—If it produces nausea, reduce the dose. Watch the action to avoid cardiac depression. ("Norwood's Tincture" is a good preparation.)

Aconite. ℥x —It is of but limited use in pneumonia; of no value after exudation has begun; in the period prior to that, *Verat. vir.* has greater power.

Indications.—Sthenic cases; pulmonary hyperemia, with restlessness and nervous apprehension *not due directly to suffering from the embarrassed respiration.*

Bryonia. ℥x —By far the most important agent for the second stage, that of fibrinous exudation and consolidation, and especially for the pleuritic inflammation, with its characteristic sharp, stitching, cutting pain.

Indications.—The period of restlessness has passed; the patient is inclined to remain quiet; there is great anxiety, not from nervous erethism, but from the dyspnea; severe, shooting, cutting pains; painful cough, with scanty expectoration of bloody sputum; tongue with thick coating of white fur; mouth dry; great thirst; stomach inactive; liver engorged; constipation; pulse hard and tense; urine red and scanty.

Ferrum Phos. $2x$ —The action is limited to the stage of engorgement; it is of no use after exudation has set in, nor is it of use in sthenic cases. It belongs to the treatment of the initial stage of pneumonia when occurring in the aged, or in subjects who are feeble, cachectic, and reduced by previous exhausting diseases, more especially by the zymotic diseases which are attended by bronchial catarrh; hence, in secondary pneumonia, such as that following measles, phthisis, typhoid and similar conditions. There is but moderate reaction to slight chill the patient is listless and apathetic, there are extensive râles, with blood-streaked expectoration.

Indications.—In cachectic subjects; slight chill; or only chilly sensations; mild reaction; moderate fever; extensive crepitant, subcrepitant and mucous râles; dyspnea; cough, with early bloody expectoration; the patient *listless, sometimes drowsy.*

Iodine.^{1x}—It has a distinct sphere; stage of consolidation. It replaces Bryonia in a certain class of subjects. There is fever, with high temperature, but an absence of the pleuritic pains of *Bryonia*. In so-called "scrofulous" subjects, those with "delicate" skin, soft flesh, and enlarged glands.

Indications.—Fibrinous exudation and inflammation of the lungs, with high temperature, in "scrofulous" subjects; absence of pain; rapid emaciation; enlarged glands; excessive irritability and sensitiveness; albuminuria. Also an accompanying pericarditis or endocarditis.

Precaution.—Always use a fresh preparation of C. P. Iodine.

Phosphorus.^{3x}—This, in importance, is second only to *Bryonia*. A pneumonia that runs an uncomplicated course can readily be carried through with *Bryonia*, but when pneumonia deviates from its typical course, *Phosphorus* must be considered. It belongs to the treatment of the second stage, that of consolidation, and also its use extends into the period of resolution. It finds its chief sphere in pneumonia in delicate, feeble or cachectic subjects, and those cases in which there is great exhaustion and depression. With *Bryonia* the attack may have been brought on by "catching cold"; with *Phosphorus* there is an absence of such exciting cause. With *Phosphorus* the pains are not intense and acute, but are moderate, and vaguely localized. In the third stage of the disease it favors fatty metamorphosis of the formed elements. It should also be given when there are signs of suppuration, indicated by muco-purulent expectoration, with some blood, sweats and hectic. When the pleura is especially affected, *Phosphorus* is not indicated.

Complications.—*Phosphorus* is indicated in collateral edema of the lungs; "typhoid pneumonia"; "bilious pneumonia"; and pneumonia with extensive accompanying bronchitis.

Indications.—Stages of hepatization and resolution. Pain not very severe—vaguely localized stitches. Great prostration. Great weight and oppression of chest; severe embarrassment of respiration; extensive mucous râles; cough, with bloody, muco-sanguinolent, or sanguino-purulent, difficult expectoration. Very useful in severe cases, asthenic pneumonia, and "typhoid-pneumonia."
Collateral edema.

Precaution.—Always use a fresh preparation of Phosphorus.

Tartar emet.^{2x}—It is not indicated in typical pneumonia. When the disease deviates from its normal course, or in subjects debilitated, or feeble from exhaustion, or from infancy or extreme age, *Tartar emetic* is called for. Its place is in threatened pulmonary paresis, when the lungs are embarrassed by the abundance of its secretions, as indicated by extensive coarse râles and rattling of mucus, while, at the same time, owing to weakness, notwithstanding the loose cough, but little sputum is raised; this condition is accompanied by great dyspnea, oppression of the chest, general prostration, cyanosis, cold surface, and clammy sweat; also, collateral edema.

In general, *Tartar emetic* belongs to the treatment of asthenic cases of pneumonia complicated by bronchitis, with profuse secretion, and pneumonia secondary to influenza, measles, whooping-cough, and other affections of the respiratory mucous membrane.

Indications.—Commencing resolution. Increased frequency of pulse; great anxiety and restlessness; copious, cool perspiration; pallid countenance; cyanosis; suffocative spells, *great dyspnea*; loose, rattling cough, as if much would be expectorated, but nothing comes. Impending paralysis of the lungs. Collateral edema.

Precaution.—It must not be used in doses large enough to produce its depressing toxic effects.

Antimonium ars.^{2x}—The class of cases to which it belongs are the pneumonias of elderly people, especially those cases secondary to epidemic influenza. It is especially applicable to cases in which there is precedent organic disease of the heart or kidneys. It is also indicated

in pneumonia secondary to emphysema. The condition demanding its use is threatened "paralysis of the lungs."

Indications.—Intense dyspnea; loud rattling in the bronchial tubes; frothy, watery sputa, expectorated with difficulty; inability to clear the bronchial tubes; feeble, rapid pulse; failing circulation.

Sulphur.^{3x}—*Delayed resolution*; the latter part of the second stage, and the third stage; delayed crisis; or, pseudo-crisis, great vascular excitement. Sulphur will now hasten the crisis. Again, in the third stage, after the crisis, resolution is slow; lung remains solid, with no signs of clearing. *Sulphur* will now bring about a reaction, and promote resolution.

Phosphorus is the remedy from which it is most important to differentiate *Sulphur*. The distinction is thus expressed:

SULPHUR.	PHOSPHORUS.
1. Amount of exudative material great.	1. Amount of exudative material small.
2. Consolidation pronounced.	2. Consolidation not extreme.
3. Catarrh not marked.	3. Much mucous secretion.
4. Vascular symptoms prominent.	4. Nervous symptoms prominent.
5. Little or no expectoration.	5. Muco-purulent expectoration.
6. Sthenic state; it is a condition of <i>suspense</i> ; reaction does not promptly occur.	6. Adynamic state; typhoid-like symptoms; or, signs of suppuration.

Indications.—Sthenic cases, with delayed resolution; vascular excitement; fever; disposition to perspire; dyspnea; sensation of heat in the chest; "flushes" of heat, hot hands and feet; aggravation in the forenoon. *Meningitis*.

Rhus tox.^{2x}—In so-called "typhoid-pneumonia" this is the chief remedy. There is auto-intoxication, from retrograde tissue metamorphosis, with active fever, loss of flesh and great prostration.

Indications.—Low delirium, with nervous restlessness; lips and tongue dry, brown and cracked; besotted expression; swelling of the parotids; bronchial catarrh; "prune-juice" expectoration; emaciation; weak pulse; rheumatoid pains in various parts; tympanites; sensitiveness of the abdomen; putrid diarrhea.

Hyoseyamus.^{1x}—Acute mania, not due to cerebral inflammation.

Belladonna.^{3x}—Active delirium, with cerebral congestion. Convulsions in children; intense pulmonary congestion. Dry cough.

Agaricus. Tr.—*Indications.*—Wild mania, with restlessness, tremor, and effort to escape.

Veratrum alb. Tr.—In states of collapse, with cold surface, and weak heart's action, due to general exhaustion, especially when from diarrhea.

Indications.—*Weak heart, with general exhaustion* due to toxemia, asthenia, or to inability to take food on account of gastric disturbance. Emaciation; anorexia diarrhea; pulse, *weak, soft, compressible, irregular, and its rapidity increased*; *all the heart-sounds feeble*; *low temperature*; pallor of the skin; cold extremities.

CARDIAC PARESIS.

This condition creates an emergency which must be met by prompt stimulation.

Indications.—A *dicrotic* pulse, or a *rapid, weak, compressible, irregular or intermittent* pulse, calls for stimulation of the patient.

Effect.—The results of stimulation are to be judged by improvement in the character of the pulse.

Period.—Following the crisis; but in *alcoholics*, in the *feeble* and the *aged*, it may be called for early.

HEART-STIMULANTS.

Alcohol.—To be used when the heart shares in the condition of general asthenia, as in secondary pneumonia, "typhoid-pneumonia," and pneumonia of the aged, as well as in children.

Indications.—*Weak heart, with general exhaustion, due to toxemia or asthenia; all the heart-sounds feeble.*

Forms.—Brandy; whisky; wine (sherry, tokay, champagne); wine-whey.

Dose.—*Brandy or whisky;* the dose may vary from a dram to an ounce, according to the urgency of the symptoms and the results obtained; repeat at intervals of one, two or three hours. Do not give in too concentrated form—dilute with four to eight parts water. If the stomach will permit, it may be given in milk-punch or egg-nogg.

Sherry or Tokay may be given in a similar manner to the above, but in correspondingly larger doses.

Champagne.—When the stomach is intolerant of other forms of alcohol, champagne can often be taken.

Dose.—A pint may be given, in divided doses, inside of five or six hours, or, in urgent cases, as high as a quart.

Wine-whey.—This is a good form for use in the case of children.

Caution.—Better results will follow the use of *full doses of alcohol*, than to drag along with insufficient quantities.

Caffein.—In its action on the heart it is analogous to Strychnin. It should be substituted for the latter, in cases of weak and irritable heart, with great nervous erethism; faint pulmonic second sound; weak, small, radial pulse. *Dose:*—One grain; repeat *p. r. n.*

Strychnin sulph.—This is a powerful and promptly acting stimulant; it should be used in urgent cases. It is adapted both to cases in which there is threatened failure from engorgement of the right heart, and in weakness of the entire organ from the poisonous effects of toxine, or from asthenia.

Dose.—In the most urgent cases a dose of one-fiftieth of a grain may be given subcutaneously at intervals of every two or three hours, lengthening the interval, and reducing the dose to one-hundredth grain as the desired effect is produced.

Oxygen.—This is of service when there is deficient oxidation of the blood from respiratory failure, in extensive consolidation with accompanying bronchial catarrh, or collateral edema, as evidenced by severe dyspnea, cyanosis, cold surface, feeble pulse, and mental hebetude.

Dose.—Give the gas *freely*; several gallons per hour may be administered. If the patient is much depressed, do not demand any effort on his part, but let it escape in such manner that he will inhale it freely.

GENERAL MEASURES.

Sick-Room.—Let this be a large, *well ventilated* apartment.

Temperature.—Keep the air at about 74° F.; slightly lower rather than higher.

Humidity.—Keep the atmosphere moist.

Rest.—Absolute rest is all-important.

Applications.—Do not use poultices. To keep an equable temperature use a soft cotton jacket, open in front and tied with tapes, permitting ready access to the chest.

Relief of Pain.—For sharp pleuritic pain use hot compresses to the painful spot, as hot as can be borne. Do not use a *wet* compress. The best is several folds of flannel;

sprinkle one surface with warm water, quickly run a hot flat-iron over it until it steams. Apply quickly and change frequently.

Hydrotherapy.—For purposes of cleanliness, as well as for sedative effect, sponging with warm or tepid water may be employed, according to the demands of the case.

Bathing.—When there is high temperature, hot skin, nervous erethism, severe dyspnea, and commencing cardiac weakness, sponging of the surface with cool water (70° F.) for *ten or fifteen* minutes will reduce the temperature, quiet the patient, and have a tonic effect. If, without too much distress to the patient—embarrassing the respiration or the heart's action—he can be turned partly on one side, and then on the other, so that the *back* can receive a cool sponging, this will do most to reduce temperature. In any event, the front and sides of the chest, and the axillæ, should be bathed in the manner indicated. Repeat the cool sponging as often as indications require it.

Diet.—In asthenic cases, give a carefully regulated, nutritious diet. In well-nourished patients, a light diet. Especially avoid anything that will distend the stomach, and so embarrass respiration. In *pneumonia this is too often overlooked.*

The Bowels.—Give strict attention to the bowels. *An overloaded colon or rectum will seriously depress the heart's action.* Let an enema be given daily.

Demulcents.—Demulcent drinks are grateful; slippery elm water, or gum-Arabic water, with a little lemon-juice. If stimulation is sought add a little rock candy and whisky.

BRONCHO-PNEUMONIA.

(CATARRHAL PNEUMONIA; LOBULAR PNEUMONIA.)

Etiology.—Infection by various micro-organisms.

Age.—Most frequent in children and the aged.

Varieties.—I. Primary; II. Secondary: (a) as a sequel in infectious fevers; (b) aspiration-pneumonia.

NOTE.—In children cerebral symptoms sometimes mask the pulmonary; examine the lungs critically.

TREATMENT.

Belladonna.^{3x}—Especially in children, and only in the early stage of the disease. Much accompanying congestion; active fever; moist skin; respiration rapid; moaning; cerebral excitement.

Aconite.^{1x}—This is to be used when with the local inflammation there is accompanying systemic fever, with high temperature and circulatory excitement. Hence, it is most often called for early in the attack. But it need not be limited to this period, for as long as there continues to be febrile action, *Aconite* will aid the action of other medicines by calming the nervous erethism.

Indications.—Fever; rapid pulse; painful cough, with sensitiveness to inspired air; hoarseness; expectoration blood-streaked, the blood being bright red; respiration impeded; anxiety; stitching pains in the chest.

Special Indications.—Feverish action, with vaso-motor disturbance; restlessness, from nervous erethism. *Dry cough; or, expectoration tinged with bright-red blood.*

Ferrum phos.^{2x}—The action is limited to the early stage, when there is *active congestion of the lungs*, with its attendant symptoms. This is the key to its use—a *state of engorgement*, before the later pathological changes, such as abundant catarrhal secretion, etc., have taken place. Aconite has a similar sphere, but the fever is more active, with restlessness and great nervous erethism, and a hard pulse.

Indications.—Congestion of the lungs; moderate fever; pulse full and soft; chest feels sore and bruised; scanty, blood-streaked sputum; sonorous and sibilant râles.

Phosphorus.^{2x}—This is to be used especially when the disease occurs in cachectic, delicate subjects, and in secondary broncho-pneumonia after exhausting diseases; in subjects of Bright's disease, diabetes, and in fatty degeneration of organs. Also, in cases that sink into a low, typhoid-like condition.

Indications.—Cachexia, or typhoid-like state; moderate fever; great oppression of the chest; rawness in larynx and trachea; expectoration purulent, or muco-purulent; mucus streaked with dark blood; abundant râles; sticky perspiration; weak, soft pulse; emaciation and prostration.

Tartar emet.^{2x}—The most important remedy in the treatment of this affection.

Indications.—Fine and coarse mucous râles; rapid respiration; oppressed breathing; cyanosis; lips blue; cool surface; sweat; feeble heart's action.

Antimonium ars.^{2x}—Broncho-pneumonia of the aged, with loud râles and feeble heart.

Bryonia.^{1x}—Accompanying pleurisy, with stitching pains; soreness in the chest; children cry when coughing.

GENERAL MEASURES.

Sick-Room.—A well-ventilated apartment; temperature 70° F. Absolute rest in bed, but *frequent change of position*.

Chest.—Bathe the chest at intervals with hot water, and dry carefully. Avoid the use of poultices. Kneading and manipulation of the muscles of the chest aid in the respiratory effort.

Diet.—Patients with this disease are generally much reduced, hence a liberal and nutritious diet should be systematically given.

Heart.—In threatened heart-failure, stimulants.

Convalescence.—Until there is complete resolution of the inflamed lung the patient's condition is still precarious. Persist in the use of active hygienic measures.

ACUTE BRONCHITIS.

Diagnosis.—Harsh murmur, followed by moist râles, heard on *both sides* of the chest. Secondary broncho-pneumonia is attended by rise of temperature, increased dyspnea, circumscribed areas of dulness, and broncho-vesicular breathing.

Prognosis.—Almost always favorable. Unfavorable conditions are the capillary bronchitis of children, and the suffocative catarrh of the aged. Grave symptoms are: Respirations, 60 or over; pulse, 140 or over; quality, small, threadlike, irregular; cyanosis.

TREATMENT.

Aconite.^{1x}—This is applicable only in the early stage; after the disease is once established, it is of no use.

Indications:—Fever; dry, hot skin, restlessness and thirst; short, hard, tickling cough, with constant laryngeal irritation; dryness of the mucous membranes.

Bryonia.^{1x}—Catarrhal inflammation of the mucous membrane of the trachea and larger bronchi; it is of no use when the smaller bronchi are invaded. **Indications:**—Dry cough, with stitches in the chest; short, labored respiration; feeling of oppression of the chest; with the cough determination of blood to the head, with headache, and great turgescence of the face.

Belladonna.^{2x}—When bronchitis sets in with violent fever, and intense congestion of the lungs, *Belladonna* will do more to control it than *Aconite* will. **Indications:**—Spasmodic cough, in short paroxysms; violent cough, worse at night; no expectoration, or tenacious, blood-streaked sputum; respiration oppressed and irregular; sensation of fullness in the chest.

Ipecac.^{3x}—Especially for the bronchial catarrh of children. **Indications:**—Asthmatic breathing; much nausea and vomiting of mucus; rattling of mucus in the bronchial tubes; face livid during cough; loud, mucous râles, with wheezing respiration; severe gastric ailments and intestinal catarrh; pallid or bluish or bloated countenance.

Kali bich.^{3x}—Cough, with expectoration of tough mucus, that can be drawn out in strings; thick coating on the tongue; loathing of food; burning pain in the trachea. For bronchorrhea, with abundant purulent expectoration, give *Kali bi.*, 2 grains in 4 ounces of water, by inhalation, in steam atomizer.

Tartar emet.^{2x}—The chief indication for Tartar emetic is profuse secretion of mucus in the bronchial tubes, which it is difficult to raise. **Indications:**—Great oppression and suffocative breathing; extensive mucous râles; great rattling of mucus with the cough, but nothing is raised; also symptoms of incipient carbonic acid poisoning—sopor, delirium, pallor, bloated countenance; also, profuse sweat without relief; disposition to vomiting and diarrhea; paroxysms of rattling cough, ending in vomiting. For *capillary bronchitis* of children, and *pneumonia notha* of the aged.

Antimonium ars.^{2x}—Abundant secretion of mucus; with loud râles; difficult breathing; skin cyanotic, with cool perspiration; the patient anxious and restless.

Veratrum album.^{1x}—Especially in the later stages of capillary bronchitis of children, with failing strength; pulse rapid and irregular; abundant secretion of mucus, which the child is unable to raise; cold, moist skin.

Bromine.^{2x}—Acute bronchitis, with catarrhal inflammation of the larynx and trachea, with hoarse, croupy cough; the patient is weak and perspiring; the cough is tight, hard and spasmodic. It is the *spasmodic* cough that is *characteristic*; it is attended by suffocative attacks, and *rattling* of mucus in the larynx.

Ammonium carb.—In capillary bronchitis of children, or in the bronchitis of the aged, *Ammonium carb.* is

called for when there is *marked failure of the respiratory or circulatory functions*. *Indications*.—Accumulation of mucus in the bronchi, which it is difficult to raise; great oppression of the chest; loud, coarse râles; great prostration, with falling temperature. *Dose*.—It must be given low; put grs. x of *Ammon. carb.* in one-half glass water; give teaspoonful dose every 15 to 30 minutes.

GENERAL MEASURES.

Fomentations.—For great oppression of the chest and dyspnea, apply hot fomentations, frequently repeated.

Room.—Let the room be large, airy and well ventilated; temperature, 70° to 75° F. Keep the air moist by use of a steam generator.

Position.—If there is much secretion, at intervals have the patient lie with the head and shoulders low, to favor gravitation and expectoration.

Bowels.—In both children and adults, give daily attention to the bowels. When necessary, use enema of water, or of glycerin.

Diet.—When there is fever, diet as in fevers generally. When there is profuse expectoration, nourishing, albuminous food, milk, gruel, barley-water. All food should be hot. To soothe the throat, give demulcent drinks.

CHRONIC BRONCHITIS.

Etiology.—The primary form is rare; usually it is *secondary* to constitutional diathetic conditions (Bright's, alcoholism, etc.) or to affections of the lungs or heart. As a rule it is a disease of advanced life.

Sequelæ.—Asthma; emphysema, phthisis; heart lesions.

TREATMENT.

Sulphur.^{3x}—Gouty subjects, or the tuberculous diathesis; bronchorrhea.

Kali bi.^{2x}—“Dry” bronchial catarrh; hard cough; viscid sputum; hoarseness; aphonia.

Iodine.^{1x}—Delicate, “phthisical” subjects; dry cough; sputum bloody; emaciation; enlarged lymph-nodes.

Antimon. iod.^{2x}—Phthisical subjects; much muco-purulent sputum; emaciation; night-sweats; (*Goodno*).

Grindelia.^{1x}—Asthmatic breathing; dry râles.

Kali hyd.^{1x}—In syphilitic subjects.

Silica.^{6x}—Sputum purulent; fever; night-sweats; emaciation; dyspnea. Rachitic children.

Drosera.^{Tr.}—Hard paroxysms of cough, exciting vomiting; emphysema.

Arsenicum.^{3x}—Dyspnea; debility; emaciation; dry, wheezing cough; scanty expectoration; heart-disease.

Hyoscyamus.^{Tr.}—Dry, irritable cough at night.

Phosphorus.^{3x}—Cachectic subjects; dry, hacking cough, with *pain* or “tightness” in the chest; hoarseness.

Ammon. carb.^{1x}—Copious secretion; incessant cough. Heart or kidney affections.

Rumex.^{Tr.}—Dry cough; irritable mucous membrane.

Cale. carb.^{6x}—With emphysema or bronchiectasis; purulent, fetid expectoration. “Scrofulous” diathesis.

Merc. sol.^{3x}—Diarrhea; stomach and liver involved.

Hepar sulph. 1x—Loose cough; muco-purulent sputum.

Aconite. 1x—Dry cough, with dyspnea.

Arsen. iod. 2x—Debility; anemia; emaciation.

Sanguinaria. 2x—Fever; flushed cheeks; much sputum.

Tart. em. 2x—Moist râles; free expectoration. Cyanosis.

Stannum. 2x—Much muco-purulent expectoration.

Spongia. 3x—Dry, laryngeal catarrh.

NOTE.—In making prescription in chronic bronchitis give attention to the constitutional condition and the primary disease.

GENERAL MEASURES.

Inhalations.—Use various inhalants: Eucalyptus; Iodine; Kali bi.; Balsam; Creosote.

Hygiene.—Avoid exposure to cold and damp; wear warm woolen clothing. Avoid vitiated air; seek warm, dry air and sunshine.

Climate.—In confirmed cases remove to a warm, dry, equable climate.

CONGESTION OF THE LUNGS.

(ACTIVE HYPEREMIA.)

TREATMENT.

Aconite. 1x—When due to inhaling cold air, to chilling of the body, or to violent exercise. *Indications:*—Violent heart's action; pulse quick and hard; burning, pressing pains in the chest; anxiety and restlessness, especially in plethoric subjects.

Belladonna. 2x—Intense congestion; rapid breathing; flushed face; skin red; throbbing carotids; voice hoarse; dry cough.

Veratrum vir. Tr.—Pulse full and hard; heart's beat loud and strong; great arterial excitement; faint feeling at the stomach; nausea.

Cactus. 2x—Hyperemia of the lungs secondary to heart disease; respiration much oppressed; acute pains; feeling of constriction.

Phosphorus. 3x—In cachectic subjects; anxious panting; great oppression under the sternum; threatened edema.

GENERAL MEASURES.

Local.—Put a large hot compress over the chest. Hot foot-bath, with mustard in the water. When the condition is urgent, ice-bag to the spine. Inhalations of oxygen. Keep the bowels clear.

EDEMA OF THE LUNGS.

Causes.—It usually occurs as part of general anasarca, secondary to diseases of the lungs, heart or kidneys. It may be collateral or inflammatory.

Symptoms.—Intense dyspnea; loud, bubbling râles; bilateral dulness; abundant watery, frothy expectoration; cyanosis; cold surface.

Prognosis.—Usually unfavorable; it depends on the primary condition.

TREATMENT

Indications.—Must be directed to the primary disease.

Tartar emet. 2x—Useful in acute edema, as well as in the secondary form. Loud, coarse râles; intense dyspnea

the bronchial tubes contain a large quantity of serous fluid; imminent suffocation.

Phosphorus.^{3x}—The use of this remedy is limited to the treatment of collateral edema occurring as a complication in congestion of the lungs or in pneumonia. *Indications*:—Great oppression of the chest; violent, strangling cough; expectoration blood-tinged.

Ammonium carb.—Feeble heart's action; cyanosis; drowsiness; great accumulation of serous fluid in the lungs, which the patient is too feeble to expectorate. This marks an extreme condition; reaction may in some instances be brought about by *Amm. carb.*, which acts as a respiratory and cardiac stimulant. *Dose*:—Each dose should consist of 2 grains of fresh *Amm. carb.*, dissolved in one ounce of water; repeat at 30-minute intervals.

GENERAL MEASURES.

Local.—Warmth to the extremities; favor diaphoresis. Apply dry cups to the chest, the back and sides; a dozen or more can be put on. Change the patient's position at intervals.

Patient.—If a large quantity of watery fluid accumulates in the lungs, difficult to raise, let the patient hang over the edge of the bed, in an inverted position. When the heart's action is feeble, stimulate, giving alcohol, or *Digitalis*, 5 to 10 drops of the tincture at a dose. If there is congestion of the kidneys and scanty urine, apply over the loins a poultice of *Digitalis* leaves. Promote the action of the skin, kidneys and bowels.

ABSCESS OF THE LUNG.

Diagnosis.—Purulent sputum containing lung tissue or elastic fibres. Of a *confined* abscess there is no absolutely diagnostic sign; all other possible conditions must be excluded. Confirm suspicions by persistent search with the exploring needle.

Prognosis.—Often favorable when secondary to pneumonia; unfavorable if complicating general pyemia.

TREATMENT.

Hepar sulph. ; Silicea ; Arsenicum ; Chin. ars. ; Ars. iod. , Mercurius.

GENERAL MEASURES.

Diet.—A nourishing and supporting diet.

Operation.—When the abscess is located by the needle, make an intercostal incision; explore with the finger; open the abscess with a scalpel, and evacuate the pus; pack with iodoform gauze; treat on surgical principles.

HEMOPTYSIS.

Causes.—May be due to:—(a) Congestion; (b) Infarction; (c) Pneumonia; (d) Phthisis (most common); (e) Ulcer; (f) Carcinoma; (g) Gangrene.

TREATMENT.

Aconite.^{1x}—Bright red blood; incessant, hacking cough; warm feeling in the chest; red face; great anxiety; arterial excitement.

Ipecac.^{2x}—Sensation of bubbling in the chest, followed by copious bleeding; tickling beneath the sternum; spitting of blood after the least effort; nausea.

Hamamelis. Tr.—Venous hemorrhage; blood dark, thin, coming into the mouth without effort, like a warm current.

Millefolium.^{1x}—Profuse flow of thin, bright-red blood; oppression; palpitation; not much cough.

Cactus.^{2x}—Hemoptysis, with over-action of the heart; secondary to heart disease; sensation of constriction.

Veratrum vir. Tr.—Violent congestion, with full, hard, bounding pulse.

Phosphorus.^{3x}—Hemoptysis occurring in the course of low fevers; also, inflammatory symptoms following an attack of hemoptysis. Tight feeling in the chest, with dry, tight cough, followed by hemorrhage.

Ferrum phos.^{2x}—Hemorrhage of bright, red blood, occurring in the course of phthisis.

Geranium. Tr.—Bright, red blood; persistent, free flow.

Sulphuric acid.—Persistent hemorrhage of dark blood; quantity slight; a continuous oozing; in feeble and anemic subjects. *Dose.*—Ten drops of the C. P. acid in a glass of water; teaspoonful dose every hour.

Hydrastin hydrochlorate.^{2x}—In subjects of old bronchial catarrhs; with friable mucous membrane.

Digitals. Tr.—Secondary to obstructive heart lesions; feeble action of the heart. This drug must be used with *caution*. Its too free use favors separation of thrombi and pulmonary infarct.

Chin. ars.^{1x}—For the anemia following excessive loss of blood.

GENERAL MEASURES.

Rest.—Make this absolute; command quiet surroundings.

Position.—Semi-recumbent; head and shoulders elevated.

Room.—Moderate temperature—65° F.

Ice.—Bits of ice may be given.

Salt.—In the absence of medicines, a small pinch of salt on the tongue.

Cough.—Encourage *moderate* effort at cough while the hemorrhage lasts; when it ceases, seek to allay cough.

Feet.—Apply hot-water bag.

Bandaging.—Esmarch bandage to the upper thighs.

Back.—Hot-water bag (120° F.) over the cervical spine.

Fainting.—If but little blood has been lost and the patient faints, make no immediate active efforts to revive him; fainting is salutary.

Injections.—If much blood has been lost, use injection of normal salt solution.

Caution.—Alcohol, Ergot and astringents do no good; they may do harm.

After-Treatment.—Use inhalations of Carbolic acid, Listerine, or other antiseptic spray, to prevent decomposition of retained clots.

EMPHYSEMA.

Diagnosis.—Chest “barrel-shaped”; sternum and costal cartilages prominent; clavicles and sterno-cleido-mastoid prominent; curve of spine increased; back rounded. Inspiration short and quick; expiration prolonged. Resonance on percussion.

Prognosis.—Unfavorable as to recovery, but the patient’s condition may be improved.

TREATMENT.

Indications.—Treatment should be directed to (1) the chronic bronchitis that always accompanies; (2) improvement of the nutrition.

Antimonium ars.^{2x}—Advanced stages, with excessive dyspnea, and severe paroxysmal cough; asthmatic attacks.

Antimonium tart.^{2x}—Moist cough; digestive disorders.

Calcarea carb.^{6x}—Chronic bronchitis in fat subjects; much perspiration; in women, profuse menstruation.

Calcarea phos.^{2x}—In advanced life, subjects of arterio-sclerosis.

Phosphorus.^{2x}—Subjects of fatty degeneration of tissues.

Lycopodium.^{6x}—Flatulent dyspepsia; lithemia.

Aurum mur.^{3x}—In nervous subjects, with urine of low specific gravity; arterio-sclerosis.

Glonoïn.^{2x}—Asthmatic attacks, with high arterial tension.

GENERAL MEASURES.

Oxygen.—When there is intense dyspnea, and cyanosis, oxygen relieves.

Aerodynamics.—The use of the pneumatic cabinet is of marked benefit in some cases.

Climate.—A mild and equable climate, permitting outdoor life.

Diet.—It is important to regulate the diet so as to correct digestive disturbances and improve nutrition. Give an easily digested, nutritious diet. The exclusive milk diet, for a while, in some cases, is beneficial. *Avoid* the use of drugs, stimulants and tobacco.

ASTHMA.

Etiology.—True asthma is a pure neurosis. *Exciting causes:*—Bronchitis; respiratory irritants (dust, *etc.*); reflex from nasal, gastric, or other irritation; secondary to cardiac disease; gout; rheumatism; Bright’s, *etc.* Heredity predisposes.

TREATMENT.

Aconite.^{1x}—Only for recent cases, to be given at the time of the attack. Attack excited by exposure to cold air; bronchial catarrh.

Bryonia.^{1x}—Recent cases only, with catarrhal bronchitis, and stitching pains in the chest. *Dose:*—1x, frequently repeated, during paroxysm.

Ipecac.^{Tr.}—Co-existing bronchitis; attack excited by dust and odors; the cough causes gagging and vomiting.

Arsenicum.^{3x}—This is to be given in the intervals between the paroxysms, for the primary condition. But in such cases it may also be tried during the paroxysm, in

frequently repeated doses. Chronic cases, with bronchitis; also, cases with co-existing emphysema or heart disease. *Indications*:—Arsenicum is indicated by the severity of the attack; painful and distressing restlessness; loud wheezing; patient seems to be on the point of suffocating. This is accompanied by livid countenance, cold sweat, frequent, small pulse, palpitation. Great prostration after the attack. *Dose*:—Persist in its use.

Nux vom.—To be used for uncomplicated “spasmodic” asthma; no bronchial lesion; attacks excited by irritation of the pneumogastric, especially through the stomach. Coated tongue; irritable stomach; constipation; after the attack disturbance of digestive organs; slight nausea and flatulence. *Dose*:—Tr. During the attack give frequently repeated doses. In the intervals persist in its use. Strychnin is equally efficacious: 3x trit.

Grindelia.^{2x}—Asthma attended by bronchial catarrh; acute cases; also “nervous” asthma.

Lobelia. Tr.—“Nervous” asthma; vertigo; nausea; vomiting; sensation of emptiness in the stomach. *Dose*:—Tr. Use at time of the attack.

Sambucus.^{3x}—The asthma of children; nightly attacks of dyspnea, with profuse perspiration.

Sulphur.^{6x}—For gouty or lithemic subjects.

Cuprum ars.^{3x}—Chronic asthma of bronchial variety; more or less dyspnea constantly, with severe paroxysms at intervals.

Quin. bisulph.—In “nervous” asthma. Old cases, with complications of heart, lungs or stomach. *Dose*:—One-grain pill, three times daily.

GENERAL MEASURES.

Hygiene.—Attention to proper exercise, air, clothing, bathing, regular habits, are necessary to aid in a cure.

Diet.—Important; asthmatics are dyspeptics; food must be digestible, taken regularly, the stomach never overloaded; light evening meals.

Climate.—Change to dry, elevated region often grants relief.

The Paroxysm.—Supply an abundance of fresh air. Let the atmosphere of the apartment be kept moist.

For Relief.—Various sedatives and anti-spasmodic will relieve. *Amyl nitrite*, 5 drops on a handkerchief; *Ipecac*, drop doses of tincture; *coffee*, a cup of very strong *Stramonium*, the dried leaves smoked in a pipe; *Potassi nitrate*, make strong solution, soak blotting-paper, let it dry, burn this and inhale the fumes. Nitro-glycerin, in “cardiac asthma.”

Paroxysms can be temporarily relieved by inhalations of chloroform or ether, or hypodermic injection of morphine ($\frac{1}{4}$ gr.), but such measures are of no permanent value, and should be resorted to only in exceptional and extreme cases. Their persistent use is harmful.

Cocain.—Solution (4%) sprayed into the nose, sometimes stops the paroxysm. Its use is not without risk.

NOTE.—The expedients here named will never cure asthma; their continued use confirms the disease. Each case should be studied and treated on its merits.

PULMONARY TUBERCULOSIS.

- Varieties. { I.—ACUTE PNEUMONIC PHTHISIS.
II.—CHRONIC PULMONARY TUBERCULOSIS.
III.—FIBROID PHTHISIS.

I. ACUTE PNEUMONIC PHTHISIS.

(“GALLOPING CONSUMPTION;” PHTHISIS FLORIDA.)

Etiology.—It may be primary or secondary; it is most common in early life; relatively more frequent in childhood.

Pathology.—Two forms:—(a) *Pneumonic*:—One lobe, or an entire lung, becomes solidified, resembling acute *lobar pneumonia* with hepatization; (b) *Broncho-Pneumonic*:—The process begins in the upper lobes and spreads downwards, in appearance resembling *broncho-pneumonia*; scattered caseous masses are found. The latter form is more common in children.

Symptoms.

(a) *Pneumonic Form*:—Onset, usually sudden; chill, following exposure; pain in the side; fever; cough; bloody expectoration, or bronchial hemorrhage; dyspnea; fever, 104° F or more; night-sweats; rapid emaciation; great prostration; late, the sputum is muco-purulent. *Physical signs*:—Similar to those of *acute lobar pneumonia*, indicative of consolidation of one or more lobes. *Course*:—Rapid, usually two or three weeks. *Diagnosis*:—From *lobar pneumonia*, the presence of the bacillus tuberculosis in the sputum. *Duration*:—Usually, two to six weeks. *Prognosis*:—Unfavorable.

(b) *Broncho-pneumonic Form*:—Onset, gradual, usually with previously impaired health, or, in children, following pertussis, measles and other infectious diseases. Early, repeated chills; then fever, remittent in type; rapid pulse; muco-purulent expectoration; hemoptysis. later, drenching night-sweats; emaciation; prostration; gradually passing into a typhoid-like condition. *Physical signs*:—Similar to those of diffuse bronchitis or broncho-pneumonia; later, softening with cavity formation. *Course*:—Progressive; *duration*, two to eight weeks. *Prognosis*, generally unfavorable, though recovery may follow, or, chronic tuberculosis as a sequel.

TREATMENT.

Medicinal.—Iodine.^{3x}—Arsenicum.^{3x}—Baptisia. Tr.—Antimonium tart.^{3x}

General.—The patient should have a sustaining diet, and be cared for as in acute diseases generally.

II. CHRONIC PULMONARY TUBERCULOSIS.

(PHTHISIS PULMONALIS; “CONSUMPTION.”)

Etiology.—Infection by the *bacillus tuberculosis* (Koch); the infected subject must first have a low equation of resistance.

Early Symptoms.—*General*:—Slight fever; irritable pulse; emaciation; malaise; capricious appetite; anorexia; “dyspepsia”; anemia; sweats.

Local:—Cough; expectoration; pain in the chest; adenopathy; bronchial catarrh; hemoptysis; dilated pupil of the eye of the affected side.

Physical Signs.—*Inspection.*—Flat and narrow chest (not in all cases); prominent clavicles; “winged” scapulae; defective expansion over one apex; enlarged precordial area (when the left apex is affected); skin anemic.

Palpation.—Deficient expansion; increased vocal fremitus.

Percussion.—Dulness in the infra-clavicular and supra-scapular spaces; high-pitched note; “wooden” dulness if there is much fibroid change.

Auscultation.—Feeble breath-sounds; or, harsh, prolonged expiration, high-pitched; interrupted respiration; crepitant râles; broncho-vesicular respiration; bronchophony; pleuritic friction, in some cases.

[NOTE.—Only *early* signs are here given; not those of extensive consolidation or cavity-formation.]

Diagnosis.—The crucial test is the demonstration of the specific bacillus in the sputum. *Early*, when there is no expectoration, have the patient make forcible cough against a clean glass plate, held in front of the mouth. In the particles of spray adhering to the glass bacilli may often be demonstrated by the usual method. The sweat of a tuberculous subject contains tuberculin; it can be demonstrated on an infected guinea pig. The radiograph reveals consolidated areas.

Tuberculin Test.—A positive diagnosis can always be made by the tuberculin test, but, since it may cause a latent tuberculosis to become active, it is not without danger.

Prevalence.—One-seventh of all deaths are due to septicemia from streptococcus-infection, secondary to pulmonary tuberculosis. One-third of all subjects, post-mortem, are found with signs of healed tubercular lesions.

Heredity.—Tuberculosis is not transmitted from parent to offspring. But a constitution with low equation of resistance to infection by the specific bacillus is transmitted. Hence, the tuberculous should not marry; or, if married, should remain childless. The children of the tuberculous should have early and continued attention given to lung-development, open-air exercise, and proper nutrition. A tuberculous mother must not nurse her babe.

Complications.—*Larynx.*—Ulceration. *Lungs.*—Pneumonia; emphysema; pleuritis. *Heart.*—Endocarditis. *Gastro-intestinal.*—“Dyspepsia”; diarrhea.

TREATMENT.

Arsenicum iod. ^{3x}—The most important remedy in incipient phthisis, especially when there is rapid loss weight. Fever; cough; dyspnea; muco-purulent expectoration; prostration; diarrhea.

Phosphorus. ^{3x-6x}—Especially in phthisis following pneumonia. Adapted to tall, thin, “hollow-chested” subjects. *Symptoms.*—Dry cough; soreness in the larynx and trachea; long-continued hoarseness; pain in the stomach after meals; diarrhea, especially after meals; palpitation; blood-streaked sputum; sweats; loss of strength; emaciation; pale skin.

Kali carb.^{3x}—Sharp, stitching pains in the chest; cough dry, or with scanty expectoration; or, in advanced cases, profuse expectoration, with sharp stitching pains.

Iodine.^{Tr.}—Tuberculosis in those of previously "scrofulous" habit; enlarged lymph-nodes; fair skin; persistent, short, hacking cough; night-sweats; morbid appetite; fever.

Iodide of Antimony.^{2x}—It may with advantage be substituted for *Iodine*.

Ferrum phos.^{2x}—Of use only in the early stages. Exacerbation of the pulmonary condition from exposure; congestion of the lungs, with blood-stained expectoration.

Nux vomica.^{2x}—For the digestive disturbances, sometimes a prominent symptom in phthisis; morning headache; sour or bitter taste; vomiting, or violent retching; gastralgia; constipation, with ineffectual urging.

Strychnin.^{2x}—With the symptoms of indigestion, as for *Nux vom.*, Strychnin often has prompt action.

Baptisia.^{Tr.}—As an intercurrent remedy, late in the disease, when there is fever; morning chills, followed by fever and perspiration; anorexia.

Stannum.^{3x}—Cough attended by profuse, greenish or muco-purulent expectoration; hectic and emaciation; coarse râles; soreness in the chest after coughing; sense of weakness in the chest; talking causes fatigue; expectoration sweetish in taste.

Calcarea carb.^{3x}—In incipient phthisis, in those of fat and flabby flesh; inability to take fat food; acid eructations; "acid dyspepsia"; free perspiration; rapid emaciation; loose, rattling cough; soreness of the chest, which is painful on pressure; persistent hoarseness; diarrhea; amenorrhea.

Bryonia.^{1x}—Sharp pleuritic pains, with accompanying fever.

Silicea.^{6x}—The presence of cavities; profuse expectoration of pus or muco-pus; fever and profuse sweat.

Arsenicum.^{3x}—In advanced cases, with fever, anxiety and restlessness; diarrhea, due to intestinal ulceration.

Arsenate of Quinine.^{2x}—In advanced cases, with the condition described under *Arsenicum*, this will have a "tonic" effect, rendering the patient's state more comfortable.

Caprum ars.^{2x}—Cramps in the abdomen, with vomiting and diarrhea, following stomach disturbance.

Agaricin.^{1x}—For the night-sweats of phthisis. **DOSE:**—One-grain tablet at bedtime; sometimes necessary to give two or three doses during the latter part of the day and in the evening.

Phosphoric acid.^{2x}—Feeling of weakness in the chest; cough with feeling of tickling under the sternum; muco-purulent expectoration; night-sweats.

Pilocarpine.^{2x}—Profuse sweats occurring in the course of acute phthisis.

Atropine.—In extreme cases, to check the exhausting sweats, *Atropine* may be used as a palliative; it is not

curative in its action. DOSE:—One one-hundredth of a grain, by hypodermic injection, given at bedtime.

Aconite.^{1x}—For slight hemoptysis occurring in the early stages, with fever and excitement of the circulation.

Antimonium iod.^{2x}—Fever; cough, with profuse mucopurulent expectoration,

Ferrum ars.^{1x}—In cases with marked anemia; pale skin, and lips; in females, amenorrhea.

REPERTORY.

Cough.—Phosphorus; Nitric acid; Stannum; Hyoscyamus; Belladonna.

Night-Sweats.—Agaricin; Phos. acid; Arsenicum; Cinchona; Silicea; Atropin.

Fever.—Arsenic iod.; Baptisia; Ferrum phos.; Chin. ars.; Silicea.

Digestive Disorders.—Nux vom.; Strychnin; Arsenicum; Cuprum ars.; Ferrum ars.

Pain in the Chest.—Bryonia; Aconite; Kali carb.; Cimicifuga.

Insomnia.—Caffein; Digitalis.

Hemoptysis.—Millefolium; Phosphorus; Ferrum phos.; Acalypha.

Empirical Measures.—Kreasote has no specific action, and is not curative. Cod-liver oil, except for the contained Iodine, has no advantage over other fats.

GENERAL MEASURES.

Climate.—Change of climate is important in all cases, imperative in many. The earlier the change is made, the better.

Conditions.—The patient's new environments should provide mental rest (freedom from worry and anxiety) and favorable hygienic and sanitary surroundings.

Qualities.—The most favorable climate should possess:—(a) Small amount of humidity; (b) Equable and moderate temperature; (c) Great amount of sunshine; (d) Purity of atmosphere; (e) Altitude.

Altitude.—The effect of *altitude* is to:—(a) Compel deep and full respiratory movements; (b) Increase the exhalation of watery vapor and CO₂; (c) Increase the amount of hemoglobin in the blood; (d) Strengthen the heart's action; (e) Increase the activity of the skin; (f) Increase the appetite and the amount of food taken; (g) Improve nutrition; (h) Strengthen the muscles of the chest.

Elevation.—The altitude may vary from 1,500 to 5,000 feet. It should not greatly exceed the latter.

Gradual Approach.—In severe cases, do not make sudden change from low level to great altitude; gradual approach is followed by better results.

Contra-indications.—Great altitude should be avoided in patients with:—Weak heart; nervous symptoms; advanced age; extreme weakness.

Localities.—*North America.*—The Adirondacks (1,500 to 2,500 feet); the Alleghanies—Western Virginia, East Tennessee, Western North Carolina, Northern Georgia (1,500 to 2,500 feet); the Rocky Mountains—Colorado, New Mexico, Arizona (3,000 to 5,000 feet). There is no region in the world equal to the high, dry interior at the

base of the Rocky Mountains, extending from Colorado to Old Mexico.

Europe.—Switzerland.—Davos; Arosa; St. Moritz; Wiesen; Leysin; Les Avants.

Nostalgia.—The benefits to be derived from change of climate are apt to be lost if the patient suffers from homesickness, or worry and anxiety.

Return to Low Country.—The length of time of residence at a great altitude, before returning to the low country, is to be determined by the stage of the disease from which the patient suffered, and by the rapidity of recovery. If it is a case of incipient phthisis, recovery will usually take place in one year; the patient should remain one year longer, to confirm the cure, and then he may, in almost all cases, return in safety. As a rule, remain one year after recovery. If there has been much destruction of lung tissue, remain at the great altitude permanently.

Warm Climates.—In cases with bilateral disease, and cavity-formation, with little hope of cure, warm climates may be selected.

Lung-Development.—The patient must take regular and systematic exercise in lung-development and chest expansion. *Method:*—Practice (a) *abdominal* and (b) *costal* breathing. *Abdominal:*—With all clothing perfectly free, lie upon the back on a firm, level surface; expel the air from the lungs, and depress the epigastrium to its extreme limit; then fill the lungs, causing the epigastrium to rise, making as great an excursion as possible. Repeat this ten times. Exercise in this way several times daily. *Costal breathing:*—The best way to develop the upper part of the chest is by exercises with two rings suspended from the ceiling by ropes. They should be on pulleys, so as to be adjusted to different heights. (A) With the rings on a level with the shoulders, let the patient grasp the rings with the hands; with the feet fixed, lean far forward, extending the arms outward and backward, *at the same time gradually inflating the lungs as the motion is made.* As the body is drawn back to the erect position, *expel the air from the lungs.* Repeat this many times. (B) Raise the rings above the head. Slowly draw the body up on tip-toe, and let down again, inhaling and exhaling as the two motions are made. (C) Many times daily, when in the open-air, go through with *this* exercise:—Place the hands on the hips, the fingers forward and the thumbs backward; stand erect, and throw the shoulders and elbows well back; inflate the lungs fully, beginning by abdominal expansion, and extending to the upper chest; close the glottis; hold for a moment. While holding the air in the lungs, make forcible effort at retraction of the abdominal muscles, pressing the diaphragm upwards. Then suddenly and forcibly expel the air. Do this many times daily. Continue all these exercises for years after recovery.

Exercise.—Exercise should never be pushed to the point of fatigue.

Massage.—Massage of the muscles of the chest and abdomen, with passive arm movements, is very beneficial.

Rest.—During the afternoon fever the patient should rest quietly on a couch on a veranda in the open air.

Alimentation.—A liberal and nutritious diet is of paramount importance. So far as possible the patient should become the subject of *forced feeding*. The most effective method is by increasing the number of meals per day.

Mixed Diet.—The diet should be mixed, with a due proportion of proteids, starches and fats.

Proteids.—Beef; mutton; lamb; spring chicken; game; sweetbread; milk; koumys; eggs; fish; oysters; cod-fish (creamed); lobster *a la* Newburg.

Starches.—Potato; rice; whole-wheat bread; hominy; samp; sweet potato; sago; cornstarch. For relish:—**Celery**; lettuce; asparagus; tomatoes; onions; spinach.

Fruit.—Grapes; oranges; apples; bananas; prunes; pineapple; berries.

Fats.—Cream; butter; olive oil; beef-suet (thoroughly cooked and hot, eaten in small quantity with rare beef).

Meals.—**Four A. M.**—If the patient suffers from night-sweats, awaken him at 4 A. M., or at whatever hour the sweat is apt to occur, and give a glass of warm milk. In many cases this will prevent the sweat.

Seven A. M.—Give a glass of warm milk. A tablespoon of strong coffee may be added. Or, give an egg-nogg; or koumys.

Breakfast.—8:30 A. M. Mutton-chop, or eggs (poached or boiled); baked potato; buttered toast; café-au-lait; orange, grapes, or baked apple.

Luncheon.—11 A. M. A cup of cocoa, koumys, or café-au-lait; toast, or a shredded-wheat biscuit.

Dinner.—1:30 P. M. Make this the hearty meal of the day:—Rare roast-beef; fresh vegetables; fruits.

Tea.—5 P. M. A cup of cocoa, and a slice of buttered toast, or the equivalent of these.

Supper.—7 P. M. No meat; tea (weak); corn-meal porridge, with milk; whole-wheat bread and marmalade; or fruit jellies.

Bed-time. A glass of warm milk; or, koumys.

NOTE.—This regimen may be varied to suit each but the main object—feeding the patient to the full his powers of digestion—must be kept in view. *not overtax the stomach!* Use discretion.

Forced Feeding.—Debove method:—This may be in cases of laryngeal tuberculosis, when swallow painful, and the taking of food is followed by vomit. First, wash out the stomach; then, through the stomach tube, give milk and beef-powder.

Sanatorium Treatment.—When the patient cannot far from home, it is best to send him to a well regulated sanatorium, where he will be constantly under the intelligent care of a competent physician.

Home Treatment.—If the patient cannot leave home provide an upper piazza or balcony, inclosed only wire screen, with southern exposure when possible, & on this let him live and sleep, even in cold weather, ~~when~~ it is not storming. Depend upon bed-clothing to retu

body heat while sleeping. The sleeping-room should be always cool, with open window when it is not storming.

Open-air.—The patient should live in the open-air. Camp life is best. Or, travel on wheel or in the saddle from place to place. If living in a house, the sleeping couch should be on an upper piazza, protected only by wire screen. Neither cough, fever, night-sweats, nor hemoptysis contra-indicate open-air exposure. In summer, let the patient be out 11 or 12 hours; in winter, 6 or 8 hours. If the patient is weak, place him in a reclining chair, in the sunshine, on a balcony, veranda, or on the lawn. Protect, from feet to head, with shawls or wraps when cool weather demands.

Sunshine.—Spend as much time as possible in the sunlight. In the patient's home, or in a sanatorium, a solarium should be arranged so that the entire body can be exposed to direct sunlight. Give sun-baths daily.

Camp-life.—Nothing equals camp-life to restore the pulmonary invalid. Recovery will follow this method when all others may fail. As to locality, a dry climate, or dry season, is the most important condition to seek.

Bathing.—A cold sponge-bath (water 56° F.) to the chest should be taken every morning on rising.

Night-sweats.—Give alcohol rubbings.

Inhalants.—Inhalants have no power of destroying the bacillus, but they are of service for mental effect, and in compelling deep breathing. Formaldehyd, 4%, is a useful agent.

The Sputum.—The patient should always cover the mouth with a handkerchief (or cloth, to be afterwards burned) when coughing. Expecterated matter should be received into a cup containing carbolic solution (1:20); or, on a cloth or paper, to be burned.

Septicemia.—In septicemia from streptococcus infection—so-called “advanced phthisis”—when there is extensive destruction of lung tissue, great exhaustion and emaciation, a different course from that already indicated must be pursued. What must be sought is simply a peaceful euthanasia. Now *alcohol* can be used freely. *Arsenicum* can be given for its tonic effect. To give relief from the distressing cough, nothing is superior to *Codeine*. (R. Codeinæ; Ammon. chlor., aa grs. viij; Syr. Prun. Virg., oz. jv; mix. Dose:—1 dr. ev. 4 hrs.) The patient should be *kept at home*, with family and friends, and a general sedative treatment pursued.

III. FIBROID PHTHISIS.

Pathology.—Fibroid induration of the lung, due to proliferation of connective tissue. The fibrosis may be primary, or secondary to the tuberculosis.

Symptoms.—*Physical signs:*—Chest sunken; shoulder lowered; heart displaced; increased fremitus; bronchial breathing; cavernous sounds. *Course:*—Chronic; may terminate in 3 years; may last 10, 20 or more. *Permanent cure is possible.*

Treatment.—In general as in the ulcerative form. *Climatic treatment* is followed by favorable results.

SYPHILIS OF THE LUNGS.

Varieties.—(a) “White pneumonia” of the fetus; (b) Gummata; (c) Interstitial pneumonia.

Lesions.—*White pneumonia*.—In the fetus (and even sometimes when the child is born alive) large areas, or an entire lung, is firm, heavy, grayish-white. *Gummata*.—In the adult; the nodules are in size from a pea to a lemon; irregularly scattered; most numerous about the root. *Interstitial*.—Fibrous bands, usually radiating from the root of the lung, but sometimes from the pleura; bronchiectasis may be present. Syphilis of the lung is of rare occurrence.

Symptoms.—The symptoms are usually those of *bronchiectasis*, or of *chronic interstitial pneumonia*.

Treatment.—Specific.

PNEUMONOKONIOSIS.

Varieties.—(a) Anthracosis (coal-miner’s disease); (b) Siderosis (from metallic dust, *steel*, etc.); (c) Chalicosis (from *silica*, in stone-cutters).

Lesions.—The dust becomes deposited in the lung-tissue, leading finally to fibrous induration.

Symptoms.—Bronchiectasis; emphysema; bronchial catarrh; characteristic sputum (in *Anthracosis*, “black spit”).

Prognosis.—Favorable, if the cause is removed *early*.

Treatment.—Prophylactic; and as for chronic bronchitis and emphysema.

HYDATID CYST OF THE LUNG.

Origin.—Usually secondary (especially from the liver); primary is exceedingly rare.

Symptoms.—Varied and obscure; pain; dyspnea; cough; bloody sputum (rare). Physical signs of a solid body in the lung.

Diagnosis.—It depends entirely upon the appearance of scolices, membrane, or hooklets in the sputum. Examine the liver.

Prognosis.—Grave.

Treatment.—Surgical measures if the growth is near the surface; otherwise, palliative treatment. Injection might be tried (see p. 107).

NEOPLASMS IN THE LUNGS.

Varieties.—Carcinoma (encephaloid; scirrhus; epithelioma—most common); sarcoma; enchondroma (rare).

Etiology.—*Primary* new-growths are *rare* (sarcoma is sometimes so found); *secondary* growths are due to metastasis, or occur by extension.

Symptoms.—Vary with the size and location of the tumor; *pain* if the pleura is involved; bronchitis; dyspnea; cyanosis.

Prognosis.—Fatal.

Duration.—From several months to 1 or (rarely) 2 years.

ACUTE PLEURISY.

(PLEURITIS.)

Varieties.—(a) Acute plastic; (b) Sero-fibrinous; (c) Purulent (Empyema); (d) Chronic adhesive.

Etiology.—Due to various bacteria, or to their toxins. "Cold" acts as an exciting cause. Many cases are tuberculous.

Diagnosis.—In dry pleurisy, friction sound; with effusion, displacement of the heart (Bacelli's sign), S. Koda's sign. Exploratory puncture is always decisive. *Differential*:—Intercostal neuralgia, painful pressure-points; pleurodynia, absence of physical signs; pneumonia, displacement of the heart is most significant in favor of pleurisy. Puncture will decide.

TREATMENT.

Aconite.^{1x}—To be of service Aconite must be given early. Its place is in the treatment of acute, uncomplicated pleurisy. *Indications*:—Acute pleurisy, coming on with chill, followed by fever; thirst; quick and rapid pulse; skin hot and dry; rapid respiration; great nervous restlessness; stitching pains in the chest; dry cough.

Bryonia.^{1x}—This is the leading remedy for plastic pleurisy; it is no longer of use after serous effusion has begun. *Indications*:—Plastic pleurisy, with acute, stitching pains, greatly aggravated by breathing, or the slightest motion; respirations short and rapid. Also, for the "dry" pleurisies accompanying pneumonia and phthisis.

Cantharis. Tr.—This is the most efficient remedy, following Bryonia, when there is serous effusion or sero-fibrinous exudation. Sensation of heat and burning in the chest; characteristic urinary symptoms.

Apis.^{3x}—For the stage of effusion, to promote reabsorption, especially when the effusion is of recent origin; also, in pleurisy following scarlatina. Absence of thirst; dark and scanty urine; edema of the chest wall; severe, burning pain in a circumscribed spot.

Colchicine.^{2x}—Acute, general pleurisy, in rheumatic or gouty subjects. A peculiarity of the condition calling for this medicine is often:—Aversion to the smell of food, which causes nausea and loathing.

Arsenic.^{3x}—In the later period of the stage of effusion, which has failed to yield to other remedies. There is great dyspnea, with but little pain; much prostration, the patient being weak and cachectic; cyanosis; restless anxiety.

Hepar sulph.^{3x}—Persistent plastic pleurisy. Great sensitiveness to the open air; moist skin; the patient easily perspires.

Rhus tox.^{3x}—Acute attack coming on after exposure to cold and damp; after a wetting while heated and perspiring. Muscular pains in various parts; pains in the extremities; disposition to change the position of the parts, which is followed by relief.

Sulphur.^{3x}—Plastic exudation, slow to disappear. Also, in cases of serous effusion, coming on insidiously,

and lingering. Great need of fresh air; feet and head hot; hands and feet burn; palpitation; atonic dyspepsia.

Kali carb.—Dry pleurisy complicating phthisis. *Mercurius corr.*—Pleurisy complicating Bright's. *Phosphorus.*—Pleuro-pneumonia. *Iodine.*—In "scrofulous" subjects it replaces Bryonia.

GENERAL MEASURES.

The Patient.—However mild the attack, insist upon the patient's remaining in bed. *Absolute rest* promotes recovery. Let the patient seek the most comfortable position, but remain quiet. Give attention to the state of the bowels.

Room.—Dry, well ventilated; about 70° F.

Pain.—For relief of pain, hot compresses—as hot as the patient can bear, frequently changed. (Poultices are an abomination.) Cold applications should not be used.

Thoracentesis.—If the amount of effusion is great, thoracentesis is called for. *Indications:*—(1) Great distention; (2) Pressure-symptoms, such as increasing dyspnea or embarrassed heart's action; (3) Effusion remains stationary. *Method:*—Use aspirator; strictest aseptic precautions, so as not to change a serous effusion to a purulent one. Withdraw slowly; only a portion of the fluid at one time. Stop on the appearance of cough, dyspnea or faintness. Stimulate if the latter occurs. Keep the patient recumbent. For further details of the operation see "Empyema."

Diet.—Give nourishing diet, liquid in form. Avoid over-loading the stomach.

Convalescence.—If the lung is embarrassed in its action after the attack, order systematic lung gymnastics. Massage of the chest-walls.

EMPYEMA.

(PYOTHORAX.)

Etiology.—It may be secondary to pleurisy; acute infectious diseases; extension from neighboring organs; injuries.

Bacteriology.—The most common organisms are: *Micrococcus lanceolatus*; *streptococcus*; *staphylococcus*; *bacillus tuberculosis*.

Diagnosis.—Physical signs are the same as in pleurisy with effusion, except absence of Bacelli's sign. If doubt exploratory puncture should *always* be made, using strictest antiseptic precautions. *Differential:*—*Pulsati empyema* must be carefully distinguished from *aortic aneurism*.

TREATMENT.

Medicinal.—Hepar s.^{3x} Silicea.^{6x} Arsenic.^{3x} Mercurius.^{3x} Calcarea.^{6x} Phosphorus.^{3x} And others relative to the suppurative process, as well as to the constitutional condition.

SURGICAL MEASURES.

Indications.—Pus in the pleural sac is essentially *abscess*, and should be promptly treated as such. —

children, in whom the tendency is often to recovery, the demand is not so urgent; thoracentesis may be tried. But in adults, unless there is some special contrary reason, operation should be resorted to without delay.

Methods.—(I.) Thoracentesis; (II.) Simple incision; (III.) Resection of rib; (IV.) Siphon drainage; (V.) Thoracoplasty.

I. THORACENTESIS.

Indications.—This method has but limited use; in the great majority of cases the radical operation is demanded, and is necessary to a cure.

When Called for.—Thoracentesis may be resorted to:—

(A) In mild cases, when there is no apparent danger from delay.

Limitations.—Unless prompt improvement follows, only one or two aspirations should be used; if at the end of one week the temperature is not reduced to normal, adopt radical measures.

NOTE.—In children, if the fluid obtained by exploratory puncture shows pneumococci only; or, in adults, if it shows the bacillus tuberculosis only, treatment by thoracentesis may be followed.

(B) In urgent cases, when immediate relief of dangerous symptoms is demanded.

Conditions.—Edema of the lungs, marked dyspnea, extreme weakness, or threatened syncope are indications for prompt aspiration. But this should be followed by operation in a few hours.

Instrument.—The aspirator, including the needle and tubing, should be boiled and then immersed in an antiseptic solution.

Skin.—The skin in the field of operation and in the axilla, should be rendered thoroughly aseptic by being washed, scrubbed, and disinfected with Mercuric bichloride solution (1:2,000). The hands of the operator should be similarly treated.

Position of Patient.—Let the patient be supported by pillows in a semi-recumbent position, with the arm raised over the head; the patient should be lowered as the fluid is gradually withdrawn.

Precautions.—Give alcoholic stimulants before and during operation, to anticipate cardiac weakness. Watch the pulse and respiration; if the pulse becomes feeble, stop the withdrawal of the fluid, promptly push stimulants and lower the patient to the supine position.

Anesthetics.—Never use general anesthesia. At the point of puncture anesthetize the skin by a spray of Ether, or, preferably, Chloride-of-ethyl. A drop of Carbolic acid will accomplish the purpose.

Point of Puncture.—If there is any doubt, determine this by previous puncture with the exploring needle. Usually it will be where the dulness on percussion is most marked; or there will sometimes be a point of bulging in the intercostal space. When the fluid is not circumscribed make puncture in the mid-axillary line, just in front of the border of the latissimus dorsi muscle, in the fifth intercostal space on the right side, the sixth on the left, and just above the upper border of the lowermost rib of the selected space.

Introducing the Needle.—In the entire process be careful to admit no air. Draw the skin up, make a slight preliminary incision, and then introduce the needle. This method provides a valve-like opening. *Caution:*—Do not injure the liver, lung or other viscera.

Removal of the Fluid.—Withdraw slowly. If there is sudden stoppage of the flow, which is apt to be due to a plug of fibrin or caseous pus, remove it by introducing a stylet, previously rendered aseptic. Or, under precautions to prevent the entrance of air, a small quantity of an antiseptic fluid may be slowly injected, to remove the obstruction.

Amount to be Withdrawn.—This depends upon the amount present, and the condition of the patient. If there is a large quantity, withdraw only one-half. As soon as the patient begins to cough, or becomes faint, or the pulse feeble, stop.

After-Treatment.—Seal the wound by cleansing the surface again, placing over it a thin layer of sterile cotton and painting with Collodion. Keep the patient perfectly quiet.

Irrigation of the chest cavity is never to be adopted unless the contents are fetid. In the ordinary case, treatment by irrigation prolongs the disease process, and, moreover, is sometimes attended by fatal accident.

II. INCISION.

Indications.—It is the preferable operation in children; in adults, when general anesthesia cannot be used.

Location.—In the axillary line, 4th, 5th or 6th interspace; or, just below the angle of the scapula (in this location the diaphragm is apt to rise and interfere with drainage).

Patient.—Have the patient in the lateral semi-recumbent posture, with the arm raised above the head.

Incision.—Render the skin aseptic. Anesthetize the surface with *Ethyl-chloride*. Cut near the upper border of the lower rib of the two. The knife may be thrust through all the tissues, and then the opening enlarged by means of a sinus dilator. When the incision is complete, insert one or two fingers into the opening to prevent the too rapid escape of the pus. Evacuate slowly.

Drainage.—Insert a drain, and dressings, as described on next page.

III. RESECTION.

Indications.—In adults, when general anesthesia is admissible. It is still called for even after spontaneous evacuation has occurred, whether through the lung or the chest wall. The percentage of recoveries by this method is greater than by any other.

Anesthetic.—Chloroform is to be preferred. Do not turn the patient after he is unconscious.

The Incision.—Prepare the patient as for other methods. Over the middle line of the chosen rib make a single cut, three inches long, exposing the rib. Hold the wound open by retractors. Crowd the periosteum to each side, for a length of two inches, extending the process to the edges and inner surface of the rib. At the lower edge

carefully separate the intercostal artery with the periosteum. The pleura is still intact. Grasp the bared rib with strong forceps, and cut out a piece $1\frac{1}{2}$ in. long with bone-forceps or a rib-cutter.

Evacuation.—Now open the pleura by a small incision, insert the finger and sweep it about in all directions to clear away pockets or clumps. Let the pus escape slowly. When the patient has partially recovered, change his position to favor evacuation.

The Wound.—After thorough evacuation, insert a rubber drainage-tube the size of the finger; dust it with iodoform; secure it with safety-pins. Close the external wound on each side by two or three deep stitches.

Dressing.—Put Iodoform gauze between the safety-pins and the skin. Cover all with Iodoform-gauze, sterilized gauze, and a *large* pad of sterilized cotton, reaching from the axilla to the crest of the ilium. Secure in position with bandages.

After-Treatment.—The dressings may remain until their removal is demanded by (a) rise of temperature; or (b), saturation with pus. Generally this is in one or two days (in rare instances, a week). The second dressing can usually remain longer than the first. Only in exceptional cases is it necessary to dress daily.

Drainage.—By Posture: Have the patient on the affected side, in the lateral posture; raise the hips and lower the shoulders; then reverse this motion; do this several times. Repeat the process four times daily in the first week; later, two or three times a day.

The Tube.—At each successive dressing, shorten it. Its final removal is determined by the amount of discharge, and by careful probing of the fistula with a soft catheter.

IV. SIPHON DRAINAGE.

Method.—Under local anesthesia, puncture the chest with a large trocar (6 to 13 mm.). Withdraw most of the pus, slowly. Then insert a soft-rubber catheter, through the canula, withdrawing the canula over the catheter. Attach a long rubber tube to the end of the catheter, letting the other end of the tube pass into a large bottle, partly filled with an antiseptic solution (carbolic acid).

Indications.—Good results have been obtained by this method. It is especially applicable to chronic tuberculous emphyema, and to the pneumococcus variety in adults.

Special Conditions.—If there is already an existing perforation, operate without regard to it, selecting the usual location. In *encapsulated* emphyema, make the incision over the seat of the pocket. In *double* emphyema, operate on one side, and on the other side five to ten days later.

Re-expansion of the Lungs.—Use Wolff's bottles; light chest gymnastics; hill-climbing.

V. THORACOPLASTY.

Indications.—In old cases that resist the usual methods; the fistula continues to discharge for months. It is a *serious operation*, and should be resorted to only to save life. It consists in the resection of several ribs. For the method, refer to Surgery.

SECTION III.

DISEASES OF THE HEART AND THORACIC AORTA.

PERICARDITIS.

Varieties.—Fibrinous; Sero-fibrinous; Purulent; Hemorrhagic; Tuberculous.

Diagnosis.—*Before effusion*.—A “to-and-fro” friction-sound, made more distinct on pressure with the stethoscope, or on the patient’s leaning forward. *After effusion*.—*Palpation*.—Apex beat feeble or absent; heart’s impulse absent. *Percussion*.—Triangular flat area. *Auscultation*.—First sound distant, and muffled. Friction, if present, confined to the base.

Prognosis.—Generally favorable; modified by the nature and severity of the primary disease.

TREATMENT.

Aconite.^{1x}—Especially for pericarditis complicating acute rheumatism. Fever; great anxiety and restlessness; precordial pain.

Spigelia. Tr.—This is an important remedy for pericarditis. *Pain and violent action* of the heart are its chief characteristics. Violent palpitation, so severe that the walls of the chest are raised; severe stitching or stabbing pains; great oppression, the least motion almost producing suffocation; irregular pulse.

Colchicin.^{2x}—Given in the course of an attack of rheumatism, it acts as a prophylactic against the development of pericarditis.

Arsenicum.^{3x}—The chief remedy in the stage of effusion; restlessness and anxiety; suffocative attacks; violent and irregular palpitation; cold surface; thirst; anguish and apprehension of death.

Digitalis.^{3x}—For the stage of effusion, with feeble heart’s action. Insidious approach of the pericarditis. Short duration of friction sound; pain; palpitation; pulse feeble, intermittent, not synchronous with the heart’s action; face livid, with blue lips; hyperemia of the liver; great anxiety, but without restlessness.

Bryonia.^{1x}—Pericarditis complicating pleurisy or pneumonia, with plastic exudation. It is of no use when effusion is present.

Colchicum.^{2x}—Rheumatic pericarditis; also, complicating Bright’s disease. **Sulphur.**^{3x}—Protracted plastic pericarditis. **Cannabis.**^{3x}—Lancinating pains in the precordial region. **Kali carb.**^{2x}—Persistent stitching pains.

Kali hyd.^{1x}—To promote absorption. **Merc. corr.**^{3x}—

Purulent effusion.

GENERAL MEASURES.

Rest.—The most important provision is *absolute rest*. Avoid all mental excitement or physical exertion.

Local Applications.—Hot compresses, *light in weight*, over the precordial region. Put dry flannel next the skin, and the compress over it. Cold applications are to be avoided.

Bed.—Let the patient lie between blankets, and wear only flannel clothing.

Paracentesis.—If the amount of effusion is such as to embarrass the heart's action, or if it is *purulent*, paracentesis is indicated. *Method:*—Make exploratory puncture, with hypodermic needle, in the left fifth intercostal space, the region of the apex beat, to confirm the diagnosis. *Operation:* Location—in the fourth or fifth intercostal space, near the margin of the sternum. Make an incision in the chest wall, and expose the pericardium. Puncture the pericardium with a fine trocar and canula, taking care to avoid wounding the heart.

ENDOCARDITIS.

Varieties.—(a) Simple; (b) Ulcerative.

Diagnosis.—Heart's impulse forcible early, but later it is feeble; on auscultation, prolongation of the first sound; a soft, blowing, systolic murmur at the apex, *developing under observation*.

TREATMENT.

Aconite. Tr.—This is the leading remedy in acute endocarditis. It is safe practice to rely chiefly upon it in the treatment of all cases, but especially in rheumatic endocarditis. Characteristic symptoms are: Fever; restlessness; rheumatic pain and swelling of the joints; congestion of the lungs.

Spigelia. Tr.—Second in importance only to Aconite. The characteristic symptoms are pain and violent palpitation.

Cactus. 1x—Sense of *constriction* about the heart; sharp pain; oppressed breathing; great palpitation; pulse quick, tense; violent occipital pain.

Veratrum vir. Tr.—Violent action of the heart, with congestion of the lungs; pulse full and bounding.

Colechicum. Tr.—For the endocarditis complicating acute rheumatism. Violent action of the heart, tearing pain in the precordial region; pulse weak, small and rapid.

Arsenicum. 3x—Late in the course of the disease. Pulse soft, weak and irregular; dyspnea; congestion of the liver; edema of loose cellular tissue; anxiety and restlessness.

Bryonia. 1x—In rheumatic endocarditis only, on indications furnished by the general condition.

Belladonna. 2x—In the rheumatic endocarditis of children, accompanied by congestion of the lungs; heart's action rapid; pulse full; peripheral vessels dilated; cerebral congestion.

Digitalis.—This drug should never be given in physiological doses in endocarditis, or in myocarditis; it will do harm.

GENERAL MEASURES.

Rest.—As in pericarditis, this is all-important, not only during the acute attack, but for weeks after, until the heart has fully regained its integrity. Observe strictest caution so long as the slightest murmur is heard; or so long as there is any weakness of the heart's action, any rapidity, or excitability of the pulse.

Clothing.—Every precaution should be taken to prevent chilling of the surface of the body. The patient should lie between blankets, and wear flannel garments.

Applications.—Hot compresses over the precordial region give relief. Do not let them be oppressive in weight.

Baths.—An occasional warm bath (100°) helps to relieve the embarrassed central circulation, and is soothing to the nervous system. Do not let the patient make any exertion.

CARDIAC HYPERTROPHY.

Diagnosis.—Bulging of the precordium; forcible, heaving impulse; apex-beat may be in the 6th, 7th or 8th interspace, and 1 to 3 inches to left of the nipple; on *percussion*, an ovoid area of dullness as high as the second interspace, and, transversely, from 1 to 3 inches to the left of the nipple line. On *auscultation*, first sound prolonged and dull; second sound clear and loud. *Pulse*, regular, full, strong, and of high tension.

TREATMENT.

Aconite.^{1x}—Acute attacks of violent palpitation, with severe congestion; cardiac spasm.

Naja.^{3x}—Palpitation and feeling of oppression.

Cactus.^{1x}—Palpitation and congestion; feeling of constriction.

Arnica.^{2x}—Hypertrophy caused by long-continued over-exertion.

Rhux tox.^{3x}—Hypertrophy, without valvular lesion; in rheumatic subjects, caused by over-exertion.

Bromine.^{2x}—Palpitation after slight exertion; feeling of precordial oppression.

Aurum.^{2x}—Powerful action of the heart, with rush of blood to the head and chest.

Glonoïn.^{3x}—Palpitation, with feeling of pulsation in the whole body.

Lilium. Tr.—In females, with palpitation and congestions; pain, as if the heart were grasped.

Caffein.^{2x}—Palpitation of nervous origin.

GENERAL MEASURES.

Mode of Life.—Avoid everything that tends to excite the heart's action; avoid mental excitement, over-exertion, over-eating, and the use of stimulants. *Lead a quiet life.*

Bowels.—A condition of constipation is deleterious; straining at stool is harmful.

Diet.—This should be as "light" as consistent with maintenance of the general health. Drinks should be taken in moderation. Avoid the starchy foods. Prohibit tea, coffee, tobacco and alcohol.

CARDIAC DILATATION.

Diagnosis.—*Dulness*—Increased area upward and outward, on one or both sides; *action* of the heart weak and irregular, with indistinct apex-beat; *First sound*, short, sharp and feeble; *Pulse* weak, irregular, intermittent. Asystolism.

TREATMENT.

Digitalis.^{1x}—Heart's action weak; pulse small, weak, irregular and intermittent; feeling of anxiety in the cardiac region; oppressed breathing; feeling of "want of air;" cannot fill the lungs; faint, sinking feeling in the epigastrium; at times there may be cyanosis. The feeble, irregular pulse, with feelings of anxiety and oppression, are characteristic.

Dose.—Five drops, 1x, several times daily. Even if no immediate effect is observed, persist in its use for a long time—weeks or several months. The ultimate effect will be better than if physiological doses be given early.

Strophanthus.^{1x}—If Digitalis does not give favorable results, or if it disturbs digestion.

Arsenicum iod.^{3x}—Dyspnea on slight exertion; precordial pain; weak heart's action; rapid, irregular pulse; general weakness, prostration and restlessness; nervous irritability; precordial anxiety; a state of arteriosclerosis.

Convallaria. Tr. or 1x—Feeble, irregular action of the heart; soft, irregular pulse; dyspnea; palpitation; weak heart, with dyspnea; edema; scanty urine.

Sparteïn sulph.^{1x}—Weak heart in nervous or hysterical subjects; feeble action of the heart, with small, weak pulse.

Agaricin.^{1x}—Weak heart, feeble, irregular pulse; violent palpitation; twitching of muscles; profuse sweat; cardiac dilatation associated with emphysema. Agaricin is also a useful remedy in the irritable heart of tea- and coffee-drinkers and users of tobacco. Also, the weak heart following acute debilitating diseases.

Cactus. Tr.—Sensation of constriction about the heart; pain; sometimes acute, stitching or shooting pains; palpitation, brought on by mental excitement, with deep inspiration.

Ferrum.^{3x}—In anemic subjects; palpitation, with sensation of oppression about the heart; full, soft pulse; vasomotor irritability, indicated by flushings of the face.

GENERAL MEASURES.

Rest.—This is of paramount importance. There must be *absolute rest* in bed, excepting for passive exercise. Continue the rest treatment for a long time. Avoid all excitement or strain.

Diet.—The diet must be nutritious, and concentrated. *Foods:*—Eggs; preparations of milk; nourishing broths; fish; scraped beef; beef-steak; rare roast-beef. Avoid—fats, sugars and starches. Let it be as *dry* a diet as the patient can stand. Let the patient take but little into the stomach at one time; avoid all that may cause *distension of the stomach* with gas; give light, but nutritious food. Little at a time, but at more frequent intervals.

ACTIVE CARDIAC STIMULANTS.

Cardiac Stimulants.—In all ordinary cases, if properly treated, active stimulants will not be demanded. In asthenic cases they may sometimes be called for. The most useful are the following:

Digitalis. Tr.—*Physiological action:*—**HEART.** Its direct action is stimulant upon the cardiac ganglia and the muscular fibres of the heart, causing a strong, firm, slow beat. It also stimulates the vaso-motor center in the medulla and the ganglia in the muscular coats of the blood-vessels, causing arterial contraction, with increased tension. The slow action of the heart is due to stimulation of both the roots and ends of the cardiac vagus. **STOMACH.**—Digitalis is a gastro-intestinal irritant, in sufficient dose causing nausea, vomiting and diarrhea. The drug is slowly eliminated, hence its action is cumulative.

Indications:—Failure of compensation; faint second sound; or, asystolism; blue finger-nails; edema of the ankles; dyspnea.

It should not be used in fully or over-compensated heart, advanced muscular degeneration, or mechanical defects of high degree.

Dose:—Tincture, five to ten drops.

Strophanthus. Tr.—*Physiological action:*—On the heart its action is very similar to that of Digitalis. But it differs in the following important particulars: (1) absence of vaso-constrictor effects; (2) greater diuretic power; (3) absence of cumulative effect; (4) no digestive disturbance.

Indications:—The same as for Digitalis, but it is preferable to that drug, because of absence of vaso-constrictor effect, and of disturbance of digestion. It is useful for weak and dilated heart generally; but especially for: (1) Mitral stenosis, controlling the irregular rhythm, nervous dyspnea, and pains; (2) palpitation in *irritable or tobacco* heart; (3) heart-failure in the aged, with arterio-sclerosis; (4) in the heart affections of children it is safer than Digitalis.

Dose:—Five drops of a reliable Tr., *t. i. d.*

Cratægus. Tr.—This drug is very similar in its action to Strophanthus. Through the cardio-inhibitory action of the vagus it slows and strengthens the heart.

Indications:—After failure of compensation, even with a considerable degree of dropsy, it will give new tone to the lagging heart, and much reduce the dropsy. *Dose:*—Tincture, five drops, *t. i. d.*

Alcohol.—*Physiological action:*—When taken into the stomach it stimulates the heart by reflex. The effect persists after the alcohol is absorbed. The heart's action becomes more rapid and forcible, by direct irritation of the accelerator center in the medulla, and of the heart-muscle itself. Arterial tension is raised, though the blood-vessels, especially of the skin, are dilated, owing to depression of the vaso-motor nerves in the vessel walls. Excessive doses depress and paralyze the heart.

Indications.—Alcohol is a diffusible stimulant. It is called for in cases of weak heart with *accompanying general exhaustion*, or asthenia.

Dose.—Of brandy or whisky, from a dram to an ounce, according to the urgency, and the results desired. Dilute it with four to eight parts water.

BAD NAUHEIM TREATMENT.

Description.—The Bad Nauheim, or Schott, method of treatment of chronic heart diseases, more especially dilatation, consists of a series of *saline and effervescent baths*, conjoined with *passive exercise*. Its application requires intelligent care and attention to detail, but the beneficial results are often very marked.

Indications.—To be used in cases of dilatation, primary or secondary; fatty degeneration; myocarditis; angina pectoris; Grave's disease; remains of old effusions and products of inflammation; tachycardia.

Contra-Indications.—Aneurism; Bright's disease; arterio-sclerosis.

SALINE BATHS.

(FIRST SERIES.)

First Baths.—Water, 40 or 50 gallons; Sodium-chloride, 5 lbs.; Calcium-chloride, $\frac{1}{2}$ lb. In the series of 20 baths the Sodium-chloride is to be gradually increased to 10 lbs. and the Calcium-chloride to 1 lb.

Temperature.—First bath, 92° F. After each series of 3 baths, lower by 1 degree, but in the end do not let the temperature go below 83°.

Duration.—In the first bath let the patient remain 5 to 8 minutes. In each successive bath increase by 1 minute, until a limit of 20 minutes is reached, with which duration they may be continued.

Precautions.—The physician should supervise the giving of the first few baths. In the bath, guard against syncope. If the patient suffers from chill, take him at once from the bath. If the bath chills, give the next bath of a higher temperature. In the bath the patient must remain absolutely motionless. Never give a bath soon after eating.

After the Bath.—On coming from the bath do not let the patient stand. Place him recumbent on a bed or couch, and dry him off. Then, in a warm bed let him sleep for an hour or two.

Number of Baths.—Give three baths on three successive days; then wait one day, and give three more. Continue in this way until 20 or 25 baths are given.

EFFERVESCENT BATHS.

(SECOND SERIES.)

Prepare the bath with Sodium-chloride and Calcium-chloride, as for the saline bath. Add Sodium-bicarb., and HCl. Begin with a *mild* bath, and gradually increase to the *strong*.

Mild.—Sodium-bicarb., $\frac{1}{2}$ lb.; HCl (25%), $\frac{3}{4}$ lb.

Medium.—Sodium-bicarb., 1 lb.; HCl (25%), $1\frac{1}{2}$ lb.

Strong.—Sodium-bicarb., 2 lbs.; HCl (25%), 3 lbs.

The Acid.—To add the acid—loosen the stopper of the bottle, invert the bottle with the mouth just below the surface of the water, and withdraw the stopper; move the bottle about so as to diffuse the acid generally over the surface of the water.

Method.—Let the patient remain 5 to 8 minutes. Give three baths, wait one day, and give three more. Gradually increase from mild to strong. First bath at 92° F.; gradually lower the temperature. When 20 baths have been given in this way, stop for several weeks (1 to 3) and give another series, being guided by the effects produced and the demands of the case.

NOTE.—No rule is invariable. The time, temperature, strength of bath, periods of rest, etc., must be regulated by the intelligence of the careful physician.

PASSIVE EXERCISE.

Method.—It consists in *resisted movements*, the patient moving a limb, or a part, the operator opposing gentle resistance. The design is to obtain *exercise without fatigue*.

RULES.

Frequency.—Once daily.

Parts.—Extremities; head; trunk.

Motions.—Flexion; extension; adduction; abduction; rotation.

Sequence.—Bring different sets of muscles into action at different times.

Time.—Of seance, 30 to 40 minutes.

Time.—Of single movement, 30 to 40 seconds.

Rest.—Rest an equal period between.

Motion.—Slow and resisted.

Cautions.—Do not grasp a limb; do not compress blood-vessels; regulate the resistance to the condition of the patient; watch respiration, pulse, palpitation. Respiration or pulse must not be much quickened. If they are, or if the patient yawns, stop and rest. Proceed again cautiously.

Results.—The Bad Nauheim treatment:—The heart is reduced in size; the pulse beats slower and with more force; the arteries are filled; the veins depleted; the urine is increased; dropsy is reduced.

THORACIC ANEURISM.

(ANEURISM OF THE THORACIC AORTA.)

Etiology.—*Predisposing*:—Arterio-sclerosis; secondary to syphilis, gout, rheumatism, Bright's. *Exciting*:—Strain; obstructed arterial circulation. *Age*:—30 to 50, most common. *Sex*:—Male more than female.

Location.—*Ascending Aorta* (60%):—Symptoms:—**Expansile tumor**, in 2nd and 3rd right intercostal spaces; blowing murmur; dulness to right; thrill; pressure on descending *vena cava*, with venous congestion of head and right arm; heart is displaced to the left; pressure on right recurrent laryngeal, with dyspnea, aphonia, "brassy" cough; usually much pain.

Transverse Portion of Arch (30%):—Tumor behind the *manubrium*; blowing murmur; thrill; dulness; tracheal

tugging; Bacelli's sign; pressure-symptoms of the—trachea; esophagus; thoracic duct; bronchi; lungs; cervical sympathetic; left recurrent laryngeal.

Descending Aorta.—Tumor to the left of the sternum; blowing murmur; thrill, heard also in the back; dulness; pressure on the spinal column (sometimes with erosion of the vertebræ); esophagus; left bronchus; lung.

Rupture.—It may rupture into the pleura; pericardium; heart; mediastinum; trachea; bronchi; esophagus; externally. Small hemorrhages, due to "weeping," may precede final rupture. When external, there is previous erosion of the ribs and soft tissues of the chest-wall.

Pulse.—Volume lessened; difference in time of the two radials; or, one obliterated.

Differential Diagnosis.—Aneurism must be differentiated from:—Pulsating empyema; solid tumors (enlarged lymph-nodes; sarcoma; carcinoma).

Prognosis.—Almost invariably fatal; in rare instances spontaneous recovery has taken place, and also followed the rest and dry-diet method (Tufnell's).

TREATMENT.

Rest.—Absolute rest in bed for from eight to twelve weeks.

Diet.—A restricted, dry diet:—*Breakfast*, Bread-and-butter, 2 oz.; milk, 2 oz. *Dinner*, meat, 2 or 3 oz.; milk, 3 or 4 oz. *Supper*, same as breakfast. When this diet cannot be rigidly maintained, approach it as nearly as possible.

Potassium iodide.—This drug, given to the point of tolerance, has some repute. Its beneficial results are probably gained in cases of specific origin.

PULMONARY ANEURISM.

(ANEURISM OF THE PULMONARY ARTERY.)

Etiology.—Obstruction to the pulmonary circulation (asthma, emphysema, fibrosis); congenital defect in the walls of the pulmonary artery, the *media* being absent (this form is most commonly found in children; rare in adults).

Diagnosis.—Expansile pulsation; diastolic shock, and thrill, in the second left interspace; dulness; loud, blowing and "booming" superficial systolic murmur, if it is large. *Rupture* is usually into the pericardium.

Treatment.—The same as in the aortic form.

ANGINA PECTORIS.

(STENOCARDIA; BREAST-PANG.)

Varieties.—(a) Angina pectoris vera; (b) Pseudo-angina; (c) Angina pectoris vaso-motoria.

ANGINA PECTORIS VERA.

TREATMENT.

Arsenicum._{3x}—To be used only in the intervals of the attacks, for the constitutional state. It is sometimes curative when the disease is a pure neurosis. Debility and prostration; extreme dyspnea; feeble and irregular pulse.

DIFFERENTIAL DIAGNOSIS.

ANGINA VERA.

Etiology.—Generally (tho' not always) associated with some lesion—arterio-sclerosis; aortic incompetency; hypertrophy; fatty degeneration, etc.

Age.—As a rule, over 40.

Sex.—Males predominate.

Exciting Cause.—Mental emotion or violent exertion.

Pain.—Intense; constricting. Duration, one or two minutes.

Location.—Under the sternum and to the left.

Position.—Body fixed; patient silent.

Prognosis.—Grave.

PSEUDO-ANGINA.

Etiology.—Usually associated with various neuroses—neurasthenia, hysteria, etc.

Age.—Any age.

Sex.—Females predominate.

Exciting Cause.—Arise spontaneously; are often periodic, and nocturnal.

Pain.—Severe, but less intense. Duration, half-hour or longer.

Location.—Over the chest.

Position.—Patient restless and emotional.

Prognosis.—Favorable.

(TREATMENT CONTINUED.)

Strontium iodide.—The use of this medicine has been followed by favorable results in some cases of angina dependent upon organic disease of the heart.

Sodium iodide.—This one of the iodides has also been successfully used in the same class of cases as the above.

Dose:—Five to twenty grains daily.

Aurum muriaticum.^{2x}—For the constitutional state in cases due to neuritis or to arterio-sclerosis. To be persisted in for a long time.

Spigella.^{2x}—Violent palpitation; severe stabbing stitches in the region of the heart at every beat; irregular pulse; tendency to syncope.

PSEUDO-ANGINA PECTORIS.

Cactus.^{1x}—Constrictive cardiac pain.

Lilium.^{2x}—In subjects with uterine complications; the heart feels as if tightly grasped.

Nux vom.^{2x}—In gouty or hemorrhoidal subjects.

Aconitin.^{3x}—Recent cases in plethoric subjects.

GENERAL MEASURES.

Electricity.—This has proved helpful in some cases, but more especially in pseudo-angina. One pole is to be applied over the sternum, and the other over the cervical spine. Use the Faradic current.

Ice-bag.—The spinal ice-bag, once a day, for 40 minutes, applied from the fourth dorsal to the third lumbar vertebra, has proved curative.

Oxygen.—Its inhalation gives relief.

Hygiene.—*In the intervals*, attend to the general health of the patient. Emotional excitement and muscular exertion must be prohibited. Walking against a wind, or to the extent of becoming tired, often excites an attack. Avoid errors of diet and over-loading the stomach. The use of tobacco must be prohibited.

The Attack.—Loosen the clothing; provide for fresh air; apply hot fomentations over the cardiac region; warmth to the extremities.

SPECIAL REMEDIES.

Amyl nitrite.—With the first signs of the oncoming attack the patient should inhale Amyl nitrite, 3 to 5 drops on a handkerchief. The patient should carry con

stantly with him *perles* of the Amyl nitrite. High arterial tension is an indication for this drug.

Nitroglycerin.—High arterial tension also serves as an indication for Nitroglycerin. Give by hypodermic injection, 1 to 3 minims of a 1% solution at a dose.

Chloroform.—This may be cautiously given by inhalation.

Ether.—If there is weak heart, to be preferred to chloroform.

Brandy.—If none of the medicinal agents already named are at hand, give teaspoonful doses of brandy or whisky, frequently repeated.

Morphine.—Its use is not free from danger.

Hydrotherapy.—To quiet tumultuous heart's action, rest in bed, and the application of the ice-bag over the cardiac region, or over the lower part of the neck and upper part of the sternum. The spinal ice-bag, daily. The wet pack, followed by massage.

Diet.—This should be carefully selected and nutritious.

Operative.—Operative measures are still on trial. In some cases recovery has followed the removal of nasal hypertrophies.

EXOPHTHALMIC GOITRE.

(PARRY'S DISEASE; GRAVE'S DISEASE; BASEDOW'S DISEASE.)

Diagnosis.—Exophthalmos; tachycardia; enlarged thyroid; tremor. *Other symptoms:*—Anemia; emaciation; slight fever; and in some cases, vomiting and diarrhea. One of the cardinal symptoms *may* be absent, *e. g.*, exophthalmos.

Prognosis.—Generally unfavorable; when cure is accomplished it usually requires several years.

TREATMENT.

Lycopus. Tr.—For cases in which the heart symptoms are most pronounced. Rapid and tumultuous action of the heart; pain and tenderness in the cardiac region; irritable, intermittent pulse; rheumatoid pains in various parts; nervous erethism; feeling of oppression about the heart. *Dose:*—Tr. 5 drops, every 3 hours.

Iodine. ^{3x}—Thyroid much enlarged; emaciation; palpitation; precordial anxiety; mental depression and despondency, but with irritability; restlessness; tremor; voracious appetite.

Aurum. ^{3x}—Great mental depression; violent palpitation; precordial oppression; cardiac hypertrophy; brown patches on the skin; nasal obstructions; coryza.

Ferrum phos. ^{2x}—Anemia; emaciation; congestive headache, with violent throbbing and flushed face; protruding eyes; violent palpitation of the heart; great restlessness and nervousness; trembling; vomiting; diarrhea; oppression of chest and dyspnea; edema of the extremities. *Dose:*—^{2x}; 2 grains every 3 hours; or, Dialyzed iron.

Belladonna. ^{1x}—Early in the disease; throbbing of the *carotids*; sensation of beating in the head; eyes staring and projecting; enlarged thyroid; powerful action of the heart, with increased frequency.

To be Consulted.—Bromine; Spartein sulphate; Arsenicum; Calcarea carb.; Glonoin; Arsen. iod.; Colchicum.

GENERAL MEASURES.

Rest-Cure.—Rest is all-important. The patient must not lead an active life, and all bodily exertion must be avoided. Absolute and long-continued rest in bed is best, when possible. A quiet and calm mental state also must be sought.

Electrotherapy.—This has cured some cases, and should be tried in all. *Method:*—Use a galvanic current of medium strength. Place the *Cathode* beside the spine above the seventh cervical vertebra; place the *Anode* beneath the ear; hold it for a minute, then make application along the inner edge of the sterno-cleido-mastoid for several minutes. Now place the *Anode* above the seventh cervical vertebra, and transfer the *Cathode* over the solar plexus; pass a strong current for one or two minutes. Persist in the use of electric treatment for several months.

CARDIAC NEUROSES.

Palpitation.—*Causes:*—Mental and emotional; toxemia; anemia; gastric disturbances; irritants (tobacco, alcohol, tea, coffee); pelvic disorders in the female.

Arrhythmia.—*Causes:*—(a) Central; (b) reflex; (c) toxic (drugs, tobacco, etc.); (d) heart lesions.

Tachycardia.—(Rapid heart.) Due to paresis of the vagus, or irritation of the sympathetic.

Brachycardia.—(Slow heart.) Most common after acute infectious diseases.

TREATMENT.

Ferrum.^{3x}—Anemia; chlorosis.

Ignatia.^{3x}—Depression from grief.

Moschus.^{1x}—Hysterical palpitation.

Nux vom.^{2x}—Palpitation of indigestion.

Gelsemium.^{1x}—From the abuse of tobacco.

Cactus.^{1x}—Palpitation of plethoric subjects.

Sepia.^{3x}—Nervous palpitation; mental emotion.

Tabacum.^{3x}—Palpitation with fainting attacks.

Coffea.^{2x}—Nervous palpitation; precordial pain.

Zincum.^{3x}—Violent palpitation; shocks and jerks.

Spigella.^{2x}—Nervous palpitation, violent, with pain.

Lilium.^{2x}—Palpitation in females, with pelvic disorders.

Chamomilla.^{3x}—Palpitation with faintness; pain as of a weight.

Veratrum alb.^{1x}—Brachycardia, following acute diseases; feeble subjects.

China.^{2x}—Palpitation due to excessive tea drinking; also, anemia; flatulent dyspepsia.

Aconite.^{1x}—Disturbance of the heart's action following a fright, or shock, with anguish and anxiety.

GENERAL MEASURES.

Rest.—Absolute rest, recumbent, and mental calm, are essential.

Local.—In some cases hot applications over the region of the heart; in others, the ice-bag.

Drug.—In an acute attack of hysterical palpitation, *Valerianate of Ammonia*, one-grain dose, at frequent intervals.

SECTION IV.

FEVERS.

FEVER AND CHILL TEMPERATURES.

- 122° Fahr.—Highest ever recorded.
107° or over—Death.
106° to 107°—Almost always *fatal*; except in intermittent.
105° to 106°—Intense fever; recovery doubtful.
104° to 105°—High fever; dangerous if long continued.
102° to 104°—Active fever; recovery the rule.
101° to 102°—Moderate fever.
100° to 101°—Slight fever.
99° to 100°—Feverishness.
98.6°—Normal.
97° to 98°—Subnormal; not grave.
95° to 97°—Collapse; in *itself* without danger.
93° to 95°—Algid collapse; *great danger*—recovery *possible*.
92° to 93°—*Fatal* collapse.

TYPHOID FEVER.

(ENTERIC FEVER; ABDOMINAL TYPHUS.)

Etiology.—Infection by the *bacillus typhi* (Eberth).

Diagnosis.—Depends upon:—Mode of onset (gradual); temperature curve; enlarged spleen; rose-colored spots; characteristic stools; Widal's test (in 95 per cent of cases it holds good).

Complications.—Pneumonitis; pleuritis; peritonitis; intestinal perforation; hemorrhage; abscesses; parotiditis; venous thrombosis; thrush; arthritis; epistaxis.

Prognosis.—*Unfavorable symptoms*:—Long continuance of intestinal symptoms; rapid pulse, with feeble apex beat and indistinct first sound; broncho-pneumonia; intestinal hemorrhage; high temperature, long sustained.

Examination.—At each visit note particularly:—Temperature; pulse; nature of heart-beat; state of abdomen; number and character of stools; state of the lungs.

TREATMENT.

Bryonia.^{1x}—In the early stage, generally through the first week, before the intestinal symptoms have developed. Violent headache; confusion of mind and mild delirium; tongue with yellowish coating; parched lips; great thirst; tenderness at pit of the stomach; dry, irritative cough; lassitude and weakness; wants to be quiet. In the absence of complications this remedy alone can be relied upon to the time that diarrhea begins.

Baptisia.^{Tr.}—For cases in which the diarrhea appears early, with offensive character of all discharges. Besotted expression; tongue heavily coated, dry; very offensive breath; pulse full and soft.

Gelsemium.^{Tr.}—Early, great prostration; general sore and bruised feeling; trembling; great nervous weakness; insomnia; absence of delirium.

Belladonna.^{3x}—Severe frontal headache, from cerebral congestion; delirium; face red; pupils dilated; eyes injected.

Hyoscyamus.^{2x}—Delirium; an apathetic state; delusions and hallucinations; indistinct muttering; subsultus tendinum. Also, active, furious delirium if Bell. fails to relieve.

Hyoscyne hydrobromate.^{3x}—Furious excitement, sleeplessness; haggard face; failing pulse.

Agaricine.^{1x}—Constant delirium; tremulous tongue; muscular tremor; in alcoholics; rigidity of the limbs; imbecile look.

Hydrastis. Tr.—Gastric and bilious symptoms prominent; tongue heavily coated; nausea; epigastric faintness; constipation.

Rhus tox.^{3x}—This belongs especially to the stage of ulceration of the intestines, with the accompanying diarrhea. Mind dull and clouded; incoherent muttering, or active delirium; headache; epistaxis, tongue brown and dry, with red tip; lips, teeth and tongue covered with *sordes*; skin clammy; general trembling; debility and prostration; severe pains in the back and extremities; pulse weak and slow; abdomen bloated; frequent involuntary, copious, yellowish evacuations. Also in pneumotyphus, with epistaxis; severe bronchial affections; dirty-looking, sanguinolent expectoration.

Cantharis.^{1x}—Great irritability of the mucous membranes; tongue, red, raw, cracked or glazed; irritable stomach; intense thirst; stools offensive and watery, with shreds; characteristic urinary symptoms.

Arsenicum.^{3x}—In order to be effective this medicine must be given early, without waiting for the disease to develop its pernicious character. *Symptoms*:—Extreme prostration, and great emaciation; face pale and shrunken; falling of lower jaw; tongue dry and cracked, black, with inability to protrude it; mouth covered with *sordes*; great thirst; decubitus; sopor; picking at bed-clothes; distended abdomen; pulse small, almost imperceptible; irregular action of the heart, with indistinctness of first sound; violent, almost continuous relaxation of bowels; discharge *very fetid*; breathing short and anxious; rattling cough; fetid breath. Symptoms of decomposition of the blood set in early, such as nose-bleed, bloody diarrhea, bloody sputum, petechiæ on the skin.

Terebinth.—For intestinal hemorrhage. Extreme tympanites; prostration and emaciation; tongue bright red, smooth and glossy; mouth dry; scanty urine, with blood. Drop doses.

Hamamelis.^{1x}—Intestinal hemorrhage. Dark, pitchlike blood; bruised, sore feeling in the lower part of the abdomen. DOSE:—1x, 10 drops, at 30-minute intervals.

Muriatic ac.^{1x}—Rapid degeneration of the muscular system is the chief feature. Extreme prostration; patient stupid and unconscious; sliding down in the bed; low, muttering delirium; picking at flocks; inability to protrude the tongue; depression of lower jaw; turning up of the eyes; involuntary stools and urine.

Cuprum ars.^{3x}—Frequent, thin, or bloody stools, with pain; debility; twitching, jerking of the limbs.

Mercurius.^{3x}—The abdominal symptoms predominate, but this medicine should be discontinued as soon as the *tongue becomes dry*, or delirium sets in. Tongue loaded with thick, moist, creamy coating; painful sensibility of whole abdomen; diarrhea; stools copious, liquid, flocculent, sometimes a little bloody; clammy, fetid perspiration.

Phosphoric acid.^{3x}—The abdominal symptoms, pointing to a state of catarrhal enteritis, are most characteristic. Quiet-delirium; unintelligible muttering; apathy; abdomen distended, with gurgling and rumbling, with yellowish watery stools; absence of prostration, notwithstanding the drain upon the system.

REPERTORY.

Fever.—Bryonia; Gelsemium; Rhus; Baptisia; Arsenicum.

Delirium.—Belladonna; Hyoscyamus; Agaricus; Stramonium.

Hemorrhage.—Terebinth; Hamamelis; Nitric acid.

Gastric.—Hydrastis; Cantharis; Pulsatilla.

Diarrhea.—Rhus; Mercurius; Cuprum ars.; Phos. acid.

Headache.—Belladonna; Acetanelid^{lx}; Hyoscyamus.

Pneumonia.—Phosphorus; Ant. tart.; Sulphur.

Epistaxis.—Aconite; Hamamelis; Ipecac; Crocus.

Nervous.—Agaricus; Ignatia; Acetanelid; Hyoscyamus; Belladonna.

Peritonitis.—Arsenicum; Belladonna; Rhus; Terebinth.

Bilious.—Hydrastis; Mercurius.

Tympanites.—Terebinth; Rhus; Phos. ac.; Arsenicum.

GENERAL MEASURES.

Sick-Room.—Ventilate thoroughly, at stated intervals. Remove all carpets and upholstery. Sunny exposure. If possible have two narrow beds; by placing them side-by-side, change the patient from one to the other, as each is cleaned and freshened. In so doing, lift the patient on a sheet.

The Patient.—Put him to bed early; keep him continuously *recumbent*. At intervals, turn from side to side. Use air-cushion or water-bag if bed-sores threaten; bathe the back, hips and heels with a mixture of alum-and-salt in dilute alcohol.

The Mouth.—Do not permit sordes to gather. Cleanse the mouth and tongue several times daily with 3% solution of Boric acid. When the lips and tongue are dry and parched, moisten with glycerin and water, equal parts.

Disinfection.—*Stools.*—Use chloride-of-lime, 6 oz., to water, 1 gal. Put 1 pint into the bed-pan; after the discharge is received, add one pint more; mix thoroughly; let it stand 3 hours, then empty. (Carbolic acid, 5% solution, may be used.) The urine, vomited matter and sputum must be similarly treated.

Clothing and Bed-linen.—Change as often as soiled. Protect the mattress with a rubber sheet. In washing all linen, boil for half an hour.

The Skin.—Cleanse the patient, after each discharge, with solution mercuric-bichloride, 1:2000.

Diet.—As a rule, *milk* is the best food. *Kind:* fresh, unskimmed. *Quantity:* Not less than three pints in 24 hours. Give *enough*, but do not *over-feed*. *Intervals*—about 6 oz. every 2 hours, day and night (in sleep this rule is not invariable). *Modified:* May add—plain water; lime-water; brandy; coffee. *Test of digestibility:* If curds or fat-globules appear in the stools, digestion is impaired. Then give the milk *peptonized*; or, substitute:

Other Foods.—When sufficient milk cannot be taken, replace wholly or in part by—wine-whey; buttermilk; koumys; albumin-water; broths (of mutton or beef, strained); clam-broth; barley-water; junket; gruels.

If emaciation is rapid and extreme, give farinaceous gruels, *well cooked*.

Drinks.—To slake thirst, give pure cold water at regular intervals. Do not wait for the patient to call for it. Aërated waters, effervescent or acid drinks should be avoided. *Other Drinks:* Weak tea; coffee and milk; cocoa; malt extracts. The systematic giving of water in large aggregate quantity is salutary. Give between the taking of food.

Rectal Alimentation.—When the stomach rejects food resort must be had to enemata. Give:—Peptonized milk, 3 oz.; meat-juice, 1 oz.; egg-white, $\frac{1}{2}$ oz.; mix. Wash the bowel, and inject every four hours.

Convalescence.—Dishes for this period: Broths; rice (*thoroughly cooked*); milk-toast; junket; soft egg; whipped cream; blanc-mange; soft part of oysters; scraped beef; wine jelly; baked potato; tapioca; mush-and-milk. No solid food until the temperature has been normal for a week. If at any time the temperature rises above 100° F., return at once to liquid diet.

Stimulants.—*Indications* for the use of alcohol:—Great general depression; weak heart; irregular pulse; dry, tremulous tongue; delirium. *Form:*—Whisky, brandy, port, sherry. *Dose*—Vary according to the conditions, from $\frac{1}{2}$ oz. to 2 oz. in 24 hours, in divided doses. In repetition, be guided by the effect produced. In threatened collapse, $\frac{1}{2}$ oz. brandy, repeated hourly.

Hydrotherapy.—*Object of baths:*—Reduction of temperature. *Indications:*—High fever (103°+); increasing delirium; or, deepening stupor; weak heart. *Contra-indications:*—Intestinal hemorrhage; peritonitis; *extreme cardiac weakness*. (The indiscriminate use of the *Brand* method does harm in some cases.)

Sponge-bath.—When the patient is hot and restless. To water the temperature of the air, add $\frac{1}{4}$ part alcohol. With a large sponge bathe the entire body. Continue until the patient's temperature is reduced to 101°, 102°.

Cold Pack.—This is preferable to the tub bath. *Method:*—Spread a comfort on a cot; over this two blankets; over these a sheet wrung out of cold (50°) water. Place the patient, stripped, in the cold sheet (the slight shock of first contact will do no harm). Bring up the sheet, and wrap the patient with it, snugly. Bring up the edges of the blankets, and tuck all in. Pu

a cold cloth on the head. Often the patient will sleep. Let him remain $\frac{1}{2}$ to 1 hour. When the clothing is removed the patient is generally perspiring. Dry off, and put him into a fresh bed.

Constipation.—Persistent constipation should be relieved by soap-and-water enema. Procure an evacuation every second day.

Diarrhea.—Four movements a day are not excessive. When this is exceeded, scrutinize the diet.

Hemorrhage.—Keep the patient *absolutely* at rest. For 12 hours restrict the amount of food. If loss of blood persists, give a dose of *morph. sulph.*, $\frac{1}{8}$ or $\frac{1}{4}$ gr., hypodermically. Repeat p. r. n.

Tympanites.—When excessive, introduce a long rectal tube, and let the gas escape. Change from milk diet to liquid peptonoids, broths, or albumin-water.

Perforation.—Operate as soon as reaction from the shock occurs. A sufficient number of recoveries have followed to justify this course.

TYPHUS FEVER.

(SHIP-FEVER; JAIL-FEVER.)

Etiology.—Due to an infective agent. The disease is highly contagious.

DIFFERENTIAL DIAGNOSIS.

Typhoid.

ENDEMIC.

Advent insidious, with general malaise; headache; chill rare; it is several days before the patient takes to bed.

Temperature.—Little rise at onset; maximum about 7th day; exacerbates.

Eruption.—Lenticular spots, *bright rose color*; successive crops; *Location*, abdomen.

Delirium appears late; low muttering.

Countenance pale, olive, leaden.

Emaciation great.

Bowels.—*Tympanites*, and "pea-soup" diarrhea.

Duration, 21 to 40 days.

Terminates by lysis.

Typhus.

EPIDEMIC.

Advent sudden, with intense chill; steadily increasing headache, with great prostration.

Temperature.—2d day 104°; 105° to 107° on the 3d day; it remains high to the end.

Eruption.—Small, slightly elevated, called "*mulberry rash*"; it remains throughout the disease; *Location*, sides of the chest and the extremities.

Delirium active from the first.

Countenance dull, heavy; late, mahogany color.

Emaciation slight.

Bowels.—Constipation; no tympanites.

Duration, 14 days.

Terminates by crisis.

Complications.—Pneumonia, and swollen parotids.

Prognosis.—Always grave. *Unfavorable:*—High temperature; frequent pulse; early, furious delirium, or early stupor; previous debility; in *alcoholics* usually fatal. *Favorable:* Youth; moderate temperature and pulse, and mild nervous symptoms.

Causes of Death.—Death may result from meningitis; pneumonitis; capillary bronchitis; gangrene; asthenia, and paralysis of the heart; nephritis.

TREATMENT.

Medicinal.—*Baptisia*. Tr.—Phosphoric acid.^{2x}—Phosphorus.^{3x}—Arsenicum.^{3x}—Belladonna.^{3x}—Rhus tox.^{3x}—

GENERAL MEASURES.

Sick-Room.—Strictly quarantine the patient. Observe all sanitary precautions. Give an abundance of *fresh air*; remove all windows, regardless of cold, and keep the patient well protected with blankets. Guard against bed-sores. In noisy streets, stuff the patient's ears with cotton.

Baths.—If the temperature rise to over 104° F., put the patient in a bath ten degrees below the temperature of the body, and gradually reduce the temperature of the water to 70° F., till the bodily temperature falls to 101° or 102° F.

Heart.—If the heart's action is weak, with much prostration and feeble circulation, give an occasional dose of brandy, or other heart-stimulant.

Diet.—Of greatest importance to aid nutrition. Begin early, and give small quantities of very nutritious food regularly and *persistently*. Milk is the best. Also use beef-tea and broths. If necessary, support by nutrient enemata.

INTERMITTENT FEVER.

(AGUE; CHILLS-AND-FEVER.)

Varieties.—Tertian; Quartan; Quotidian; Double Tertian, Quartan or Quotidian. The double varieties are due to two groups of the plasmodium.

Etiology.—It is due to the presence in the blood of the *plasmodium malariae* (Laveran).

Symptoms.—Periodically recurring paroxysms of chill, fever and sweat; enlarged spleen; melanemia. In children convulsions may replace the initiatory chill.

TREATMENT.

Quininæ bisulphas.^{1x}—To begin the treatment in all recent cases. The characteristic symptoms are:—Paroxysm preceded by headache, hunger, palpitation. Each stage well marked—first the *chill*, which is *severe*, and the principal feature of the attack, with violent shivering, and aching pains; then the *fever*, followed by violent thirst, and *sweat*, which is sometimes profuse and exhausting. *Apyrexia*:—Patient suffers but little—feels almost in ordinary health.

Dose:—Begin with 2-grain doses of the 1x, every 2 hours. If there is no recurrence, continue the medicine in decreasing dose. On the contrary, if a second paroxysm appears, increase the dose; give grs. x of the crude drug, 3 or 4 hours before the expected appearance of the next paroxysm. In some cases, when the Bisulphate alone has no effect, the disease will yield to a pill containing 1 gr. each of *Quin. bisulph.*, *Chinoidinum*, *Cap-sicum*. Repeat every 3 hours. Quinine should be given on an empty stomach.

Ipecac.^{2x}—Nausea, vomiting, and other gastric disturbances, occurring before and during the chill and heat; tongue thickly coated with yellowish, moist fur; great oppression of the chest; nausea and vomiting predominant

Apyrexia.—More or less *gastric disturbance*. Useful in mild forms of tertian.

Arsenicum.^{3x}—The *paroxysm is imperfectly developed*; before the chill, vertigo, headache, yawning, stretching, and general sense of discomfort; *chill and heat intermingled*; oppressed breathing; nausea, sometimes vomiting; small, feeble pulse, even during the hot stage. One of the stages often absent—sometimes the sweat, but usually the chill. Tendency to increase in the severity of the paroxysms, and rapid and excessive prostration. *Urgent thirst* throughout. *Apyrexia*.—Prostration; nausea; pains in the stomach and bowels; dropsical swellings.

Nux v.^{2x}—Chill long-lasting and hard; fever severe; sweat profuse; both chill and fever accompanied by *much gastric and bilious disturbance*; distressing pains in head, back, and legs. *Nux*, in alteration with *Ipec.*, for impure intermittents in non-ague districts.

Natrum mur.^{6x}—Chill beginning in the feet or small of the back; blue nails; thirst; *bursting headache*, relieved by sweating; bilious vomiting before and during the chill.

Eupatorium perf. Tr.—Thirst several hours before the chill, continuing during the chill and heat. Chill *short*, hot stage *protracted*, and sweat *slight*. Vomiting of bile at end of the chill. During the chill and heat, the back aches *violently, as if it would break*.

Veratrum alb.^{1x}—Predominance of external *coldness*; cold, clammy perspiration; *great thirst*, especially during chill and sweating; great exhaustion and sinking of strength; vomiting and diarrhea, with griping, and pain in the back and loins.

Phosphoric ac.^{2x}—*Profuse sweat*.

Gelsemium. Tr.—Severe nervous symptoms.

Aconite. Tr.—Recent cases in plethoric subjects.

Cedron.^{1x}—Chills recur with marked regularity.

Ignatia.^{2x}—Chill relieved by external warmth; thirst only after the paroxysm.

Capsicum. Tr.—The sweat coincides with the heat, instead of following it.

Pulsatilla.^{3x}—Gastric symptoms, and resulting chlorosis and hydremia.

Hydrastis. Tr.—Cachectic subjects, with hepatic and gastric symptoms.

GENERAL MEASURES.

During the paroxysm give *Aconite* to mitigate its severity. Apply artificial heat during the chill, cooling drinks during the hot stage, and warm, dry clothing after the sweat.

In malarial districts, avoid out-door air after sun-down; sleep in an upper room.

PERNICIOUS INTERMITTENT.

(CONGESTIVE CHILL.)

Varieties.—I. CEREBRAL:—(a) *Comatose*; (b) *Delirious*; II. GASTRO-ENTERIC:—(a) *Algid*; (b) *Icteric*.

Symptoms.—The onset in some cases is sudden; in others there will first be several paroxysms of ordinary intermittent. In the cerebral form the coma is not due to congestion, but to the intensity of the infection.

Prognosis.—It is always grave. Recovery is rare if more than two paroxysms occur.

TREATMENT.

Urgency.—Treatment must be prompt and energetic. Quinin must be pushed till the patient is thoroughly cinchized.

Quinin hydrobromate.—The *Hydrobromate of quinin* is more soluble than the *sulphate*, which latter requires for its solution a mineral acid. The *Hydrobromate* is soluble in 54 parts water and 0.6 part alcohol.

Quinin bisulphate.—The bisulphate can be made in solution in the following manner:

R. Bisulphate of quinin.....50 grains.
Dilute sulphuric acid..... 1 drachm.
Carbolic acid, liq..... 5 minims.
Water, to make..... 1 ounce.

Dissolve the bisulphate in the sulphuric acid and water, by the aid of heat; filter, and add the carbolic acid. Ten drops contain one grain of bisulphate.

Dose.—Give either one of these solutions by hypodermic injection. Give 5 grs. every 2 hours; or 3 grs. every hour, till signs of reaction occur; then 2 grs. every 3 hours till time for another paroxysm is past.

GENERAL MEASURES.

Stimulants.—During the chill, apply heat to the surface, use hot mustard foot-baths, and give *stimulants* freely—brandy or whisky if there is much prostration. *Strychnin* if the heart's action is weak. If food cannot be taken by the stomach, give rectal nourishment. When thirst is great give finely pounded ice, in champagne if there is prostration. Between paroxysms, if possible remove the patient to a non-malarial district.

REMITTENT FEVER.

(ÆSTIVO-AUTUMNAL FEVER; BILIOUS-REMITTENT FEVER.)

Etiology.—Due to *plasmodium*; found most in the internal organs (liver, spleen).

Symptoms.—It varies in intensity from mild to severe; the fever remits, but does not *intermit*.

Prognosis.—Favorable. Duration, one to two weeks.

TREATMENT.

Gelsemium. Tr.—The attack is marked by great languor and muscular weakness. Congestion of the head; flushed face; chilliness; pulse full, quick and soft; dull pain in the head, back and limbs.

Pulsatilla. 3x—Whitish coating on the tongue; bitter eructations; bitter vomiting; chilliness; thirstlessness.

There is no remedy equal to *Pulsatilla* for protracted intermittent fever; the case drags from day to day, with no signs of reaction. In such cases *Pulsatilla* often has a prompt effect. If the patient does not respond to the 3x, use the tincture.

Belladonna. 3x—For initiatory fever. Severe chill, with vomiting and retching; violent fever, which is especially high at night.

China. 1x—Great prostration; fluctuating pulse; humming in the ears; marked remission.

Ipecac. 3x—Gastric disturbance; headache; yellow or white-coated tongue; bitter taste, vomiting, and continued nausea.

Mercurius. 3x—Thick, yellow, pasty coating on the tongue; earthy color of face; bitter taste; soreness in liver.

Bryonia. 1x—Pressive or tearing pains in chest; better when at rest. Thin coating on tongue; bitter taste; constipation. Distinctly marked febrile motion.

Rhus tox. 3x—The fever degenerates into a low typhoid state, with adynamia; diarrhea; dry, brown tongue.

Arsenicum. 3x—Great emaciation; prostration; restlessness; thirst; diarrhea, with dark, fetid discharges.

GENERAL MEASURES.

Nursing.—The course is generally favorable; the nursing is simple, except when the case takes on a low, typhoid-like state, when it should be the same as for that disease.

SIMPLE CONTINUED FEVER.

(FERRICULA; EPHEMERAL FEVER.)

Treatment.—Aconite. 1x—Belladonna. 3x—Gelsemium. 1x—Rhus tox. 3x—Ipecac. 3x—Pulsatilla. 1x—Bryonia. 1x

General Measures.—Simple nursing is usually all that is required. Recovery always occurs.

DENGUE.

(BREAK-BONE FEVER.)

Symptoms.—The characteristic symptom is intense pain in the joints and muscles. There is initial chill, followed by high fever. Sometimes gastro-intestinal symptoms predominate, sometimes cerebral. There is an eruption, which is not distinctive. The duration is about five days. The crisis is often attended by profuse sweat or diarrhea. Convalescence is usually very tedious and protracted. Dengue scarcely ever results fatally.

TREATMENT.

Aconite. 1x—The early fever.

Bryonia. 1x—Muscular pains.

Eupatorium. Tr.—Violent backache.

Ipecac. 3x—Nausea and vomiting.

Nux vom. 2x—Flatulence.

Arsenicum. 3x—Diarrhea.

Cantharis. 2x—Renal hemorrhage.

China. 2x—After hemorrhage.

YELLOW-FEVER.

(FEBRIS ICTERODES; FIEBRE DE BORRAS.)

Diagnosis.—An absolute diagnosis cannot be made before the third or fourth day. The most significant symptoms upon which to base a diagnosis are:—The *remission* from the *first period*, followed by the *sudden* elevation of temperature of the *second period*, in conjunction with *albuminuria*, *icterus*, and *hemorrhages* (black vomit, bloody stools). The symptoms above enumerated are the most typical of the disease.

Immunity.—One attack grants immunity.

Symptoms.—*Incubation*:—One day, to three weeks.
First stage:—Chill; fever, 103°–105° F.; headache; severe backache; flushed face; eyes suffused; vomiting; *albuminuria*. This stage may last 2 or 3 days, when the symptoms subside.

Second stage:—Remission. Duration, about 24 hours.

Third stage:—There are signs of collapse; cold surface; yellow skin; weak pulse; “black vomit”; black stools; various hemorrhages; dry, brown tongue. The duration of the entire attack is about one week. Convalescence is usually protracted.

Prognosis.—*Unfavorable*:—Intense capillary congestion in the first stage; intense jaundice; suppression of urine; uremic toxemia; black vomit.

TREATMENT.

Camphor. Tr.—For the chill marking the onset. *Dose*:—Give drop doses of the tincture every 10 minutes.

Aconite. Tr.—First stage, after reaction from chill; fever; burning heat; dry skin; full, hard and rapid pulse; violent thirst; red face; headache; restlessness; prostration and vomiting.

Belladonna. Tr.—Cerebral congestion; headache; throbbing of the carotids; face scarlet-red, shining and swollen; eyes red and sparkling; active delirium; pain in stomach, with nausea and vomiting.

Dose:—Drs. Holcombe and Falligant, both in a wide experience, used *Acon.* and *Bell.* in alternation in the final stage. Repeat frequently.

Bryonia. 1x.—After cerebro-spinal symptoms have subsided, and the gastric symptoms are prominent. Splitting headache; eyes red and sparkling; tongue yellow coated lips parched, dry, and cracked; great irritability, and vomiting.

Argentum nit. 3x.—Vomiting of brownish mass, mixed with coffee-ground-like flakes.

Cantharis. 3x.—The most important remedy for the suppression of urine. Burning pains in the stomach; slow pulse; hemorrhages; cold sweat of the hands and feet.

Crotalus. 3x.—Hemorrhage from eyes, nose, mouth, stomach, and intestines—from all the orifices of the body, even to bloody sweat.

Lachesis. 3x.—Delirium; slow, difficult speech; red face; tongue heavy, trembling, dry, and brown; nausea; vomiting; irregular, weak pulse; urine almost black.

Arsenicum. 3x.—Pulse small and tremulous; skin cold; cold, clammy perspiration; rapid prostration, and vomit

ing of a brown, turbid matter, mixed with mucus, and sometimes stained with blood. The vomiting of the third stage. Hemorrhage from the bladder or uterus.

Sabina, Tr. **Secale**.^{3x}—Threatened abortion.

Hyoscyamus, Tr. **Coffea**.^{2x}—Nervous sleeplessness at night.

Antimonium tart.^{2x}—Prolonged and incessant nausea.

Veratrum alb. Tr.—Vomiting and abdominal pains.

Phosphorus,^{3x} **Mercurius**.^{3x}—Resulting diarrhea or dysentery.

Ipecac.^{3x}—Continued nausea; vomiting of glairy mucus.

GENERAL MEASURES.

Quarantine.—Adopt the strictest quarantine measures. Disinfect all excreta.

The Patient.—Put the patient to bed early; let there be absolute quiet, and perfect rest. The most judicious nursing is important.

Diet.—Owing to the gastro-intestinal irritation, feeding demands the most critical care. Give gruels and broths, cautiously. If the stomach is too irritable, nourish by rectal enemata. If there is depression, give alcoholic stimulants—brandy, whisky, champagne.

RELAPSING FEVER.

(FAMINE-FEVER; SPIRILLUM FEVER.)

Etiology.—Due to the *spirochæte of Obermeier*.

Symptoms.—Chill; fever for 5 to 7 days; intermission, 5 to 6 days; then fever for 5 to 7 days. Usually only 2 paroxysms; sometimes 3 or 4. Intense pain in the head, back and limbs; sometimes jaundice.

Treatment.—*Medicinal*:—**Aconite**.^{1x}—**Bryonia**.^{1x}—**Baptisia**.^{1x}—**Cimicifuga**. Tr.—**Eupatorium**.^{1x}—**Arsenic**.^{3x}
General:—As in fevers generally.

VARIOLA.

(SMALL-POX; VARIOLOID.)

Varieties.—I. Variola Vera (discrete and confluent). II. V. Hemorrhagica. III. Varioloid.

Incubation.—5-20 days—average 10 days.

Stages.—Incubation; eruption; suppuration; desiccation.

Invasion.—Chilliness; *severe* pain in the back and head.

Fever.—Temperature even of 106°, with bounding pulse, pain in head and back—relief from eruption. *Secondary* fever—very high on 8th day—and falls slowly.

Cerebral symptoms frequent—delirium about 3rd day. Convulsions in children.

Eruption.—On 3d or 4th day; appears first at edge of hair, lips, palate, or fauces. First *macule*, then *vesicle*, *pustule*, which may *slough*, and leave *cicatrix*, or form *scab*. The macule has a "shotty" feel.

Desquamation.—Scabs, crusts, and thick scales; violent *itching*.

Face flushed, anxious; photophobia.

Tongue coated, swollen, with red edges.

Duration.—4-5 weeks. Crisis about 21st day.

Sequelæ.—Chronic diarrhea; abscesses: glandular enlargements; various diseases of eyeball and eyelids.

Prognosis.—Depends on the type of the disease. In *variola discreta*, uncomplicated, favorable. In *variola confluentes*, grave. *Unfavorable*:—In the intemperate; syphilitic; extremes of life (recovery rare after sixty); lung complications; *inflammation of skin between the pustules*; epistaxis and other hemorrhages; scanty urine early; intense secondary fever between ninth and twelfth days. In *variola hemorrhagica*, recovery rare.

Causes of Death.—Edema glottidis; general bronchitis; pneumonitis; acute fatty degeneration of the kidneys; asthenia.

TREATMENT.

Variola Discreta.—Bell.; Gels.; Tart. emet.; Sulph.; Bapt.

Variola Confluentes.—Sulph.; Ars.; Phos.; Merc.

Variola Hemorrhagica.—Phos.; Ars.; Lach.; Crot.; Ham.

Aconite.^{1x}—The stage of invasion, with the early fever.

Tartar emet.^{3x}—The leading remedy; it reduces the fever, the pustules run their normal course. It is also especially useful in pulmonary complications, and for gastric disturbances. Given early, it mitigates the severity of the disease.

Belladonna.^{2x}—High fever; severe local symptoms; throbbing carotids; injected eyes; photophobia; sore throat; severe pain in back; starting and jumping in sleep; delirium.

Mercurius.^{3x}—It will modify the suppurative process, if given early. Moist, swollen tongue; ulcerated throat; fetid breath; salivation; dysentery.

Rhus tox.^{2x}—Papular and vesicular stage, with severe burning and itching.

Sulphur.^{3x}—For stage of desiccation; pustules become hemorrhagic.

Hydrastis.^{Tr.}—Pustules in the throat.

Arsenicum.^{3x}—Hemorrhagic form; eruption dark; skin blue; great loss of strength; small, frequent pulse; thirst; anguish and restlessness.

SPECIAL CONDITIONS.

Pneumonia.—Ant. tart.; Phos.; Sulph.

Glandular Swellings.—Merc. iod.; Rhus.

Low, Typhoid State.—Bapt.; Ars.; Rhus.

Boils.—Hep. sulph.; Sulph.; Phos.

Ophthalmia.—Merc. cor.; Sulph.

Delirium.—Bell.; Stram.; Verat. vir.

Dropsical Swellings.—Apis; Ars.; Canth.

Congestion of Lungs.—Verat. vir.; Acon.; Bry.

Repercussion of Eruption.—Camph.; Ars.; Sulph.

GENERAL MEASURES.

Vaccination.—As soon as the diagnosis is made, vaccinate the patient with a good preparation of calf's-lymph. Some give the vaccine virus internally, and claim good results.

Sick-Room.—*Free ventilation*; keep the windows open night and day.

The Patient.—Strictest isolation and quarantine. Give frequent sponge-baths. Do not injure the pustules. Lightly bandage the hands of children to prevent scratching. Let adults wear loose gloves. To prevent pitting the pustules must not be broken or irritated, and should be protected from contact with the air. Anoint with *carbolyzed vaseline*. To allay burning pain, cold-water compresses to the face or other part. For ulcer in the mouth, bits of ice, and *Hydrastis* gargle.

Diet.—Give a sustaining diet—milk, eggs, broths; refreshing drinks of fruit syrups.

CALENTURA.

Habitat.—Manila, the Philippine Islands, and other parts of the tropics.

Season.—It prevails in the "dry" season.

Etiology.—It is supposed to be excited by exposure to the direct rays of the sun, in the case of newcomers and the unacclimated.

Symptoms.—*Prodroma.*—Usually absent (there may be slight chilliness). *Onset.*—Sudden accession of fever (102°–103° F.). *Temperature.*—Gradual rise to 104° or 105° F.; the fever is of the *continued* type. *Other symptoms:*—Anorexia; nausea; vomiting; severe headache; muscular pains; thirst; restlessness; *marked asthenia*.

Duration.—About seven days.

Prognosis.—Favorable.

TREATMENT.

Prophylaxis.—Avoid exposure to the sun; wear a large, light, cool helmet; carry a large, white umbrella; dress in light, loose, cotton or linen clothes. Those who take these precautions escape the fever.

THERAPEUTICS.

Aconite, Tr.—This remedy, given early, will usually reduce the temperature to normal (in about 24 hours), and shorten the duration of the attack to 3 or 4 days. *Dose.*—Two drops of the Tr., every 2 to 4 hours, according to the effect produced. Stop when the temperature reaches normal, or when the action of the drug is sufficiently pronounced.

GENERAL MEASURES.

Hydrotherapy.—Give cool baths to favor refrigeration.

Bowels.—With the onset, if there is constipation, give a saline laxative.

Rest.—The patient must remain in bed, owing to the marked asthenia, until strength returns.

Diet.—After the subsidence of the fever give a sustaining diet.

SECTION V.

CONSTITUTIONAL DISEASES.

ACUTE ARTICULAR RHEUMATISM.

(RHEUMATIC FEVER.).

Etiology.—Probably of bacterial origin; cold, wet and damp predispose.

Diagnosis.—Chill, fever, with inflammation of the joints, and other structures rich in white fibrous tissue. The joint affection is often fugacious.

Complications.—The most common is inflammation of the *heart*—*endocarditis* (in 25 per cent of cases; pericarditis; myocarditis. In the acute articular rheumatism of *children* endocarditis is much more frequent than in the adult. In both children and adults the endocarditis of this affection is the cause of a majority of cases of chronic heart-disease.

Prognosis.—Generally favorable. Unfavorable symptoms are: Hyperpyrexia; urine low in solids; previously existing heart-disease; delirium and coma.

TREATMENT.

Aconite.^{1x}—This is the leading remedy, especially when there is active fever. The pulse full and strong; great thirst, anxiety, and restlessness. Especially for inflammation of large joints, which are red, swollen, and exceedingly sensitive to contact.

Bryonia.^{1x}—Fever of adynamic form; the articular swelling pale, or dark-red, and exceedingly painful, aggravated by contact or the slightest motion; irritable stomach; thirst; nausea on rising up; constipation.

Rhus tox.^{2x}—This is a remedy that will accomplish much. It is especially indicated when the patient is impelled to move the parts, regardless of the pain. Adynamic fever; great restlessness; parts red and swollen; pains drawing, tearing, burning; feels worse when at rest; better on continued motion. Especially lower extremities, and when brought on by getting wet.

Mercurius.^{3x}—High fever; quick, hard pulse; obstinate inflammation of a single joint; puffy swelling, pale or light-red; tearing, burning pains; deep-seated, as if periosteum affected; *much* worse at night; sour perspiration, without relief; breath foul; tongue with thick, yellow coating; appetite gone; very sensitive to cold.

Pulsatilla.^{3x}—Sub-acute cases, with little fever, the pains shifting frequently from part to part; pains violent, drawing, and jerking; not much redness or swelling; chilliness.

Colchicine.—Goodno is enthusiastic in his recommendation of *Colchicine* for "typical acute articular rheumatism." *Dose*:—1 gr. Merck's *Colchicine* to 1 oz. alcohol, 3 to 5 drops, repeated every 2 to 4 hours. Reduce this dose if it causes disturbance of the gastro-intestinal tract.

Belladonna.^{2x}—Red, shining swelling; throbbing pains. For insomnia at night, give frequent doses.

Cimicifuga.^{3x}—The pains are wandering; muscles of the limbs and trunk; also, articular rheumatism of the lower extremities. Pleurodynia. Rheumatic affections in nervous and hysterical women.

Caulophyllum.^{3x}—Rheumatism of small joints (wrists; fingers) with cutting pains.

Cactus.^{3x}—Rheumatism of the diaphragm.

Arnica.^{2x}—Sharp pain and bruised soreness in the muscles.

Spigelia. Tr.—Pericarditis or endocarditis of rheumatic fever.

Kalmia.^{2x}—Pains shifting from joint to joint.

Ledum. Tr.—Arthritic nodosities; small joints affected; joints not hot or swollen; pains begin below and travel upward.

Ranunculus.^{2x}—Rheumatism of the chest; intercostals; great soreness to pressure.

Phytolacca. Tr.—Periosteal rheumatism of long bones, and tendinous attachments of muscles.

Sulphur.^{6x}—In chronic rheumatism; pains worse at night; burning heat of the feet. Synovitis, with effusion.

GENERAL MEASURES.

Sick-room.—Well ventilated, but free from drafts; 75° F. A high, narrow bed or cot; a soft, but firm mattress; only blankets as bedclothing; flannel pillow-slips (no linen or muslin anywhere).

The Patient.—Insist upon his going to bed without delay; keep at *absolute* rest; flannel night-dresses, open the entire front. Envelop all joints in raw cotton, retained by flannel bandages; keep a folded blanket under, to be changed as often as it is wet with perspiration.

Bathing.—Every third day, 1 joint at a time, remove the cotton, with care not to expose the joint to cool air, bathe with hot water, and re-apply.

Local Applications.—If there is excessive pain, use—R. Carbonate of potash, 1 oz.; Tr. Opium, 6 oz.; warm water, 1 pint. Apply flannel compress moistened with this, and cover with dry cotton.

The Bowels.—Procure evacuation at least every second day; glycerin suppository. Use the bed-pan.

Diet.—During the acute stage, chiefly milk;—bread-and-milk; milk-porridge; milk-toast; koumis; butter-milk; junket; cottage-cheese; milk and seltzer. For variety:—barley soup; gruel; clam broth; oyster broth; vegetable soup. In convalescence farinaceous foods may be taken. Avoid sugar; take no meats until recovery is complete, then begin sparingly.

Drinks.—Pure, soft water in large quantities. Lemonade, tamarind-water; effervescent waters are allowable. Alcohol is prohibited.

Caution.—*Examine the heart at each visit.*

GOUT.

(PODAGRA.)

Etiology.—Excess in eating (proteids) and drinking (alcohol); heredity; middle life; men > women.

Diathesis.—The “gouty” are liable to—eczema; catarrh; headache; epistaxis; acid and flatulent dyspepsia; constipation; lithiasis; melancholia.

Acute Attack.—It may or may not be preceded by “dyspepsia.” *Onset*—often sudden (at night); *pain* at the base of the great toe (or arch of the foot); it is excruciating, biting, tearing, grinding; redness, heat and swelling, and general fever. Duration of attack, several hours. Such paroxysms may be repeated every night for a week. *Recurrence*.—The attack may not recur for months; sometimes, years.

Chronic Gout.—It follows repeated acute attacks; or, it may develop without. *Joints*.—Any number may become affected, or various ones in succession, even the spinal articulations. The joints become edematous and infiltrated, and tophi (cretaceous concretions) form.

Viscera.—Any organ may become affected.—The heart (functional or organic); lungs (bronchitis, asthma); stomach (gastritis); liver (cirrhosis); kidneys (cirrhosis); or, the nerves; arteries (sclerosis); organs of special sense.

Prognosis.—In most cases, unfavorable as regards recovery, especially in cases with the hereditary factor.

TREATMENT.

Colchicum. Tr.—For the acute attack. *Dose*.—From 3 to 10 drops Tr., repeated every 2 hours. *Colchicine*^{3x} may be used.

Aconite. 1x—High fever and great restlessness in the acute attack.

Mercurius dulcis. 1x—Sensitiveness of the stomach, with coated, flabby tongue.

Bryonia. 1x—Stitching pains in the affected joints, worse on motion.

Berberis. Tr.—In catarrh of the bladder; also, oxaluria; lithuria.

Benzoin. Tr.—Affection of the finger joints, with little redness or swelling.

Nux vom. 2x—For the gastric disorders; constipation.

GENERAL MEASURES.

The Patient.—In the acute attack, confine the patient to bed; elevate the affected foot, wrap it in cotton and envelop in oil-silk. Give a saline cathartic to move the bowels.

Diet.—Everything depends upon this. *Character*.—It must be non-nitrogenous, and moderate; no meats; take only milk, cereals, vegetables and fruits; soft water, freely. Avoid sugar and starches, and *acid* fruits; also, tea, coffee and alcohol.

Hygiene.—Out-door exercise, to promote oxidation of the tissues; baths.

LITHEMIA.

(URIC-ACID DIATHESIS; LATENT GOUT.)

Etiology.—It is due to deficient oxidation of nitrogenous matter, causing an excess of uric acid in the blood; *causes*:—over-eating; impaired digestion; lack of exercise; mental strain.

Symptoms.—The symptoms are gastro-intestinal, nervous, circulatory and urinary. Acid urates ("red sand") in the urine.

Complications.—Arterio-sclerosis; interstitial nephritis; hepatic cirrhosis; gastritis; renal or vesical calculus.

Prognosis.—Favorable before secondary degenerations have occurred.

TREATMENT.

Medicinal.—Remedies as in Gout.

General.—*Diet*:—It must be abstemious; small proportion of nitrogenous food; starches and sugars are difficult of digestion; avoid fats, heavy meats, sweets, alcoholic beverages.

Exercise.—This is important; open-air life.

Baths.—Salt-water baths, with friction to the skin.

ARTHRITIS DEFORMANS.

(RHEUMATOID ARTHRITIS.)

Symptoms.—Any joints may be affected; usually first, the fingers; the joint swells; pain absent, or moderate; deformity; the adjacent muscles waste, contract, and cause flexions. General symptoms—gastro-intestinal; constipation.

TREATMENT.

Medicinal.—Colchicine.^{2x}—Benzoic acid.^{2x}—Pulsatilla.^{3x}—Sepia.^{6x}—Calcarea carb.^{6x}

General.—Diet abundant and nourishing. Warm baths. Change of climate.

DIABETES.

(DIABETES MELLITUS.)

Symptoms.—*General*:—Appetite abnormally great (bulimia); thirst excessive; tongue, dry; saliva, scanty; carbuncles; pruritus; peripheral neuritis; arterio-sclerosis; cataract; hypochondriasis; loss of flesh and strength; *coma*.

Urinary Symptoms.—*Amount*:—4 or 5 pints to 4 or 5 gallons; *sp. gr.*, 1020 to 1050; *color*, pale; *reaction*, acid; *sugar*, 1 to 2%, to 5 to 10%; *urea*, increased; *albumin*, slight.

Prognosis.—Always guarded; *unfavorable*:—large amount of sugar; the disease in early life.

TREATMENT.

Uranium nitrate.^{1x}—Cases in which gastric symptoms are prominent; great thirst.

Phosphoric acid.^{2x}—Cases of nervous origin; prostration; emaciation; mental apathy.

Arsenicum iod.^{3x}—Rapid loss of flesh and strength;

Plumbum iodide. ^{3x}—Urinary condition pointing to nephritis—slight albuminuria; tube-casts; uric acid crystals.

Aurum mur. ^{2x}—Subjects of neurasthenia; nervous symptoms; arterio-sclerosis.

Kreasote.—Gastric irritability; flatulence; emaciation; pulmonary tuberculosis. *Dose.*—Give by inhalation, 3 times daily.

Repertory.

Gastro-Intestinal.—Nux vom.—Bryonia.—Leptandrin.—Lycopodium.—Lactic acid.—Calc. carb.—Arsenicum.

Nervous Symptoms.—Calcarea carb.—Phos. acid.—Aurum mur.—Strych. ars.—Arsenicum.

GENERAL MEASURES.

Diet.—Of first importance. An exclusive milk diet is beneficial in some cases. The fundamental principle is that the diet must, so far as possible, be free from the carbo-hydrates—sugars and starches. This cannot be carried out arbitrarily in all cases. *Principle.*—Give a diet free from the hydrocarbons, and thus reduce the amount of sugar excreted, *providing this course does not unfavorably affect the patient's general condition.* On the contrary, if it is followed by rapid emaciation, the rigid diet must be modified.

Avoid.—*Vegetables:*—Arrowroot, vermicelli, bread, biscuit, beans, beets, crackers, carrots, macaroni, oat meal, pastry, potatoes, peas, rice, sago, sugar, turnips, tapioca.

Fruit:—Apples, grapes, pears, bananas, peaches, plums, pineapples, raspberries, and other sweet fruits.

Beverages:—Wine, beer, brandy, ale, cider, and all alcoholic and sweet drinks.

Allowable.—*Vegetables:*—Artichokes, cabbage, celery, cresses, cucumbers, olives, greens, lettuce, pickles, spinach, mushrooms, tomatoes, asparagus, onions.

Fruits:—Lemons, cherries (sour), currants, gooseberries, strawberries, and acid fruits generally.

Meats:—Beef, mutton, poultry, game, fish, oysters, cheese, clams, shrimps, eggs, etc.

Substitutes for Bread.—Gluten bread; bran-cake; rusk; the crust of Vienna loaf.

Water.—An abundance of pure water, for the thirst.

DIABETES INSIPIDUS.

(POLYURIA; HYDRURIA.)

Etiology.—Nervous shock; traumatism (the head); after acute infectious diseases; heredity; syphilis.

Symptoms.—Large quantity of urine—as high as 8 to 10 quarts; pale; watery; sp. gr. 1001-1005; total solids about normal; albumin or sugar rare. General symptoms:—Insatiable thirst; appetite not affected; dry, harsh skin; dry tongue; constipation; nervous phenomena.

Prognosis.—Usually favorable; duration indefinite.

TREATMENT.

Medicinal.—Phosphoric acid. ^{3x}—Argentum mur. ^{2x}—Arsenic. ^{3x}—Strophanthus. ^{1x}—Scilla. ^{2x}

General.—Restricting the water taken does no good; open-air exercise is beneficial.

Depression.—Stimulants and supporting treatment.

EPIDEMIC INFLUENZA.

(LA GRIPPE.)

Etiology.—Infection by the *bacillus of Pfeiffer*.

Types.—Respiratory; gastro-intestinal; Nervous; Febrile (Typhoid); Rheumatoid.

Symptoms.—The symptoms vary with the type. The characteristic is—*profound prostration, out of proportion to the intensity of the disease.*

Incubation.—Two or three days.

Onset.—Distinct chill, or chilly sensations; fever (104°–105° F.); intense headache; aching pains; great prostration.

Complications.—*Lungs:*—Broncho-pneumonia; lobar pneumonia; congestion and edema; abscess; gangrene; pleurisy.

Heart:—Paresis; endocarditis; pericarditis.

Stomach and Intestines:—Gastro-enteritis; hemorrhages; catarrhal jaundice.

Nervous:—Perineuritis; delirium; insanity.

Kidneys:—Nephritis.

Eyes:—Conjunctivitis; iritis; optic neuritis.

Testicles:—Orchitis.

Skin:—Herpes; purpura.

Sequelæ.—Chronic bronchitis; pulmonary phthisis; tachycardia; angina pectoris; chronic nephritis; cystitis; gastro-intestinal catarrh; insomnia; neuralgia; migraine; tabes dorsalis. *Ear:*—Otitis media; mastoid abscess. *Eye:*—Conjunctivitis; keratitis, irido-choroiditis, glaucoma.

TREATMENT.

Arsenicum iod.^{3x}—Great prostration, with severe systemic infection. Fluent coryza; discharge irritating and corrosive.

Gelsemium.^{Tr.}—For the fever, attended by great general prostration.

Aconite.^{Tr.}—Acute fever early, with great nervous erethism.

Eupatorium.^{Tr.}—Severe pains in the back, and limbs.

Bryonia.^{1x}—Pulmonary type, with bronchial catarrh or pleuritis.

Rhus tox.^{2x}—Rheumatoid pains in the extremities; also the typhoid-like form.

Antimon. iod.^{2x}—Bronchitis, with muco-purulent expectoration.

Tart. emet.^{2x}—Secondary broncho-pneumonia.

Cuprum ars.^{3x}—Gastro-intestinal type.

Chin. ars.^{2x}—Debility in convalescence.

GENERAL MEASURES.

The Patient.—Confine the patient to bed, however mild the attack. The aged and the cachectic are especially liable to succumb. Nourishing diet; careful nursing.

TRICHINIASIS.

(TRICHINOSIS)

Cause.—The ingestion of the *trichina spiralis*.

Symptoms.—In 2 to 3 days, gastro-intestinal symptoms—vomiting, diarrhea, colic; extreme muscular weakness; about the tenth day, chills; fever; the muscles stiff, tense, swollen, painful (acute myositis); pain on moving any muscle; edema; sweat; skin affections; emaciation; anemia; eosinophilia; typhoid-like state.

Course.—Mild cases, 2 weeks; severe, several months.

Prognosis.—Guarded; mortality, 5 to 35 per cent.

Diagnosis.—Must be differentiated from muscular rheumatism, and typhoid. Eosinophilia is significant.

Treatment.—Prophylaxis is most important. If trichinous meat has been eaten, at once resort to active purgation of the bowels. This must be very thorough. Follow this by doses of glycerine. After the embryo have entered the muscles treatment must be symptomatic. Absolute rest is important.

COUGH.

Indications.—Cough is but a symptom. The primary condition must be considered.

THERAPEUTICS.

Nitric acid.^{3x}—Laryngeal cough, chronic; no expectoration; stinging and smarting as of a small ulcer in the larynx; dry and violent laryngeal coughs.

Hepar sulph.^{3x}—Cough, with hoarseness; laryngeal, tracheal and bronchial irritation; rattling of mucus in the throat; sensation as of a clot of mucus in the larynx; feeling of internal swelling when swallowing.

Drosera.^{Tr.}—Spasmodic cough; frequent and excessively severe paroxysms of hoarse, loud cough.

Ipecac.^{3x}—Violent, suffocative cough, the child becoming stiff and blue in the face; gagging and vomiting of mucus.

Kali bi.^{3x}—Cough, with tough, stringy expectoration preceded by much wheezing, accompanied by difficult breathing, and followed by dizziness.

Sulphur.^{6x}—Dry cough, with hoarseness and dryness in the throat, and tightness of the chest. Or, loose cough, with expectoration of whitish or yellowish mucus.

Phosphorus.^{3x}—Dry cough, excited by tickling in the throat, with hoarseness; phthisical cough, in those with weak lungs.

Spongia.^{6x}—Dry, hoarse cough, with pain in the larynx; worse at night.

Hyoscyamus.^{Tr.}—Nervous, dry, spasmodic cough, worse at night, especially on lying down.

Bryonia.^{1x}—Hard, dry, shaking cough, with stitching pain in the chest; congestion of the head.

Mercurius.^{3x}—Chronic, moist cough, worse at night.

[NOTE.—In revising this edition these brief therapeutics of cough are placed here, out of proper order, because it is the only page where it is possible to make the insertion.]

SECTION VI.

THE INTOXICATIONS.

CHRONIC ALCOHOLISM.

(ALCOHOLIC INEBRIETY.)

Nature.—It is a diseased condition, beyond the control of the victim, and should be so treated.

Regimen.—Alcohol should be *absolutely* withdrawn, at once. No "tapering off" is to be permitted.

Substitute.—For the sake of "habit" an innocent substitute is allowable. *Substitutes:*—In some cases, cold drinks; in others, hot water, flavored with lemon-juice, cinnamon, ginger; or, coffee; tea; cocoa; milk. After several days these can be diminished, and finally stopped.

Gastric Disturbance.—Following withdrawal of the liquor, there is usually gastric irritability—nausea, vomiting, anorexia—lasting a week or ten days. For this give effervescent drinks, in milk, and *Nux vom.*^{2x}

Diet.—As the sickness diminishes, give peptonized milk, broths, gruels, gradually adding easily digested meats, and wholesome fruits and vegetables; especially a liberal supply of juicy fruits—oranges, grapes, melons.

Enemata.—In some cases there is complete anorexia; if food is not taken, nutrient enemata must be resorted to.

Nausea.—To allay nausea:—Sip hot water; or, in other cases, take bits of ice.

Wet Pack.—When there is great nervous irritability, or insomnia, the wet-sheet pack is most serviceable.

MEDICINAL AGENTS.

Strychnin nitrate.^{2x}—For "tonic" effect, when the system suffers from exhaustion, this is the best agent. *Dose:*—The 2x; or, $\frac{1}{8}$ gr., *p. r. n.*

Hydrastis.^{Tr.}—For the chronic gastric catarrh often occurring in these cases. *Dose:*—^{Tr.}, 3 drops, *p. r. n.*

Capsicum.^{Tr.}—For atony of the stomach.

Kali hyd.—If there is a luetic taint.

GENERAL MEASURES.

Hygiene.—Perfect control of the patient is absolutely necessary. Often this can be obtained only in an institution. He must have the benefit of nourishing food, fresh air, baths, exercise, occupation and mental diversion. Moral restraint has its place in the treatment.

DELIRIUM TREMENS.

(MANIA-A-POTU.)

Management.—Not a drop of alcohol, in any shape, must be given. The patient must be kept in bed in a quiet room, undisturbed by noise, excitement or visitors. Gentle efforts only at restraint should be used. Resort to mild persuasion, and make efforts to control by *calming and soothing* the patient. But vigilance must not be *relaxed* for an instant. Windows must be secured, to

guard against accident. Leather handcuffs, secured to the sides of the bed, may be used in extremely violent cases.

Diet.—This must be stimulating and nourishing. Give milk and eggs; café-au-lait; soups and broths, seasoned highly with pepper. Feed every 3 hours. Sustaining diet is an important part of the treatment.

Baths.—The wet-sheet pack, to induce perspiration, is beneficial if the necessary restraint does not irritate the patient and lead to struggling.

Stomach.—For irritability of the stomach give sips of hot water; or effervescent drinks with crushed ice.

Suppression of Urine.—Hot fomentations to the loins; *Arsenicum*.

MEDICINAL AGENTS.

Hyoscine hydrobromate.—For the insomnia. *Dose*:—Grain $\frac{1}{100}$; every 4 hours.

Arsenicum.^{3x}—For the depression; gastric symptoms; and for suppression of urine.

Strychnin nitrate.^{2x}—For weak heart's action, with faint second sound.

Antimonium tart.^{2x}—Much *mucous* gastric disturbance; also, pneumonitis.

Hyoscyamus. Tr.—For the characteristic delirium; loquacious, incoherent muttering.

Belladonna.^{2x}—Active delirium, with much cerebral congestion.

Liquor ammonii acetatis.—To promote elimination. *Dose*:—2 drams, given in sweetened water. It should be freshly prepared when used.

Precautions.—Watch the heart, the kidneys, and the lungs; the heart for paresis; the kidneys for albuminuria and suppression; the lungs for pneumonitis.

MORPHINISM.

Control.—The first essential, without which it is useless to attempt treatment, is to gain *absolute control of the patient*. Usually this is possible only in an institution.

Withdrawal.—In some cases the drug is entirely withdrawn at once. But this should be done only in cases not of long standing, and in which the amount is not great. Rapid withdrawal—one week—is too severe for many cases. Gradual withdrawal—three weeks—is best for the patient. First, diminish the amount one-half; then, by insensible degrees, for 3 weeks, till none is taken. Be guided by the conditions of each case.

The Patient.—During the early period the patient should be confined to bed, and cared for by a watchful and faithful attendant.

Gastric Disturbance.—There is often much irritability of the stomach. Give aerated waters; seltzer and milk; malted milk; peptonized milk; beef-tea; broths; gruels. Gradually add to this a variety of articles of wholesome food—easily digested meats and vegetables. Lavage of the stomach.

PLUMBISM.

(LEAD-POISONING; SATURNISM.)

Absorption.—It enters by the skin, or by the respiratory tract, but chiefly by the alimentary canal. *Elimination* is chiefly by the urine.

Symptoms.—Anemia (due to disturbance of blood-making function of the bone marrow); blue line on the gum (deposit of lead sulphide in the tissues); abdominal colic; obstipation; arterio-sclerosis; "wrist-drop" (paralysis of the extensors); nephritis; encephalopathy; coma; sometimes there is pyrexia, sometimes not.

Diagnosis.—(a) "Lead-colic;" (b) anemia; (c) blue line; (d) musculo-spiral paralysis.

Prognosis.—Generally favorable. Unfavorable signs:—Recurring attacks; mental symptoms: coma.

TREATMENT.

Opium.—To be given for the colic, in sufficient dose to relieve the pain. *Morph. sulph.*, $\frac{1}{8}$, $\frac{1}{4}$ gr.

Iodide of potassium.—It promotes the elimination of the lead from the system. *Dose:*—3 grs., 3 times daily.

GENERAL MEASURES.

Massage.—This favors the elimination of the lead.

Electricity.—For the paralyzed muscles, *galvanism*: anode to the sternum, the cathode to the affected muscles.

Diet.—Milk diet helps elimination. Drink freely of soft water.

HEAT-STROKE.

Etiology.—Exposure to intense heat; *Sources:*—Sun; furnaces; glass-works; baker's-oven; steam laundries; fire-rooms, etc.

Symptoms.—Onset usually sudden; headache; sense of fullness in the epigastrium; nausea; vomiting; hot, dry skin; weakness; vertigo; obscuration of vision; finally unconsciousness, with stertorous breathing. The heart (syncope), lungs (asphyxia), or cerebro-spinal (apoplectic) system may be chiefly affected.

Prognosis.—A high rate of mortality.

TREATMENT.

Prophylaxis.—In the hot sun, light straw hat, with a green leaf, or wet cloth in it; light clothing; drink water freely; frequent intervals of rest. If perspiration ceases, rest and a cool bath at once.

The Attack.—At once (do not wait for removal to a hospital) place in the shade; remove all clothing; ice, or cold water to the head; repeated douches of cold water or ice-water to all parts of the body; use ice freely if it can be had; rub with ice. The indication is to *reduce the excessively high bodily temperature as quickly as possible.*

Caution.—Do not reduce the temperature too much; when it falls to 102° F., rub the patient dry; if it rises,

bring it down again with cold bath, ice rubbings, cold pack, or cold-water enemata.

Syncope.—If there is weak pulse, give heart-stimulant.

PTOMAIN-POISONING.

(FOOD INFECTION.)

Causes.—Poisoning by ptomains, or toxalbumins developed in decaying foods:—milk; meats; fish; oysters. Canned goods are especially liable.

Symptoms.—Usually violent gastro-enteritis; vomiting; purging; intense colicky pains; fever; prostration. Sometimes subnormal temperature, extreme depression and collapse.

Prognosis.—There are many fatal cases.

TREATMENT.

Elimination.—Give emetics (if the stomach has not already emptied itself) and purgatives to clear the intestinal canal. Lavage of the stomach and irrigation of the colon when called for.

Stimulants.—Treat depression and weak-heart symptomatically.

Permanganate of potash.—Make a solution (port wine color) and have the patient drink half a glass (about 3 ozs.). If rejected, repeat.

ACUTE TONSILLITIS.

(QUINSY; AMYGDALITIS.)

Varieties.—(a) Catarrhal; (b) Follicular; (c) Parenchymatous.

Etiology.—*Predisposing.*—Youth; enlarged tonsils; strumous diathesis. *Exciting.*—Cold; local irritation. *Specific.*—Always due to bacterial infection, streptococcus; staphylococcus; pneumococcus, etc.

Complications.—Abscess; otitis media; ulceration; cellular infiltration; edema of the larynx.

TREATMENT.

Gelsemium. Tr.—For the early fever, with aching in the limbs. **Aconite.** 1x—Active fever, with pricking, full feeling in the throat. **Belladonna.** 3x—Throat bright red flushed face; headache. **Apis.** 3x—Dryness of the mouth and throat; edematous swelling. **Merc. bin.** 3x—Salivation; gums and tongue swollen; ulceration. **Kali bi.** 3x—The secretion viscid. **Baryta carb.** 3x—Raw, scraping, shooting pains. **Hepar s.** 3x—Throbbing pain; threatened suppuration. **Ignatia.** 3x—Follicular form; the crypts filled with exudate. **Ammon. mur.** 2x—Ulceration; putrid discharge. **Silicea.** 6x—Abscess slow to heal.

Chronic Tonsillitis.—Baryta carb.; Merc. bin.; baryta iod.; Calc. carb.; Iodine; Lycopodium.

GENERAL MEASURES.

Gargles.—Early, bits of ice held in the mouth give relief; later, gargle with hot water; or hold it in the mouth, exposed, and take again.

Abscess.—If suppuration occurs, lance the part early; do not wait. Even if pus has not yet formed, the local depletion is often followed by great relief. Use a long-handled bistoury; have the blade *guarded* to near the point; hold it with the sharp edge towards the median line (keep in mind the carotid artery). Incision into the anterior pillar will often strike the abscess when one directly into the tonsil fails. Hold the patient's head forward (especially in case of a child), to evacuate the pus through the mouth.

CARCINOMA.

THE TREATMENT OF CANCER BY THE MITCHELL METHOD.

(ORIGINATED BY THE LATE J. S. MITCHELL, M. D., OF CHICAGO.)

Nature of Action.—This method of the treatment of cancer is based upon the fact that normal tissue resists the irritant action of *Arsenious acid*, while the tissues of new growths, having less resisting power, undergo a reactive degeneration, the cells suffer necrosis, they break down, and there is complete destruction of the neoplasm, leaving the normal tissue intact, and in a condition to heal.

Class of Cases.—This method is limited to the treatment of *external* cancers—those over which the skin or mucous membrane has ulcerated, leaving an exposed surface; hence, epitheliomata, cancer of the mammae, the uterus, or of other accessible parts or organs.

To create an ulcerated surface, by the use of escharotics, where one has not already spontaneously formed, is not advisable.

Arsenious acid.^{2½x}—The agent used is *Arsenious acid*, 2½x trit. Experience shows that the 2x is too active; the 3x fails to have effect. A trituration of equal parts of the 2x and 3x makes what is called the 2½x, which meets the conditions perfectly. But there may be an occasional case in which the 2½x is either not active enough, or too active. Then the 2x, or the 3x, may be tried.

Preparation.—The method of application is as follows: First, with a blunt-edged curette go over the ulcerated surface, removing all pieces of necrosed tissue and debris that will readily come away, without exciting pain, or creating hemorrhage.

Poultice.—When necessary a warm *Elm-bark poultice*, applied the day before, will create a condition favoring the removal of dead tissue.

Carbolized Oil.—After the ulcerated surface has been thus cleansed, with a camel's-hair brush paint it over lightly, up to the margin of the healthy skin, with *Carbolized Linseed-oil* (carbolic acid, 5%).

Application.—The *Arsenicum* powder is now applied generally over the surface, in sufficient quantity to cover it.

Intervals.—The *dressings* should be changed every 24 hours. The *Arsenicum* is to be applied every 24 or 48 hours, as determined by the degree of irritation produced.

Effects.—The effect of the action of the *Arsenicum* is to excite inflammation, which is accompanied by edematous swelling (with or without pain), a serous discharge, and subsequent necrosis of tissue, with the formation of sloughs.

Serous Discharge.—In some cases this is slight, in some profuse. It becomes less in amount as the case progresses.

Inflammation.—The degree of inflammation, with edematous swelling, varies in different cases.

Pain.—The effect with reference to *pain*, varies. If, in the given case, there has previously been much pain, great relief usually follows. In other cases, previously painless, pain is sometimes excited, but it soon subsides. *As a rule*, the effect of the treatment is to give great relief from pain.

Odor.—Cancers previously foul, lose their bad odor. This change is usually marked, and is a great comfort to the patient.

Treatment.—At each treatment, remove the dressings. With a curette remove sloughs and all loose tissue that readily comes away. Apply carbolized oil, *Arsenicum*, and dress as before.

Course.—The rapidity of destruction of the cancerous tissue varies in different cases. In some the neoplasm is entirely destroyed in several weeks; in others, it requires several months. With a little experience the physician will learn when to push treatment, and when to relax.

Healing.—As the cancerous tissue is destroyed, healing takes place from the surrounding cutaneous edges; and by the growth of healthy granulation-tissue in the base of the former ulcer. When entirely healed, scar-tissue marks the spot.

Precaution.—Care should be taken that the scar-tissue is not injured. Traumatism, as from a blow, will sometimes excite the carcinomatous process anew.

Uterine Carcinoma.—This method is applicable to the treatment of uterine carcinoma, as well as of cancers on external surfaces. In the early stage of cancer of the os healing will take place, though competent surgical advice should be sought and deferred to. In advanced and inoperable cases the treatment will still make the patient's condition much more bearable by relieving pain, destroying odor, and prolonging life. After the application of the Arsenical powder, as already described, plug the vagina with tampons of cotton.

SECTION VII.

DISEASES OF THE BLOOD AND DUCTLESS GLANDS.

ANEMIA.

Nature.—It may involve *Oligocythemia*—reduction in the number of red blood corpuscles; or, *Oligochromemia*—diminished amount of hemoglobin.

Varieties.—(a) Symptomatic (Secondary); (b) Essential (Primary).

SYMPTOMATIC ANEMIA.

Causes.—Unhygienic surroundings; low diet; hemorrhages; parasites (*bothriocephalus latus*); infectious diseases (malaria, syphilis, tuberculosis); toxic agents (lead, mercury, zinc, copper); organic diseases (gastritis; gastric ulcer; aortic regurgitation; chronic nephritis; rickets; malignant tumors).

Symptoms.—Skin, pallid, whitish, yellowish, grayish, sometimes icteric; emaciation, in some conditions; gastrointestinal disorders common; heart, rapid; pulse, weak; palpitation; neuralgias; general weakness and depression.

Blood.—In symptomatic anemias the condition is usually one of *oligochromemia*; percentage of hemoglobin, 75, 60, 50, 40, 20, 15 (Fleischel hemometer). Albumin, low; water, high.

TREATMENT.

Medicinal.—It is determined by the primary condition. *Remedies*:—China^{1x}; Arsenicum^{3x}; Ferrum^{3x}; Calc. carb.^{6x}; Helonias^{2x}; Plumbum^{6x}; Phosphorus.^{3x}

General.—Liberal diet; fresh air; tonic bathing; massage.

ESSENTIAL ANEMIAS.

(PRIMARY ANEMIAS.)

CHLOROSIS.

(CHLORANEMIA; GREEN-SICKNESS.)

Etiology.—Sex, female (rarely in the male); age, about puberty (*chlorosis tarda*, rarely); heredity; "delicate" constitution; bad air; insufficient food; nervous strain; fright; nostalgia; following infectious fevers.

Symptoms.—Onset, gradual or sudden; skin, pale, ashen, or "greenish"; acne; cheeks sometimes flushed (vaso-motor dilatation); sclera, steel-blue; subcutaneous fat increased sometimes; palpitation; hemic murmurs; cold extremities; enlarged thyroid; epistaxis; dyspnea on exertion; gastro-intestinal disorders; nervous affections; urine, pale; polyuria; amenorrhea.

Prognosis.—Generally favorable.

Complications.—Endocarditis; excessive hemorrhages; venous thrombosis; gastric ulcer; nephritis; tuberculosis; enlarged thyroid.

Blood.—Characteristic feature, *diminished percentage of hemoglobin.*

TREATMENT.

Ferrum redactum.^{2x}—This is the most useful remedy, and will effect a cure in many cases. Pale skin; sudden flushings; gastralgia; chilliness; headache; amenorrhea, or excessive menstruation.

Pulsatilla.^{3x}—Suppression of or scanty menses; the patient is of a mild, gentle disposition, inclined to weeping; chilliness; feels oppressed in a warm room; better in the open air; tremulousness; weariness; insomnia.

Graphites.^{3x}—Menses scanty; dry, harsh, rough skin; constipation; acrid leucorrhœa.

Calcarea carb.^{6x}—Neuralgias; sweat about the head; cold feet; leucorrhœa; enlarged lymph-nodes.

GENERAL MEASURES.

Rest.—Absolute rest in bed in severe cases, with massage; at the same time, an abundant supply of fresh air, by proper ventilation. In milder case, out-door life.

Sun-baths.—Exposure of the entire body to the direct rays of the sun in a solarium.

Climate.—Change to the mountains or sea shore, with open-air life, and *mild* exercise in cases not too weak.

Diet.—Nutritious; milk, eggs, meat and vegetables, with regard to the state of digestion.

The Bowels.—Must be kept regular, and a constipated habit corrected.

Hygiene.—The best hygienic and sanitary measures in all particulars.

PROGRESSIVE PERNICIOUS ANEMIA.

(IDIOPATHIC ANEMIA.)

Etiology.—Contributing causes are—unhygienic conditions; nervous shock; prolonged lactation; digestive disorders.

Symptoms.—Onset, usually insidious; skin, a waxen-white pallor; in rare cases, transient icterus; little emaciation; the tissues soft and flabby; weakness and lassitude; some rise of temperature. **Heart:**—Palpitation; dilatation; attacks of syncope; dyspnea on slight exertion; digestive disturbances; anorexia; tendency to diarrhea; mental operations slow.

Course.—Progressive; duration, from several weeks to several years.

Blood.—Characteristic feature, *great reduction in the number of the red cells.*

Prognosis.—Always grave; recovery is very rare.

TREATMENT.

Arsenicum.^{2x}—Favorable results have followed its use. The dose must be varied in different cases; in some, give Fowler's solution, 5 to 10 drops. Avoid causing irritation of the stomach. The effect upon the blood is the best criterion of the benefit of the Arsenic.

Bone-marrow.—Th

GENERAL MEASURES.

Rest.—Absolute rest, with systematic massage is helpful.

Diet.—Nutritious and carefully selected; give food at frequent intervals—six meals daily.

Lavage.—Lavage of the stomach and colon flushings, with saline solution; also, dermoclysis.

LEUKEMIA.

(LEUCOCYTHEMIA.)

Nature.—It is a disease involving disturbance of hemato-genesis, affecting chiefly the bone-marrow, lymphatic glands, and the spleen.

Etiology.—Supposed to be an infection.

Symptoms.—Onset, usually insidious (rarely, abrupt); begins sometimes with pain in the spleen; or, pallor; or, fever; sometimes early symptoms are:—hemorrhages; priapism. Skin—pallid, lemon-yellow, or dusky; eczema; acne; furuncles; pruritus; subcutaneous fat well preserved; edema; palpitation; dyspnea; enlarged lymphatic glands (the cervical most frequently); enlarged spleen; enlarged liver; gastro-intestinal symptoms.

Blood.—Characteristic feature, *great increase in the number of leucocytes.*

Course.—Essentially chronic; rarely a rapid course.

Prognosis.—It is almost always fatal.

TREATMENT.

Medicinal.—There is no remedy having positive action. Arsenic has some advocates. Oxygen, by inhalation, is favored. Treatment is symptomatic.

General.—As in other forms of anemia.

HODGKIN'S DISEASE.

(PSEUDOLEUKEMIA.)

Nature.—Enlarged lymphatic glands and spleen, with anemia.

Symptoms.—In many respects it resembles *leukemia*, but is to be distinguished by examination of the blood: in *pseudoleukemia* the red cells are slightly reduced in number, while the leucocytes do not vary much from normal. The most striking clinical feature is shown in the enlarged lymphatic glands, the cervical glands usually being much enlarged, and *strings* of glands in various parts.

Prognosis.—Unfavorable.

Treatment.—Symptomatic and hygienic.

PURPURA.

Classes.—I. *Primary*; II. *Secondary*.

Secondary.—It occurs in connection with:—(a) Variola; scarlatina; typhus; septicemia; cellulitis; osteomyelitis; (b) atheroma; phlebitis; thrombosis; (c) jaundice; pernicious anemia; cachexia; (d) brain lesions.

Primary.—*Varieties*:—1. Purpura simplex; 2. P. Rheumatica; 3. P. Hemorrhagica; 4. Hemophilia.

PURPURA SIMPLEX.

Symptoms.—Usually small petechiæ (sometimes larger spots) on the legs and other parts; it occurs most frequently in the anemic; ill-developed; aged; insane. The face is rarely involved. Color, first red, then brownish, green, yellow. Usually there are no constitutional symptoms. *Treatment*, symptomatic.

PURPURA RHEUMATICA.

(PELIOSIS RHEUMATICA.)

Symptoms.—Most common in male, adults; sometimes (not always) there is a previous history of rheumatism; onset, slight prodrome; then, stiffness in muscles; pain in joints; purpuric spots, petechiæ and macules appear on the extensor surfaces of the legs and arms, thickest about the joints, which are swollen, red and hot; slight febrile action; urticaria; sometimes edema. *Course*, mild; *duration*, a week or two. *Treatment*:—Aconite; Bryonia; Rhus.

PURPURA HEMORRHAGICA.

(MORBUS MACULOSUS WERLHOFII.)

Symptoms.—Onset, often abrupt, with violent epistaxis; in other cases, slight prodrome—*anorexia*; gastric pain; weakness; constipation; vertigo; then petechiæ and ecchymoses in the skin—ankles, legs, thighs, body, rarely the face; mucous membranes also affected; profuse hemorrhages from the nose, stomach, bowels; in serous sacs; eye; membranes of the brain. The general condition is not so serious as the great loss of blood would seem to create, tho' there is a progressive state of anemia. *Course*, of a single attack, 2 to 5 weeks; these may be repeated at intervals for months or years.

Prognosis.—Always guarded.

HEMOPHILIA.

(“BLEEDER’S DISEASE.”)

Nature.—Spontaneous hemorrhage on trivial injury.

Etiology.—Heredity is the chief factor.

Symptoms.—The hemorrhage may be (a) traumatic; or (b) spontaneous. (a) *Traumatic*:—Slight injuries, as pin-scratch; extraction of a tooth; snipping the frenum; circumcision; etc. The loss of blood may be enormous, ceasing only on the occurrence of syncope, or death from cerebral anemia. (b) *Spontaneous*:—Epistaxis; hematemesis; enterorrhagia; menorrhagia; hematuria; hemorrhages in the serous sacs, and under the skin. After the hemorrhage, anemia; exhaustion; palpitation; dyspnea; vertigo. *Course*:—The disease usually continues throughout life.

TREATMENT.

Medicinal.—In the various forms consult:—Hamamelis; Phosphorus; Mercurius; Arsenicum; Crotalus; Lachesis; Millefolium; Secale.

GENERAL MEASURES.

Prophylaxis.—In subjects of hemophilia, avoid circumcision, vaccination; extraction of teeth, lancing gums, or other operation, however slight. "Bleeders" should never marry.

Management.—In all the forms of purpura, with hemorrhage:—Put the patient to bed; head lowered (except in epistaxis); apply ice, styptics, or compression. In epistaxis, plug the nostrils. When the patient is exsanguine, enteroclysis, or saline injection. (Do not insert needle through the skin in hemophilia.)

GOITRE.

(BRONCHOCELE.)

Diagnosis.—This, as a rule, is not difficult; one or both lobes may be involved. Vertical movement during deglutition is characteristic.

TREATMENT.

Iodide-of-lime.^{1x}—In my hands this has been the most efficient remedy. I have cured several cases with it. Give the 1x, 2 grs. at a dose, four times daily.

Iodine.^{1x}—A persistent course of Iodine has cured some cases, especially recent, soft goitres.

Calcarea carb.^{6x}—In scrofulous subjects.

Phytolacca.^{Tr.}—Nodulated tumor; jerking, lancinating pains.

Hydriodic acid.—Fair-haired subjects. Syrup of hydriodic acid, teaspoon 3 times daily.

GENERAL MEASURES.

Electrolysis.—The negative pole by needle in the gland; positive to a flat electrode to another part of the gland.

Injection.—Injections of Iodine.^{Tr.} *Caution*—Do not penetrate a vein or the trachea.

Application.—Mercurial ointment (the biniodide) by inunction.

Operation.—If life is threatened by pressure-symptoms, removal is called for.

ADDISON'S DISEASE.

Nature.—Tuberculosis of the adrenals in most cases; degeneration of the solar plexus and semilunar ganglia of the abdominal sympathetic is thought to bear a relation.

Symptoms.—"Bronzed skin"; pigmentation, yellowish, olive, bronze, greenish-brown, or black; deepest hue on exposed portions; mucous membrane of the lips, mouth, conjunctiva and vagina also pigmented. General symptoms:—Progressive asthenia; gastro-intestinal symptoms—nausea; vomiting; diarrhea.

Prognosis.—Unfavorable; duration, 1 or 2 years.

Treatment.—Extract of supra-renal gland may be tried. Argentum nit. may relieve.

SECTION VIII.

DISEASES OF THE LIVER AND GALL-BLADDER.

HYPEREMIA OF THE LIVER.

Varieties.—(a) *Active*; (b) *Passive*.

Active Hyperemia.—*Causes*:—Indigestible and irritating food; gout; the *infections* of typhoid, malaria, dysentery; *toxic agents*—alcohol, mercury, carbolic acid, arsenic, nicotine; nervous shock; *climate* (tropical hyperemia).

Symptoms.—*When acute*:—Tension in the right hypochondrium; slight chill; fever; headache; dyspepsia, even to nausea and vomiting; diarrhea; jaundice; urine scant; high sp. gr.; increased urea; weakness; emaciation. *Physical signs*, those belonging to enlarged liver; sometimes enlarged spleen.

Diagnosis.—Active congestion is to be differentiated from hypertrophic cirrhosis by examination of the urine: in *congestion* there is increase of urea; in cirrhosis, decrease.

TREATMENT.

Hydrastis. Tr.—Pale, clay-colored stool; congestion of the liver, secondary to gastro-intestinal catarrh; jaundice; constipation; bitter taste; yellow-coated tongue; “gone” feeling in the epigastrium.

Podophyllin. 1x—Feeling of fullness in the right side, with *acute pain in one spot*; active congestion, with pronounced bilious symptoms; diarrhea; prolapsus ani; bitter taste; jaundice.

Nux vom. 2x—Enlargement and induration of the liver; shooting, pulsating pains; excessive tenderness in the region of the liver; pressure in the epigastrium and hypochondria, with shortness of breath; constipation; active congestion, from excess of stimulating food or alcohol.

Leptandrin. 2x—Aching pains in the liver, yellow-coated tongue; profuse, papescent, tar-like, very fetid stools; constant dull pain in the region of the gall-bladder; *much soreness* in the head and eyeballs.

Mercurius dulcis. 2x—Liver enlarged and sensitive; tongue with thick, yellow coating; gums swollen; salivation; fetid breath; abdomen tympanitic; jaundice; clay-colored stools; or, mucous stools, with tenesmus. Also, *Merc. vivus.* 3x

Iris. Tr.—Pain over the liver; crampy pain in the back; flatulence in the bowels; griping pains; headache; vomiting; lassitude; prostration. It excites the biliary secretion.

Sulphur 3x—Chronic cases, hepatic cases from portal engorgement. Constipation, or early morning diarrhea; frequent weak faint spells, with flashes of heat.

Sepia. 3x—Replaces *Sulphur* in women at the climacteric. (101)

Chelidonium. Tr.—Chronic congestion. Constant pain under the inner angle of the right shoulder blade; sallow skin; yellow-coated tongue; dull headache; constipation; fullness in the region of the liver.

China. Tr.—When of malarial origin.

Magnesia mur. 3x.—The enlarged liver of rachitic children.

GENERAL MEASURES.

Diet.—During the active symptoms of an acute attack it is best to give no food for a day or two. If any food is given, let it be nothing but skimmed milk. During the active stage, this may be diluted with water. When an increase of nourishment is demanded, keep the patient on a strictly milk diet. For variety, give Vichy and milk. The patient should drink an abundance of pure water. In convalescence, and to prevent a recurrence, avoid meats, pastries, and rich and indigestible foods, as well as alcohol. Let the diet, for the most part, consist of fruits, fresh vegetables, cereals and milk.

PASSIVE HYPEREMIA OF THE LIVER.

Causes.—It is due to obstruction to flow of the blood in the inferior *vena cava*, secondary to disease of the (1) *Heart*:—Valvular lesions; muscular degeneration (myocarditis; pericarditis; adhesions); *Arteries*:—Aneurism; arteriosclerosis; *Lungs*:—Emphysema; asthma; fibroid degeneration; pleurisy with effusion.

Symptoms.—Enlargement of the liver; pain (dull, and deep); hepatic pulse (when secondary to tricuspid insufficiency); ascites (sometimes); symptoms of gastrointestinal catarrh (secondary); hemorrhoids; and, most distinctive, the signs of the primary lesion in the heart, arteries, or lungs.

Treatment.—This must be directed to the primary lesion. At the same time all extra burden should be taken off the liver by regulation of the diet.

PERIHEPATITIS.

Varieties.—(a) *Dry*; (b) *Suppurative*; (c) *Tuberculous*.

DRY PERIHEPATITIS.

(EXUDATIVE, OR ADHERENT, PERIHEPATITIS.)

Causes.—It is almost always secondary. Follows:—Traumatism (blows; tight lacing); interstitial inflammation; inflammation of adjacent organs (stomach; duodenum; colon; kidneys); right-sided pleurisy.

Symptoms.—Sometimes the symptoms are not pronounced. In other cases:—Chill; fever; pain (sharp), increased by motion; radiating to the angle of the scapula (the course of the phrenic nerve); hiccough (inflammation of the diaphragmatic peritoneum); friction-fremitus or friction-murmur. In rare cases, icterus.

TREATMENT.

Aconite. 1x.—Chill, followed by fever, and acute pain. It must be given early.

Bryonia. 1x.—Acute, sharp, stitching pains, worse by motion; coated tongue, with bitter taste; constipation.

Mercurius dulc.^{2x}—Swollen tongue, with imprints of the teeth; soreness of the gums; salivation; anorexia; perspiration.

Chelidonium.^{2x}—Sharp, stitching pains, radiating to the right shoulder; abdomen sensitive; anorexia; alternating diarrhea and constipation.

Sulphur.^{1x}—Slow convalescence; signs of unresolved exudation. Hemorrhoids.

Kali iod.—When of syphilitic origin.

General Measures.—For the acute pain, hot compresses. Complete rest. Milk diet.

SUPPURATIVE PERIHEPATITIS.

(SUBPHRENIC ABSCESS.)

Nature.—A collection of pus between the upper convex surface of the liver and the under surface of the diaphragm.

NOTE.—Abscess may be *infra*-hepatic; but, as it is in the nature of an encysted suppurative peritonitis, it will be left out of consideration.

Causes.—Streptococcus infection, following—Traumatism; superficial hepatic abscess; echinococcus cyst (suppurative); perforation of bile-duct; ulceration of the stomach or duodenum; appendicitis; empyema (right side); pyemia; septicemia.

Complications. Empyema; pericarditis; perforation of the lung.

Symptoms.—*General:*—The onset may be *insidious*, or *abrupt*. Pain, extending to the shoulder; rapid respiration. Connected with the abdomen—Meteorism; vomiting; hiccough. Chills, with fever, intermittent in type. *Objective:*—Swelling (*may be absent*); sense of fluctuation (sometimes); on percussion, dullness in an upward-curved line, as high as the fourth rib.

Perforation.—The abscess may perforate internally or externally. The latter is rare. *Internal:*—Into the stomach or intestines (when adhesions favor); peritoneal cavity; thoracic cavity; lung; pericardium (*rare*).

TREATMENT.

Medicinal.—Hepar. sulph.—Mercurius.—Silicea.

Surgical.—It soon becomes a surgical condition, and should be so treated.

TUBERCULOUS PERIHEPATITIS.

Nature.—Usually it is secondary to tuberculosis elsewhere—the peritoneum, or acute miliary tuberculosis. In some cases it may be primary. The symptoms are similar to those of suppurative perihepatitis. The treatment should be as for tuberculous peritonitis.

ACUTE SUPPURATIVE HEPATITIS

(ABSCESS OF THE LIVER.)

Etiology.—It is due to infection by various microorganisms, the streptococcus, staphylococcus, bacillus coli, bacillus fetidus, and others. Climate (tropical) predisposes. Malaria is not a determining cause. *Mode of entrance:*—In most cases it is secondary to dysentery, the bacteria being conveyed to the liver from intestinal

ulcers by means of the portal circulation. (In 314 cases of hepatic abscess dysentery co-existed in 268.) Infection may be—Direct, as in stab-wound; traumatism; by *metastasis*:—venous emboli from any purulen focus in the trunk of the portal vein, as suppurating hemorrhoids; suppurative inflammation of the spleen, kidneys, pancreas, stomach, intestines, uterus, ovaries, appendicitis, or purulent inflammation of the portal vein itself. The embolus may consist of necrotic tissue, masses of pus, or bacteria alone. Intestinal ulcers are the most common sources; tuberculous ulcer never, since they produce obliteration of the veins; typhoid ulcers rarely. *Other sources*:—Suppuration of bones; biliary calculus; pyemia. *Arterial metastasis*:—From septic endocarditis; pulmonary abscess.

The New-Born.—Hepatic abscess in the new-born is due to suppurative phlebitis of the umbilical vein.

Symptoms.—In some cases the symptoms are obscure, and the hepatic abscess is undetected. In others, there is a quotidian fever, resembling the paroxysms of malaria. Absence of the *plasmodium* in the blood will distinguish. In other cases, the symptoms make the case resemble typhoid.

Characteristic Symptoms:—Fullness in the right hypochondrium; friction-fremitus; pain, increased by pressure or motion; bilious vomiting; slight jaundice ($\frac{1}{4}$ of cases); perspiration. The local signs (enlargement, pain, etc.) are most important in diagnosis. The urine shows hypoazoturia.

Sub-acute and chronic forms of hepatitis also occur.

Diagnosis.—When the symptoms are not clear, confirm the diagnosis by use of the exploring-needle. Insert the needle:—(a) Over a distinct tumor; (b) in the absence of tumefaction, where there is a spot of distinct *pain* on pressure, edema of the skin, or obliteration of an intercostal space; (c) no local signs, but every evidence from the general symptoms. Use all antiseptic precautions.

Course.—Recovery, with reabsorption of the pus sometimes, though rarely, occurs. Usually the abscess opens, either externally or into other parts. *External*:—Usually, through the skin over the hepatic region. It may open elsewhere—the axilla, umbilicus, inguinal ring. *Internal*:—Thoracic cavity; lungs; abdominal cavity; stomach; colon; pelvis of the right kidney; ascending vena cava; pericardium.

Prognosis.—Always guarded. The mortality rate is very high. Multiple abscess is especially unfavorable.

TREATMENT.

Belladonna.^{2x}—Early in the attack; throbbing, and oppressive pain in the region of the liver, extending to the shoulders; worse on motion; nausea; retching; vomiting; fever.

Mercurius vivus.^{2x}—Fullness in the right hypochondrium; burning pain; anorexia; thirst; jaundice; sweating without relief.

Bryonia.^{1x}—Sharp, stitching pains, indicating inflammation of the peritoneal covering. Of no use for the suppuration.

Hepar sulph.^{6x}—To favor reabsorption of pus.

Lachesis.^{3x}—In cases with enlarged liver, especially in alcoholics.

Quin. ars.^{2x}—When there are chills, fever and sweat.

GENERAL MEASURES.

Applications.—For the acute pain, hot fomentations. Or, the ice-bag, which also will tend to retard suppuration.

Diet.—A nourishing and supporting diet, chiefly of milk and broths.

Surgical.—As soon as the presence of abscess is demonstrated, operate at once. Make a free opening directly over the purulent focus, cleanse with antiseptic solution, and provide drainage. In *multiple* abscess, do not operate.

CIRRHOSIS OF THE LIVER.

(CHRONIC INTERSTITIAL HEPATITIS; HOB-NAIL LIVER.)

Nature.—It is due to chronic inflammation, with proliferation, of the interstitial connective tissue of the liver, and hypertrophy. This is followed later by secondary contraction and sclerosis.

Etiology.—The determining factors are:—Alcohol (the more concentrated the form of alcohol, the more intense its action); toxic agents—lead, copper; infective agents—malaria, syphilis; auto-intoxicants, from intestinal products (skatol, indol). It is suggested that alcohol acts indirectly, by first producing intestinal indigestion, resulting in the formation of ptomains, which act as irritants to the liver.

Symptoms.—In some cases the disease pursues a latent course. In the primary stage—hypertrophy—attention may not be directed to the liver. *Early symptoms:*—Loss of appetite; sense of weight in the epigastrium; gastric and intestinal indigestion; eructations; vomiting; constipation, or alternating diarrhea. Severe pain in the hypochondrium if there is perihepatitis. Liver—in the stage—enlarged. *Later:*—Atrophy of the liver; cap medusæ; ascites; enlarged spleen; gastric and intestinal hemorrhages; scanty urine; emaciation; edema of the lower limbs.

Duration.—Most cases, 12 to 18 months; rarely, many years (10–15).

Causes of Death.—Asthenia; or from one of the complications.

Prognosis.—Generally fatal; but in the early stage recovery is possible.

Complications.—Pneumonitis; pleurisy; dysentery; erysipelas; peritonitis; hemorrhages.

TREATMENT.

Arsenicum.^{3x}—For the gastric catarrh, in alcoholics; irritable stomach.

Nux vom.^{2x}—For the gastric complications in high livers.

Mercurius dulcis.^{2x}—Intestinal catarrh.

Podophyllum.^{2x}—As an intercurrent.

Phosphorus.^{3x}—This has the reputation of having aided in the cure of a number of cases.

Aurum mur.^{2x}—It is adapted to the sclerotic process.

Iodine.^{1x}—A persistent course of *Iodine* has been curative.

Kali hyd.—In syphilitics.

GENERAL MEASURES.

Rest.—Keep the patient at rest. Stop the use of alcohol, spices, and rich and hearty food of all kinds.

Diet.—Put the patient on an absolute milk diet. Give the milk in any form in which it can be taken, and persist in its use. Much depends upon this.

Lavage.—In irritable stomach, lavage is useful.

Ascites.—Remove the fluid by paracentesis, if it cannot be kept down by saline purgatives. Do not wait until there is great accumulation.

Paracentesis.—Cleanse the skin of the abdomen, making it aseptic. See that the bladder is empty. Introduce aspirator needle, or trocar-and-canula, at a point in the median line midway between the umbilicus and the pubes. Use local anesthesia. Put a broad binder about the abdomen, with the ends crossed behind, and draw upon this, compressing the abdomen, as the fluid is withdrawn.

Climate.—Removal to a cool, dry, non-malarial climate will promote the cure.

MALARIAL LIVER.

Nature.—It is an intense hyperemia of the liver, with enlargement, caused by malarial infection. It may be acute or chronic. *Acute:*—Great enlargement of the liver, with pain; fever, intermittent or remittent; gastro-intestinal symptoms; icterus; enterorrhagia; meteorism; enlarged spleen; sometimes ascites; scanty, acid urine. *Chronic:*—Liver enlarged; slight jaundice; cachexia; enlarged spleen; urobilinuria. The acute form is often fatal.

Treatment.—Quinine; Arsenic; milk diet. In the chronic form, change of climate.

SYPHILITIC LIVER.

Occurrence.—Of the organs of the body, after the testicles and brain, the liver suffers most frequently from specific infection. It may occur in infants (in the hereditary form), or in the adult, after infection.

Forms.—Affection of the liver in the *secondary* stage is rare; it takes the form of catarrh of the bile-ducts. In the *tertiary* stage, when it is most common, it occurs as *gummatous* nodular hepatitis.

Symptoms.—*Secondary form:*—Icterus; fever; lassitude; headache; enlarged liver. The symptoms resemble those of *catarrhal icterus*, and must be differentiated from

them—by history of specific infection; absence of gastrointestinal symptoms. Duration—a few weeks to several months.

Tertiary Form.—Gummatous hepatitis. It may run a latent course. Generally, there is:—Progressive emaciation; malaise; digestive disturbances; local pain, slight and dragging, or severe and lancinating; prominence of the right hypochondrium; ascites; slight jaundice. *Palpation:*—Liver irregularly enlarged, with a *hard* nodular surface; the anterior border distorted with eminences and grooves.

Hereditary Form.—When the fetus is affected, hydramnion in the mother. Post-natal symptoms, as in hereditary syphilis (page 34), with the addition of a much enlarged liver.

Treatment.—This should be anti-syphilitic, with *Mercury* and *Kali iod.*, *p. r. n.* Favorable results may be looked for.

TUBERCULOUS LIVER.

Nature.—When the liver becomes tuberculous it is usually secondary to tuberculosis of other of the digestive organs. *Diagnosis* depends upon careful physical examination. It is somewhat enlarged; pressure causes pain. The spleen is also usually enlarged.

ECHINOCOCCUS OF THE LIVER.

Cause.—Accidental ingestion of the ova of the *Tænia echinococcus*, through contact with dogs.

Symptoms.—*Latent:*—It may pass undetected if the cysts are small and deep-seated. When *large* and *superficial:*—A smooth, elastic tumor in the right hypochondrium; by *palpation* fluctuation may be felt; on *percussion*, a dull area, continuous with liver substance. When on the convex surface, development is upward into thoracic cavity; on the postero-inferior surface, it develops downward into the cavity of the abdomen. *General Symptoms:*—There is an absence of symptoms of hepatic insufficiency. Urticaria is common.

Course.—Spontaneous resolution may occur (this is rare). Suppuration with signs of abscess. *Rupture*—This is the usual mode of termination. It may be into the peritoneal cavity; or, if there have been adhesions into other parts, or externally.

Diagnosis.—The diagnosis is not always clear. Introduce needle and secure some of the fluid. Inquire into history of contact with dogs.

Treatment.—Surgical methods alone will accomplish anything. The cyst should be completely evacuated by aspiration. Or withdraw $7\frac{1}{2}$ drams of the cystic fluid, and inject 5 drams solution Merc. bichlor., 1:1000. Operative procedure involves a laparotomy.

NEOPLASMS OF THE LIVER.

Varieties.—Carcinoma; Adenoma; Sarcoma; Fibroma; Angioma.

CANCER OF THE LIVER.

Etiology.—(a) Primary; (b) Secondary.

Primary.—It occurs generally in the aged; men more than women.

Secondary.—Usually secondary to cancers in the realm of the portal system—stomach; rectum; intestines; pancreas. Or, by arterial metastasis, from the breast; uterus; testicles.

Symptoms.—(a) Cachexia; (b) Progressive hypertrophy.

Cachexia:—This is characteristic, with profound emaciation, and a thin, straw-colored skin. **Hypertrophy:**—The liver rapidly enlarges, sometimes to enormous size; the surface is irregular and nodular; hard, early; late, when there is broken-down tissue, soft. Pain, sometimes vague; at others, piercing and lancinating. Icterus, sometimes to a greenish or bronze hue. Ascites (3 in 5). Gastro-intestinal symptoms are common. Phlegmasia alba dolens. The blood shows progressive anemia. Late, there is fever, from absorption of toxic products. Death is from asthenia.

Treatment is purely symptomatic; *Morphine* for the relief of pain is demanded.

ACUTE YELLOW ATROPHY.

(ICTERUS GRAVIS; PERNICIOUS JAUNDICE.)

Etiology.—It sometimes occurs after septic fevers; syphilis; in pregnancy; depressing emotions; sometimes endemic; poisoning by phosphorus, arsenic, antimony. The disease is probably due to a toxic agent, at present not identified.

Liver.—It is reduced in size to $\frac{1}{2}$ or $\frac{1}{4}$ of normal. If death occurs early, there is but little atrophy.

Symptoms.—*Early stage:*—Anorexia; nausea; vomiting; diarrhea; dull pain in the liver; jaundice. These prodromal symptoms may be absent. The disease is marked by:—*Intense headache;* chill; depression; diffuse pains; vomiting; fever; icterus; hemorrhages; petechiæ; restlessness; insomnia; sometimes delirium. *Objective:*—Diminished area of dulness over the liver; the spleen is much enlarged.

Diagnosis.—This depends upon:—Jaundice; nervous symptoms (headache, delirium; coma); hemorrhages; atrophy of liver; enlarged spleen; hypoazoturia.

Duration.—Exceptionally, death occurs in a few days; often it runs its course in about two weeks. There are very few recoveries.

Treatment.—Give *Phosphorus*,^{3x} persistently. A rigid milk diet. Otherwise, treat symptomatically.

LIVER—AMYLOID DEGENERATION.

Nature.—It is secondary to various cachectic conditions (*tuberculosis;* Bright's; syphilis); especially following long-continued suppuration of the bones, and other parts or organs.

Symptoms.—It may run a latent course. The signs are chiefly objective, there being few general symptoms until late.

Liver.—It is much increased in size, sometimes enormously; the surface smooth, and *hard*. *Late* there are intestinal symptoms—profuse mucous diarrhea; anemia; marasmus; death from asthenia.

Treatment must be directed to the primary condition.

CATARRHAL JAUNDICE.

Cause.—Catarrhal inflammation of the mucous membrane of the larger bile ducts, by extension from the duodenum. Due to irritation from ill-regulated diet.

Symptoms.—Nausea; vomiting; eructations of gas; acidity; gastralgia; diarrhea or constipation; urobilin; stools clay colored; *yellowish skin*; slow pulse; cutaneous pruritus; xanthopsia. *Local:*—the liver sensitive; the gall-bladder distended.

Diagnosis.—In the jaundice of hypertrophic biliary cirrhosis the stools are always colored with bile; in catarrhal jaundice they are clay-colored and cretaceous. In old age an increasing icterus after 4 or 5 weeks, indicates a malignant neoplasm of the liver.

Duration.—Usually from one to two weeks. If protracted, nutrition is impaired, and the patient becomes weak and depressed.

Prognosis.—Almost always favorable.

TREATMENT.

Mercurius dulcis.^{2x}—Duodenal catarrh, with extension of the inflammation to bile ducts; *complete jaundice*; skin very yellow; thickly coated, flabby tongue; nausea; vomiting; loathing of food; grayish-white feces; diarrhea; tenesmus; urine scanty and dark-red; pain in the region of liver; *icterus neonatorum*.

Chelidonium.^{2x}—Yellowness of eyes and skin; pain in the liver and right shoulder; bitter taste; tongue clean, of deep-red color; stool white; urine dark-red; the region of the liver distended and painful.

China.^{3x}—Gastro-duodenal catarrh, particularly after great loss of animal fluids, or in malarial jaundice; oppressive headache; perverse appetite, with canine hunger; dingy-yellow complexion; liver swollen, hard, and tender, with spasmodic, stitching pains.

Hydrastis.^{Tr}—Gastro-duodenal catarrh; sense of sinking and prostration at epigastrium, with violent and continued palpitation of the heart.

Podophyllin.^{1x}—Enlargement of the liver, with severe pain; urine scanty, and dark-yellow; stools clay-colored; nausea and vertigo. In complication with gall-stones. Duodenal catarrh.

Aconite.^{1x}—Fever; stitches in the liver; yellow skin; scanty, dark urine; clay-colored stools; local pain; inflammatory symptoms; or, prostration; vomiting; oppression of chest; blue nails; cadaverous countenance; *cold extremities*; feeble pulse; collapse.

Nux. vom.^{2x}—Gastric symptoms; after errors in diet; subjects of chronic constipation.

Kali bi.^{3x}—Nausea; yellow-coated tongue.

GENERAL MEASURES.

Diet.—This must be simple; let it, if possible, consist entirely of skimmed milk. Give pure water freely.

The Bowels.—Use irrigation of the colon. Naphthalin, 2 grs., in capsule, as a disinfecting agent.

Baths.—A warm bath each night.

CHOLELITHIASIS.

(GALL-STONES; BILIARY CALCULUS.)

Size.—From "gravel," to the size of a pea, pigeon's egg, or hen's egg.

Number.—One, to many; *shape*, round, or faceted, from mutual attrition.

Frequency.—About $\frac{1}{10}$ of all persons have gall-stones, for the most part undetected during life. Women suffer more frequently than men. Impaction of a stone causes "gall-stone colic."

Location.—Impaction may occur:—(a) In the cystic duct; (b) in the hepatic duct; (c) in the ductus communis choledicus.

Symptoms.—*Distention of the gall-bladder, but no impaction:*—Sense of discomfort in the right hypochondrium, of increasing severity; vomiting; pain (but not colic) extending to the scapula; tympany; obstipation. *Impaction in the cystic duct:*—Severe, colicky pain in the right hypochondrium, reaching its height in a few hours; nausea and vomiting; no jaundice; lessened diaphragmatic respiration; rigidity of the muscles of the hypochondrium. The colic may persist for hours, or, sometimes, days, when there is sudden relief with the escape of the stone. *In the hepatic duct:*—The symptoms are similar to the previous, but without the *colicky* pains; jaundice in some cases. *In the ductus choledicus:*—Sudden onset of intense colicky pain; nausea; vomiting; sensitiveness of the right hypochondrium; weak pulse; depression; cold, clammy skin; sometimes collapse; *jaundice*. In all instances the diagnosis is confirmed by detection of the calculus in the stool, after the attack.

Complications.—There may be local infection, and abscess; rupture of the duct; permanent occlusion.

Prognosis.—In majority of cases, favorable termination in a week or more.

TREATMENT.

Berberis. Tr.—Give at the time of the attack. Also, after, for pain, soreness and burning.

Arsenicum.^{3x}—To excite reaction after a severe attack.

China.—To correct the tendency to the formation of gall-stones, give according to the following method:—*China*,^{6x} six pills twice a day, till ten doses are taken; then six pills every other day, till ten doses are taken; then every third day, till ten doses are taken; and so on, till at

failed to cure, in a single instance, permanently and radically, every patient with gall-stone colic who has taken the remedy as directed."—*Dr. David Thayer.*

Chelidonium.^{1x}—This has acted curatively in numerous cases.

Nux vom.^{2x}—Gastric symptoms, characteristic of the drug.

Calc. carb.^{6x}—In women who put on fat; local sweats; profuse menstruation.

GENERAL MEASURES.

Object.—(a) To relieve pain; (b) prevent recurrence.

Pain.—*Chloroform*, by inhalation, just enough to give relief. *Morphine*, $\frac{1}{4}$ – $\frac{1}{2}$ gr. The use of this agent should be avoided when possible. **Applications.**—Hot compresses; hot poultices. **Baths.**—Hot baths; hot-water rectal irrigation.

Recurrence.—*Diet.*—Reduce the amount of sugar, starch and fat. *Water.*—Alkaline waters—Saratoga; Manitou; White Sulphur; Carlsbad; Vichy; Kissingen. Drink large quantities, from 2 to 4 qts. a day.

Operation.—In protracted and threatening cases surgical measures must be considered.

HEADACHE.

“BILIOUS” HEADACHE; “SICK” HEADACHE.

Etiology.—*Periodic headaches* are usually due to *defective action of the liver* (admitting toxins to the circulation); or, *increased production*, from the absorption of too much nitrogenous food. The headaches of **gout** and **rheumatism** are associated with the production of *uric acid*. While the headache is due to the general blood condition, it may be *determined* by decayed teeth, defective eyes, or local conditions in the ears, nose or throat, which should receive attention.

TREATMENT.

Indications.—It is absolutely necessary to supply the system with healthy blood; *i. e.*, blood free from *toxins*, which in most cases will be the uric-acid products. This must be done by elimination of the toxins already in the system, and stopping the production of more by regulation of the diet.

THERAPEUTICS.

Podophyllin.^{2x}—“Bilious” headache; blur before the eyes; vertigo; flushed face; nausea; heart-burn; vomiting (of bile); diarrhea.

Chelidonium. Tr.—In “bilious” subjects; darting, tearing, throbbing pain; coldness in the occiput; vertigo; anxiety; melancholia; nausea; vomiting of bile.

Nux vom.^{2x}—Sedentary habits; after use of tea, coffee, liquor; overeating. Begins in the morning; increases through the day; dim vision; sour, bitter vomiting; constipation; worse after eating; noise intolerable.

Iris vers. Tr.—Sick headache, beginning with blur before the eyes, followed by nausea and vomiting; dull

heavy, frontal headache, with continuous nausea, and vomiting of mucus and bile. *Dose*:—Put 10 drops of Tr. in $\frac{1}{2}$ glass of water; give teaspoonful frequently.

Ipecac. ^{3x}—Headache as if th brain and skull were bruised, even to the root of the tongue; intense and constant nausea.

Bryonia. ^{2x}—Head aches as if it would split, made worse by stooping or motion; gets sick and faint on sitting up; *sour, bitter vomiting*.

Veratrum alb. ^{1x}—*Severe* "bilious vomiting"; distressing headache; faintness from violence of the attack.

Mercurius dulcis. ^{2x}—"Torpid" liver; yellow skin; coated tongue; anorexia; the pain is sharp, with feeling of soreness in the bones; worse at night.

Strychnin phos. ^{3x}—Severe and excruciating localized pain; at night, or on waking in the morning.

Diet.—Stop all nitrogenous food (except milk); stop tea and coffee. Take only enough *albumin* to produce 3 to 3.5 gr. of urea per pound of body-weight per day. Drink freely of soft water. A strict diet of vegetable food will, in cases of this class, cause prompt diminution in frequency and severity of the attacks of headache in a few weeks. Renewed uric-acid production will cause their quick return.

HEMICRANIA.

(MIGRAINE; MEGRIM.)

Belladonna. ^{3x}—With active cerebral congestion.

Sepia. ^{6x}—Chronic cases; in women with disordered sexual function; skin yellowish under the eyes.

Ignatia. ^{3x}—Pain unilateral; periodical; sensation as of a nail driven into the temple; nervous symptoms; after anxiety, grief or mental work.

Caffein. ^{2x}—Insomnia, and exaltation of the senses; unilateral.

Glonoïn. ^{2x}—Violent cerebral congestion.

Stannum. ^{3x}—Pains appear and disappear gradually.

Amyl nit.—Pallor of the face; pains increase and abate again and again. *Dose*:—Give by inhalation.

General Measures.—The patient must avoid causes of mental excitement or worry. During the attack, rest in bed in a quiet, darkened room; low diet. The use of coffee must be abandoned.

Palliatives.—Effervescent Bromo-soda with Caffeine. Acetanelid ($3\frac{1}{2}$ grs.) and Caffeine ($\frac{1}{2}$ gr.), 4 to 8 grains of the mixture as an initial dose (Bartlett). Phenacetin (grs. x.). The coal-tar products are only palliatives; they must be used with caution. To be effective the dose must be given *early*, before the pain has reached its height.

HEADACHE—CONGESTIVE.

Belladonna. ^{3x}—Intense pain; flushed face; local or diffuse; pain worse on stooping, contact, coughing, jarring; *burning in the eyes; photophobia*.

Glonoïn. ^{3x}—Active congestion; violent throbbing; pain so severe as to drive to frenzy; headache from sunstroke.

Aconite. 3x—Fullness; heavy feeling; burning; sensation as if the brain were moved by boiling water; arterial tension and excited circulation.

Veratrum vir. 1x—Heart beats loud and strong, with great arterial excitement.

Cactus. 3x—Heavy pressing on the vertex.

Opium. 3x—Passive congestion; drowsiness.

Gelsemium. 1x—Passive congestion; vertigo.

HEADACHE—OCULAR.

Conditions.—Refractive errors, or muscular insufficiency; chiefly, astigmatism and hyperphoria; glaucoma.

Pain.—When from refractive errors, usually in the frontal region or eye-balls; when from muscular insufficiency, in the occiput or cervical region.

Treatment.—Correct the condition.

NOSE AND NASO-PHARYNX.

Conditions.—Adenoids in the naso-pharynx; hypertrophy of the middle turbinated; septal outgrowths; polypi; inflammatory excrescences; hypertrophy of the tonsils.

Treatment.—Correct the condition. If the application of cocain gives relief, it indicates that the local condition is the cause of the headache.

EAR.

Conditions.—Old suppurations in the attic; or, cholesteatoma; in which there may be little or no discharge. Obstruction of the eustachian tube.

HEADACHE—SYPHILITIC.

Conditions.—Usually there is organic lesion. The pains are boring and splitting; much worse at night.

Treatment:—Potassium-iodide.

HEADACHE—GASTRIC.

Conditions.—Gastrectasia; various forms of dyspepsia.

Treatment.—*Lavage of the stomach* (see p. 372).

HEADACHE FROM BRAIN-TUMOR.

Conditions.—The pain is *intensely severe*; accompanied by sudden severe vomiting, without nausea; sudden relief after the vomiting; usually an associated optic neuritis.

SECTION IX.

DISEASES OF THE INTESTINES AND PERITONEUM.

CATARRHAL ENTERITIS.

(INTESTINAL CATARRH; DIARRHEA.)

Varieties.—Acute; Chronic.

Etiology.—*Acute*.—Due to various irritants, which excite catarrhal inflammation of the intestinal mucous membrane. *Chronic*.—Follows acute; or, chronic from the outset, as a result of frequently repeated irritation; or, secondary to other diseased conditions.

Symptoms.—Pathognomonic sign—diarrhea (this may be absent in catarrh of the upper intestine; or, if the colon performs its function and solidifies the intestinal contents). Other symptoms—abdominal pain; pressure and fullness; anorexia; malaise. In the chronic form there may be atrophy of the mucous membrane, with anemia and debility.

Location.—*Duodenum*.—Jaundice; in the absence of jaundice—tenderness in the right hypochondrium; much mucus in the stools. *Jejunum and ileum*.—The presence of indican in the urine. *Colon*.—Colicky pains in the right iliac fossa; itching and burning at the anus; passage of blood-streaked mucus.

TREATMENT.

Aconite.^{1x}—After cold or damp; or checked perspiration, frequent, scanty, loose, green stools, with tenesmus, fever, and restlessness.

Gelsemium. Tr.—Diarrhea in nervous subjects; excited by sudden depressing emotions.

Ferrum phos.^{2x}—Caused by checked perspiration; slight fever.

Cuprum ars.^{2x}—Crampy, colicky pains; restless tossing; tenesmus of the rectum and bladder.

Aloes.^{3x}—Pain and rumbling in the bowels before stool; escape of great quantities of flatus with stool; constant urging to stool; stool involuntary, with escape of flatus; stool seems to pass without exertion; after stool sensation as if more in the rectum.

Veratrum alb.^{1x}—Diarrhea, violent, painful, copious, with profuse perspiration; stools watery, sudden, involuntary. It is useless in painless cases.

Arsenicum.^{3x}—Watery, mucous, or bloody discharge; great weakness, faintness, and rapid exhaustion; thirst and restlessness; burning in the rectum; emaciation; pallor; sunken cheeks; stools watery, *fetid*, painless; great restlessness and exhaustion after the stool; *sticky* perspiration.

Antimonium.^{2x}—Stools watery and profuse, with disordered stomach and white-coated tongue; alternate constipation and diarrhea. Gastric symptoms predominate.

Apis mel.^{3x}—Stools greenish, yellowish, slimy mucus, or yellow watery; tongue dry and slimy; little or no thirst; hands blue and cold. Absence of thirst, with dry tongue, and dry, hot skin, are characteristic.

Colocynth.^{1x}—Severe colic, relieved by bending double.

Bryonia.^{1x}—Diarrhea in *hot weather*; stools brown, thin, fecal, or containing undigested matter; aggravation in the morning as soon as he moves.

Dulcamara.^{2x}—Stools yellowish, greenish, watery, with colic. From "taking cold" in cold, damp weather.

Ipecac.^{3x}—Stools as if fermented, green, with nausea and colic; frequent stools of greenish mucus. Continuous nausea is the most constant distinctive symptom.

Chamomilla.^{3x}—Green, watery passages, often mixed with feces and mucus. Early childhood, during the process of teething, and from taking cold.

Iris.^{Tr.}—Bilious stools and bilious vomiting, with nausea and headache, in hot weather, with much exhaustion and debility.

Croton.^{3x}—Yellow, watery, or greenish-yellow stools, expelled with great force. Characteristic symptoms, yellow watery stool, sudden expulsion and aggravation from food and drink.

Mercurius dulc.^{2x}—Stools slimy, bloody, brownish, whitish-gray, acrid, and burning; cutting, pinching pain in abdomen, with chilliness; bilious stool, preceded by colic, followed by tenesmus.

Argentum nit.^{2x}—Eructations from the stomach; mucus, but little tenesmus.

Podophyllin.^{6x}—Early morning diarrhea; stool frequent; *painless*; yellow liquid, with meal-like sediment.

Sulphur.^{3x}—Diarrhea some hours after midnight, or driving patient out of bed early in the morning. Stools pappy, greenish-yellow, fetid, slimy. Early morning diarrhea very characteristic.

China.^{2x}—Frequent, watery stools, containing undigested matter, with pinching colic, occurring especially at night.

Phosphoric ac.^{3x}—Diarrhea not debilitating, though of long continuance; involuntary, with emission of flatus; stool thin, whitish-gray.

Gummi gutt.^{3x}—*Yellow or green stools, mixed with mucus*, preceded by excessive cutting about the umbilicus; sudden expulsion; morning aggravation.

Calcarea carb.^{6x}—Scrofulous subjects; distended abdomen, with emaciation; whitish or watery stools; chronic diarrhea, with chalk-like stools.

GENERAL MEASURES.

Diet.—This must receive first attention; in *acute* attacks, the less food the better; no solid food; withhold all food for 12 hours; then give barley-water, gruel; later, mutton-broth, which may be thickened with rice or cracker-crumbs. Make gradual return to ordinary diet.

Rest.—Absolute rest on the back.

ULCER OF THE DUODENUM.

Cause.—Peptic digestion of a spot impaired in its nutrition owing to circumscribed failure of circulation.

Symptoms.—In many cases, no signs; discovered only on autopsy. In others, intense pain at the right lower border of the liver; comes on 2 to 3 hours after a meal; radiates towards epigastrium and sacrum; a spot sensitive on pressure, to right of the parasternal line. The most important diagnostic symptom is hemorrhage, by the bowels, or hematemesis. Diagnosis during life is rarely made. The symptoms most resemble gall-stone colic.

Prognosis.—Contraction and stenosis usually follow healing; fatal hemorrhage may occur.

Treatment.—Essentially the same as for ulcer of the stomach. Give Kali bich.^{3x}

HABITUAL CONSTIPATION.

Causes.—Various; faults of diet; irregular habits; sedentary life; intestinal inertia; portal congestion; pelvic growths or adhesions.

TREATMENT.

Sulphur.^{3x}—Portal congestion; hemorrhoids; itching and burning of the anus and rectum; hyperemia of the liver; sense of fullness, tightness in the abdomen; repletion after taking a small quantity of food; alternate constipation and diarrhea; flushes of heat; frequent weak, faint spells. The tincture of Sulphur may be used.

Nux vom.^{2x}—Gastric disturbances, due to rich and abundant diet; sedentary life; after abuse of drugs; frequent, ineffectual urging; stool large, hard, passed with difficulty; hemorrhoids.

Plumbum acet.^{6x}—Retraction of the abdomen, the muscles hard and tense; cramp-like pains; sense of constriction of the sphincter ani; stools dry and hard; the chief indication is the constant presence of a spasmodic, cramp-like pain.

Opium.^{Tr.}—A complete torpor of the bowels, and intestinal paresis; abdomen much distended; stools hard and lumpy. Obstipation after acute diseases.

Lycopodium.^{6x}—Acidity and heartburn; rumbling in the bowels; distension of the abdomen; ineffectual urging; stools hard, scant, and passed with difficulty.

Hydrastis.^{Tr.}—Headache; hemorrhoids; severe pain in the rectum after stool for hours; after abuse of purgatives; hard stool, coated with mucus; sinking feeling in the epigastrium. *Dose:*—Drop of Tr. once daily before breakfast for a week.

Platina.^{6x}—Difficult expulsion of soft stool; frequent urging, great straining, passing but small quantities; putty-like stool, sticking to the anus; constipation while traveling.

Graphites.^{6x}—Stools large, hard, and knotty; tendency to cutaneous disorders.

Esculus. Tr.—Dryness of rectum, feeling as if full of small sticks; painful hemorrhoids, with severe backache.

Bryonia. 1x.—Hard, large, dry stools; chilliness; pain about the liver; rheumatic tendency, accompanied by symptoms of indigestion; frequent eructations after meals; headache.

Nitric ac. 3x.—Stools hard, dry and scant, and passed *without pain*; headache; sour or bitter taste after eating; sour eructations; excessive flatulence.

Ignatia. 2x.—Constipation, with prolapsus of rectum on slight effort to evacuate; creeping, itching sensation in the abdomen.

Collinsonia. Tr.—Hemorrhoids; sharp, sticking pains in the rectum; stool slightly blood-tinged.

GENERAL MEASURES.

Diet.—Drink a glass of oatmeal-water every morning on rising; take effervescent drinks; drink an abundance of water; eat butter and fats; take fresh fruits and vegetables; brown-bread; wheaten-grits; sauer-kraut. *Avoid*—Tea, coffee, wine, beer, pork, veal, salt meats, cheese, beans, cakes, pastry, pickles, biscuit, fresh bread, muffins, griddle-cakes.

Baths.—Cool sitz-bath; sponge-bath to the abdomen, using warm and cold water alternately, in rapid succession.

Massage.—Kneading of the abdomen, especially following the line of the colon.

Electricity.—The sinusoidal current is very effective; the galvanic or faradic may be used.

Posture.—The squatting position, over a low vessel, instead of on a raised seat, is of much aid.

Habit.—Persist in regularity of habit.

Enemata.—Injections should not be relied upon; they lose their effect, and in time a condition of paresis results.

Exercise.—Those of sedentary habit must indulge in active exercise.

INTESTINAL OBSTRUCTION.

(ILEUS.)

Varieties.—(a) Internal incarceration (peritoneal bands; adhesions; Meckel's diverticulum; mesenteric perforations; internal hernia); (b) Volvulus (twisting); (c) Intussusception (invagination); (d) Obturation (gall-stones; enteroliths); (e) Compression; (f) Paralysis (circumscribed).

Symptoms.—Onset, usually colicky pain; meteorism; dyspnea; weak pulse; eructations of gas; vomiting—food, bile, fecal matter; cold sweat; dry mouth; great thirst; whispering, hoarse voice; cold extremities; pinched face; sunken eyes; collapse.

TREATMENT.

Purgatives.—*Never* to be given.

Morphine.—If the pain is severe, give an opiate, *subcutaneously; never by the mouth.* Dose:— $\frac{1}{8}$, $\frac{1}{4}$ gr.

Irrigation.—Irrigate the lower bowel freely; repeat.

Lavage.—Lavage of the stomach relieves distressing symptoms; repeat.

Massage.—Be very cautious in its use.

Diet.—Give supporting diet and stimulants persistently; per rectum if necessary.

Water.—May be given freely.

Reposition.—If there is prolapse at the rectum, reposit with the oiled finger.

Operation.—Call in a competent surgeon early; after the second day the mortality is much increased.

Indications.—Operate early with:—Sudden onset; violent pain, with much distension; vomiting early, profuse, stercoraceous vomiting.

Collapse.—Early profound collapse does not contra-indicate operation.

Sigmoid.—In complete volvulus of the sigmoid (*indications*:—Intense pain near the umbilicus; great and rapidly increasing tympanites; tenderness on pressure in the left iliac fossa) operate immediately.

HEMORRHOIDS.

(PILES.)

Varieties.—*External*:—Arising from the subcutaneous connective tissue of the anus. *Internal*:—Arising from the submucous tissue of the mucous membrane, above the internal sphincter.

Etiology.—Secondary to portal congestion, from (*a*) sedentary habits, or (*b*) over-eating. Also, pressure of the gravid uterus, or other bodies; hepatic cirrhosis; any stasis in the vena cava inferior.

Diagnosis.—Confirm by local examination.

TREATMENT.

Sulphur. Tr.—Bleeding, burning and frequent protrusion of the piles; stinging, burning and soreness in and about the anus; itching and tenesmus after a soft or bloody stool; alternate constipation, and discharge of blood-streaked mucus.

Esculus hip. Tr.—Hemorrhoids of a purple color, very painful, with burning sensation; itching, burning pains, with sensation of fullness and dryness of rectum; slight hemorrhage; severe aching pains in back; constant and severe backache, extending to sacrum and hips; stool hard and dry, passed with difficulty, followed by sensations of constriction, fullness, dryness and pricking pains in the rectum.

Hamamelis. Tr.—Profusely bleeding hemorrhoids. Burning, itching and rawness of anus; weakness of back—feels as if it would break; discharge of large quantities of dark blood. True varicosis, with excessive hemorrhage.

Collinsonia. Tr.—Blind or bleeding piles, with sticking pains in the rectum; obstinate and habitual constipation; stools lumpy and light-colored; uterine disorders; congestive inertia of the lower bowel.

Aloes. Tr.—Hemorrhoids, with flow of hot, blackish blood; hemorrhoids protrude, like bunch of grapes, with constant bearing-down in the rectum; great heat and tenderness of the tumors, relieved by cold water; heat in the bowels, and heat and painful pressure in the liver; painful inflammation of the tumors.

Nux v. 2x—For blind or bleeding piles. From abuse of spirituous liquors, or sedentary habits; bleeding, burning and frequent protrusion of the piles; abdominal plethora; tearing, pressing, bruised pain in small of back; habitual constipation.

Capsicum. 3x—Burning and itching. **Ferrum.** 3x—Cachectic constitutions. **Aconite.** 1x—Inflammation of tumors. **Hepar sulph.** 2x—Chronic hepatic affection. **Arsenicum.** 3x—Emaciated subjects; burning pain. **Podophyllin.** 2x—Portal congestion; bilious subjects.

GENERAL MEASURES.

Hygiene.—Open-air exercise; restricted diet; regular habits; avoid soft cushions and feather-beds. Go to stool shortly before bedtime.

Diet.—Avoid coffee, peppers, spices, stimulating or highly-seasoned food, beer, wine, spirits; and *do not over-eat*. During attack, no meats; vegetables and fruits are best.

Women.—Uterine disorders must be corrected.

Local.—*Excoriations:*—Ointment, Vaseline and Boracic acid. *Inflammation:*—Belladonna cerate; injections of ice-water; or, hot compresses; or, sit over steam vapor; injections of hot water and Hamamelis.

Suppositories.—Suppositories containing—Collinsonia; Æsculus; Hamamelis; Aloes, according to indications.

Operation.—If it resists treatment—operate. Indications:—Pain; strangulation; prolapse; interference with defecation.

CHOLERA MORBUS.

(CHOLERA NOSTRAS; INDIGENOUS GASTRO-ENTERITIS.)

Causes.—The toxic effects of partly decomposed food of various kinds.

Symptoms.—*Prodrome:*—Moderate diarrhea; nausea; abdominal pains; flatulence. Or, *sudden onset*, with:—Abdominal pain; malaise; nausea; vomiting; diarrhea; first, the contents of the stomach and the bowels, then vomiting and purging of watery fluid. Cramps; weakness and faintness; husky voice; cold skin; cyanosis; clammy perspiration; small pulse.

Prognosis.—Almost always favorable. The *duration* is brief—one or two days.

TREATMENT.

Medicinal.—**Arsenicum.** 3x—**Veratrum alb.** Tr.—**Cuprum ars.** 2x—These remedies can be given according to the indications under *Asiatic cholera*.

Iris vers. 1x—Bile in the vomited matter and stools.

Colchicum. Tr.—Little pain, but rapid prostration.

Podophyllin. 3x—Profuse, watery stools, without great prostration.

GENERAL MEASURES.

Lavage.—If the patient is seen early enough, lavage of the stomach, and irrigation of the bowels. Add a small amount of *Kali permang.* to the water. With much loss of fluid, inject normal salt solution. In general, nurse as in Cholera Asiatica.

DYSENTERY.

(COLITIS; BLOODY-FLUX.)

Varieties.—(a) CATARRHAL (*Sporadic*); probably due to *bacillus coli communis*. (b) AMEBIC (*Tropical*); due to *ameba coli*. (c) DIPHTherITIC (*malignant*); may be primary or secondary.

Diagnosis. It depends upon the character of the stools—frequent, small, mucous, bloody, sometimes containing shreds of necrosed tissue; attended by colic, tenesmus, and various gastric and systemic symptoms.

Prognosis.—The catarrhal form, favorable; amebic form, the mortality varies from 5% in temperate climates, to 70% in the tropics; diphtheritic form, unfavorable.

TREATMENT.

Mercurius corr.^{3x}—Severe cutting, griping abdominal pain; distressing, persistent tenesmus; almost constant straining; stools small, slimy, green, or bloody; urine scanty, bloody, or suppressed; flabby, coated tongue; anorexia; sweat.

Arsenicum.^{3x}—Severe cases, with much exhaustion; dark, fetid, bloody stools, with shreds of tissue; burning pain in the rectum; stool acrid and excoriating; clammy surface; weak, rapid pulse,

Belladonna.^{1x}—Much nervous excitement; violent fever; retention of urine; severe gastric derangement; nausea and vomiting; violent urging; scanty discharge of slimy, bloody stool, with tenesmus; abdomen distended, hot and painful; spasmodic, clutching pains. Useful in the early stage.

Aloes.^{2x}—Loud gurgling in the abdomen. *Before stool*, sensation of fullness and weight in pelvis; *after stool*, faintness. *Stool* bloody, jelly-like mucus. *Tenesmus very severe*.

Nux vom.^{2x}—Violent tenesmus; pressing pain in the loins and sacral region; sensation as if the back were broken; great heat and thirst, with red face; the pains and tenesmus *cease with the evacuation*.

Cantharis.^{1x}—Scanty urine; tenesmus vesicæ; stool of blood and mucus, like scrapings from the intestines; with the stool, cutting in the abdomen.

Capsicum.^{2x}—Cutting colic; thirst, but drinking causes shuddering; drawing pains in the back; stools of mucus, streaked with black blood; strangury.

Ipecacuanha.^{2x}—Stools green; frothy mucus; violent colic and tenesmus; anorexia; nausea; vomiting.

Argentum nit.^{2x}—Stools ropy, green, shreddy, bloody; constrictive pain in the rectum; burning soreness and constriction in the abdomen.

- Aconite.**^{1x}—Early, with fever.
Acid nit.^{2x}—Diphtheritic dysentery.
Cuprum.^{3x}—Violent cramps in the legs.
China.^{2x}—Intermits; returns periodically.
Colocynthis. Tr.—*Very severe* colicky pains.
Dulcamara.^{1x}—Autumnal, from cold and wet.
Sulphur.^{3x}—After violence of attack has passed.
Rhus.^{2x}—Low fever; involuntary; thin; at night.
Colchicum.^{3x}—Jelly-like, skinny stools; autumnal.
Podophyllin.^{3x}—Prolapse of bowel with every stool.

GENERAL MEASURES.

Rest.—Absolute rest in bed; even though he has the strength, the patient must not be about on his feet.

Compresses.—Hot formentations to relieve pain.

Tenescmus.—Injection of boiled starch, with Laudanum, 30 drops.

Discharges.—The dejections must be disposed of with antiseptic precautions; the disease is infectious. Keep the clothing and the patient clean.

Diet.—Simple and bland; milk, peptonized; scraped meat; a sustaining diet when there is much exhaustion. Pure water to gratify thirst.

Irrigations.—In acute attacks, irrigate with water, as hot as can be comfortably borne. In sub-acute or chronic, irrigate freely with warm water (blood-heat) with Argemum nit., grs. x to the pint.

ASIATIC CHOLERA.

(EPIDEMIC CHOLERA; CHOLERA MALIGNA.)

Etiology.—It is due to infection by the *comma bacillus* (Koch). It enters the system in drinking-water or in food.

Complications.—Gastro-enteritis; suppression of urine; meningitis; sloughing of the cornea; abscesses over the body; coagula in the right heart or pulmonary arteries; hemorrhage of the bowels; bronchitis; pneumonitis; erysipelas; parotitis; diphtheritic inflammations of mucous surfaces.

Prognosis.—Always grave. Most of the fatal case occur early in the epidemic. The foudroyant form is almost always fatal.

TREATMENT.

Camphor. Tr.—*Early* in the attack. The patient suddenly loses strength, and looks pinched and blue; the skin becomes very cold; the voice deep and husky; the skin shrivels; intense distress and anguish at pit of stomach and burning in the bowels, the patient tossing in agony; sometimes nausea and vomiting, but generally the evacuations both up and down are moderate and infrequent. **DOSE.**—"Give the patient three to five drops of the tincture, on a little sugar, every five minutes, and, in the intervals, assiduously rub him on the neck, chest, and abdomen with the same medicine, until the icy coldness of the body gives place to a return of vital warmth."—*Hahnemann.*

N. B.—For convenience Cholera is included in this SECTION.

Veratrum alb. Tr.—Cases marked by *excessive vomiting and purging, with violent abdominal pains*. Especially indicated when the attack commences with vomiting and purging. Pale and sunken countenance; hollow eyes, with blue margins; repeated and violent vomiting, with frequent, copious, watery, rice-water evacuations; violent colic, especially about the umbilicus. *Dose*:—Tr., 5 drops, frequently repeated.

Cuprum acet. 2x.—Loss of consciousness; spasmodic cramps of fingers and toes; audible gurgling of liquids down the esophagus; ineffectual efforts to vomit; the diarrhea has ceased, but loud gurgling in bowels, indicating paralysis of the intestines. Cuprum is also recommended as a prophylactic.

Arsenicum. 3x.—*Sudden and extreme prostration*; vanishing of the pulse; great dyspnea; inexpressible anguish; constant tossing about; violent thirst, yet the least quantity of liquid is thrown up immediately; burning distress in the region of the stomach; complete suppression of urine. The medicine most trusted in *collapse*.

Hydrocyanic ac. 3x.—Pulselessness; respiration slow, deep, gasping, taking place at long intervals.

Secale 3x; **Phosphorus.** 3x.—Profuse, watery stools, after the violence of the attack is past.

Phosphoric ac. 3x; **Rhus.** 3x.—The supervening typhoid condition.

Terebinthina 2x; **Cantharis.** 2x.—For continued suppression of urine.

GENERAL MEASURES.

Propylaxis.—Pure drinking-water is the most efficient preventive. Rigid quarantine must be observed.

The Patient.—Place the patient immediately in a warm bed. Keep him at perfect rest on his back, and surround him with hot bottles. Make friction with warm flannels. The room should be warm, but well ventilated. No food can be taken. Enemata of warm milk, even though rejected, are beneficial.

Disinfectants.—Use disinfectants in disposing of discharges and soiled linen.

Drinks.—Assuage thirst with cracked ice.

Diet.—During the prevalence of cholera it is not necessary that those unaffected should adopt a rigid system of dietary. *Avoid everything which would be liable to create indigestion, or produce relaxation of the bowels.*

Water.—During the prevalence of cholera drink no water that has not been boiled and filtered. Thoroughly wash all fresh fruit.

Enteroclysis.—When the patient has lost much serum, inject into the bowel, with a long rectal tube, normal salt-solution. *Quantity*:—One to two quarts. *Temperature*:—100° to 104° F. *Frequency*:—Four times daily; or, after each evacuation.

Hypodermoclysis.—Injection may be made into the subcutaneous cellular tissue. *Solution*:—Sterilized water, 1 pint; Sodium chloride, 4 grams; Sodium carbonate, 3 grams. *Temperature*, 104° F.

Convalescence.—A return to ordinary diet must be gradual, as an attack of indigestion may excite relapse. Give *no solid food* till the stools are consistent and fecal. Begin with milk, thin gruels, broths, and digestible liquid food.

Precautions.—Close all surface wells, and those in the vicinity of drains and cesspools. Remove all filth, and use disinfectants freely. In cholera season direct your patients to observe regular habits in all things. All drinking-water must be boiled and filtered. Give strict attention to the first appearance of a diarrhea.

TYPHLITIS.

Definition.—Inflammation of the inner wall of the cecum.

Etiology.—Irritation from food, trauma, or foreign bodies—gall-stones, hardened feces, etc.

Symptoms.—Onset, slow and gradual; dull, radiating pain, worse by cough or pressure; gastric symptoms; eructations; nausea; constipation; a sausage-shaped tumor in the right iliac fossa, from above downwards, parallel to the inner edge of the ileum; the tumor feels like a pasty mass.

Prognosis.—Favorable.

Treatment.—*Medicinal:*—Belladonna^{2x}; Nux vom.^{2x}; Mercurius corr.^{3x}; Arsenicum^{3x}. *General:*—Procure evacuation of the bowels by free irrigation of the colon with warm water and turpentine.

APPENDICITIS.

(PERITYPHLITIS.)

Etiology.—Irritation from the presence of a foreign body in the appendix, with bacterial infection and inflammation. The foreign body is usually an enterolith ($\frac{1}{2}$ the cases). Seeds are very rarely found ($\frac{1}{8}$ the cases).

Symptoms.—They vary greatly. Some cases run a latent course. *Catarrhal Form:*—Localized pain (sometimes radiating or diffuse); distension of the abdomen; vomiting of food, bile, stercoraceous matter; fever (slight); constipation (sometimes thin diarrhea); scanty urine; thigh flexed; tumor at the lower border of the ileum, with crescentic area of dulness. *Perforative Form.*—Sudden pain and tenderness at McBurney's point ($\frac{1}{2}$ the distance from the umbilicus to the spine of the ileum, on a direct line); paroxysmal exacerbations of the pain; fever (102°–105° F.) hiccough; vomiting; coated tongue; anxious facial expression, cold sweat; hippocratic countenance; characteristic tumor in the right iliac fossa.

TREATMENT.

Belladonna.^{1x}—The pain is sudden in onset; rendered intolerable by the slightest motion, even the jarring of the bed; signs of intense congestion and beginning inflammation. Of no use unless given early.

Mercurius corr.^{3x}—Profuse sweat; painful, hot and hard swelling; alternation of chills and heat; face pale, tongue flabby, with white coating; constipation, or, slimy discharges.

Typhoid-like State.—Rhus tox^{3x}—Lachesis.^{6x} Arsenicum.^{3x}

Suppuration.—Hepar s.^{3x} Silicea.^{6x}

Peritonitis.—Bryonia.^{1x} Mercurius.^{3x} Cantharis.^{2x} Arsenicum.^{3x}

GENERAL MEASURES.

Rest.—The patient must be kept at absolute rest in bed; use the bed-pan for evacuations. Insist upon this far into convalescence.

Diet.—Light and bland; early, only pure water; peptonized milk; bouillon; in convalescence return gradually to ordinary diet.

Compresses.—Apply hot compresses over the seat of the inflammation.

Anodynes.—Never give opium.

Enema.—At the beginning of the attack clean the bowel by an enema (warm water, $\frac{1}{2}$ pint; turpentine, $\frac{1}{2}$ oz.).

Operation.—If the symptoms show no signs of subsiding at the end of 24 hours, *at the very latest*, operation is demanded. For special indications see SURGERY.

PERITONITIS.

Varieties.—*Primary* (from exposure to cold); *Secondary* (from perforation; by extension; to general infectious process). (a) Circumscribed; Diffuse. (b) Acute; Chronic. (c) Fibrinous; Sero-fibrinous; Purulent.

Symptoms.—*Acute*:—Sudden onset; chill; fever, 102-104°; pulse *tense and wiry* (100-140); intense, cutting pain in the abdomen; sensitive to the slightest touch; thighs flexed; tympanites; anorexia; hiccough; nausea; vomiting; constipation; face pinched and anxious.

Prognosis.—Always guarded.

TREATMENT.

Aconite.^{1x}—Early; great restlessness; high fever; rapid pulse; burning, cutting, darting pain in the abdomen, worse from slightest pressure; abdomen hot; great thirst.

Belladonna.^{1x}—Cerebral congestion; throbbing carotids; great anxiety; dyspnea; very sensitive to light and noise; sudden shooting, darting, stabbing pains.

Veratrum vir. Tr.—Nausea and vomiting, with cold sweat; strong, full pulse, with great arterial excitement; respirations slow; face flushed; pupils dilated.

Bryonia.^{1x}—Splitting headache; stitching, lancinating pains in the bowels, worse from the slightest motion; tongue white and dry; great thirst; constipation.

Apis.^{2x}—Stinging, burning pain; scanty urine; dyspnea; edema; absence of thirst.

Arsenic.^{3x}—Sudden sinking of strength; restlessness; thirst; vomiting; cold, clammy perspiration.

Colocynth.^{1x}—Violent cutting, tearing pains; diarrhea; tenesmus; scanty urine; strangury.

Terebinthina.^{2x}—Great distension of the abdomen; weakness and prostration.

Cantharis.^{2x}—Scanty urine, with almost constant strangury, passing but a few drops at a time; bloody urine.

Mercurius corr.^{3x}—Chills; perspiration; flabby, coated tongue; mucous stools, with tenesmus; weakness and emaciation.

GENERAL MEASURES.

Rest.—Absolute rest in bed, and quiet surroundings.

Diet.—Milk, peptonized, or in any agreeable form; broths; nutrient enemata if the stomach is intolerant.

Pain.—If it cannot be otherwise controlled, give Morphine subcutaneously, just enough to accomplish the purpose.

Compresses.—Hot, light compresses to the abdomen; if there is meteorism, sprinkle with turpentine and sweet-oil, equal parts. With circumscribed inflammation, the ice-bag.

Bowels.—Never give a purgative. The lower bowels may be cleared by a laxative enema.

Vomiting.—Try sipping hot water; bits of ice; iced champagne.

ASCITES.

(DROPSY OF THE ABDOMEN; HYDROPS PERITONEI.)

Etiology.—Secondary to many conditions that cause obstruction to the portal circulation.

Diagnosis.—Uniform distension; dulness changes with the position of the patient; succussion; prominent umbilicus. It must be differentiated from (a) peritonitis with effusion; (b) ovarian cyst; (c) dilated stomach; (d) distended bladder (the last two conditions have been, but should not be, mistaken for it).

TREATMENT.

Apocynum.—When there is scanty urine, it restores the renal secretion and removes the dropsical accumulation. *Dose* :—Fluid-extract, 5 drops, 3 times daily; *infusion*, 20 drops every 3 or 4 hours. If it causes nausea, give b; rectal injection.

Digitalis.—When the ascites is part of a general dropsy due to renal or cardiac disease (excepting aortic regurgitation). *Dose* :—Tincture, 5 to 10 drops.

Arsenicum.^{3x}—Ascites as part of a general dropsy secondary to disease of the heart or liver (cirrhosis). Great debility and prostration; emaciation; dyspnea; edema. *Dose* :—In extreme cases, give Fowler's solution.

China.^{2x}—Dropsy of anemia, or after exhausting discharges. General debility, sallow skin; diarrhea; scanty urine.

Aurum.^{2x}—Secondary to chronic hepatic disease.

GENERAL MEASURES.

Diet.—A strictly milk diet is very beneficial in many cases. Give pure water freely; it favors action of the kidneys.

Baths.—Vapor baths are helpful.

Paracentesis.—If respiration is embarrassed, tap the abdomen.

SECTION X.

DISEASES OF THE STOMACH.

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ACUTE GASTRITIS.

Varieties.—(a) Primary; (b) Secondary; (c) Diphtheritic; (d) Phlegmonous.

Etiology.—(a) *Primary*:—Excess in eating; *Chemical*: Large doses of salicylates, quinine, mercury, cubeb; *Psychic*: violent emotions; sexual excess; *Thermic*: Ice-water, hot drinks; *Mechanical*: Foreign bodies, fish-bones, etc.; *Predisposition*: Heredity.

(b) *Secondary*:—Complication in acute infectious diseases; after operations; in chronic diseases—Bright's; liver; lung; heart; diseases that produce anemia.

Symptoms.—Sense of fullness; stomach distended and painful; eructations; thirst; anorexia; pyrosis; salivation; pulse small, rapid; malaise; prostration; cerebral pressure and frontal headache. Children may have delirium. Fever in half the cases.

Diagnosis.—Must be differentiated from typhoid fever; infectious diseases; poisoning.

Prognosis.—Favorable, except in extremes of life.

TREATMENT.

Aconite.^{2x}—Hot, dry skin; hard, full, quick pulse; intense thirst, sharp, shooting pains; retching and vomiting; bilious vomiting; nervous restlessness. Of value in the first stages when the attack is due to cold, or shock of any kind.

Arsenicum.^{3x}—Vomits everything taken; intense thirst; drink little at a time; water disagrees; rapid prostration.

Nux vom.^{2x}—After eating improper food, unripe fruit; tongue coated yellow; fullness and pressure in the stomach; vertigo; pains shooting up the back of the neck, with headache.

Veratrum alb.^{2x}—Great suffering; nausea and vomiting; lips blue; nose pinched; eyes sunken; intense thirst; nothing stays on stomach; weak, rapid pulse; exhausting diarrhœa.

Phosphorus.^{3x}—Great soreness in the gastric region; cramps; pains radiating to the liver; nausea and vomiting; relishes cold water, but it comes up as soon as it gets warm.

Bryonia.^{2x}—Tongue coated white, or dry and brown; there may be no thirst, but the patient drinks frequently and copiously; epigastrium very sensitive; stitching pains in the stomach; constipation.

Belladonna.^{3x}—Often indicated in children, with tenderness of the abdomen; cutting pain; much fever; congestion of the head, with throbbing headache, nausea and vomiting.

Iris vers.^{1x}—Acute gastritis, with bilious symptoms; specks before the eyes; then headache begins; distressing nausea; burning in the stomach; vomits mucus and bile.

GENERAL MEASURES.

Stomach.—When there is much fermentation, with nausea, and the stomach is full, it must be emptied by emesis. Use large quantities of tepid water to induce vomiting. After the stomach is empty, secure rest. When vomiting is a troublesome symptom counter-irritation over the stomach, or over the tenth dorsal vertebra, should be used. Equal parts of chloroform and alcohol, applied one dram at a time, on three or four layers of flannel, is the quickest and best.

Diet.—No food; water, hot or cold, should be given by the mouth until pain and signs of gastric irritation are gone. Water at about 75° F. should be given in small quantities to allay thirst. Begin to feed cautiously; first, white of egg stirred in water; then milk; beef-tea; corn-meal or rice-gruel, thoroughly cooked. Vichy-and-milk, equal parts, when there is tendency to acidity.

DIPHThERITIC GASTRITIS.

Etiology.—It occurs as a sequence of laryngeal diphtheria; also sometimes accompanies scarlatina; pyemia; puerperal septicemia.

Diagnosis.—Usually impossible before autopsy.

PHLEGMONOUS GASTRITIS.

(PURULENT GASTRITIS.)

Etiology.—Infection of the submucosa by pyogenic cocci.

Symptoms.—Much like intense simple acute gastritis, with symptoms and physical signs of abscess; temperature 104°-105° F.; restlessness; headache; insomnia; delirium.

Prognosis.—Unfavorable.

Treatment.—When diagnosis is possible surgical interference is called for.

CHRONIC GASTRITIS.

Etiology.—Irregular diet; improper food; alcoholic liquors; drugs. It may follow acute gastritis, or complicated chronic diseases of other organs.

Diagnosis.—Often hard to determine; must differentiate between ulcer, carcinoma, gastric neurosis, etc. The only way positively to decide is by test-meals, and analysis of secretions of the stomach.

Prognosis.—Favorable if organic changes have not progressed too far. Cases of long standing can be improved with care and treatment.

DIAGNOSTIC POINTS OF TYPES OF CHRONIC GASTRITIS

	Contents of Fasting Stomach.	Acidity.	Ferments.
1. Simple Chronic Gastritis.	Limited amount of watery mucus; leucocytes; epithelial cells; round cells.	Variable; free HCl rarely present, lessened in amount; combined HCl present.	Pepsin and rennin present in small amount; propeptone formed in the stomach.
2. Chronic Mucous Gastritis.	Much mucus; epithelial fragments.	At beginning the HCl may be normal; later it is low or absent.	Pepsin and rennin absent; both proenzymes present. Experimental digestion occurs on adding HCl.
3. Chronic Atrophic Gastritis. Lancing pains present in this form.	Empty; no mucus.	HCl absent; HCl deficient; no combined HCl.	No enzymes, no proenzymes.
4. Acid Gastritis.	Much mucus, giving HCl reaction.	Amount of HCl normal; or, hyperacidity.	Ferments increased.

TREATMENT.

Arsenicum.^{3x}—Irritable stomach; does not retain food; heartburn; waterbrash; fullness and tenderness in the epigastrium; tongue red and rough; pulse feeble, accelerated and irregular; meats and cold drinks disagree; hot flashes, then cold; hands and feet cold; diarrhea.

Argentum nit.^{2x}—Marked irritability, with sharp burning, knife-like pains radiating to the sides or back; flatulence; useful in hyperchlorhydria and atonic gastritis.

Antimonium crud.^{3x}—Patient overloads the stomach; tongue coated white; stomach easily deranged. Valuable in atonic gastritis.

China.^{1x}—Often indicated in chronic gastritis complicating other diseases, viz.: malaria, anemia; splenic or hepatic disease. Constant satiety, with coldness in the stomach, craves spices, acids and stimulants; flatulence marked, lasting long after eating; farinaceous foods disagree.

Digitalis.^{1x}—Useful in chronic gastritis complicating heart or renal disease. Will frequently relieve the passive congestion, and stimulate digestion. Constantptyalism and sensation of weight in the pit of the stomach.

Hydrastis.^{2x}—Dull pain in the pit of the stomach, with weak, faint feeling; sensation of "goneness" in the epigastrium, with palpitation of the heart, waterbrash.

Nux vom.^{2x}—Bitter, sour eructations; nausea after meals; feels empty after eating; small quantity of food satisfies.

Phosphorus.^{3x}—Sour eructations after meals; food or drink tastes bitter. Belching of gas; regurgitation of food

after meals; very useful when there is change in the stomach wall, or the sympathetic nervous system is implicated.

Pulsatilla.^{2x}—Vomiting after meals; vomits mucus; fat foods disagree; pain in the stomach after eating.

GENERAL MEASURES.

Atonic Forms.—Hydrochloric acid, dilute, 15 or 20 drops in a glass of water, divide into three doses, take the first one 15 minutes after meal, and take a dose at intervals of 15 minutes until all is taken. Useful only in atonic forms of gastritis.

Pepsin.—Not to be given except in cases where the secretions of the ferments are absent, as determined by more than one analysis. In atrophy, where the peptic glands are destroyed, pepsin should be used in combination with HCl. Give three to ten grains after meals.

Bismuth subnitrate.—One to five grains at a dose, four times a day. Thirty grains in a cup of hot water may be used after lavage. Pour the mixture into the stomach, allow it to remain 10 to 30 seconds, then siphon off. It should not be used in atrophic gastritis. To relieve troublesome symptoms until the patient recovers, it is very useful in the mucous and the acid forms of chronic gastritis.

Lavage.—Washing the stomach by means of the stomach tube is of value in cases with dilatation, muscular inactivity, irritability, or undue fermentation. Use lavage at bedtime, or the first thing in the morning. Fill the stomach two or three times with hot water. In mucous gastritis, 10 grs. of Sodium bicarb. may be used in the first water. Argentum nit. (one ounce of the 1% solution) in the first water, followed by thorough washing, is indicated where there is irritability or fermentation. Bismuth subnitrate can be used in the same way.

Solutions.—Sodium-chloride, Hydrastis, Menthol, Boric acid, or Hydrochloric acid, may be used in wash-waters, as needed.

Contra-indications.—Lavage is contra-indicated when gastritis complicates: In grave heart lesions; aneurism of large arteries; recent hemorrhages of all kinds, including apoplectic, pulmonary, renal or gastric; advanced pulmonary tuberculosis, and emphysema. Recurrent tubes are not as satisfactory as the ordinary.

Intra-gastric Spray.—Useful to make applications to the membranes of the stomach; it is not often of service. Indications are much the same as for lavage.

Electricity.—Faradic and galvanic electricity, applied locally by means of intra-gastric electrode, are useful as tonics. The sinusoidal current is preferable as a muscle tonic; it is of value in diminished peristalsis.

Gymnastics.—Out-door exercise should be required.

Balneological.—Treatment at springs is beneficial by reason of rest, change, and proper out-door exercise, with liberal use of good-nature water.

Massage.—Where exercise is not properly secured, massage, local and general, should be prescribed. The patient may be instructed to massage his own stomach. Hot water, in combination with massage, gives marked results. Have the patient take two cups of hot water 45 minutes before rising. Inflate the lungs, fix the diaphragm, flex the legs, and knead the stomach; reverse, deflate the lungs, fix the diaphragm.

Constipation.—In chronic gastritis it must be treated by diet, colon flushing, electricity, and exercise. Increase the amount of water the patient drinks. Drink hot water at bedtime, and the first thing in the morning.

DIET IN GASTRITIS.

General.—Hot, cold or saline waters to increase digestion and relieve constipation. Have the patient drink a pint in the morning before rising.

Simple Chronic Gastritis.—Breakfast-foods (except oatmeal); white bread; eggs, soft boiled; fresh meats (in moderate quantities); ham; fish. Vegetables in soup and purées; fresh fruit. Avoid all fried food, tea, coffee, and alcohol.

Chronic Mucous and Atrophic Gastritis.—Small meals at regular intervals. Rare-done scraped meat-balls, broiled. white bread; toast; milk; butter; buttermilk; cooked vegetables (except cabbage; string beans; parsnip; egg-plant; sweet potatoes; oyster-plant). Fresh fruit, moderate quantities.

Acid Gastritis.—Albuminous foods, with small amount of starches and sweets, at first. As the case improves, increase the carbohydrates. Hot water before meals. Avoid sweets, stimulants, tea, coffee, and spices. Stew all fruits.

GASTRIC ULCER.

Symptoms.—Pain; vomiting; hematemesis; melena; change in the secretions; pyrosis. *Individual Symptoms:*—**Pain:**—In character, intense burning, stinging; occurs after taking food; increases as digestion progresses; external pressure produces sharp pain in circumscribed area in the stomach; often a tender spot near the spine, over the tenth rib; liquid food does not cause as much pain as solids. **Vomiting:**—Usually occurs during period of digestion; the proteids are usually digested; starches not changed. **Hematemesis:**—(50% of cases); the quantity of blood depends on the size of the vessel opened by the ulcer; large quantities usually indicate deep ulcer.

Melena.—Blood may appear in the stools without hematemesis; when ulcer is suspected, and stools are dark, test should be made for hemin crystals. **Secretions:**—HCl invariably in excess; no change in the enzymes.

Appetite:—Usually not much changed, but patient does not eat for fear of producing pain. **Constipation:**—Almost invariably present.

DIFFERENTIAL DIAGNOSIS.

HEMOPTYSIS.

1. Blood bright red, foamy.

2. Physical signs point to pulmonary or cardiac disease; moist râles.

3. Pulmonary hemorrhage followed by rust-colored sputum.

HEMATEMESIS.

1. Blood dark brown; partly coagulated; mixed with food; sometimes acid.

2. Physical examination reveals gastric or hepatic disease, or stasis in the portal circulation.

3. Gastric hemorrhages are frequently associated with tar-colored stools.

Prognosis.—Usually favorable; recurrence is common; perforation may occur.

TREATMENT.

Argentum nit.^{2x}—Symptoms of acute inflammation of the stomach; pain; retching and vomiting; epigastrium swollen; eructations relieve; urine scant and high-colored. Useful to lessen the secretion of HCl.

Uranium nit.^{2x}—Of great value when symptoms of *Argentum nit.* are present, but with copious urine.

Arsenicum.^{3x}—Violent burning in the stomach; vomiting of blood; great distress in the epigastrium; stomach painful to the touch. Of value to aid in correcting gastric secretions and indigestion.

Phosphorus.^{3x}—Thirst for cold drinks; sour regurgitation of food; region of the stomach painful to touch; walking causes pain.

Mercurius corr.^{3x}—Vomits stringy mucus; coffee-ground vomit; burning in the stomach, extending up to the mouth; bloated, tender abdomen.

Iodine.^{1x}—Hunger; great thirst; heartburn; nausea; vomiting after eating, with violent pain in the stomach; Burning; gnawing.

Kalibich.^{3x}—Kali iod.^{2x}—Lycopodium^{3x}—Hydrastis^{Tr} may be indicated.

GENERAL MEASURES.

Rest.—Perfect rest of the patient must be secured.

Diet.—Milk exclusively is best. Milk-and-Vichy, equal parts, is sometimes taken better than pure milk. Broths and gruels may be given during convalescence. *Hot or cold* food or drink should not be given. Feed every three hours, except at night.

Nutrient Enemata.—In protracted cases give the stomach *absolute* rest; put the patient to bed and nourish by nutrient enemata *until the ulcer is healed*. Boas' mixture is best:—8 oz. milk; yolks of 2 eggs; teaspoonful salt; one tablespoon claret; one tablespoon of wheat-flour.

Acidity.—To overcome acidity, Carlsbad salts, one to two teaspoonsful in a glass of water; or Saratoga, Carlsbad, or Hawthorne water may be used. One or two teaspoons of lime-water may be used at each *feeding*.

Pain.—Is usually controlled by overcoming acidity, proper diet, and rest. Bismuth subnit., 5 grs., in water. Argentum nit.^{2x} 3 to 5 drops in water. Aromatic spirits of ammonia, 5 to 10 drops in a teaspoon of water (when there is no hemorrhage). When the pain is gastralgic in nature, one or two drams of Chloroform-water often gives relief. Counter-irritation is sometimes of value, and should be tried when pain is not readily relieved. It should be used over both front and back.

Hematemesis.—Absolute quiet; nothing to be taken by the mouth. Any remedy indicated should be given hypodermically when practical. Erigeron, Tr. China, Tr. Milfolium, Tr. 3 to 5 drops; or, Ergot, 20 to 30 minims, used hypodermically. Five to 10 drops of Oil-of-Erigeron is a powerful hemostatic, that may be given by the mouth. When hemorrhage is copious inject one to two pints of normal salt-solution (teaspoon of salt to quart of water) into a vein. After hemorrhage feed by nutrient enemata.

GASTRIC CARCINOMA.

(CANCER OF THE STOMACH.)

Symptoms.—Indigestion (similar to chronic gastritis); vomiting; pain; cachexia; hematemesis; tumor; no relish for meat; craves sour; pressure; fullness; eructations; anorexia; pyrosis; singultus; constipation. *Vomiting*:—(75% of cases) occurs irregularly, without regard to meals; large quantities evacuated at once; odor offensive; in some cases certain postures induce vomiting.

Pain.—(80% of cases) usually constant; increased by eating; it may extend to the sides and to the scapulae.

Cachexia.—Anemia and emaciation increase to cachexia; skin grey-white; wrinkled; frequently pruritus.

Blood.—Fewer red cells; hemoglobin less than 60% of normal.

Hematemesis.—Occurs in 50% of cases. Usually repeated, and small in quantity. Coffee-ground in appearance, and sometimes requires careful examination to detect it, as it rapidly decomposes. Melena.

Tumor.—Can be palpated in 50% of cases; usually movable and its relations changed by inflating the stomach. Pylorus, 60%; lesser curvature, 12%; cardia, 8%; other parts, 20%.

Diagnosis.—Tumor; fragments of cancerous tissue in wash-water; Oppler-Boas bacillus; excess of lactic acid; absence of HCl and digestive ferments; hematemesis; loss of motility; dilatation; general symptoms.

Prognosis.—When the diagnosis can be made easily, operate. By diet and care the patient may live 18 months to two years.

TREATMENT.

Arsenicum.^{3x}—Should be given in cases of gastric cancer. It will relieve many of the dyspeptic symptoms, as well as have a favorable influence upon the progress of the disease. Indications the same as for chronic gastritis.

Conium.^{1x}—Will often give relief when the pain extends upward through the chest wall.

Consult.—Argentum nit.^{3x}; Hydrastis^{2x}; Nux vom.^{3x}; Kali bich.^{3x}

GENERAL MEASURES.

Diet.—Feed every three hours during the day, Food should be largely liquid, or semi-solid; milk; bouillon; white-bread toast; meat; peptone; scraped beef; stewed apples; prunes.

Dilute HCl.—Given in the early stages; 15 to 20 drops in a glass of water, to be taken in four doses 15 minutes apart, beginning 15 minutes after meals.

Lavage.—For relief of dyspeptic symptoms, nausea and pain. The stomach should be washed the last thing at night, or first in the morning. Bismuth subnit., Menthol, Boric acid, Sodium bicarb., or Argentum nit. may be used in the wash-water to prevent fermentation and decomposition in the stomach.

Constipation.—Colon-flushing, or injections of sweet oil.

DIFFERENTIAL DIAGNOSIS.

Gastric Ulcer.	Gastric Cancer.	Gastralgia.
<i>Tongue</i> dry and red, white strip down the center; or, smooth and moist, lightly coated.	<i>Tongue</i> pale and fur-red.	<i>Tongue</i> , variable; often pale, with indented edges.
<i>Belching</i> rare; water-brash.	<i>Belching</i> , frequent, fetid.	<i>Belching</i> of odorless gas, frequent.
<i>Taste</i> unchanged.	<i>Taste</i> , pasty, insipid.	<i>Taste</i> , no change.
<i>Appetite</i> good between the attacks; thirst.	<i>Appetite</i> diminished, or absent; repugnance to meat, early.	<i>Appetite</i> irregular, capricious.
<i>Sensation</i> , burning; circumscribed, boring pains frequently radiating through to the back.	<i>Sensation</i> of oppression, drawing feelings of variable character; later, pain in the shoulder.	<i>Sensations</i> , variable; at times hot; at others cold.
<i>Pain</i> rare when the stomach is empty, chiefly felt after eating; increased by pressure.	<i>Pain</i> continuous; dull, paroxysmal; decreased by pressure.	<i>Pain</i> irregular; not dependent upon eating; frequently relieved by eating or pressure.
<i>Digestion</i> of starchy food frequently retarded; digestion of meat normal, or even too rapid; hyperacidity the rule.	<i>Digestion</i> insufficient; deficiency of free HCl; products of decomposition.	<i>Digestion.</i> —Chemistry not essentially altered.
<i>Vomiting</i> usually after eating; frequently the first symptom.	<i>Vomiting</i> frequent, violent, often periodic; at times from empty stomach; consists of slightly digested food and cancer-cells.	<i>Vomiting</i> variable.
<i>Hematemesis.</i> —Clear blood, or coffee-ground masses, frequently repeated within a short time; at times very profuse; bloody stools.	<i>Hematemesis.</i> —Blood often decomposed; quantity usually small; recurs frequently.	<i>Hematemesis</i> does not occur.
<i>Prevalence.</i> —In the middle-aged; rare in children.	<i>Prevalence.</i> —Most common between forty and sixty.	<i>Prevalence.</i> —Occurs at all ages; women oftener than men; frequently in combination with hysterical symptoms.

DILATATION OF THE STOMACH.

(GASTRECTASIA.)

Etiology.—(a) Due to muscular insufficiency, the stomach not being able to empty itself, although no obstruction exists. (b) Due to pyloric stenosis. (For (a) see *Atony of the Stomach*, page 134.) (b.) Result of stenosis of the pylorus, due to cancer; cicatrices; ulcer; hypertrophy of pyloric sphincter; peritoneal adhesions; tumors in the liver or pancreas.

Symptoms.—Tongue coated; breath offensive; appetite normal (at first becomes diminished or lost); a few cases are tormented with hunger; pyrosis usually present; pain not marked; usually a sensation of pressure and fullness; vomiting in the later stage, consisting of several quarts of food and mucus (very characteristic); constipation.

Diagnosis.—The stomach never entirely empties itself; as determined by use of the stomach-tube in the morning. Inflation by means of the stomach-tube gives increased area of resonance. Inflation by administering soda bicarb. and tartaric acid is superseded by the stomach-tube method, which is preferable.

Prognosis.—Cure is impossible, except by operation.

Treatment, of dilatation due to stenosis is entirely dietetic and mechanical.

Diet.—The patient must eat frequently and little at a time. Liquids must not exceed three pints in 24 hours. Chicken, pigeon, birds, fish and sweetbreads, with a limited allowance of carbohydrates.

General.—Electricity and lavage.

CARDIOSPASM.

(CRAMP OF THE CARDIA.)

Varieties.—Acute; Chronic.

Etiology.—Gases; swallowed air; pure neurosis.

Symptoms.—Pressure; dyspepsia; palpitation of the heart; prostration; headache; rapid, soft pulse. The stomach-tube meets with obstruction, and when it passes the cardia air or gas escapes. Food may collect in the esophagus, and be thrown up without being passed into the stomach.

Prognosis.—May be relieved, but sometimes persists for years.

Treatment.—*Medicinal:*—Ignatia^{3x}; Rhus tox.^{3x}; Pulsatilla^{2x}; Arsenicum^{3x}; Nux vom.^{1x}; Hyoscyamus^{3x}; Sili-
cea.^{6x} *General:*—Hygiene very important; use galvanic electricity.

PYLOROSPASM.

(CRAMP OF THE PYLORUS.)

Cause.—Irritation, chemical and mechanical. *Diagnosis* extremely difficult; requires the use of intra-gastric bag; test-meal, with salol or Potassium-iodide; testing the urine for saliva and for iodine. Give Potassium-iodide in wafers or capsules.

Therapeutics.—Much the same as for Cardiospasm. Galvanic electricity.

GASTRIC HYPERPERISTALSIS.

(PERISTALTIC UNREST.)

Causes.—(a) Hyperesthesia of the sensory nerve of the stomach; (b) Irritation due to HCl, organic acids, and gases; (c) Irritability of the motor nerves, a functional neurosis.

Symptoms.—The contractions may be seen through the lax abdominal wall; gurgling noises; foul vomiting; impaired nutrition (in marked cases).

Prognosis.—Usually improvement; the neurosis disappears.

Therapeutics.—Phosphorus^{3x}; Ignatia^{3x}; Arsenicum^{3x}; Hyoscyamus.^{3x}

General.—Galvanic electricity, perfect hygiene.

VOMITING.

(NERVOUS, REFLEX, OR HABITUAL VOMITING.)

Varieties.—(1) Cerebral, or spinal (central vomiting); (2) Hysterical; (3) Reflex.

Etiology.—(1) *Cerebral*.—Causes—encephalitis; meningitis; cerebral abscess and tumors; also acute anemia; hyperemia after concussion of the brain; occurs with emotional affections; after opium; chloroform; ether; nicotine; uremia; exophthalmic goitre, and tabes dorsalis.

(2) *Hysterical*.—Accompanies hysteria; neurasthenia (rarely).

(3) *Reflex*.—Pregnancy; diseases of any organ of the body may cause reflex vomiting.

Treatment.—In each variety, according to the cause.

INSUFFICIENCY OF CARDIA.

Symptoms.—Regurgitation of food after meals, due to incontinence of the cordia (a rare neurosis).

RUMINATION

(MERYCISM.)

Cause.—An acquired habit. At first it is voluntary, but later becomes involuntary by habit.

Treatment.—Associate the individual with some one to aid in breaking the habit. Mental effect is very valuable.

PYLORIC INSUFFICIENCY.

Symptoms.—Diarrhea, due to large particles of food; hot or cold drinks cause diarrhea; charged drinks cause tympanites of the intestines.

Treatment.—Strychnia; Phosphorus.

Diet.—Non-irritating, easily-digested food.

ATONY OF THE STOMACH.

(MYASTHENIA.)

Etiology.—Occurs as a primary neurosis, due to persistent over-loading of the stomach, may be due to psychic influences (anger; fright; grief); may occur as a

flex neurosis, caused by diseases in other organs (liver; kidneys; intestines; sexual organs); a secondary neurosis in hysteria and neurasthenia,

Diagnosis.—Physical signs same as dilated stomach, but the jejunum stomach is empty when atonic, while it contains particles of food when dilated.

Prognosis.—In pronounced cases recovery is rare.

Treatment.—Strychnia phos.^{3x}; Ignatia^{3x}; Belladonna^{3x}; Podophyllin.^{3x}

General.—Dilute HCl where its secretion is diminished. *Electricity*.—Sinusoidal and galvanic currents.

Diet.—Small meals, but often. Restrict liquids. No narcotics or alcohol.

GASTRIC HYPERESTHESIA.

Cause.—Chlorosis; anemia; irritating foods; spices; acids; salt; very hot or cold food. Gastralgia may accompany or follow hyperesthesia.

Symptoms.—Pulsation in the stomach. Ingestion of food causes discomfort; fullness; nausea; perhaps vomiting; pain may increase and last during digestion.

Prognosis.—Favorable.

Diagnosis.—Differentiate from gastralgia, which occurs when the stomach is empty as well as full; does not last longer than a few hours.

Treatment.—Chin. ars.^{2x};—Argentum nit.^{3x};—Arsenicum^{3x}—Bismuth.^{2x}

Diet.—Easily digested, non-irritating food. Milk until soreness and pain have entirely disappeared. All acids, alcoholic liquors, tea, coffee, spices, should be interdicted.

GASTRALGIA.

Causes.—Gastric ulcer; carcinoma; gastritis; acids; alkalies; peritonitic adhesions with pancreas, the liver and spleen; tabes dorsalis; malaria; nicotine; uric acid and gout; displacement of the uterus; inflammation of ovaries; ovarian neoplasms; it may be idiopathic.

Symptoms.—Intense agonizing pain in the stomach; pressure often relieves; bowels constipated; urine suppressed; in hysterical cases, copious dilute urine.

TREATMENT.

Chin. ars.^{3x}—Burning distress with sharp, knife-like pains, spasmodic in character; pricking colic; liver swollen, painful.

Argentum nit.^{3x}—Nausea; flatulence; stomach painful; bursting sensation; pain in the epigastrium, extending around to the sides.

Bismuth.^{1x}—Gastralgia complicating chronic gastritis; the pains extend through the body to the spine.

Bryonia.^{2x}—Sharp pains, increased by deep respiration; jarring the body produces sharp pain; stomach sensitive to pressure.

Conium.^{2x}—Constrictive pain in the epigastrium, gradually extending to the left side; pain in the pit of the stomach, extending to the throat; spasmodic cough.

Spigelia.^{2x}—Soreness, with sticking pain in the epigastrium, worse on inspiration; pressure as from a hard lump in the stomach.

GENERAL MEASURES.

Counter-Irritation.—Over the epigastrium (chloroform and alcohol, equal parts, applied on flannel) is often efficient. Internally, Chloroform-water, 1 to 2 drams; or, Aromatic spirits of ammonia, 10 drops in 1 dram of water; or, Menthol, 1 to 3 grs. may give relief. Sodium bicarb., 10 grs., well diluted, will sometimes relieve; or, 3 drops of dilute Hydrocyanic acid.

BULIMIA.

Symptoms.—Impulsive sensation of hunger; pallor; weakness; roaring in the ears; boring pains, if hunger is not gratified.

Acoria.—Absence of feeling or satiation; abundant meals do not satisfy.

Treatment.—Arsenicum bromide.^{3x}—Arsenicum alb.^{3x}—Phosphorus.^{3x}—Belladonna.^{3x}—Opium.^{3x}

NERVOUS ANOREXIA.

Symptoms.—On account of loss of appetite and distress the patient cannot take food; anemia; slow, feeble pulse; cold hands and feet; insomnia.

Treatment.—Strychnia phos.^{3x}—Ferrum.^{3x}—Strychnia ars.^{3x}—China.^{2x}—Rheum.^{1x}—Gentiana.^{1x}

HYPERCHLORHYDRIA.

(HYPERACIDITY.)

Etiology.—Climate and occupation have marked influence.

Symptoms.—Burning, boring pains in the stomach, radiating forward or to the back; worse during digestion; pains appear later after taking albuminous than after starchy food; alkalies relieve the pain; albuminous foods digest rapidly; starchy foods do not digest; the stomach empties rapidly; occasionally cramp of the pylorus retains the stomach contents.

Prognosis.—Favorable if of recent origin; often very stubborn to treat.

Treatment.—Therapeutic indications are very much the same as for chronic gastritis.

Alkalies.—Magnesia, Sodium bicarb., or alkaline mineral waters, viz., Saratoga, Vichy or Apollinaris may be used to overcome the immediate symptoms of increased HCl.

Diet.—Beef; mutton; raw ham; cooked ham; pork; Swiss cheese; Roquefort; rye-bread; milk; cocoa; eggs.

GASTROXIE.

Etiology.—Mental exertion; emotional excitement; nicotine; dietetic errors.

Symptoms.—Periodic atypical flow of gastric juice
Attacks occur acutely, generally on an empty stomach

Frontal headache, with pressure and pain in the stomach; nausea; vomiting large quantities of gastric juice with HCl in excess; mucus and bile. Water increases vomiting, but relieves the pain in the stomach; attack occurs generally at night.

Prognosis.—One attack predisposes to another.

TREATMENT.

Antimonium crud.^{3x}—Fullness, as if the stomach was over-loaded; nausea; vomiting; stomach distended.

Asafetida.^{2x}—Lump in the throat; spasmodic contraction of the esophagus; distention of the stomach; pulsation in the pit of the stomach.

Chamomilla.^{2x}—Bitter, sour taste in the mouth; vomiting of bile, sour, slimy, or green mucus.

China.^{2x}—Nervous; anemic; bloating of the abdomen.

Consult.—Lycopodium^{6x}; Phosphorus^{3x}; Pulsatilla.^{3x}

GENERAL MEASURES.

Diet.—Avoid stimulants and narcotics, including tea and coffee. Plain digestible food, without seasonings.

Hygiene.—Physical culture, out-door employment or exercise. No mental exertion.

During Attack.—Overcome the excess of acid by the use of Magnesia; Soda bicarb.; Limewater. Use counter-irritation over the epigastrium. *Lavage*, with Bismuth-subnitrate in the water, as in chronic gastritis.

HYPOCHYLIA.

(SUB-ADICITY.)

Etiology.—Secondary to neurasthenia, hysteria or tabes.

Symptoms.—Symptoms of fermentation in the stomach; the condition and symptoms are similar to *achylia gastrica*.

Treatment.—Remedies, same as under chronic gastritis.

General.—HCl should be given with food and after meals. Large doses of Strychnia may increase the flow of gastric juice. Use the faradic current.

ACHYLIA GASTRICA.

(PHTHISIS VENTRICULI.)

Causes.—May be congenital. Primary secretory debility, or atrophy of gastric mucosa.

Symptoms.—The condition may be latent for years without symptoms; it has been demonstrated by use of the stomach-tube in cases in which the patient had no dyspeptic symptoms. Dyspeptic symptoms usually lead to the use of the tube, and diagnosis.

Treatment.—HCl usually is prescribed after meals to prevent fermentation and aid digestion. Dose:—20 drops of dilute HCl every half-hour, until 60 drops are taken.

NERVOUS DYSPEPSIA.

(NEURASTHENIA GASTRICA.)

Etiology.—Mental overwork; excitement; sexual excesses; alcohol; tobacco.

Symptoms.—Variable; distress only on taking food; quality or quantity of food has little influence on the symptoms; indigestible food frequently causes no disturbance, while often the most digestible food causes distress. *Nervous Symptoms.*—Headache; giddiness; flashes before the eyes; ringing in the ears; rapid pulse; palpitation of the heart.

Prognosis.—Guarded.

TREATMENT.

Agaricus.^{3x}—Unnatural hunger; eructations; pains; gnawings, cramps, fullness; irritable spine; cardialgia, lasting about three hours after meals.

China.^{2x}—Slow digestion; constant satiety, with coldness in the stomach; craves spices, acids and stimulants. Flatulence, but belching does not relieve.

Ignatia.^{3x}—Hunger in the evening prevents sleep; sensation of emptiness; spasmodic pains in the stomach.

Nux vom.^{2x}—Unnatural hunger; aversion to coffee, tobacco; rancid heartburn after acid or fat food; pressure in the stomach one hour after meals. Indigestion due to business anxiety or sedentary habits.

Phosphorus.^{3x}—Pressure in the stomach after eating, with vomiting of food; ice-cold drinks relieve temporarily, but are rejected as soon as warmed in stomach.

GENERAL MEASURES.

Rest.—Secure rest; after improvement is marked, change of environment, with psychic and physical quiet.

Gymnastics.—Properly directed gymnastics, especially out-door exercise.

Massage.—Under direction of a physician.

Hydrotherapy.—Cold sponge-baths on rising in the morning.

Irrigation and Lavage.—Use carbonated waters, or lemon-juice and sodium bicarb.

Electricity.—Galvanic and faradic electricity should be applied. Galvanic over the stomach and spine; faradic over the muscles and limbs.

Diet.—Should be variable, well-cooked, easily digested and nourishing.

SECTION XI. DISEASES OF THE KIDNEYS.

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RENAL HYPEREMIA.

(CONGESTION OF THE KIDNEYS.)

Etiology.—Acute congestion caused by exposure to damp cold, especially exposure of the feet; fright; toxic products of indigestion; infectious fevers. Chronic or passive congestion caused by valvular insufficiency of the heart and pressure of tumors or gravid uterus on the renal veins.

Symptoms.—Indefinite feeling of illness, with great anxiety; dull pain in the loins; frequent, ineffectual urging to urinate; urine scanty, albuminous, turbid, and contains few hyalo-epithelial or blood-casts. General symptoms may be slight, or there may be fever, nausea, prostration and delirium, the "typhoid form" of renal congestion.

Diagnosis.—By urinalysis, differentiating from lumbago. Distinguish the acute form from acute Bright's disease by shorter course and absence of dropsy. Distinguish "typhoid form" from typhoid fever and meningitis. Distinguish passive congestion due to the heart-disease from primary nephritis by examination of the heart and disappearance of albumin under *Digitalis* or other heart-stimulant.

TREATMENT.

Aconite. Tr.—Fever; restlessness; thirst; anxiety; vertigo on sitting up; effects of dry cold or fright. Also, 30th.

Berberis. 3x—Lancinating, throbbing pain in the kidneys, worse sitting or lying and rising from a stooping posture; better standing; backache, worse on waking; pains extend to the bladder, with urging to urinate; urine scanty and turbid; cramping pain in the bladder, whether full or empty.

Bryonia. 3x—Typhoid form; sleepy; stupid; quiet; delirium on waking; dark red face; suppression of urine; vertigo and faintness on sitting up.

Cantharis. 1x—Burning pain in the kidneys; constant urging to urinate, only a few drops passing, with burning pain; scanty, bloody urine.

Digitalis.—In passive congestion, especially when dependent on failing heart; edema of the legs and dependent parts; dyspnea, worse while walking and at night, relieved by sitting up; blue lips. *Dose:*—The infusion is best, in dram or half-ounce doses, three times daily, with Nitroglycerin.

Hydriodic acid.—A direct stimulant of renal excretion, in half-dram doses of the syrup.

Opium. 3x—Typhoid form; drowsiness; stupor; snoring sleep, with half-closed eyes and expiratory moan; red,
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bloated face; twitching and jerking of the limbs, constipation; effects of fright.

Terebinth.^{1x}—Scanty, bloody urine; in infectious diseases and after exposure.

Veratrum viride.^{Tr.}—Fever, pulse full and rapid; congestion and throbbing of the head. Drop doses.

Consult.—Remedies for Bright's disease, Uremia, and Anuria.

GENERAL MEASURES.

Patient.—Rest in bed; warmth; hot-water bag to the loins; hot pack if delirium or stupor appears.

Diet.—For acute cases, rigid milk or gruel diet. Chronic cases must be well fed.

Convalescence.—Avoid exposure, fatigue and spiced food as long as the urine contains casts or albumin.

ACUTE NEPHRITIS.

(ACUTE BRIGHT'S DISEASE.)

Etiology.—Exposure to damp cold; infectious fevers (measles, scarlet fever, diphtheria, typhoid); pregnancy.

Pathology.—Kidneys swollen. Tubules distended with degenerating epithelia and inflammatory exudate. Interstitial tissue distended with exudate and round cells.

Symptoms.—The first sign may be puffiness of the face or ankles; it may begin with chill, followed by fever; dry skin; headache; nausea and vomiting; then dropsy. Fever may be absent. There may or may not be pain in the loins, or frequent urging to urinate; urine scanty; dark or bloody; brown or bloody sediment; sp. gr. high, 1028 to 1036; much albumin; many casts (hyaline, epithelial, blood and granular); drowsiness; twitching of muscles and wandering mind indicate approaching uremia.

Diagnosis.—Differentiate from the albuminuria of fevers, which has scanty albumin and casts and no dropsy.

Prognosis.—In the absence of uremia, immediate prognosis is good. Many cases recover; others progress to chronic nephritis. Marked uremia and scanty urine are unfavorable signs. Clear mind and profuse flow of urine are favorable. Death occurs from uremia or edema of the lungs.

GENERAL MEASURES.

Patient.—Rest in bed; keep warm and dry.

Baths.—If dropsy persists, use hot pack, or hot bath (105° F.) followed by pack, but with caution, as uremia sometimes follows free sweating.

Diet.—Avoid meat and meat broths; give a rigid milk diet; kumyss; gruel; arrowroot; rice; vegetable soup (avoiding onions); grape-juice.

Purge.—In the beginning, a saline purge is useful (avoid sodium-phosphate).

Dropsy.—For obstinate dropsy, acupuncture; elaterium; croton oil.

Medicinal.—See page 141; also Uremia and Anuria.

CHRONIC DIFFUSE NEPHRITIS.

(CHRONIC BRIGHT'S DISEASE; CHRONIC CROUPOUS NEPHRITIS.)

Etiology.—Exposure to damp cold; physical violence; syphilis; malaria; it often develops insidiously, from unknown cause.

Symptoms.—Often obscure. In all cases of chronic ill-health, the urine should be examined. First symptom may be uremic coma, convulsions, or puffiness of the face or ankles. Headache; visual disturbances (albuminuric retinitis); drowsiness; nausea; vomiting; intestinal indigestion (with much flatulence); dyspnea; increasing dropsy. *Urine*.—Albumin (abundant); hyaline, epithelial, granular and fatty casts (may be scanty except in exacerbations); *quantity*, may be normal (40 to 50 ounces) for a long period, but there is a decrease of solids, especially of urea and phosphates. As the fibrous tissue in the kidneys increases, the heart hypertrophies and the quantity of urine increase (70 or 80 ounces). After some months or years, the heart weakens, dropsy and dyspnea increase, the urine decreases (20 or even 10 ounces).

Diagnosis.—The urinary signs are conclusive.

Prognosis.—Generally unfavorable. If treatment is begun early cures may be made. The disease may apparently remain stationary for from five to twenty years. Majority of patients die within three years after discovery of the disease. *Favorable*.—Nearly normal solids (especially urea and phosphates); normal heart-action. *Unfavorable*.—Marked decrease in urinary solids; rapid pulse and increasing dropsy. Death from uremia, or edema of the lungs. Pneumonia, pleurisy and pericarditis are frequent, and almost always fatal.

GENERAL MEASURES.

Uremia.—Uremic accidents arise from over-eating, constipation, exposure to damp cold, fright, or other strong emotion, and mental or physical fatigue. These must be avoided.

Constipation.—Prevent by daily saline, preferably sodium-sulphate (never sodium-phosphate).

Diet.—Should be varied, both meat and vegetable. At times of exacerbation of symptoms, exclusive milk-diet; milk-and-seltzer; or gruel. Forbid onions, tomatoes, and rhubarb (because of oxaluria); also asparagus, strawberries, mustard, and other spices (they irritate the kidneys). Forbid nuts and cheese (except cream cheese) as aggravating the albuminuria.

Baths.—Warm, full baths (95° F.) for 30 minutes daily. Daily dry frictions of the skin. Avoid cold water, especially sea-bathing. Daily inhalations of oxygen reduce the albumin. When dropsy is severe, incision, or, better, acupuncture.

Caution.—Nephritic patients are easily poisoned, because of the damaged excretory power, especially by opium, morphine, mercury, salicylic acid and sodium-phosphate. Consult also *Uremia* and *Anuria*.

CHRONIC INTERSTITIAL NEPHRITIS.

(CIRRHOSIS OF THE KIDNEY; GOUTY KIDNEY.)

Etiology.—Gout; lead-poisoning; alcohol; heredity.

Symptoms.—Onset often latent; age 35–45; first signs may be—Headache; indigestion; lassitude; dyspnea; epistaxis; cerebral or other hemorrhage. Heart hypertrophied; pulse, high tension; urine increased (70 to 100 oz.); sp. gr., 1004 to 1014; albumin and casts scanty until late in the disease, when they are abundant; urea and phosphates much decreased. Dropsy is infrequent, except at the last, with failing heart.

Diagnosis.—Differentiate from simple polyuria by the decrease in solids; also the presence of albumin and casts. From hysteria by the general symptoms.

Prognosis.—Bad. The disease may be prolonged or arrested, but cure is improbable. Death from uremia, cerebral hemorrhage, or edema of the lungs. Sudden death is common.

TREATMENT.

(THERAPEUTICS IN ACUTE AND CHRONIC NEPHRITIS.)

Aconite. Tr.—Exposure to cold; chill; cold skin; or hot, dry surface; quick pulse; restlessness; thirst and fear of death; urine scanty, or suppressed.

Apis. Tr.—Drowsy and thirstless; urine scanty and albuminous; post-scarlatinal dropsy, and edema of pregnancy, rather than acute inflammatory state. *Dose*:—Tr. or 3x.

Arsenic alb. 3x—Persistent nausea and vomiting; thirst, drinking little and often; restlessness, anxiety and fear of death; dyspnea, worse after midnight and on lying down; relieved by sitting up; emaciation, or, general dropsy; pulmonary edema or pericarditis. Useful in both acute and chronic forms.

Aurum mur. 2x—Persistent use in the early stage of chronic interstitial nephritis is recommended.

Berberis. Tr.—Smarting and burning in the kidneys; passage of bloody urine, with heavy mucous sediment, followed by great exhaustion.

Cannabis sat. Tr.—Soreness in the kidneys; scanty, turbid urine, with frequent urging; acute nephritis.

Cantharis. Tr.—Acute nephritis; burning pain in the loins; severe vomiting; mental stupor, delirium or mania; constant desire to urinate; passing only a few drops of turbid, bloody urine; after scarlatina or diphtheria, with suppression of urine. *Dose*:—Tr. or 3x.

Cuprum ars. 3x—Uremic convulsions.

Digitalis.—In subacute or chronic nephritis, when the pulse is weak or irregular, and dropsy or dyspnea appear. *Dose*:—Dram to four-dram doses of *Infusion* are best, with $\frac{1}{65}$ drop doses of Nitroglycerin.

Ferrum met. 3x—Marked anemia; pale; bloated; chilly; vomiting of food; congestion of the head, with epistaxia. Also, *Ferrum phos.* 3x. (Phosphate-of-iron is the basis of several popular "Bright's-Disease Cures.")

Glonoin.—In chronic nephritis with high-tension pulse; relieves headaches; dyspnea; edema. *Dose:* $\frac{1}{100}$ drop.

Helleborus nig.—Stupor; grinding teeth; talking in sleep; rolling of the head. Post-scarlatinal dropsy. *Dose:* Tr. to 6x.

Hydriodic acid.—In chronic nephritis, reduces albumin and has made cures. *Dose:*—Of syrup, 1 dram.

Kali chlor.^{3x}—Pallor; dyspnea; scanty, albuminous urine; subacute nephritis.

Kali iod.—In syphilitic cases, 5 to 15 grains daily. Its continued use in small doses is helpful in the chronic interstitial form.

Lycopodium.^{3c}—Pain in the back, relieved by urination; earthy pallor; vomiting of food; flatulence and constipation; frequent micturition at night; uric-acid sediment; dyspnea; debility.

Mercurius corr.^{3x}—Earthy pallor; dyspnea; sore gums and fetid breath; aggravation during perspiration, and at night; urine albuminous, with many casts; albuminuria of pregnancy, diphtheria and syphilis. Acute aggravation of chronic interstitial nephritis.

Nux vomica.—Morose, irritable temper; vertigo; pressure in the stomach after eating; constipation; colicky pains; effects of coffee, tobacco and liquors. *Dose:*—Tr. to 30.

Phosphorus.—Great nervous debility, with trembling; dim sight; vomiting of food and drink; albuminous and bloody urine, especially with fatty casts. *Dose:*—3x to 30.

Plumbum carb.^{6x}—Produces chronic interstitial nephritis. Albuminuria with marked decrease in urea, urates and phosphates; cachexia; melancholy; amaurosis; constipation. Or, *Plumbum iod.*

Rhus tox.—Subacute stage; effects of damp cold, with much muscular aching; dropsy slight. *Dose:*—Tr. to 6x.

Sambucus.^{Tr.}—Face dark blue, with perspiration of head and neck; suffocative attack after midnight, waking from sleep; relief sitting up; dropsical swellings.

Sanguinaria.^{6x}—Uremic headaches; flatulent colic; copious nocturnal urination; faintness and weakness.

Terebinth.^{1x}—Congestion of the kidneys, with hematuria; casts scanty or absent; albumin in decided amount; effects of exposure to cold.

Diuretics.—Diuretics are harmful in active inflammation of the kidneys. They are not curative, but, in persistent dropsy or uremia, they are useful palliatives, and prolong life. The dose is best given three times daily, after food; in urgent cases, every hour for several doses. The most serviceable are:—*Acetate of potash*, 10 to 30 grs. *Apocynum* infusion, 20 to 60 drops. *Caffein citrate*, 2 to 5 grs. *Castanea vesca*, Tr. 5 to 20 drops; *Digitalis infusion*, half-dram to 4-dram; tincture, 5 to 20 drops; *Digitalin*, $\frac{1}{100}$ to $\frac{1}{50}$ gr. *Diuretin*, 5 grs. q. 2 h., 100 grs. daily. *Sparteïn sulphate*, $\frac{1}{4}$ to 2 grs. *Squilla*, 1 gr. q. 2 h.; tincture, 10 drops. *Strophanthus*, Tr. 5 to 20 drops. *Spirit-of-nitrous-ether*, 1 dram. *Scoparius*, decoction, half-ounce; *fluid-extract*, 30 drops.

GENERAL MEASURES.

Climate.—Dry, warm climate; or, in winter months, keep the patient indoors. Avoid tiring by exercise. Prolonged rest in bed is valuable.

Diet.—Vegetables and milk should constitute the principal food. Papoid, pepsin, and other digestive ferments are helpful. Abundant drinking of pure water. Avoid constipation. Forbid sea-bathing, from risk of uremia.

WAXY KIDNEY.

(AMYLOID DEGENERATION; LARDACEOUS DEGENERATION.)

Etiology.—Syphilis; tuberculosis; chronic inflammation in bone, or prolonged suppuration.

Symptoms.—Those of chronic diffuse nephritis, with presence of waxy casts in the urine. Diagnosis may be impossible during life.

Prognosis.—Grave. Cure improbable.

Treatment.—Radical treatment of bone diseases and suppuration may prevent development of the amyloid change. When established, its treatment is that of chronic diffuse nephritis. Underlying syphilitic taint requires Iodide-of-potash in material doses. Gold, Arsenic and Hydriodic acid antagonize the degenerative tendency.

UREMIA.

Nature.—An intoxication caused by the retention in the blood of the urinary poisons. Most frequent in Bright's disease, also occurs in obstruction of the ureters and in suppurative nephritis.

Symptoms.—Acute uremia appears as a sudden attack of convulsions; coma; dyspnea; vomiting; or insanity. Chronic uremia presents headaches; visual disturbance, sleepiness; subnormal temperature; nausea; flatulent indigestion; dyspnea; peculiar earthy pallor; fetor of the breath and skin; cramps and uneasy sleep.

Diagnosis.—The urine: albumin and casts; great decrease in urinary solids, especially urea and phosphates. Differentiate from epilepsy, apoplexy, meningitis, alcoholism, and opium-poisoning, by urinary examination.

Prognosis.—In acute nephritis, prognosis fair; in chronic nephritis, uremia is a grave sign; the patient may die in the first seizure, but more frequently survives several attacks. Sometimes remarkable recoveries are seen

TREATMENT.

Elimination.—Acute uremia is an emergency case of poisoning, and requires prompt elimination and relief of convulsive symptoms. Purge with—*Croton oil*, 1 to 2 drops in pill; *Elaterium*, two grs. *Sodium-sulphate*, ½ oz. (hot concentrated solution). Irrigate the colon. Hot fomentos to the loins. Nitro-glycerin, 100, drop dose every half hour.

Convulsions.—For the convulsions, chloroform inhalations. If the pulse is strong and rapid, *Veratrum virid*

(Norwood's tincture) hypodermically in five-drop doses; it reduces the pulse and relaxes the tension of the body. (In overdoses, *Veratrum* causes coldness, nausea, faintness, and collapse. Revive with hypodermics of brandy and nitroglycerin.) Other remedies for the convulsions are:—*Arsenite-of-copper*,^{3x}; *Chloral hydrate*, 15 to 30 grs. by mouth; one dram, by rectum.

Coma.—In acute coma, purgatives, diuretics, large enemata. *Veratrum viride*; inhalations of oxygen; Carbolic acid^{3x}; Opium^{3 to 30}; *Bryonia*.^{3 to 30}.

Heart.—In the chronic or "confirmed uremia" of chronic nephritis, the gross lesion is in the kidneys, but the danger is with the heart. When the heart flags, dropsy and pulmonary edema appear, and the urine becomes scanty, prepare for uremia. Place the patient on strict milk diet for two weeks; especially avoid fish and alcoholics. Rest, preferably in bed. Protect from damp and cold. Purge and use diuretics. Full baths at 95° to 100° F. Avoid *heavy* sweating, as it may precipitate a uremic attack. If the symptoms improve, gradually return to full diet and activity.

Vomiting.—In uremic vomiting, iced champagne. Half-drop doses Iodine. Tr. Drop doses of a 1 to 10 watery solution *Hypochlorite-of-lime*. *Kreasote*.^{3x}

Headache.—In uremic headaches, *Nitroglycerin*, $\frac{1}{100}$ grain; *Hypochlorite-of-lime*, solution, five drops, four times daily; *Arnica* 3x; *Hypericum*. Tr.

PYELONEPHRITIS AND PYELITIS.

(SURGICAL KIDNEY.)

Etiology.—*Acute form*:—Renal calculus; gonorrhoea; infectious fevers; traumatism; damp cold; invasion of *colon bacilli*. *Chronic form*:—Acute form persisting; tuberculosis; most common cause, retention of urine from enlarged prostate or chronic cystitis, with secondary infection of the kidneys.

Symptoms.—Dull renal pain, one or both sides; intermittent discharge of muco-pus in the urine. Passage of muco-pus through the ureter may simulate renal colic. Fever slight, intermittent in character, with rigors and sweating. Urine albuminous, usually of low sp. gr., 1010 to 1014. Casts infrequent.

Diagnosis.—From cystitis, by presence of renal pain, greater quantity of albumin, and intermittent character of the discharge of muco-pus.

Prognosis.—Acute form: favorable, if cause can be removed. In chronic form: unfavorable for absolute recovery; relapses are common, but life may be prolonged for many years.

Prophylaxis.—Scrupulous cleanliness of instruments used in the urethra and bladder.

GENERAL MEASURES.

Acute Form.—Rest in bed. Skim-milk diet. *Veratrum vir.* Tr.—*Hepar*. 2x—*Rhus tox.* Tr.—*Pulsatilla*. 3x—If pain is severe, suppositories containing $\frac{1}{2}$ grain *Ext. Opii*, and

two grains *Ext. Hyoscyami*, are necessary. Abscess demands careful aseptic surgery.

Chronic form.—Keep the patient warm and dry. Abundant drinking of pure water. Avoid jolting or jarring the body, as in carriage-riding. In general, treatment is the same as in chronic nephritis. *Boric acid*, 5 to 10 grains; *Benzoic acid*, or *Sodium-benzoate*, 3 grains; *Terebinth*, $\frac{1}{2}$ drop; *Haarlem oil*, 5 drops; *Sandal oil*, 3 drops; *Saccharin*, 3 grains; *Buchu Tr.*; *Uva ursi Tr.*; *Copaiba*^{3x}; *Chimaphila Tr.*, or other indicated remedy, sometimes relieve symptoms. Surgical measures, incision and drainage, removal of calculi or extirpation of tuberculous kidney have an element of risk, but are sometimes very successful in restoring health.

PERINEPHRITIC ABSCESS.

(PARANEPHRITIS.)

Etiology.—Blows or falls affecting the loins, or invasion from suppurating appendix, vertebral caries, or pyelitis.

Symptoms.—Renal pain; tenderness; tumor; thigh flexed on the abdomen. When suppuration occurs, chill, fever and sweat.

Diagnosis.—From tumor and calculus, by history and constitutional symptoms.

Prognosis.—Favorable.

Treatment.—*Surgical*:—Incision and drainage as soon as pus forms. In injuries affecting the loins, the possibility of abscess should be remembered. The use of *Belladonna*, *Mercurius*, *Arnica*, *Hepar*, or *Veratrum viride* may prevent suppuration.

MOVABLE KIDNEY.

(NEPHROPTOSIS; FLOATING KIDNEY.)

Etiology.—More frequent in women, and on the right side. Straining of childbirth is a common cause.

Symptoms.—Many nervous and "hysterical" symptoms; reflex gastro-intestinal pains and flatulency; generally worse during menstruation. Attacks of violent abdominal pain; nausea; vomiting; collapse; relieved by profuse flow of urine. The displaced kidney is discovered by palpation.

Diagnosis.—By palpation differentiate from biliar colic; renal colic; gastric crisis of tabes. From appendicitis and peritonitis, by absence of fever.

Prognosis.—Good, if kidney can be retained in place.

Treatment.—Important, as nephritis and calculi are apt to appear in movable kidneys. During acute attack of pain, rest in bed; replace the kidney; if necessary, use Opium suppositories or Morphine hypodermically. In women, rest in bed during menstruation may prevent an attack. For permanent relief, an abdominal bandage with *large* pad pressing gently upward and backward, holding kidney in place. Radical treatment consists in lumbar incision and fixing the kidney in place. If general enteroptosis exists, fixing the kidneys may fail to relieve the symptoms.

HYDRONEPHROSIS AND PYONEPHROSIS.

Hydronephrosis.—Distension of renal pelvis and kidney with urine dammed back by obstruction of the ureter. The obstruction may be calculus, pressure of abdominal tumor, or twist in the ureter of a movable kidney. There is a tumor in renal region. Characteristic symptom is *sudden disappearance of the tumor, with simultaneous discharge of urine from the bladder*. Permanent obstruction causes permanent dilatation of the kidney. Fluid aspirated from a recent case will contain urea and urinary salts. In old cases, urea is often absent.

Pyonephrosis.—Distension of renal pelvis with pus. Any of the causes of hydronephrosis acting on a kidney already affected with pyelitis cause pyonephrosis; or hydronephrosis may become infected.

Treatment.—In both cases, if the tumor is recent, massage, with the use of diuretics, may reduce it. Otherwise, the treatment is surgical and mechanical. Aspiration may suffice. In pyonephrosis, chill, fever or collapse require prompt evacuation of the pus.

RENAL TUBERCULOSIS.

Etiology.—Infection of the kidneys by tubercle bacilli.

Pathology.—Miliary renal tuberculosis is a part of general miliary tuberculosis. Diagnosis during life is impossible, and cure unknown. The common form is renal phthisis, in which a tubercular focus in the kidney or renal pelvis extends, causing caseation and excavation. It may destroy the whole kidney. Renal phthisis is usually secondary to prostatic, testicular, pulmonary or peritoneal tuberculosis, or bacilli may be present in the kidney at birth, remaining inactive for many years.

Symptoms.—Obscure; may be those of pyelitis: General debility; emaciation; hectic fever; or, only local symptoms—unilateral renal pain and frequent urination. Urine: at first clear; contains few bacilli; renal hemorrhages common; finally pus (from tubercular pyelitis); bacilli more numerous; the bladder becomes infected. The disease often ends in diffuse nephritis, with dropsy and uremia.

Diagnosis.—The presence of tubercle bacilli in the urinary sediment. Distinguish from renal and vesical calculus, cancer, and simple pyelitis. Early tuberculosis with no urinary sediment is often diagnosed "irritable bladder."

Prognosis.—Some cases recover. Early extirpation of the affected kidney promises best results. With marked constitutional symptoms, dropsy, or uremia, the case is hopeless.

Treatment.—Climatic treatment (as in pulmonary) has cured. Avoid alcoholic drinks; irritating foods. If the affection is limited to one kidney (determined by catheter-

zation of ureters) extirpation of the kidney is advisable. Avoid unnecessary instrumentation of the bladder.

Hemorrhage.—Rest in bed; Gallic acid, 10 grs. every 2 hours; Geranium mac. (fl. ext.), 5 drops; Thlaspi (Tr.), 10 drops. Treat as in Hematuria.

Purulent Urine.—Treat as in *Pyelitis*.

TUMORS OF THE KIDNEY.

Benign Tumors.—Fibroma; lipoma; angioma; adenoma; papilloma. Usually small and cause no symptoms.

Cysts.—Retention cysts (in chronic interstitial nephritis). Congenital cysts (due to same process in fetal life). Neither form causes symptoms. Hydatid cyst may attain the size of an infant's head (rare in this country).

Malignant Tumors.—Sarcoma and Carcinoma. Repeated attacks of pain in one kidney, with profuse hemorrhage and without apparent cause, always suggest malignant tumor. Varicocele may develop on the same side. The urine rarely gives a clue. If the growth is large, it may be detected by palpation. Finally cachexia develops.

Diagnosis.—Differentiation from renal calculus is difficult; in the beginning it is impossible, as cancer urine may have crystalline sediment. Distinguish from renal tuberculosis by absence of bacilli from the urine; from painful movable kidney by palpation.

Prognosis.—Fatal, but very slow.

Treatment.—See Hematuria for treatment of hemorrhage. Relieve pain with suppositories of Ext. Opii and Ext. Hyoscyami (better borne for a long period than morphine). Morphine hypodermically, if necessary. For intractable pain or hemorrhage, nephrectomy. Early nephrectomy may prolong life.

MALFORMATIONS.

Varieties.—Congenital absence of one kidney; horse-shoe kidney; lobulated kidney, and congenital floating kidney. Except floating kidney, they cause no symptoms.

ALBUMINURIA.

Significance.—In most instances it indicates inflammation or congestion of the kidneys. Albumin is found in the urine also in cystitis, prostatitis and acute urethritis; in anemia, scorbutus, some forms of dyspepsia, jaundice, and after severe muscular exercise. In women, the mixture in the urine of leucorrhœal discharge, and in men, with fluid from the prostate and seminal vesicles, causes a trace of albumin in the urine. Urine containing blood is always albuminous. Albuminuria of puberty, especially in girls, usually disappears spontaneously, but may be the commencement of chronic nephritis.

Treatment.—In all cases of albuminuria, however slight, the cause should be determined if possible, and

removed. All albuminurias which cannot be definitely attributed to extra-renal causes should be treated as of renal origin. It is safe to treat all renal albuminuria as probable renal congestion or nephritis.

HEMATURIA.

Etiology.—Most common causes:—Cancer; calculus tuberculosis. Also, acute nephritis; hematophilia; infectious fevers; scorbutus; violent traumatism; suppressed menstruation; poisoning by phosphorus, terebinth and cantharis; in tropical countries, the action of the fluke *Bilharzia hematobium*.

Diagnosis.—Blood is recognized by the naked eye; guaiacum test; and detecting red-corpuscles with the microscope.

GUIACUM TEST.—Shake equal parts of tincture of guaiacum and turpentine in a test-tube. Add a few drops of urine. A blue color develops if blood is present.

Location.—It is important to determine the source. **SIGNS:**—(a) *Renal*—blood intimately mixed with the urine; or, blood-casts; (b) *Below the Kidneys*—the blood settles quickly, leaving the urine clear; (c) *Ureter*—small cylindrical clots; (d) *Bladder*—large clots; (e) *Urethra*—oozing of blood, independently of urination. *Epithelial cells* aid in determining location.

TREATMENT.

Medicinal.—In general, no accurate indications for remedies can be obtained from the appearance of the urine; the choice must be based on the collateral symptoms, or be empirical. For hematuria of fevers, scorbutus, or hematophilia—Phosphorus 6x; Crotales 6x; Kali chlor. 6x. In nephritis, the remedy appropriate to the inflammation.

Empirical Remedies.—Geranium mac. (fl. ext.), drops. Thlaspi. (Tr.), 5 to 30 drops. Secale 3x;—or, fl. ext., 10 drops. Terebinth. 3x Hamamelis. 3x Gallic acid 10 grains. Sandal oil (the hematuria of calculus) drops. Ipecac. 6x Lycopos (Tr.), 5 drops. Millefolium (Tr.), 1 drop.

Operation.—Excessive or obstinate cases, surgical relief.

HEMOGLOBINURIA.

Symptoms.—The urine is brown or blackish-red. It is differentiated from hematuria by the absence of blood corpuscles, though the *guaiacum test* shows the presence of hemoglobin.

Etiology.—It appears in the malarial fever of the South; typhoid; yellow-fever; also in chlorate-of-potash poisoning; cold and damp (paroxysmal).

Prognosis.—Depends upon antecedent disease; in paroxysmal form, good; in malarial form, bad.

Treatment.—Rest in bed. Protect from cold and dampness. Avoid alcohol and irritating food (as in nephritis). *Kali. chlor.* and *Ferrum phos.* have relieved. *Quinine*, in the malarial form, is of doubtful value.

CHYLURIA.

(“MILKY” URINE.)

Etiology.—*Filaria sanguinis* in the blood (tropical disease).

Symptoms.—“Milky” urine, due to the presence of emulsified fat and albuminous matter. Rupture of lymphatics along the urinary tract may cause a non-parasitic form.

Prognosis.—Uncertain; non-parasitic form, bad.

Treatment.—No specific known; remove to cold climate (the parasitic form).

LIPURIA.

(FATTY URINE.)

Etiology.—Found in obesity; diabetes; phosphorus-poisoning; excessive ingestion of fats.

Symptoms.—Fat-drops (not emulsified) float on the surface of the urine.

Treatment.—According to the cause; avoid fat food.

ANURIA.

(SUPPRESSION OF URINE.)

Etiology.—In a mild form it occurs in all fevers; also in cholera; heart-disease; digestive diseases; renal congestion; acute or chronic diffuse nephritis. A form may be caused by obstruction in the ureters, as calculus; torsion; pressure of tumors. (For *Polyuria*, see *Diabetes Insipidus*.)

Symptoms.—Complete or partial suppression of urine. Distinguish from *retention* by the use of the catheter.

Treatment.—In the mechanical form, treat as for hydronephrosis, or calculus. In true anuria, treat as in renal congestion:—Warm baths; oxygen inhalations; subcutaneous saline injections; hot saline enemata. Remedies as in *Renal Congestion* and *Nephritis*.

NEPHROLITHIASIS.

(LITHURIA.)

Nature.—The deposition from the urine in the kidneys or renal pelvis of crystalline sediment. Principal forms are lithic and oxalic, deposited from acid urine, and phosphatic and ammoniacal from alkaline urine.

Symptoms.—Nephralgia. The formation and passage of sand may be painless, or may cause dull renal pain, and backache; there may be sharp exacerbations, with nausea, vomiting and ineffectual urging to urinate, resembling mild renal colic. The urine is slightly albuminous and contains crystals, hyaline casts and a few blood corpuscles. Such an attack is known as *nephralgia*, and differs from *renal colic* in the absence of real calculus and mildness of the symptoms. It is transient and leaves the kidneys uninjured.

Treatment.—As for renal calculus.

RENAL COLIC.

(STONE IN THE URETER.)

Symptoms.—Agonizing pain in the region of the affected kidney, radiating to the stomach; down the ureter into the testicle or thigh. Nausea; vomiting; constant, ineffectual urging to urinate and to stool. The diagnostic point is the *sudden* onset and *sudden* cessation of the pain.

Diagnosis.—Differentiate from *appendicitis* and *peritonitis* by absence of fever and blood and casts in the urine; from *biliary colic* by the same signs, and absence of jaundice. Both forms of colic, if prolonged, may have fever. From *intestinal colic*, by urinalysis.

TREATMENT.

Pain.—Measures must be prompt and effective. Morphine, $\frac{1}{4}$ to $\frac{1}{2}$ gr. subcutaneously. Repeat in one hour if necessary, having the patient closely watched to detect any tendency to narcosis. Chloroform inhalations are not as good as Morphine. Apply hot fomentations over the loins and lower abdomen. Rectal injection of starch and laudanum (30 drops).

Medicinal.—Berberis tinct.Tr.—Give 5-drop doses, frequently repeated, during the attack; great relief sometimes follows. For *uric-acid* stone—Coccus cacti.Tr. Hydrangea.Tr. (5 drops, 15 minutes to 1 hour). For *oxalate-of-lime* stone—Boro-citrate-of-magnesia; Coccus cacti.Tr. To aid expulsion of the calculus, Salicylate of soda, 15 to 30 grs. After pain has ceased, watch for passage of calculus from bladder and treat as under Nephrolithiasis to prevent recurrence.

RENAL CALCULUS.

(GRAVEL; RENAL COLIC.)

Nature.—Crystallization begins about a small clot of mucus or degenerating epithelia (probably about renal epithelia impregnated with the crystals), and increases in concentric layers, often of different salts.

Symptoms.—Calculi retained in the kidney or pelvis may be painless, but usually cause intermittent renal pain and hematuria. Both pain and hemorrhage are worse on jarring the body. For many months the urine may show no sign of crystals or renal irritation. Finally, albumin, blood; and hyaline, blood, or epithelial casts, with crystals, appear.

Sequelæ.—Persistent nephrolithiasis causes chronic interstitial nephritis. Calculus lodged in the renal pelvis causes catarrhal or suppurative inflammation, "calculous pyelitis" and pyelonephritis.

Treatment.—The object is the dissolving or removal of the calculus. Citrate-of-potash, 30 grs. every 3 hours; Benzoate (or carbonate) of lithium, 40 grs. daily; Lithia-waters (in large quantity) and Piperazine, 45 grs. daily, are believed to have dissolved uric-acid stones. No solvent known for the oxalate and phosphatic. Haarlem oil (*oil-of-cade*, walnut-oil and laurel-berries) relieves symptoms, especially when there is much catarrhal discharge.

Potentized remedies may relieve symptoms for many months, but there is no evidence of cure. Usually calculi must be removed surgically, and this should be done as soon as diagnosis is made.

Prognosis.—In nephralgia, good. In *retained calculus*, interstitial or suppurative nephritis will develop unless it is removed. In *renal colic*, the immediate prognosis is good, except in case of impaction (infrequent). Renal colic usually recurs periodically, but is curable.

TREATMENT.

Nephrolithiasis (Lithuria).—The sediment consists of uric-acid and urates, the product of insufficient oxidation of nitrogenous food, the defect being in the liver and skin, and waste of nitrogenous tissue.

Diet.—Eat meat only in moderation; eat freely of green vegetables; salads and fruits; *avoid* spices, fat, and foods forbidden in Oxaluria. Drink freely of pure water; Lithia, Piperazin water, carbonate-of-soda and alkaline waters are useful for periods of three to six weeks. Their prolonged use is inadvisable.

Exercise.—Moderate exercise good. Avoid fatigue and heavy sweating, which concentrates the urine.

Oxaluria.—*Nature.*—Sediments of oxalate of lime, like uric acid, are due to suboxidation and inefficient liver and skin activity. Also intestinal indigestion, neurasthenia.

Diet.—Foods rich in oxalic acid must be forbidden. They are: rhubarb, onions, tomatoes, spinach, pepper, sorrel, and tea.

Chemical Treatment.—Nitro-muriatic acid, dil., 10 drops after meals. Neurasthenic cases require rest; glycerophosphate-of-lime.

Phosphaturia.—True Phosphaturia, an excessive excretion of phosphates, rarely causes phosphatic sediment.

Functional Phosphaturia.—*Nature.*—If the normal acidity of the urine is decreased, the earthy phosphates precipitate, but this precipitation does not indicate an excess of phosphates in the urine. Found in neurasthenic states, rich vegetable diet, cerebral abscess, meningitis or grave central nervous lesion, and administration of alkaline medicines.

Diet.—Alkaline medicines should be stopped. Vegetables and fruits used sparingly; eat meats, fish and shellfish. Treat the neurasthenia or dyspepsia.

Secondary (Ammoniacal) Phosphaturia.—*Nature.*—It occurs chiefly in bladder from infection and putrefaction of catarrhal discharges, liberation of ammonia and precipitation of ammonio-magnesian phosphate.

Treatment.—Requires the treatment of the cystitis, and urinary antiseptics; Salol, 10 grs. 3 times daily; Boric acid, 10 grs. 4 times daily; Sandalwood oil; Haarlem oil.

General.—Great water-drinkers do not have calcula. Free drinking of rain-water or distilled water prevents attacks of renal colic.

SECTION XII.

MENTAL DISEASES.

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MENTAL DISEASES.

(INSANITY.)

Definitions.—*Insanity* is a departure from the normal mental status of an individual, depending upon some brain lesion. A *delusion* is a false belief; an *hallucination* is a false perception; an *illusion* is a mistaken perception. These control the insane in action and judgment.

Varieties.—(a) Melancholia; (b) Mania; (c) Dementia; (d) General Paresis.

Etiology.—*Remote Causes:*—Heredity; previous attack; organic disease of brain or cord; traumatism; age (25 to 40); syphilis; improper education. *Exciting Causes:*—Overwork; worry; disappointments; excesses; ill health; epilepsy.

General Prognosis.—*Favorable:*—Exciting cause, physical; sudden onset; youth and vigor; delusions, changeable; no revulsion to food; mobility of pupil; cleanliness; continued jollity; steady progress to a crisis of excitement and then a gradual subsidence; slow accumulation of fat with brightening of mental faculties; return of usual habits; absence of convulsions and paralysis; boils and abscesses. *Unfavorable Symptoms:*—Exciting cause mental or moral; gradual onset; attack after 50 years; single delusion, especially of persecution; persistent refusal of food, requiring prolonged forced feeding; immobility of pupil, particularly a contracted pupil; filthy habits; persistent masturbation; irritability of temper; progressive exhaustion with feeble circulation; accumulation of fat with progressive mental weakness; perverted sensations; pulling out the hair; bodily mutilation; convulsions or paralysis.

MELANCHOLIA.

(MENTAL DEPRESSION.)

Symptoms.—1. *Simple:*—Mental depression, without delusions or great physical disturbance. Prognosis good.

2. *Acute.*—Mental depression, prolonged; delusions; hallucinations; illusions; weeping; delusion of "unpardonable sin," etc.; insomnia; restlessness; fear; anxiety; disposition to suicide (80%); contracted pupils; anorexia; constipation. Prognosis good.

3. *Chronic.*—Usually follows acute; nervo-bilious temperament; fixed delusions; mental depression constant; self-abasement; dyspepsia; constipation; suicidal inclination; analgesia. Prognosis bad.

4. *With Stupor.*—Profound mental depression and indifference to surroundings; moves only when compelled;

neglect of person; filthy habits; saliva drips from mouth, mucus from nose; suicidal; subnormal temperature; weak circulation. Prognosis guarded.

THERAPEUTICS.

Aconite.—In acute cases when the patient is restless, mentally and physically. She is apprehensive and fears she is going to die; dreads men; changing mood, from anguish to tears. Particularly useful in young persons.

Arsenicum.^{3x}—In asthenic cases, with physical restlessness. Anxiety; fears he has offended some one whose good opinion he desires; suicidal; tearful.

Baptisia. Tr.—Melancholia with stupor. Face flushed, dusky red; tongue dry and brown; breath offensive; looks and acts as if drunk; indifferent to surroundings; low muttering delirium; thinks he is scattered about.

Bryonia.^{3x}—Depressed; irritable; inclined to be contrary and obstinate; apprehensive; fears he will never recover.

Chamomilla.^{3x}—Peevish; with restlessness; impatient; intolerance of noise; of being spoken to or any interruption; general dissatisfaction with the world and everything in it; hallucinations of hearing of familiar voices.

Cimicifuga. Tr.—Marked depression, with sleeplessness; feels as if enveloped in a dark cloud; loss of interest in daily affairs; suspicious. Especially useful in cases complicated with uterine diseases. Pain or pressure in the vertex.

China.^{3x}—Tired of life; suicidal, but too indolent to commit the act; is ill-humored, but easily moved to tears; believes himself persecuted; general vitality lowered; anemia from lactation.

Digitalis.^{3x}—Great anxiety about the future; sadness and weeping; the depression seems to be temporarily relieved by copious flow of tears; fears death; fears that if he moves his heart will stop beating; profound weakness with slow pulse.

Gelsemium.^{1x}—Stupidity, with inability to think. Especially useful when the depression follows bad news. General motor weakness, with aching all over; tongue tends to be dry; mental exhaustion from severe mental strain.

Ignatia.^{3x}—The most useful remedy in acute melancholia; great depression; wants to be alone and undisturbed; easily angered; irritable and suicidal; intolerable forebodings; wants to kill herself to get rid of her sorrow.

Kali phos.^{3x}—Neurasthenic states, with nervous dread; gloomy; looks on the dark side; loss of memory, depression of spirits and irritability; sighing, with feeling of weakness at the epigastrium.

Nux vom.^{3x}—Irritable weakness and mental depression; taciturn; mental restlessness, suicidal; easily angered, and is then homicidal.

Pulsatilla.^{30x}—Marked depression; weeps easily; very religious, prays and cries; worries about the future.

timidity, accompanied by precordial anguish; sour eructations.

Verat. alb.^{3x}—Low spirits; physical weakness; extremities cold; restless; suicidal; depressed, and yet easily angered and may be violent; sometimes in his despair he cries and howls.

MANIA.

(MENTAL EXCITEMENT.)

Symptoms.—1. *Acute Delirious*.—Great mental and physical restlessness; vivid and changing delusions, hallucinations; noisy loquacity; great violence; aversion to family; insomnia; face flushed; fever; rapid pulse; dry tongue; typhoid-like symptoms. Prognosis guarded; mortality great.

2. *Acute*.—Mental and physical restlessness and activity; delusions; hallucinations; illusions; profane, noisy, obscene; violence; bites and strikes; insomnia. Prognosis fair; many recoveries.

3. *Paranoia*.—Usually primary; may follow acute; slow onset; often displays exaggeration of a cherished characteristic; sometimes taciturn, irritable; single delusion, usually of persecution; suspicious of others' motives. Delusions of persecution lead to homicide. Prognosis bad.

4. *Chronic*.—Secondary; persistent adherence to delusions, especially relating to themselves, which control their actions, such as belief that they are kings, etc. Prognosis bad.

THERAPEUTICS.

Aconite.^{3x}—Sthenic states; great mental restlessness; very talkative; fears of various kinds; easily angered.

Belladonna.^{3x}—Face flushed; pupils dilated; full, bounding pulse, and other signs of cerebral congestion; very irritable and violent; bites and strikes those near; numerous very vivid delusions.

Cannabis Ind.^{1x}—Hallucinations and delusions, constantly changing, but always of the same general character. Everything is exaggerated, and time seems too long; generally good natured.

Cantharis.^{3x}—Paroxysms of rage, with intense sexual excitement and frequent desire to urinate; great violence; snarling, and biting those near.

Hyoscyamus.^{1x}—The most useful remedy in acute mania; great mental excitement; fears he will be poisoned; hallucinations of hearing; carries on long conversations with imaginary people; singing and laughing, but violent; erotic; restlessness, with muscular twitching.

Stramonium.^{3x}—Loquacious; wants company; fickle-minded; at one moment cross and violent, and at the next good natured and jolly; hallucinations changeable; sometimes pleasant, and again inspire him with horror.

Veratrum vir.^{1x}—Violent; restless; dreads being poisoned; delirious mania.

Sulphur.^{6x}—Is occasionally useful in chronic forms of mania, when the head is hot and the feet cold, or other

evidence of disturbed circulation. Ill-humored and quarrelsome; fixed delusions; believes old rags are silk.

DEMENTIA.

(MENTAL FAILURE.)

Symptoms.—1. *Acute Primary.*—Difficult to differentiate from melancholia with stupor; females most; age 15–30 yrs.; onset sudden; stupid and filthy; taciturn; no evidence of hearing; movements automatic; face pale and puffy.

2. *Alcoholic.*—“Old soaks;” rapid loss of memory; even forget their own names; will-power weakened; careless of personal appearance; irritability; sub-normal temperature; gastric catarrh.

3. *Masturbatic.*—Pronounced mental weakness; apathetic and stupid; sits with head bowed; feet and hands cold and damp; moral perversion.

4. *Senile.*—After 60; onset slow; loss of memory, especially of recent events; irritability; restlessness; indecision; unnatural egotism; suspicious; delusions and hallucinations; senile walk and speech.

5. *Organic.*—Follows apoplexy and cerebral tumors; apprehensive; suspicious; loss of memory; hallucinations of sight and hearing; hemiplegia or convulsions.

6. *Secondary.*—Follows some other form of insanity; mental weakness; in degree varies from feeble will-power and slight loss of memory, to mental extinction.

THERAPEUTICS.

Calcarea carb.^{6x}—Dementia: Dull of comprehension; misplaces words; thinking is difficult; easily moved to tears. Fat and subject to congestive spells, accompanied by vertigo and fullness of the head. (Also the 200th.)

Calcarea phos.^{3x}—Peevish and fretful; forgetfulness of recent events; does not recognize surroundings; wants to go home when already there. Especially applicable to young and undeveloped people.

Conium.^{3x}—Extreme want of memory; difficult to remember what he is reading; indifferent to business and family; vertigo on lying down.

Mercurius sol.^{3x}—Stupid; filthy; moans and groans; suspicious; irritable.

Phosphoric ac.^{1x}—Indifference to surroundings; memory weak; weeps easily; general weakness and emaciation; dementia from masturbation.

Veratrum alb.^{3x}—Loquacity; incoherence; destructive stupid; filthy; lewd in conversation and action; if not too stupid, cherishes the belief that he is some great person.

GENERAL PARESIS.

Symptoms.—Characterized by progressive mental enfeeblement and physical weakness, with muscular incoordination. Men, 14; women, 1.

First Stage.—Fibrillary trembling, especially muscles of the tongue; slight incoordination of muscles of speech; mental exaltation; exaggerated opinion of powers and past achievements; boasting of future expectations; delirium

sions of grandeur; imaginings of great wealth, or ability to perform impossible feats; spendthrift; moral perversion; indifference to family and business; personal carelessness; irregularity and immobility of the pupil.

Second Stage.—Marked muscular incoördination and physical paresis, with mental enfeeblement; epileptoid seizures and temporary paralyses; inability to pronounce labial explosives (*p, b, f*) or repeat rapidly alliterative words ("round the rough and rugged rocks"); latent period may supervene, with return of considerable mental power, sooner or later succeeded by last stage.

Third Stage.—Loss of power of locomotion; almost inarticulate speech; mental extinction; Jacksonian epilepsy; hallucinations of sight; filthy habits; bed-sores.

THERAPEUTICS.

Agaricus.^{3x}—Great loquacity; sings and rhymes; too busy thinking of delusions to answer questions; indifferent to everything; twitching of muscles, especially of the face; sleeplessness. (Also 30.)

Arnica.^{3x}—Dull; absent-minded; fails to finish sentence because of thinking of delusions; suspicious and apprehensive; tremulous weakness.

Cimicifuga.^{Tr.}—Depressed; wants to be alone; answers questions hurriedly and evasively; tremulousness of small muscles around the eye and mouth.

Cannabis Ind.^{3x}—Incoherent; great mental exaltation; loquacity; tells of his hallucinations endlessly; good-natured; exaggerated ideas of time and space; sensitive to light and noise.

Veratrum vir.^{1x}—Depressed and suspicious; mind greatly confused; cherishes numerous delusions; thinks some one wants to poison him; severe attacks of cerebral congestion; temporary attacks of paralysis.

GENERAL MEASURES.

"The physician to such unfortunate creatures ought to behave so as to inspire them with respect and at the same time confidence."

—HAHNEMANN. ("Lesser Writings.")

Room.—Place the patient—if excitable or depressed—in bed in a room far removed from household and street noise. Do not use mechanical restraint; it is rarely needed; should never be resorted to until all other methods have been tried. The best method is by the protection sheet.

Nurse.—A good strong nurse is necessary. Impress her with the importance of extreme kindness and gentleness; use encouraging words and a hopeful manner. Pay no attention to the rough language or delusions of the patient.

Diet.—Vary it with the form of insanity. Most patients are anemic; hence it must be easily digested and nourishing. Milk (adding salt to aid its digestibility); raw eggs; boiled custard; broths; rare-beef sandwiches; bovine; malted-milk.

Massage.—It often quiets the patient.

SECTION XIII.

DISEASES OF THE NERVOUS SYSTEM.

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MYELITIS.

(INFLAMMATION OF THE SPINAL CORD.)

Varieties.—(a) Acute; Sub-acute; Chronic. (b) Transverse; Diffuse; Focal; Disseminated.

Causes.—Exposure to cold; over-exertion; sudden strain; traumatism; after acute infectious diseases. In some cases the exciting cause is obscure.

Diagnosis.—Sensory disturbances, with motor weakness, followed by sensory loss extending to the level of the lesion; hyperesthesia just above the upper limit of the lesion; girdle-sensation just below this. If *lumbar* segments are involved, vesical and rectal paralysis, also weakened tendon and skin-reflexes; flaccid paralysis; tendency to muscular atrophy, and reaction of degeneration. If *dorsal* segments are involved, the reflexes are present, and later they are exaggerated; contractures and spasms, though if the lesion extends completely across the cord, the reflexes are abolished. If in the *cervical* region, the arms as well as the legs are involved, the former generally more severely. Other symptoms are:—Dry, cold skin; bed-sores; sexual disturbances; later, cystitis.

TREATMENT.

General.—Rest in the recumbent posture (not all the time on the back; change frequently from one side to the other); catheterization every six hours (beware of dirty catheters); enemata as required. To prevent bed-sores, have sheets *absolutely* smooth; bathe the parts subjected to pressure daily, and anoint with glycerin or glycerin-cream; if the parts become red, apply a lotion of alcohol, or a weak solution of tannin-and-alum; if bed-sores develop, treat surgically and antiseptically; relieve pressure by appropriate pads.

Diet.—At first, milk, eggs, rice, toast, farina, and blanc-mange; later, a full diet.

Electricity.—Not during the acute stage; after it has passed, interrupted galvanization from the sternum to the seat of the lesion, 10 Ma., ten minutes daily, reversing the current every half-minute. Massage and light exercise.

Therapeutics.—If the cause is traumatic, Arnica^{3x} Hypericum.^{3x} If due to exposure, Dulcamara; Rhus Bellis perennis. If syphilis can be traced, Kali hydriodicum in rapidly increasing doses, beginning with 10 grs. three times a day, and increasing; or, Mercuria. inunctions; when the condition becomes chronic, Strychnia crude, gr. $\frac{50}{100}$ *t. i. d.* In uncomplicated cases, Arsenic; Mercurius; Phosphorus; Zincum phos.; Plumbum met. For the subsequent paraplegia, Lathyrus sativus.

NEURITIS.

(INFLAMMATION OF NERVES.)

Varieties.—Perineuritis; Interstitial; Parenchymatous.

Causes.—Toxic (alcohol, lead, arsenic, etc.); traumatic; post-febrile (typhoid, diphtheria, etc.); syphilitic, malarial; "cold;" by extension.

TREATMENT.

Therapeutics.—Aconite^{3x}, Gelsemium^{3x} (diphtheritic); Strychnin^{2x} (alcoholic cases, active symptoms subsided; prostration profound); Arsenic^{6x} (pronounced motor paralysis); Mercurius^{6x}; Arnica^{3x}; Argentum nit.^{6x}; Carbon sulph.^{6x} (ataxia); Hypericum^{3x}; Rhus tox^{1x}; Ferrum phos.^{3x} (acute form); Belladonna^{3x} (atrocious pains); Nux vomica^{1x} (alcoholic cases, active symptoms); Cimicifuga^{Tr.} ("toothache pains" in the limbs); Plumbum phos.^{3x} (atrophic stage); Causticum^{6x} (paralysis); Phosphorus^{3x}; Zincum phos.^{3x} (degenerative form); Bellis perennis (alternates with chronic diarrhea); Berberis vulg.^{3x} (lumbar and sacral plexuses); Æsculus hip.^{3x}; (lesser sciatic); Pareira brava^{3x} (anterior crural); Sanguinaria can.^{1x} (circumflex nerve, deltoid paralysis); Anantherum mur.^{30x} (neuritis in the upper dorsal roots).

General Measures.—Remove the cause. *Rest.* Heat, by hot compresses or poultice. If unavoidable, anodynes; Antipyrin, 5 to 10 grs.; Acetanilid, 2 to 5 grs. (large doses are dangerous); Sulphonal, 30 grs.; Kali brom., 15 to 30 grs.; Hydrobromate of hyoscin, $\frac{1}{100}$ to $\frac{1}{80}$ gr.; Morphia, $\frac{1}{8}$ to $\frac{1}{4}$ gr. Avoid repetition of the dose if possible.

Electricity.—Never faradism; never early; never in such manner as to give shock. *Galvanism.*—The positive electrode to the seat of the pain; negative to the spinal origin of the nerve affected; gradually increase the current, and gradually diminish it.

Massage.—By skilled masseur, not by inexperienced relatives and friends.

Diet.—Plain, nutritious and unstimulating.

Surgical Measures.—Where inflammation is interstitial, longitudinal section of nerves.

LOCOMOTOR ATAXIA.

(TABES DORSALIS.)

Causes.—Syphilis (80%); exposure; traumatism; secondary to myelitis. *Age*—middle life. *Sex*—males (90%).

Diagnosis.—Intense weariness and heaviness of the limbs, no matter how much rest is taken; lightning pains (do not mistake for rheumatic pains; the pains are *between*, and not *at* the joints); loss of patellar-tendon reflex; ataxia (inability to walk in the dark); Argyll-Robertson pupil; paresthesiæ; history of syphilis (80%); bladder paralysis (retention and overflow-incontinence); delayed appreciation of sensation; at first stimulation, later loss of, sexual power; ocular paralysees, producing

ptosis, strabismus, and diplopia (the latter appears early if at all); optic atrophy; joint affections (Charcot's joint); girdle sensation; gastric, renal, and laryngeal crises.

TREATMENT.

Argent nit.^{3x}—*Incoordination of movement*; optic atrophy; unequal pupils; Argyll-Robertson pupil; trembling of the hands; complete loss of sexual desire; overflow incontinence. Of use rather in the advanced stages.

Secale.^{1x}—Absence of knee-jerk; lightning pains; ataxia; staggering gait.

Plumbum met.^{3x}—First stages; severe paroxysmal pains, worse at night; anesthesia; impotence; amaurosis; retention of urine from paralysis of the bladder.

Nitric acid.³ⁱ—Syphilitic history; cerebral symptoms, such as headache, imperfect vision, mental depression, and irritability, together with lightning pains.

Aluminum met.^{6x} or **Aluminum chloridum.**^{3x}—Ptosis; diplopia; paresthesia, particularly of the feet and legs; lightning pains; skin of the face feels as though covered with cobweb, or as if white of egg had dried upon it; pain in the back as if a hot iron had been thrust into the spine.

Zincum.^{6x}—It has produced in workmen marked incoordination of gait, and anesthesia; burning along the spine; pain at the dorsal vertebræ; loss of sexual power.

Intercurrent Remedies.—**Ammonium mur.**^{6x}—Rending, tearing, painful jerks in the thighs, lower limbs, and joints, with a sensation of soreness; lightning pains, with no disturbance of coördination.

Pieric acid.^{1x}—Asthenia; severe exhaustion from slight exertion; inordinate sexual desire.

Kali hyd.—In syphilitic cases, especially where there is paralysis of single cranial nerve. Full doses—grs. xv., *t. i. d.*, and increasing.

For Lightning Pains.—Belladonna^{3x}; Pilocarpine^{2x}; Physostigma^{3x}; Angustura^{3x}; Strontia carb.³⁰ (Relief while in water as hot as can be borne; lightning pains *excessive*.) Other remedies to be studied are—Silicea, Phosphorus, Berberis (in nephritic cases), Nux vom., Æsculus, Nux moschata, Fluoric acid, Arsen. iod., Mercurius corr.

GENERAL MEASURES.

Electricity.—The static current, by heavy sparks to the soles of the feet, combined with positive insulation. Galvanism, a strong current (15 to 30 Ma.) applied along the spine and over the limbs, the anode being placed in the region of the lumbar vertebræ; or an anode electrode (size, 1½ × 18 in.) along the length of the spinal cord, the cathode being moved about over the trunk and limbs; Erb's combined galvanism of the spinal cord and sympathetic. Faradism—anode applied to the sternum, cathode to the skin of the back, and also the extremities until a decided rubefacient effect is established.

Sinusoidal Current.—*For Lightning Pains:* One electrode to the nape of the neck, the other over the painful

area. *For Ataxia*:—The foot-plate for the lower pole; the broad neck electrode for the upper. Treatment—For a week, ten minutes daily; then *p. r. n.*

Hydrotherapy.—Hot baths (must be used carefully where the condition of ataxia has progressed far); lukewarm, temperature 95° F., ten to twenty minutes daily. For severe pains, dashes on the part of ice-cold water. Possibly benefit may be derived from visit to some of the watering places, as Hot Springs in America, Bad Nauheim, Germany, or Lamalou, France.

Suspension.—By modified Sayre's apparatus where lightning pains and trouble with the bladder are considerable. One to three minutes three times a week for six weeks, then stop for three months, and repeat. Contraindicated by arterio-sclerosis and bulbar symptoms, and in the paralytic stage. Frankel's method of systematic exercise (see Dana, "Nervous Diseases," 4th Ed., p. 599).

Diet.—Foods that are non-fermentative and digestible; nitrogenous and fatty foods.

Suggestion.—Those patients do best who continually fight against the disease, and do not despair of finding something which will help them.

NEURALGIA.

Varieties.—Idiopathic (developing spontaneously); Symptomatic (toxic or reflex; or, organic disease of the nerve). May be (according to the nerve affected) epileptiform; hysterical; reflex; traumatic; gouty; etc. May be trigeminal; cervical; occipital; brachial; intercostal; lumbar; crural; visceral; sciatic.

Causes.—Age (15 to 25). Sex, female (60%). Heredity; anemia; gout; infections; exposure; over-exertion; shock; traumatism. Season (mostly in winter).

Diagnosis.—Pains shifting; paroxysmal; follow the course of nerves; no signs of organic nervous disease.

Prognosis.—Good. Usually guarded in hysterical and neurasthenic persons, and where the system is broken down by age, disease, or dissipation.

TREATMENT.

Aconite.^{3x}—Caused by cold, or checked perspiration; severe pains; congestive state; numbness; as though lack of circulation.

Belladonna.^{3x}—Surface extremely sensitive to light touch, firm pressure relieving; pains come and go quickly; aggravated by light, noise, jar, or draft of air.

Kalmia.^{3x}—Neuralgia of the stump; one-half of the face affected from exposure to cold; aggravated by worry or mental exertion.

Spigelia.^{3x}—"Sun Neuralgia"; pale face; left-sided face-ache; shooting pains; especially when the eye is affected.

Arsenicum.^{6x}—Malarial; worse from cold; intermittent; periodical; worse at night; surface feels cold; better from exercise.

Mezereum.^{3x}—Shooting pains radiating from below the eye; teeth decayed; surface extremely sensitive.

Magnesia phos.^{3x}—Paroxysmal; changing about; relieved by heat, pressure and rest; worse from cold and at night; accompanied by spasmodic muscular contraction. *Dose*.—Give the 3x in hot water.

Dioscorea.^{3x}—“Bilious colic,” relieved by bending backward (opisthotonoid); better in the open air and by walking about.

Colocynth.^{3x}—Facial neuralgia; abdominal neuralgia; sore, but relieved by pressure, and bending forward.

Veratrum alb.^{3x}—Facial neuralgia; gastric symptoms; gradual onset, increase and subsidence of symptoms.

Hypericum.^{3x}—Traumatic neuralgia.

Kali ferrocyanide.^{1x}—Neuralgic affections depending upon impoverished blood; exhausted spinal nerve center; cardiac palpitation; mental depression.

Gelsemium.^{1x}—Deep-seated pains; muscular contractions; ocular neuralgia.

Natrum mur.¹²—Malarial cases; especially after the abuse of Quinia.

Plantago major.^{3x}—Pains about the teeth and ear.

Cedron,^{1x} and **Quinia sulph.**—Marked periodicity.

Arnica.^{3x}—Traumatic cases.

Ranunculus bulb.^{3x}—Pleurodynia.

Byronia.^{3x}—Intercostal neuralgia.

Menyanthes.^{6x}—Pains relieved by hard, firm pressure.

GENERAL MEASURES.

Applications.—Heat, by dry, hot air-bath (temperature 200° F. to 400° F.); hot-water bags; Japanese fire-boxes; painting the nerve with anodynes, as Cocaine, Aconite, or solution of equal parts of these; Belladonna, or solution of Helleborine (1%), or Chloroform liniment. Rest.

Electricity.—*Galvanism*.—Positive electrode on the sensitive points; negative on nerve-origin in the spinal cord. mild current, increasing in strength. Static spark; positive faradism; cataphoresis with solutions as noted above.

Diet.—Liberal; fats, cod-liver oil, particularly in anemic and neurotic subjects.

Baths.—Of plain or salt-water; hot.

Massage.—Gentle, between the attacks.

Palliatives.—Where unavoidable, coal-tar derivatives as Antipyrine (5 to 15 grs. every 3 to 4 hours), or Acetar elid (2 to 5 grs.; larger doses dangerous); *use with caution.*

Surgical.—Nerve-stretching, or resection.

SCIATICA.

Causes.—Gout; exposure; strain; neurotic diathesis; pressure (as from hard seats); pelvic tumor; vertebral disease. Age, 40 to 50; sex, male; season, autumn and winter, mostly.

Differential Diagnosis.—(a) Hip-joint disease (has pain in the hip on tapping the knee; temperature; deformity; sometimes spinal curvature). (b) Organic disease of the cauda equina (has sensory disturbances, motor paralysis

rectal and vesical atony). (c) Muscular pains in the leg (are less severe, less sudden, less localized).

Prognosis.—Good for cure in from three to six months; relapses sometimes occur.

TREATMENT.

Gnaphalium.^{3x}—Intense pain along the sciatic nerve; feeling of numbness occasionally taking the place of sciatica; exercise of the feet excessively fatiguing.

Colocynth.^{3x}—Paroxysms of pain; feeling of numbness and partial paralysis; nutrition of the limb may be affected.

Ammonium mur.^{6x}—Pains worse while the patient is sitting; somewhat relieved while he is walking; entirely relieved when he lies down.

Kali hydriodicum.^{1x}—Pains worse at night; from lying on the affected side, of mercurial or syphilitic origin.

NOTE.—Study remedies under *Neuralgia*.

GENERAL MEASURES.

Rest.—Absolute rest, secured by Thomas splint from the axilla to the ankle; firm bandage around the whole limb; Menthol locally.

Electricity.—*Galvanism*:—Positive electrode along the course of the nerve, negative to the lumbar spine (15 to 20 Ma.), ten minutes daily; faradic wire brush.

Massage.—Judiciously used.

Nerve-Stretching.—As a last resort, nerve-stretching (30 to 40 pounds pressure).

Palliatives.—Use no anodynes unless absolutely necessary. Then use Antipyrine (5 to 15 grs.) at intervals of three hours or longer; Acetanelid (2 to 5 grs.; larger doses are dangerous.)

INTERCOSTAL NEURALGIA.

(PLEURODYNIA.)

Differential Diagnosis.—Myalgia has a history of rheumatism; pains dull and scattered; tenderness; pains worse on taking deep breath. Exclude pleurisy and reflex neuralgias. Painful points in intercostal neuralgia.

TREATMENT.

Therapeutics.—Ranunculus bulb. ^{3x}; Arnica ^{3x}; Aconite ^{3x}; Arsenicum iod. ^{3x}; Cimicifuga. ^{3x}

General Measures.—Bandage as for fractured rib; local heat.

Electricity.—*Galvanism*:—(Moisten the sponge of positive electrode—place it over the seat of the pain; negative indifferent.)

Faradism:—Secondary current, fine wire coil (10 to 15 minutes daily).

Cataphoresis.—Cocaine solution (20%).

TIC DOULOUREUX.

(TRIGEMINAL NEURALGIA; PROSOPALGIA.)

Nature.—Intense, persistent neuralgia, following destructive changes in the nerve.

Causes.—Exposure; depressing influences; carious teeth; old age.

Diagnosis.—Intense darting pains in the lower cheek of one side; flushed face; lachrymation; fluent nasal discharge; pains paroxysmal; made worse by cold air; eating; drinking.

Prognosis.—For permanent cure, guarded.

TREATMENT.

Natrum sulph.^{6x}—Origin in exposure to continuously damp atmosphere.

Argentum nit.^{6x}—Infra-orbital and dental branches affected; pains intense, with unpleasant sour taste in the mouth.

Verbascum.^{1x}—Crushing as if with tongs in the painful parts; worse from 9 A. M. to 4 P. M., and from talking, sneezing, or change of temperature.

Capsicum.^{3x}—Burning, pungent pain in the face; worse from slightest draught of air.

GENERAL MEASURES.

Local.—Heat; local anodynes of Cocaine (4%), local injections.

Electricity.—*Galvanism.*—Positive electrode at the seat of the pain; *negative* at the cervical spine (3 Ma.), 5 minutes, 2 or 3 times daily.

Surgical Measures.—Nerve-stretching or resection; or, removal of Gasserian ganglion.

BELL'S Palsy.

(FACIAL PARALYSIS.)

Varieties.—Peripheral; nuclear; cerebral; basilar.

Causes.—Exposure; traumatism; infection; toxic agents; neurotic diathesis. Sex, male; age, 20 to 40 years.

Symptoms.—Weakness of the facial muscles, unable to close the eye or pucker the lips; the angle of the mouth drops; speech muffled; reaction of degeneration.

Prognosis.—For peripheral, good for cure in 3 to 5 months. If central, very guarded.

TREATMENT.

Aconite.^{3x}—Acute stage; also in cases caused by exposure to strong, cold wind. In subacute cases use the *twelfth* dilution, or higher.

Rhus tox.^{3x}—Rheumatic diathesis, where the cause is dampness.

Causticum.^{3x}—Where the condition has become chronic, with muscular twitchings and contractures; right side of the face.

Belladonna.^{3x}—Right side of the face; at times complicated with *tic douloureux*.

Hypericum.^{3x}—Caused by traumatism of the nerve.

Consult.—Gelsemium, Cocculus, Ruta, Dulcamara.

GENERAL MEASURES.

The Eye.—Protection of the conjunctiva by an eye-shade.

Electricity.—Never during first three weeks; after this, galvanism strong enough to produce muscular contractions; positive electrode just in front of the ear, negative at motor points of muscles involved, five minutes daily.

Massage.—If contractures occur, gentle massage and facial gymnastics.

WRITER'S CRAMP.

(SCRIVENER'S PALSY.)

Varieties.—Spastic; neuralgic; tremulous; paralytic.**Nature.**—Interference with the act of writing; spasms or tremor of muscles of the fingers and arm.**Cause.**—Neurotic subject; age, 25 to 40; sex, male; worry; dissipation; excessive use of the arm under forced strain; false position of the pen; exposure and toxic influences.**Diagnosis.**—History of excessive writing; nerve-strain; electrical reactions normal; slight sensory disturbances; marked motor incoördination.**Prognosis.**—Very guarded; unfavorable, but cases may be cured.

TREATMENT

Therapeutics.—*Gelsemium*: Picric acid; Belladonna; Causticum; Cyclamen; Nux vomica; Ruta; Secale; Selenium; Stannum; Staphysagria; Zinc.**General Measures.**—*Prevention*:—Use a large penholder. Do not over-exert, as in contests of speed. Mathieu's instrument for writer's cramp. If possible, complete rest. Systematic finger and wrist exercises.**Electricity.**—*Galvanism*.—Positive pole to the cervical spine; negative over the affected muscles, 5 to 10 Ma.; 10 minutes daily.

COCCYGDYNIA.

Nature.—Neuralgia of the lower posterior sacral nerves.**Causes.**—Exposure; injury; labor.**Diagnosis.**—Exclude hemorrhoids.

TREATMENT.

Therapeutics.—Arnica, Rhus, if traumatic. Other remedies:—Ruta; Kali bi.; Cistus; Tartar emet.; Paris quad.; Petroleum.**General Measures.**—Be sure there is no dislocation; make examination per rectum.**Electricity.**—Galvanism; faradism; static.**Surgical.**—Amputation of the coccyx.ACUTE ASCENDING SPINAL
PARALYSIS.**Therapeutics.**—Consult Phosphorus; Oxalic acid; Lathyrus sat.; Ledum; Aluminum.**General Measures.**—Warm baths and packs. Counter-irritation of the spine, and rest.

MULTIPLE SCLEROSIS.

(DISSEMINATED SCLEROSIS; INSULAR SCLEROSIS.)

Nature.—Paralysis or disturbance of function, as, tremor, nystagmus, perhaps paraplegia. Due to hardening of scattered portions of nerve tissue in the brain and cord.**Causes.**—Heredity; exposure; shock; traumatism; post-infectious (after typhoid and malaria). Age, between 20 and 30; sex, male.

Diagnosis.—Tremor increasing on voluntary motion; scanning speech; nystagmus; knee-jerk exaggerated; ankle-clonus present; ataxia; some weakness and numbness of the limbs.

TREATMENT.

Therapeutics.—Consult Physostigma; Argentum nit.; Plumbum; Nux vomica; Phosphorus; Sulphur; Calcare; Lycopodium; Silicea; Thuja; Baryta carb.; Causticum; Crotalus; Gelsemium; Tarantula.

General Measures.—Insist upon regular, systematic, quiet life. Central galvanization. Hydro-therapeutics.

PSEUDO-HYPERTROPHIC MUSCULAR PARALYSIS.

Nature.—Deposit of fat between the layers of muscular structure; inherited through the mother.

Diagnosis.—Waddling gait; in rising from a recumbent posture the child "climbs up the legs"; lordosis; hypertrophy of the muscles with hardness and loss of strength.

Prognosis.—Incurable; the disease may last from ten to twenty-five years.

TREATMENT.

Therapeutics.—Phosphorus^{6x}, or higher. Try thyroid gland, 5 grs. 3 times a day.

General.—Faradism daily. Massage. Gymnastic exercises. If contractures occur, tenotomy to relieve.

Diet.—Carefully selected muscle-making food.

CEREBRAL ANEMIA.

Varieties.—Acute (fainting); Chronic.

Causes.—General anemia; organic arterial changes; organic and exhausting diseases; disorders of digestion; fright; shock.

Diagnosis.—Dilated pupils; the symptoms aggravated by upright position.

TREATMENT.

Acute.—Fainting. Place the patient in recumbent position immediately; loosen neck and waistbands. Dash cold water in the face, then use pungent, volatile substances, as Ammonia; Nitrite-of-amyl; Acetic acid.

Electricity.—Faradic current to the epigastrium.

Therapeutics.—Camphor^{Tr.} or Veratrum alb.^{1x} a few drops on the tongue during the attack. After the attack—China; Veratrum alb.; Lachesis; Camphor.

Chronic Anemia.—*Therapeutics.*—Kali carb.; Alumina; China; Arsenicum; Ferrum phos.; Calcare phos.

General Measures.—Build up the physical system. Feed the blood. Give malt preparations. Out-door exercise. Relief from mental labor.

Electricity.—Static.

CEREBRAL MENINGITIS.

(BRAIN FEVER; CEREBRITIS; ENCEPHALITIS.)

Varieties.—(a) Focal; (b) Diffuse.

Symptoms.—Headache; fever; delirium; convulsive movements; and especially optic neuritis.

Prognosis.—Always grave.

TREATMENT.

Aconite.^{3x}—Resulting from cold, violent emotions, or excited heart's action. Burning in the brain, as though moved by boiling water; arterial tension high; general surface of the body cold.

Belladonna.^{3x}—First stage; before effusion; drowsy, comatose condition, or furious delirium; congested conjunctivæ; extreme sensitiveness.

Apis.^{3x}—Follows Belladonna after effusion has taken place; "*cri encephalique*."

Glonoïn.^{6x}—The brain feels too large for the skull; pupils dilated; flashes of light before the eyes; throbbing headache.

Bryonia.^{3x}—After effusion has set in; in mild delirium; livid face; stupor.

Hellebore.^{3x}—Mental torpor; sighing breathing; want of reaction; shocks as of electricity pass through the head; perhaps convulsions; constant, plaintive moaning.

Arsenicum.^{6x}—In the later stages; asthenic; characteristic facies; restlessness and thirst.

Camphor monobromide.^{2x}—*Persistent* vomiting; pale face; body cold; limbs rigid; head retracted; violent cramps.

Opium.^{6x}—Stupefaction; contracted pupils; bloated, purplish face; hard abdomen.

Cuprum met.^{6x}—Convulsions; distorted face; cold hands; blue fingers; twitching limbs; thumbs clenched in the palms of the hands.

Zincum met.^{6x}—Unconsciousness; eyes half closed; dilated, insensible pupils; cold extremities; impeded respiration; weak pulse; cerebral torpor.

Hyoseyamus.^{3x}—Unconscious; talkative; raving; scolding; singing; picking at the bed-clothes; stupid expression; eyes injected; aberration of sight.

GENERAL MEASURES.

Nursing.—Absolute mental and physical rest; darkened room; quiet surroundings; continuous application of cold water to the head by means of a rubber-tube skull-cap, siphoning the water from a vessel conveniently placed (to be used during the stage of excitement, *not* during depression); hot-water bottles to the feet.

Diet.—Nourishment frequently in small quantities; milk; if not much fever, beef-juice or broths; oatmeal or rice boiled three or four hours and strained through a cloth, —give hot or cold. As convalescence becomes established, milk-toast; farina; blanc-mange; scraped beef; pancretized meat-broth; eggs; custard; and wine-jelly.

CEREBRAL PARALYSIS.

(CEREBRAL APOPLEXY.)

Nature.—Mostly hemiplegia; or it may be crossed paralysis—(face, one side; body, opposite side; due to involvement of cranial nerve and motor tract in the same lesion).

Cause.—Due to cerebral (a) embolus; (b) hemorrhage; (c) thrombus; (d) abscess; (e) tumor.

Diagnosis.—*Embolus*—paralysis in a few seconds; *hemorrhage*—in a few minutes; *thrombus*—in hours or days; *abscess*—in weeks; *tumor*—in months or years. Localize the lesion by study of the muscles affected. The paralysis is generally *hemi*-plegia; *very* rarely *para*-plegia.

Prognosis.—Generally good for partial return to normal condition; never perfect use of affected parts, and often contractures. Treatment is unavailing if the cause is embolus or thrombus; acute softening of the brain will develop.

TREATMENT.

Belladonna.^{3x}—If the cause is hemorrhage. Extreme congestion; throbbing of vessels; pupils dilated; convulsive movements; irregular pulse.

Aconite.^{3x}—Great arterial excitement; full pulse.

Glonoïn.^{6x}—Similar to Belladonna, except the pulse is more powerful, and irregular.

Opium.^{3x}—Profound coma; marked stertorous breathing; dusky face; profuse sweat.

Arnica.^{3x}—Cause traumatic; tends to promote absorption, hence should be given after the subsidence of acute symptoms; give high dilution.

Nux vom.^{3x}—Congestive condition of the brain favoring apoplexy. For those of sedentary habit, who have indulged in rich diet and alcoholic stimulants.

Sulphur¹²—To promote resorption, comes in where the action of Arnica terminates.

Phosphorus.^{6x}—Retards degeneration of arteries.

For Predisposition—Nux vom.; Phosphorus; Baryta; Lachesis; Gelsemium; Hyoscyamus.

For After-effects.—Causticum; Zincum; Cuprum; Plumbum; Cocculus.

GENERAL MEASURES.

The Patient.—Place on the paralyzed side, with head and shoulders raised; the head in such a position as to facilitate flow of blood from the cranium; loosen the collar and all bands; apply cold to the head, and heat to the extremities; give absolute rest, both physical and mental; avoid exertion and excitement.

Diet.—Very light.

Electricity.—In chronic conditions, faradization. Massage is useful.

Abscess.—Treatment is entirely surgical; trephine over the location of the abscess, and drain.

Tumor.—If due to syphilis, Potassium-iodide in increasing doses. Begin with gr. xv., *t. i. d.*; rapidly increase to limit of the patient's tolerance,—perhaps as much as 1 oz. daily, in divided doses. Give in the form of a saturated solution, one minim representing one grain of the crude drug. Also treat symptomatically. Consult Belladonna; Conium; Hydrastis; Sepia; Calc. carb.; Graphites; Baryta carb.; Arnica.

Surgical Measures.—To relieve pressure, trephine and procure drainage of cerebral fluid. Only 5% of cases are operable. Insist on early operation.

PARALYSIS AGITANS.

Nature.—Progressive disease, with weak and rigid muscles; stooping attitude; paresthesiæ.

Causes.—Overwork; anxiety; rheumatism(?). Sex, male; age, 40 to 60.

Diagnosis.—Tremor in the hand (oftenest the left), then spreads over the body; the flexor muscles contract, the finger and thumb in writing-position; tremor can be momentarily controlled by voluntary effort (in multiple sclerosis, aggravated by same); body stooped; in walking or running the upper part of the body seems to move faster than the lower; all the muscles become rigid; reflexes absent; voice squeaky.

Differential Diagnosis.—*Senile tremor*:—Occurs in the very old; and first in the head. *Multiple Sclerosis*:—Tremor more jerky, worse by voluntary movement; nystagmus; scanning speech. *Post-hemiplegic tremor*:—History; reflexes exaggerated; sensory disturbances often.

Prognosis.—Unfavorable; incurable, but can be controlled.

TREATMENT.

Sulphate of duboisine.— $\frac{1}{2}$ milligram three to six times a day. Controls tremor for three or four days. It is poisonous when the daily amount reaches 4 milligrams.

Hyoscyamine.—Instil into the eye one drop of solution (2 grs. to 1 oz.) of Hydro-bromide of Hyoscyamine. It can be repeated at stated intervals in the same strength, or strength of 1 gr. to 1 oz. It causes disagreeable dryness of the mouth and throat.

Camphor bromide.—*Dose*:—1 to 15 grs. daily,

Consult.—Plumbum^{6x}; Mercurius^{6x}; Tarantula^{12x}; Agaricus^{Tr.}; Gelsemium^{3x}; Kali brom.^{1x}

General Measures.—Warm baths; quiet, uneventful life; mild massage; temporary benefit from hypnotic suggestion.

Electricity.—*Static*:—Negative insulation, 15 to 20 minutes, followed by sparks along the spine. *Galvanism*:—Positive to the forehead, negative to the nape of the neck, 3 to 5 Ma., 5 minutes daily; or, large positive electrode over the sternum, negative up and down the spine, 10 Ma., 10 minutes daily.

EPILEPSY.

Nature.—Convulsions, with impairment or loss of consciousness, not due to organic disease.

Causes.—Inheritance of neurotic tendencies; alcoholism of parents; intermarriage of neurotic persons, or of relations. Age of development—10 to 15. *Exciting Causes*:—Injury; fright; infectious diseases; masturbation; syphilis; alcoholism; conditions acting reflexly, as intestinal, ocular, auditory, dental and digestive irritations. *Jacksonian* is due to pressure on the motor tract.

Diagnosis.—Aura; screaming; quick loss of consciousness; dilated pupils; tonic spasms; bitten tongue; loss

of vesical and sometimes rectal control, are characteristic symptoms. *Hysterical* patients do not lose consciousness; do not hurt themselves in falling, nor bite the tongue, nor have incoördinate movements; nor have rise in temperature.

Prognosis.—For cure very unfavorable; shorter life 10 to 15 years; 10% become insane; possibly 5% get well. Condition may continue indefinitely.

TREATMENT.

Therapeutics.—Any one of many remedies may be indicated. The symptomatology must be closely studied; decidedly beneficial effects have resulted from a close application of the *similia*. The following remedies have undoubtedly had beneficial results:

Rano bufo.^{3x}—Positive results seem to have followed its use, not only in one case, but in several; history of masturbation or fright; aura from the stomach.

Cicuta virosa.—Severe opisthotonos; facial cyanosis; tendency to hiccough while recovering; peculiar sensitive vesicular eruption preceding attack by a few days.

Cuprum met.—Is a most perfect *similia* of the epileptic spasm.

Consult.—Aconite^{3x} (status epilepticus); *Enanthe crocata*^{Tr.}; *Solanum Car.*^{Tr.}; *Borax*^{3x}; *Lachesis*; *Argentum nit.*^{3x}; *Ferrum-hydrocyanat*^{1x}; *Ignatia*^{6x}; Nitric acid; *Verbena hastata*^{Tr.} (12 drops every 4 hours); *Kali mur.*^{6x}; *Absinthium*; *Mellilotus*; *Lachesis*; Nitric acid.

Palliatives.—As a last resort—Potassium-bromide, or Strontium-bromide, not less than 60 grs. per day, in divided doses, and increase from day to day.

GENERAL MEASURES.

Electricity.—Static insulation, five minutes; positive, direct head and spine breeze five minutes, and conclude with mild, direct, positive spark to the lower extremities, every day, or three times a week.

Hydrotherapy.—Epileptics should be given showers, douches, cold sponge-baths, wet packs, according to their needs and opportunities. Drink water freely.

Exercise.—Moderate exercise, but not dancing or violent amusements; sexual continence; extreme care in preventing masturbation. Insure mental and physical comfort.

Diet.—Be very careful about the diet. But little meat of any kind; no pork, ham, sausage, veal, corned beef boiled cabbage, turnips, or baked beans (string bean or green shelled beans are permissible); no salt mackerel; no fish or meats of any kind that have been salted or pickled; no lobsters, clams, sardines, cheese, pickles, bananas, nuts or salads; no tea, nor any drink of a stimulating character (particularly alcoholic), nor eat anything found by experience to disagree. Always eat light suppers. Never eat between-meals, nor after 6 o'clock P. M. Eat slowly, and not near usual time of attack.

In the Attack.—Inhalations of Amyl nit., Ammonia, or Chloroform, to ward off a threatened attack. During the attack loosen the clothing; keep the patient fro

injuring himself. Pressure on both carotids, which makes pressure on the cervical sympathetic and par vagum nerves, will often shorten an attack. In female patients, pressure on the ovarian regions sometimes has a like effect. When the convulsions cease, draw the tongue forward, and turn the head to one side, that the half-paralyzed tongue may not fall on the larynx. Let the patient rest.

Precaution.—Keep epileptics from dangerous places.

CHOREA.

(ST. VITUS' DANCE.)

Varieties.—Sydenham's (common); Huntington's (hereditary); Convulsive; Hysterical; Electric.

Nature.—Irregular, muscular jerking; incoördinate movements.

Causes.—*Sydenham's*:—Fright, injury, worry, rheumatism; age, 5 to 15; sex, females. *Huntington's*:—Hereditary; age, 30 to 50; sex—equal. *Convulsive*:—Irritation; age—under 10. *Hysterical*:—Neurotic diathesis; reflex disturbances. *Electric*:—Rare, due to toxic infection.

Prognosis.^{3x}—For Sydenham's, favorable for cure in six weeks to six months; in other forms *very* unfavorable.

TREATMENT.

Agaricine.^{3x}—Attacks crosswise, *e. g.*, upper right arm and lower left leg; nictitation; ravenous appetite, but difficult swallowing; condition worse on approach of a thunder storm.

Causticum.^{3x}—Right side worse; movements severe; tongue affected; speech staccato.

Ferrum redactum.—Particularly in cases where there is marked anemia or chlorosis. *Dose*:—1 gr. after each meal.

Cimicifuga.^{3x}—Neurotic cases; cases occurring in girls at puberty; muscular pains; movements worse on the left side; mental symptoms.

Pulsatilla.^{3x}—Uterine symptoms; characteristic temperament; catarrhal gastritis.

Hyoscyamus.^{3x}—Local twitchings; severe cases; great prostration, perhaps anemia.

Stramonium.^{3x}—Movements general and violent; tendency to hysterical condition; extreme nervousness.

Mygale.^{6x}—Extreme cases; facial expression constantly changing; muscular actions continuous and violent, frequently emotional.

Cina.^{3x}—Condition reflex from the presence of worms. Also, Santonine^{1x}; Spigelia.^{3x}

Ignatia.^{3x}—Origin emotional; great excitability, or extreme mental depression; aggravation by cold, emotion, noise, or light.

Tarantula.^{6x}—Right arm and right leg affected; movement continuing even during sleep (*Zizia*).

Veratrum vir.^{1x}—Extreme congestion of nerve centers.

Arsenic.—Anemic cases. *Dose:*—Fowler's solution, 5 minims, *t. i. d.*; increase gradually until the dose is 15 minims, then decrease gradually.

Consult.—Phosphorus^{6x}; Belladonna^{3x}; Strychnia^{3x}; Cocculus^{3x}; Nux vomica.^{3x}

GENERAL MEASURES.

Rest.—Complete rest, both mental and physical; stop attendance at school; interdict studies. In most cases put the patient to bed; have the surroundings cheerful and bright; encourage the patient as much as possible. Protect the patient from injury by proper padding of the bed. *Do not restrain the patient by bandages.*

Sleep.—To promote sleep, warm baths, hot sponge bath, warm milk; only exceptionally hypnotics, as, *e. g.*, Chloral-hydrate and Potassium-bromide, 3 to 10 grains of each at bedtime. Gentle massage.

Diet.—It should be most nourishing; in cases of malnutrition, cod-liver oil; push feeding to the limit of powers of assimilation.

Electricity.—*Galvanism:*—Positive sponge electrode to the forehead, negative to nape of the neck, 3 Ma., 3 minutes, followed by negative sponge electrode on the sternum, positive up and down the spine, 10 Ma., 5 to 7 minutes. Repeat treatment three times weekly. Or, bifurcated negative in the hands, bifurcated positive on the parietal regions, 5 Ma., 3 minutes daily. Or, *static* insulation, 15 minutes daily.

NEURASTHENIA.

Varieties.—(a) *Primary* (appearing at adolescence); (b) *Hystero* (with reflex symptoms associated with disorders of the generative organs); (c) *Climacteric*; (d) *Traumatic*; (e) *General spinal irritation* (spinal anemia, hyperemia); (f) *Anxiety neurosis* (becomes possessed of a fixed idea, generally of having committed a wrong); (g) *Angiopathic* (nerve-supply of the blood vessels affected, causing a sensation of beating or pulsation involving the whole body; dermatography).

Causes.—Hereditary nerve sensitiveness; overwork or worry; shocks (with or without injury); infections; abuse of stimulants or narcotics; abuse of sexual functions; abuse of digestive functions.

Differential Diagnosis.—Exclude—hysteria; hypochondriasis; melancholia; incipient paresis; malingering.

Prognosis.—Guarded as to complete cure; it may last from one to seven years, or longer.

TREATMENT.

Therapeutics.—Cerebral symptoms dominant; inability for mental labor:—Picric acid; Calcaréa carb.; Kali phos.; Nux vomica; Gelsemium; Phosphoric acid; Phosphorus.

Hypochondriacal Tendency.—Aurum; Kali brom. (in a potency); Sulphur; Natrum mur.

Insomnia.—When prominent, Ambra; Arsenicum; Cimicifuga; Coffea crud.

Sexual Organs.—When markedly affected—Selenium; Picric acid (or its zinc salt); Phosphoric acid; Nux vomica; Lycopodium; Agnus cast.; Gelsemium; Platina; Sepia; Actea.

In General.—Physostigma; Berberis; China off.; Plumbum; Silicea; Piper methyst.; Moschus; Asafetida; Ignatia.

GENERAL MEASURES.

Rest-Cure.—Where the condition is one of nerve-exhaustion, the Wier Mitchell rest-cure. If this is not possible, isolation and removal from the influence of sympathetic friends. Change of residence to moderately high mountainous regions; if sent to sanitarium, to stay not longer than six weeks at a time. At times, moderate physical labor, rather more than simple exercise. Out-door life in summer. As much as possible prohibit the patient's thinking about his condition. Avoid tight clothing, excitement or emotions. Correct uterine, orificial or sexual disorders.

Diet.—It should be free, nourishing, fattening, consisting of fish, eggs, lean meats, vegetables, but particularly milk. Stimulating drinks should be prohibited; water in plenty.

Hydrotherapeutics.—Cold water to the spine. Charcot-douche every other day. Cold baths in the morning.

Electricity.—Static insulation and spark; positive for anemic conditions, negative when there is nervous excitability. Central galvanization, 3 to 5 Ma. daily. Mild general faradization.

INSOMNIA.

Causes.—*Neurasthenic and vaso-motor* (including hereditary and habit insomnia). *Vascular and cardiac* (including heart-disease, arterial fibrosis, and general anemia). *Auto-toxic or diathetic* (including lithemia, gout and uremia). *Toxic* (including syphilis, lead, malaria, tobacco, and various drugs, such as coffee, tea and cocoa).

TREATMENT.

Ambra grisea.^{6x}—Arises from worryment of the mind, as from business troubles; retires feeling tired, becomes wakeful as soon as the head touches the pillow.

Calcarea carb.—Long wakefulness, as precursor of disease; sees visions on closing the eyes; starts and twitches at every little noise; the tongue gets dry. *Dose:*—Give (30th) every 3 hours during the day.

Chamomilla.^{6x}—Insomnia of children; start during sleep; twitching of the muscles of the hands and face; colic; one cheek red; head and scalp both in a hot sweat.

Belladonna.^{6x}—Drowsy, but cannot sleep; fidgety; cerebral hyperemia.

Coffea.^{12x}—Over-excitement of the mind; crowding of ideas prevents sleep; great mental strain.

Ignatia.^{3x}—Continuously worried; grief-stricken; mentally depressed.

Hyoscyamus.^{3x}—In children; twitch in sleep; cry out; tremble; awake frightened.

Kali brom.^{1x}—From over-excitement; when reflex; sees frightful images.

Stramonium.^{3x}—Intense nervous excitement; restless sleep; mental disturbances, possibly maniacal excitement.

Sulphur.³⁰—Patient sleeps at first; is roused, then cannot get to sleep again.

Selenium.^{3x}—Sleeps in cat-naps; wakens often and easily; at precisely the same hour early each morning, at which time his prevailing complaints are worse.

Arnica; Gelsemium.—Sleeplessness due to bodily over-exertion. *Dose:*—10 to 15 drops.

Cannabis ind. Tr.—Nervousness; restlessness; neuralgic pains; hysterical condition. *Dose:*—5 drops one-half hour before retiring.

GENERAL MEASURES.

Hygiene.—Regular habits; cultivation of quieting influences; have a low, hard pillow; be sure to go to bed warm, but have the room cold; have the stomach neither full nor empty; sip a cup of hot milk just before retiring; if wakefulness comes later in the night, eat a dry cracker.

Hydrotherapeutics.—Wet packs; hot foot-baths; hot general baths; cold douche down the spine. Any one of these just before retiring.

Electricity.—*Static* negative insulation, 15 minutes daily, preferably late in the day. *Galvanism:*—Use a different one of the following methods at each alternate sitting:—(1) Positive to forehead; negative to nape of neck (2 to 3 Ma.) for 10 minutes. (2) Positive on the cervical vertebræ; negative to the epigastrium (10 Ma.), for 15 minutes. (3) Positive on the cervical spine; negative attached to a foot-bath (15 Ma.) for 15 minutes.

Massage.—Gentle, systematic, *intelligent* massage.

Hypnotics.—Avoid their use if possible. Sulphonal (15 grs. in hot water) not oftener than every other night. Hydrobromate of Hyosine (hypodermically, $\frac{1}{100}$ to $\frac{1}{10}$ gr.) not oftener than every four hours. Trional, Tetronal, Chloral-amid.—Same dose as Sulphonal.

Passiflora. Tr.—(30 to 60 drops) one hour before bed time.

SECTION XIV.

DISEASES OF THE SKIN.

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ACNE.

Causes.—Constipation, indigestion, or both (83% of cases); uterine reflex.

Symptoms.—Papules and pustules, generally secondary to comedo.

Location.—The face principally; sometimes the shoulders and back.

TREATMENT.

Medicinal.—Mercurius dulc.^{1x}; Mercurius viv.^{3x}; Nux vom.^{2x-6x}; Hepar sulph.^{2x}; Arsen. iod.^{3x}; Lycopodium^{4x}; Capsicum^{3x}; Sepia.^{3x}

Local.—Shampoo every night with flannel cloth, warm water and soap (if chronic and sluggish, with Tr. Sapo vir.), then dry and apply Unguentum sulph.; or, in pustular cases, R. Sulphur, 5%; Ichthyol, 5%; Vaseline, $\frac{3}{4}$ j.; or, R. Sulph. precip., $\frac{3}{4}$ ss.; Glycerin, $\frac{3}{4}$ ij.; Spir. vini rect., $\frac{3}{4}$ j.; Aqua Calcis, Aqua Rosæ, aa $\frac{3}{4}$ iij. M.

Comedones should always be removed. The above local treatment is equally applicable here.

Diet.—Avoid *absolutely*:—Confectionery; fried food, like doughnuts, griddles, etc.; excess of salt food; cheese; pickles; malt and alcoholic liquors; cocoa and chocolate. Drink an abundance of water. Fats in themselves are not contra-indicated; in strumous subjects they are indicated.

ALOPECIA.

(BALDNESS.)

Varieties.—Two principal forms: *Alopecia prematura* and *A. areata*.

A. Prematura.—It is often due to dandruff (*q. v.*).

TREATMENT.

Medicinal.—Arsenicum^{3x}; Ferrum.^{1x}

Local.—R. Acid carbol., $\frac{3}{4}$ j.; Tr. Nucis vom., $\frac{3}{4}$ iv.; Tr. Cinchona rub., $\frac{3}{4}$ iv.; Eau de Cologne. Ol. Ricini, aa $\frac{3}{4}$ viij. M.

A. Areata.—*Medicinal*:—Strych. ars.^{2x-3x}

Local.—Hydrarg. bichl., grs. ij.; Alcohol and Aqua, aa $\frac{3}{4}$ ss. M. Rub this thoroughly into the patch with a small brush every night.

BARBER'S ITCH.

(TRICOPHYTOSIS BARBÆ.)

Cause.—It is purely parasitic.

Symptoms.—Red, inflamed, *lumpy* condition of the bearded portion of the face, or affected part; pustulation; hairs broken off.

TREATMENT.

Local.—Pull the hairs out carefully over the affected area and apply Ung. Hydrarg. Oleate (5%), until considerable reaction is excited; then, Ung. Aqua Rosæ, until the acute inflammation subsides; then, twice a day, wipe off the patch with dilute vinegar, and rub in:—Sodium sulphite, ʒj.; Vaseline ʒj.

CARBUNCLE.

Symptoms.—A circumscribed phlegmon with several points of necrosis.

TREATMENT.

Medicinal.—Arsenicum^{3x}; Hepar^{1x}; Silicea.^{3x}

Local.—(1) Inject with a hypodermic needle deep into each point of necrosis, Carbolic acid (95%), and apply cold carbolized water dressing; or, (2) saturate a compress with Potassium perman., grs. x. to ʒiv., and apply constantly, keeping it wet with the solution; or, (3) fold a piece of aseptic gauze until it forms a thickness of six to eight layers, the surface area to be somewhat larger than the carbuncle to be covered. The gauze is first thoroughly saturated with Thiersch's solution, then covered with a layer of ointment of Ichthyol (10%), and then applied to the carbuncle. A piece of rubber protective large enough to overlap the gauze is now placed on the same to keep in the moisture. A layer of cotton is placed on the protective, and then the bandage is applied and allowed to stay on for two days. When the patient returns to be rebanded and to have the dressings renewed, the cores are found to have separated from their respective walls, and at the next redressing, which is again in two days, they are found entirely separated, and can be easily and painlessly removed.

CHILBLAINS.

Symptoms.—Circumscribed red or bluish swelling of the toes, and sometimes fingers; accompanied by intense itching and burning.

TREATMENT.

Medicinal.—Croton tig.^{3x}; Apis.^{3x}

Local.—Bathe each day the feet in warm water, and rub vigorously with a Turkish towel for fifteen minutes. Apply night and morning Ichthyol and Turpentine, equal parts; or Acid phenic, grs. xv.; Ung. Plumbi., ʒv.; Lanolin, ʒv.; Ol. Amygdalæ, ʒij ss.; Ol. Lavendulæ, gtt xx. M. et fiat unguentum.

DANDRUFF.

Symptoms.—Branny desquamation of the scalp; greasy scales; scalp beneath, red and irritable, or pale and lead-color.

TREATMENT.

Medicinal.—Sulphur (crude, gr. j.) night and morning, Ferrum^{lx}, after each meal.

Local.—Resorcin (5%) in alcohol and water, equal parts, or in Vaseline. *R.* Sulphur (5%); Resorcin (5%) Ung. Petrolati, $\frac{3}{4}$ j.; *M.* In cases with irritable condition of scalp, Ung. Hydrarg. Ammon. (5%). These applications should be made about three times a week, and every two weeks shampoo the head with tar-soap.

CLAVUS.

(CORN.)

Symptoms.—Circumscribed hyperplasia of the corneous layer over the joints of the feet and toes, due to pressure of ill-fitting boots.

TREATMENT.

Local.—Relieve pressure by change of foot-wear; bathe in hot water; apply for three or four nights: *R.* Acid Salicyl. (15%); ext. Can. Ind. (5%); flex. Collod., q. s.; *M.* Then bathe in hot water again. Repeat the process if necessary. For soft corns between the toes, wash in a solution of Tannin; dry, dust on a powder composed of; *R.* Zinci stearate, $\frac{3}{4}$ j.; Acid Salicyl., grs. x.; Bismuth sub-nit., grs. v. *M.* Pack between the affected toes with dry absorbent cotton.

ECZEMA.

Causes.—*Constitutional and Predisposing:*—The (a) gouty (b) strumous, or (c) neurasthenic states. *Exciting:*—Any local irritation; indigestion; constipation; errors of diet; too abundant feeding (especially in children); lack of proper exercise and unhygienic surroundings; occupation and traumatism.

Symptoms.—Redness of the skin; itching; papules; vesicles or pustules; crusts or scales; thickening and cracking.

TREATMENT.

In Gouty Subjects.—*Diet:*—Regulate the diet. *Avoid*—Excess of beef or mutton; sugar and sugar-containing foods; all fried foods whatsoever; cheese; pickles; nuts; raisins; tomatoes; rhubarb; malt and malt liquors; wine and spirits. *Take:*—Other kinds of food liberally. Drink an abundance of water (not less than three pints a day).

Exercise.—Regular exercise, especially of the arm and trunk muscles; out-doors, if possible.

Medicinal.—Nux vomica ^{2x-3x}; Mercurius dulc. ^{1x-3x}; Mercurius viv. ^{3x}; Lycopodium ^{4x}; Carbo veg. ^{3x}; Capsicum ^{2x}; Podophyllum ^{2x}; Aloin ^{1x}; Rhus tox. ^{3x}

In Strumous Subjects.—*Hygiene:*—Clothe warmly; plenty of fresh air. In children avoid too frequent bath-

DIFFERENTIAL DIAGNOSIS.

Eczema.

General.—No such systemic disturbance as in erysipelas.

Skin.—Redness not shiny; varying in degree; does not extend so rapidly.

Sensation.—Itching.

Area.—Diffuse.

Duration.—Always tends to chronicity.

Contagion.—Not contagious.

Bacteria.—None.

Eczema.

Area.—Not sharply defined.

Sensation.—Very itchy.

Crusts.—Crust and scales dirty white, straw-colored, yellow or greenish. Surface beneath the crust moist and oozing.

Moist.—Essentially a moist disease.

Duration.—Acute or chronic.

Surface.—Flexor surfaces preferred.

General.—Systemic symptoms.

Eczema.

Lesions.—Multiform.

Extent.—No such limitations as in scabies.

Not contagious.

Non-parasitic.

Eczema of Beard.

Inflammation, Superficial.

Very itchy.

Surface.—Diffuse.

Pustules without reference to hair.

Hairs not affected.

Extent.—Tends to extend to the non-bearded portion of the face.

Alopecia.—It does not produce it.

Not parasitic.

Not contagious.

Eczema of Palms.

Patches diffuse.

Itchy.

Heals from periphery.

May occur only on the palms.

Surface apt to crack deeply.

Tends to extend on to dorsum.

No history of constitutional disease.

Erysipelas.

General.—Marked constitutional disturbance, fever, etc.

Skin.—Redness shiny, glossy, extending rapidly from a central point.

Sensation.—Burning and stinging.

Area.—More or less sharply defined.

Duration.—Acute and self-limited; never chronic.

Contagion.—Highly infectious.

Bacteria.—A specific germ.

Psoriasis.

Area.—Very sharply defined.

Sensation.—Generally not itchy.

Crusts.—Scales pearly white; glistening; never any crusting. Beneath the scale, pin-points of bleeding.

Dry.—Always dry.

Duration.—Always chronic.

Surface.—Extensor surfaces preferred.

General.—Often no systemic symptoms.

Scabies.

Lesions.—Multiform.

Extent.—Generally limited.

Contagious.

Parasitic.

Sycosis.

Inflammation, deep-seated.

Very sore and aching.

Surface.—More or less defined, the whole area being hard, swollen and indurated en masse.

Pustules.—Each one pierced by a hair.

Hairs loosened over affected area.

Extent.—Limited to the bearded portion.

Alopecia.—It may produce it.

Not parasitic.

Not contagious.

Psoriasis of Palms.

Sharply defined.

Not.

Heals from center.

Never alone on the palms.

Not liable.

Not.

None.

Tinea Barbae.

Inflammation, deep-seated.

Itchy.

Surface.—Many foci, each more or less defined. The whole surface nodular.

Pustules.—Some only pierced by hair.

Hairs broken off and some loose in follicle.

Alopecia.—It may produce it.

Parasitic.

Very contagious.

Syphilis of Palms.

Sharply defined.

Not.

Heals in center and extends on the margin.

May occur alone.

Is liable, but less so than eczema.

Not.

Generally history or other evidences.

ing, but anoint the skin with some bland and unirritating oil.

Diet.—Abundance of fats and proteids; moderate amount of sugar.

Medicinal.—*Calcarea phos.*^{3x}; *Calcarea iod.*^{3x}; *Calcarea carb.*^{3x}; *Arsen. iod.*^{2x-3x}; *Silicea*^{3x}; *Hepar sulph.*^{2x}; *Rumex*^{1x}; *Mercurius viv.*^{3x}; *Croton tig.*^{3x}

In Neurasthenic and Neurotic Eczema.—*Diet*:—The same as in the gouty, except that an abundance of easily assimilable fats should be taken. Avoid coffee, except to a limited extent.

Hygiene.—Avoid fatigue, worry, excitement. Change of surroundings is often imperative.

Medicinal.—*Strychnia phos.*^{2x}; *Strychnia arsen.*^{2x}; *Anacardium*^{3x}; *Viola*^{2x}; *Arsenicum*^{3x}; *Zinc phos.*^{3x}; *Phosphorus.*^{3x}

Local.—In acute eczema *soothe*; in chronic *stimulate*.

Acute Cases.—℞. *Lotio nig*; *Aq. Calcis*; mix equal parts, just before using, and follow with dusting-powder.

Or, ℞ *Aq. Ext. Calend.*, ℥j.; *Acid Carbol.*, ℥ss.; *Glycerine*, ℥iv.; *Aq. Rosæ*, ℥viiij. *M.* Sop this on and allow it to dry, followed by dusting-powder, or *Lotio Calaminæ ut seq.*:—℞ *Calaminæ prepar.*, ℥iv.; *Zinci Oxide*, ℥ij.; *Glycerinæ*, ℥jss.; *Aqua ad* ℥viiij. *M.* Or, if *itching* is very severe:—℞. *Acid carbol.*, ℥j.; *Glycerinæ*, ℥iv.; *Aq. Ros.*, ℥viiij. *M.* Or, ℞. *Thuja*, 1 part; *Aqua*, 9 parts. If there is profuse exudation of serum, incorporate in any of these lotions, except the first, 2 per cent of *Bismuth subnit.*

Dusting-powder: ℞. *Zinci Stearate*, ℥j.; *Lycop. pulv.*, ℥j.; *Camp.* (2%). *M.* This can also be made astringent by adding *Bism. subnit.* (2%), or *Tannin* (½%).

Purulent discharge, to any of the above, except the first, add from 2 to 10% *Ichthyol*; or, *Ichthyol sol.* in water, 5 to 10%.

Sub-acute Cases.—℞. *Acid salicyl.* (2%); *Lassar's paste*, ℥j. *M.* Spread on lint and apply constantly. Or, *Ichthyol* (5%); *Lassar's paste*, ℥j. (especially if there is purulent exudation); or, ℞. *Zinci carb.* ℥j.; *Acid Salicyl.*, grs. x.; *Vaseline*, ℥j.; *Cerate Galeni*, ad ℥i. *M.*

Chronic Cases.—With much thickening and scaling:—℞. *Pix liquida* (5 to 10%) in *Ung. petrolati*, or in *Ung. Aq. Rosæ*. Or, *Ol. Cadini* (5 to 10%) in same base. Or, ℞. *Sulph.* (5%). *Resorcin* (5%) in same base. Or, ℞. *Liquor Carbonis detergens*, ℥j.; *Zinci oxide*, ℥j.; *Cerate Galeni*, ad ℥j. *M.* Or, ℞. *Acid Salicyl.*, grs. v.; *Resorcin*, grs. v.; *Lanolini*; *Vaselini*; *Zinci oxidi*; *Amyli aa* ℥ij. *M.* Or, *Compound Stearate of Zinc and Ichthyol*, each 20 parts; *Acid Salicyl.*, 5 parts; *Glycerine*, 10 parts and *Albolin*, 50 parts. Mix, and smear on.

On parts where it is difficult to apply dressings, use as a base *Unna's glycerine jelly*, as follows:—*Gelatine*, 15; *Zinci ox.*, 10; *Glycerine*, 30; *Aqua*, 40. *M.* In this can be incorporated any medicament desired. This

preparation should be warmed in a water-bath before applying.

Eczematous "Don'ts."—*Don't* apply soap and water to a patch of eczema. *Don't* allow crusts and scales to accumulate; remove them by maceration in oil. *Don't* allow the baby to be nursed or fed too often. *Don't* allow the child to "nibble" all the time between meals. *Don't* fail to cure your patient's habitual constipation. *Don't* forget that in any case of true eczema there is something the matter with the individual beside his skin, and that must be cured. *Don't* be frightened by the spook "suppression."

EPITHELIOMA.

Symptoms.—A small, pea-sized, scaly patch, lasting many months or years, very slowly increasing, with finally a tendency to bleed under the crust, and then more rapid growth, with hard, raised, waxy-looking, cartilaginous-feeling edge, and ulcerating center. Pain, at first absent; later, more marked. It is not apt to occur under forty.

Treatment.—*Surgical.*—Entire removal with the knife, taking a wide margin of sound skin; or, curette thoroughly, apply Caustic potash in stick-form, and immediately neutralize by Acetic acid, or apply Marsden's Paste (Arsenious Acid, Gum Acacia, equal parts, mixed with water to a paste) for 24 to 48 hours, then after removal of slough, dust with Aristol. Internal medication is of no avail.

ERYSIPELAS.

Symptoms.—Headache; chilliness; nausea; malaise; elevation of temperature and pulse; coated tongue, and general constitutional disturbance; burning and stinging pains. *Locally*—bright, shiny, glossy redness, with marked swelling, beginning at a central point and extending peripherally with great rapidity.

TREATMENT.

Eliminate meat from the diet.

Medicinal.—Belladonna^{2x}; Arsenicum^{3x}; Rhus tox.^{3x}; Apis^{3x}; Cantharis.^{2x}

Local.—*B.* Acid Carbol. dil., Alcohol, Aqua, equal parts. *M.* Keep the part wet all the time. Ichthyol from 5 to 25% in ointment or lotion. Collodion will relieve pain and limit extent in nearly all cases. Or, Ichthyol, Lanolin and water, equal parts. Or, Sodium-hyposulphite 3 to 3; compress, saturated and applied constantly. Aqueous solution Cantharis.

ERYTHEMA NODOSUM.

Symptoms.—Round nut- to egg-sized nodules, bluish, or black-and-blue, on the shins and sometimes arms; pain like a bruise.

Treatment.—Arnica^{3x}; Ferrum^{1x}; Cinchona^{2x}; China. arsenicosum^{3x}; Arsenicum.^{3x}

Local.—Compress of Arnica ʒj to Oj.

ERYTHEMA SIMPLEX.

Cause.—Always a reflex from some internal condition, when not purely local from heat, cold or traumatism.

Treatment.—That suitable to the internal trouble.

Local.—Rarely necessary; sometimes a cooling lotion followed by a dusting-powder.

FAVUS.

Symptoms.—A parasitic, contagious disease of the scalp, characterized by pea- to coin-shaped patches, covered with yellowish crust; minute inspection shows individual hairs surrounded by cup-shaped sulphur-yellow crust.

Treatment.—Scrub with soap and water; remove all loose hairs and apply Ung. Hydrargyri oleati (5%) night and morning. If this irritates or sets up local inflammation (which will do good rather than harm) stop and apply Sodii hyposulphate ℥j to ℥j, after sponging with dilute vinegar.

HERPES.

Symptoms.—Grouped vesicles occurring on a slightly inflamed base, drying into thick yellowish or brownish crusts. Location principally the face and genitals.

TREATMENT.

Medicinal.—Arsenicum^{3x}; Bryonia^{2x}; Rhus,^{3x}

Local.—Paint in incipience with Collodion or Carbolyzed Cosmoline; Ung. Aq. Rosæ; Ung. Acidi borici; Ung. Adeps benzoati.

HERPES ZOSTER.

Symptoms.—Grouped vesicles along the course of nerve trunks, preceded, accompanied or followed by neuralgic pain in the affected part.

TREATMENT.

Medicinal.—Arsenicum^{3x}; Strych. ars.^{2x}; Rhus^{3x}; Argent. nit.^{3x}; Zinc phos.^{3x}; Zinc valer.^{3x}

Local.—Morph. sulph., grs. ij.; Flex. Collod. ℥ ss. *M.* Dust thoroughly with—B. Zinc ster.; Talcum, Amyli, aa ℥j.; Camph., ℥ss. *M.* Apply a compress of dry absorbent cotton and bandage firmly. Or, Ichthyol (10%); Flex. Collod., ℥ss. *M.* Paint on each group. If vesicles have ruptured, apply Aristol; or, Borated Ung. Aq. Rosæ; or, Ichthyol (2%), Lassar's Paste, ℥j. *M.* For post-neuralgic pain, the constant current, positive pole over nerve roots, negative over site of lesions.

HYPERIDROSIS.

Symptoms.—Abnormal sweating of any part, especially palms, feet and axillæ.

TREATMENT.

Medicinal.—Silicia^{3x}; Calc. carb.^{3x}; Calc. iod.^{3x}; Arsen. iod.^{2x}; Ferrum iod.^{2x}

Local.—Bathe the part for ten minutes in a very hot solution of Tannin (1 3 to Oj.); dry, and apply one-half of one-per cent solution of Formalin, followed by dusting powder—*℞*. Zinc ster., *Lycop. pulv.*, *aa* ʒj.; *Acidi borici*, ʒss.; *Camph.* (2%). *M.* Always change the hose every morning, dusting the above powder into the hose to be worn. Do not wear the same ooots or shoes two successive days. On the palms and soles, *Ung. Belladonnæ*, followed by dusting-powder.

IMPETIGO.

Symptoms.—An eruption of pustules on a slightly inflammatory base, generally few in number, and contagious.

TREATMENT.

Hygiene.—Cleanliness and improved surroundings.

Medicinal.—*Hepar sulph.*^{2x}

Local.—Wash with Hydrogen-peroxide, 1 part to 3 of water, dry, and apply *Carb. Cosmoline*. Protect the part from scratching.

INTERTRIGO.

Symptoms.—Chafing or abrasion of cornuous layer, generally where two surfaces come together.

TREATMENT.

Local.—*℞*. Apply *Sol. Argent. nit.*; 1 to 1000. Dry and apply dusting-powder (dusting-powder, see Hyperidrosis); or, apply a lotion of—*℞*. *Aq. Ext. Calend.*, ʒj.; *Glycerine*, ʒij.; *Acidi Carbolic*, ʒj.; *Aq. Rosæ* ad ʒviiij.; Or *Hamamelis*, ʒj.; *Acidi Borici*, ʒss.; *Glycerine*, ʒij.; *Aq. Rosæ* ad ʒviiij. *M.* After any lotion, apply dusting-powder thoroughly and keep contiguous parts separated by absorbent cotton filled with the powder.

PSORIASIS.

Symptoms.—Chronic disease characterized by rounded patches covered by a glistening white scale, beneath which appear pin-points of bleeding—most often taken for eczema. (See diagnosis of Eczema.)

TREATMENT.

Medicinal.—*Strychnia arsenicos*^{2x}; *Strychnia phos.*^{3x}; *Arsenicum*^{3x}; *Terebinth.*^{1x}

Local.—Bathe with soap to remove scales. If very acute, apply *Ung. Hydrarg. Ammon.* (5%); or, *Acid Salicyl.* (28%), *Lassar's Paste*, q. s. *M.* When in the sub-acute or chronic stage—*℞*. *Liq. Carbonis deleiq.*, ʒj.; *Acidi Salicylici*, grs. iij.; *Hydrarg. Ammon.*, grs. x.; *Lanolini*, ʒij.; *Ung. Simplicis* ad ʒj. *M.* Or, *℞*. *Pix liquida* (10%); *Ung. Petrolati* ʒj. *M.* Or, *℞*. *Chrysarobin* (10%); *Acidi Salicylici* (10%); *Ether sulph.* (15%); *Collod. flex.* (65%). *M.* Paint on the affected part. (Do not use this on the face, scalp or about mucous orifices.) For isolated patches where the eruption is not general, the following—*℞*. *Saponis viridis*, ʒiv.; *Ol. Rusci*, ʒj.; *Glycerine*, ʒj.; *Ol. Rosmarini*, ʒjss.; *Spir. vini. recti*

Oss. *M.* In generalized eruptions, β . Sulph. precip., grs. xv.; Resorcin, grs. xv.; Ung. Petrolati ζj . *M.*

SCABIES.

(ITCH.)

Symptoms.—Eczematous lesions on the webs between the fingers, flexure of wrists and elbows, axillæ about the breasts in women, the genitals in men and ankles in children.

Treatment.—Entirely local. Have the patient take a hot tub-bath for 20 minutes, scrubbing meanwhile with soap. Then dry the body and rub thoroughly with Ung. Sulph. (20%). Put on a complete suit of underclothes, stockings and white cotton gloves, *these to be worn continuously night and day*. On the second night repeat, *without the bath*, same the third night; on the fourth night take a warm bath, followed by a simple dusting-powder, and retire in clean bed-linen. The clothes and bed-linen should be immersed in hot water.

TINEA TRICOPHYTINA.

(RING-WORM.)

Symptoms.—A round, slightly scaly patch, slightly vesicular on the advancing margin, with tendency to clear up in the center. On the scalp the hairs are unevenly broken, presenting a "gnawed-off" appearance. It is parasitic and contagious.

Treatment.—*Local.*—On the body wash the patch thoroughly with soap and water to remove scales, and paint with Tr. Iodine, or, apply Ung. Hydrarg. Ammon. (5%); or, Ung. sulph. On the scalp epilate the hairs over the patch, and after wiping with vinegar and water, rub in Ung. Hydrarg. Oleate (5%); or, Sodii hyposulphite, ζj , to Ung. Petrolati, ζj .

URTICARIA.

Symptoms.—The appearance of evanescent, pinkish papules, nodules or tumors, lasting from a few hours to a day, accompanied by intense stinging and itching.

TREATMENT.

Medicinal.—Arsenicum^{3x}; Apis^{2x}; Croton tig.^{3x}; Nux vom.^{2x}; Strych. phos.^{2x}

Diet.—Regulate the diet. Avoid berries; fish; nuts; pickles; spices; cheese; oatmeal, etc.

Local.—Alkaline baths; Lotio Acidi Carbolicici; or, β . Acidi hydrocyanici dil., ζj ; Glycerine, ζj ; Aq. Rosæ, $\zeta viij$. *M.* Or, β . Camph., ζij ; Chloral hyd., ζij ; *M.* et ad Ung. Aq. Rosæ, ζj . *M.* Or, β . Menthol (3%); A. Cologne, ζij . The local application should be sopped on the itchy part, instead of scratching, and followed by dusting-powder.

SECTION XV.

DISEASES OF THE EYE.

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INJURIES TO THE EYE.

ECCHYMOISIS OF THE ORBITAL REGION.

(BLACK-EYE.)

Causes.—Blows, orbital, or upon the nose.

TREATMENT.

Local.—Cold applications will prevent discoloration. After discoloration has occurred, Peroxide-of-hydrogen applied on cotton will bleach the part, followed by Stearate-of-zinc, rubbed in, will return it to its normal appearance.

PERFORATING WOUNDS.

Prognosis.—Perforating wound of the eye is especially dangerous when in the cornea-scleral margin.

Treatment.—*Local:*—Iced compresses; conjunctival sac washed with a saturated solution of Boracic acid every 2 hrs. Atropin (4 grs. to 1 oz.) 1 drop, 3 to 6 times a day.

Caution.—If the sight is lost and symptoms of sympathetic inflammation appear in the other eye, enucleate at once.

BURNS.

TREATMENT.

Local.—Vaseline in the conjunctival sac. Atropin, 2 grs. to 1 oz., twice a day; in some cases bandage.

FOREIGN BODIES.

(IN THE CONJUNCTIVAL SAC.)

Location.—Usually found imbedded in the cornea, or in the lid under the upper tarsal cartilage.

TREATMENT.

Local.—Instil 4% Cocaine solution. Remove the object with a pledget of cotton if it is under the lid; or with a sharp instrument if it is in the cornea. Wash out with warm saturated solution of Boracic acid. If there is much abrasion of the cornea, bandage the eye.

SYMPATHETIC OPHTHALMIA.

Causes.—It follows perforating wounds of the other eye; the period of transmission varies from two weeks to thirty years.

Early Symptoms.—Congestion and tenderness about the corneal margin; blurred vision; later, all symptoms of iridocyclitis.

TREATMENT.

Local.—Enucleation of the wounded eye. For the sympathizing eye, Atropin, 4 grs. to 1 oz., three or four times a day; hot fomentation of Hamamelis and water.

Medicinal.—Belladonna^{2x}; Mercurius^{3x}; Silicea^{6x}; Caladium^{3x}; Rhus tox.^{3x}; Bryonia.^{3x}

NOTE.—All solutions for local use, the dose is 1 drop.

DISEASE OF THE LIDS.

HORDEOLUM.

(STYE.)

Causes.—Debility; chronic blepharitis or conjunctivitis; exposure to winds; or, eye-strain.

Symptoms.—Circumscribed redness and swelling of the lid margin; throbbing pain.

TREATMENT.

Local.—Poultice until it points; then incise. Remove the cause.

Medicinal.—Graphites^{6x}; Hepar sulph.^{3x}; Pulsatilla^{2x}; Sulphur^{6x}; Thuja.^{3x}

CHALAZION.

(TUMOR IN GLANDS OF THE LID.)

Causes.—Eye-strain; conjunctivitis, causing blocking of secretion of the lid glands.

Symptoms.—Small tumor, non-inflammatory, in the substance of the tarsal cartilage; the skin is movable over them.

TREATMENT.

Local.—Evert the lid; make an incision through the conjunctiva, scrape out the contents of the cyst, and wash with Boracic acid solution.

Medicinal.—Calcarea carb.^{6x}; Causticum^{6x}; Conium^{3x}; Pulsatilla^{3x}; Staphysagria^{3x}; Thuja.^{3x}

BLEPHARITIS CILIARIS.

(MARGINAL INFLAMMATION OF THE LIDS.)

Causes.—Eye-strain; exposure to dust, wind, smoke; lice on the lashes; disease of the lachrymal sac.

Symptoms.—Red lid; the margins often covered with crusts of mucus.

Treatment.—*Local.*—Examine refraction; clean the lid margins twice daily with a soft cloth and soap-and-water, and, if necessary, Peroxid-of-hydrogen. Rub into the roots of the lashes the following; B. Hydrarg. ox. flav., gr. j.; vaseline, ʒj. *M.* Or, B. Graphite, gr. j.; Vaseline, ʒj. *M.*

Medicinal.—Aconite^{3x}; Alumin^{6x}; Antimonium crud.^{3x}; Apis^{6x}; Argentum nit.^{6x}; Aurum mur.^{3x}; Calcium carb.^{6x}; Hepar sulph.^{3x}; Mercurius^{3x}; Sulphur.^{3x}

DISEASES OF THE CONJUNCTIVA.

ACUTE CATARRHAL CONJUNCTIVITIS.

Causes.—Extension from nasal catarrh, or lachrymal disease; exposure to cold; dust; smoke; confinement in vitiated atmosphere; refractive errors; exanthematous diseases. When epidemic it is often contagious—called “Pink-eye.”

Symptoms.—Redness of the conjunctiva; muco-purulent discharge; lids stuck together in the morning; feeling of sand in the eye.

TREATMENT.

Local.—Remove the cause; look for a foreign body. Instil warm saturated solution of Boracic acid 2 or 3 times a day; or, Zinc-sulphate, 2 grains to the ounce, once a day. Or, in severe cases, Nitrate-of-silver, 2 grains to the ounce, once a day. Smear the lid margins with Vaseline at night. Or Argentamine v to x grs. to ℥j. applied with a brush and neutralized with warm saline solution.

Medicinal.—Argentum nit.^{3x}; Arsenicum^{3x}; Euphrasia^{3x}; Merc. sol.^{3x}; Pulsatilla^{2x}; Zincum.^{6x}

CHRONIC CATARRHAL CONJUNCTIVITIS.

Causes.—Exposure to cold, dust or smoke; confinement in a close atmosphere; extension from disease of the lachrymal sac or nasal cavity; eye-strain.

Symptoms.—Feeling of sand in the eye; itching and smarting of the lids; redness of the conjunctiva; crusts on the lid margins in the morning (caused by hypersecretions of mucus, mixed with effete epithelial cells); in severe cases, photophobia and lachrymation.

TREATMENT.

Local.—Warm saturated solution of Boracic acid in the eyes; Zinc sulph., grs. 2 to 1 oz. Argentamine, grs. x. to aqua, ℥j., neutralize with warm alkaline solution.

Medicinal.—Aconite^{3x}; Arg. nit.^{6x}; Belladonna^{3x}; Merc. sol.^{3x}; Pulsatilla^{2x}; Sulphur^{3x}; Zincum.^{6x}

PHLYCTENULAR CONJUNCTIVITIS.

Causes.—*Predisposing*:—The scrofulous diathesis and malnutrition. *Exciting*:—Any irritating influence—cold; dust; eye-strain; nasal catarrh.

Symptoms.—Little red eminences at the margin of the cornea; in severe cases, extensive injection of the conjunctiva, and marginal haziness of the cornea; pain; lachrymation; photophobia; lids tightly closed; little or no mucous secretion; tendency to relapse.

TREATMENT.

Local.—Calomel powder dusted into the eyes daily; or, Yellow-oxid of mercury, grs. 5 to Vaseline, 1 oz., placed between the lids every other day. Saturated solution of Boracic acid, twice per day. Treat the nasal catarrh.

Medicinal.—Calc. carb.^{6x}; Graphites^{6x}; Hepar sulph.^{6x}; Mercurius^{3x}; Pulsatilla^{3x}; Sulphur.^{3x}

PURULENT CONJUNCTIVITIS.

Varieties.—Gonorrhœal conjunctivitis, purulent conjunctivitis of the new-born, ophthalmia neonatorum, ma all come under this head.

Causes.—Infection or contagion from gonorrhœal, leuorrhœal, or decomposed or altered discharge from catarrhal conditions.

Symptoms.—Copious discharge, at first muco-purulent, then purulent; thick and yellow; edema of the lids; serous engorgement of the conjunctiva; sensation of heat and burning.

TREATMENT.

Local.—Iced compresses, not longer than one-half hour at a time. The eye washed out with Formaline, 1 to 2000; or, Boric-acid solution, every half-hour to every fifteen minutes. Ten-grain solution of Silver-nitrate brushed on the everted lids once daily and neutralized with salt solution. The edges of the lids must be smeared with Vaseline to prevent excoriation and sticking together. The dangers are, involvement of the cornea; infection of the other eye; or of the eyes of other persons.

Medicinal.—Argentum nit.^{3x}; Mercurius^{3x}; Pulsatilla.^{2x}

DIFFERENTIAL DIAGNOSIS

Conjunctivitis.	Keratitis.	Iritis.	Glaucoma.
<i>Secretion:</i> —Mucus and mucus.	<i>Secretion:</i> —Mostly watery.	<i>Secretion:</i> —Lachrymal.	<i>Secretion:</i> —Lachrymal.
<i>Photophobia.</i>	<i>Photophobia:</i> —Intense.	<i>Photophobia.</i>	<i>Photophobia:</i> —Absence of.
<i>Injection:</i> —Redness and inflammation in early, or mild cases; greater in lids.	<i>Injection:</i> —Greatest at cornea-scleral margin.	<i>Injection:</i> —On cornea-scleral margin most pronounced.	<i>Injection:</i> —Apt to be greatest at corneal margin when seen early.
<i>Tension:</i> —Little or no change.	<i>Tension:</i> —No change.	<i>Tension:</i> —Usually slightly increased.	<i>Tension:</i> —Much increased.
<i>Cornea:</i> —Clear	<i>Cornea:</i> —Clouded.	<i>Cornea:</i> —Clear	<i>Cornea:</i> —Clear in early stages.
<i>Iris:</i> —Normal.	<i>Iris:</i> —Normal.	<i>Iris:</i> —Sluggish and pupil contracted.	<i>Iris:</i> —Sluggish and pupil dilated.
<i>Aqueous:</i> —Normal.	<i>Aqueous:</i> —Normal in the early stages.	<i>Aqueous:</i> —Apt to be clouded.	<i>Aqueous:</i> —Normal.
<i>Anterior Chamber:</i> —Normal.	<i>Anterior Chamber:</i> —Normal in the early stages.	<i>Anterior Chamber:</i> —Normal.	<i>Anterior Chamber:</i> —Shallow.
<i>Pain:</i> —Feeling of sand in the eye; smarting and burning.	<i>Pain:</i> —In branches of the 5th.	<i>Pain:</i> —Severe in branches of the 5th.	<i>Pain:</i> —Very severe in branches of the 5th.

NOTE.—The reason that the expressions "when seen early," or "in early stages," are so often repeated is that in severe cases, after running for a time other structures are almost always involved, so that two or more of the conditions described may exist at once.

TRACHOMA.

("GRANULAR LIDS.")

Causes.—Infection from other cases of trachoma; gonorrhoeal ophthalmia, after running its course, sometimes leaves trachomatous lids. Predisposing cause—poor nutrition and unsanitary surroundings.

Symptoms.—Characteristic hypertrophy and granulation of the palpebral conjunctiva; lachrymation somewhat increased; burning sensation; frequent relapses; the ocular conjunctiva may not be at all affected.

TREATMENT.

Local.—Zinc sulph., grs. ij., to ℥j., once daily. Or, Argentum nit. grs. ij. to ℥j., once daily. Or, 10 to 20% sol.

of Protargol in glycerine, daily. Tannic acid, grs. v., Glycerine, ℥j., every alternate day. Argentum nit., grs. x., to ℥j., brushed on irritated lids and neutralized with salt solution. Surgical treatment may be instituted for removal of granular tissue.

Medicinal.—Arsenicum^{3x}; Aurum mur.^{3x}; Cuprum^{3x}; Mercurius^{3x}; Thuja.^{6x}

DISEASES OF THE CORNEA.

KERATITIS.

(INFLAMMATION OF THE CORNEA.)

Causes.—Wounds of the cornea; foreign body; inflammation of adjacent tissues; scrofulous and syphilitic heredity; mal-nutrition; want and privation; inverted eye-lashes.

Symptoms.—Pain; photophobia; lachrymation: cloudiness of the cornea; injected zone about the corneal margin.

TREATMENT.

Local.—Hot fomentations of Hamamelis solution for the pain. Atropine, grs. ij. to ℥j., twice per day. Eyes protected by dark glasses.

Medicinal.—Aurum mur.^{3x}; Mercurius cor.^{3x}; Mercurius sol.^{3x}; Calcarea carb.^{6x}; Sulphur.^{3x}

ULCER OF THE CORNEA.

Causes.—Phlyctenular conjunctivitis and keratitis; purulent conjunctivitis; foreign body; inverted lashes; exanthematous diseases; deficient nutrition in children; infected wounds of the cornea; granular lids; malaria; lithemia.

Symptoms.—Profuse lachrymation on exposure to light; depression in the corneal surface, surrounded by cloudiness; the conjunctival as well as the sub-conjunctival vessels are apt to be infected; more or less pain; tightly-shut lids.

TREATMENT.

Local.—Bandage, exerting some pressure; hot applications are sometimes useful to allay pain and promote healing; Atropine, grs. j. to ℥j., twice per day if the ulcer is central; if the ulcer is marginal and deep, Eserine, grs. ½ to ℥j., once per day; Formaline, 1 to 2,000, is sometimes useful as a wash two or three times per day. In indolent ulcers, mild irritants, such as powdered Calomel or Yellow-oxide-of-mercury, grs. viij., to Vaseline, ℥j., will hasten resolution.

Medicinal.—Rhus tox.^{3x}; Hepar sulph.^{6x}; Silicea^{12x}; Arsenicum^{3x}; Mercurius^{3x}; Aurum^{3x}; Thuja^{3x}; Solutio of sulphur.

OPACITIES OF THE CORNEA.

(SCARS OF THE CORNEA.)

Causes.—Deep inflammations and wounds of the cornea leave scars of more or less density.

Symptoms.—Cloudiness, or dense white and smooth opacity of the cornea, without any inflammation or other

symptoms, except in case the opacity is central and over the pupil, when there is more or less dimness of vision.

TREATMENT.

Local.—Mild irritants, such as powdered Calomel or Yellow-oxide-of-Mercury, grs. v., to Vaseline, ℥j., placed between the lids and gently massaged through the closed lids. When the scars are dense and white, tattooing is a cosmetic operation of great value. The galvanic current, 5 or 6 milliamperes, the positive pole on the eye, and the negative at the nape of the neck, is sometimes helpful.

Medicinal.—Silicea^{12x}; Calcarea fluor.^{6x}

DISEASES OF THE SCLERA, IRIS AND GLOBE.

SCLERITIS AND EPISCLERITIS.

(INFLAMMATION OF THE SCLERA.)

Causes.—Usually found in those of a rheumatic diathesis.

Symptoms.—Dull, heavy pains around the eyes; ciliary neuralgia; lachrymation and photophobia. Circumscribed swelling near the corneal margin and over the insertions of the muscles, most frequently over the external rectus muscle; localized conjunctival and sub-conjunctival injection; cornea may be cloudy at the point nearest the swelling.

TREATMENT.

Local.—If the cornea is affected, Atropine solution, gr. j. to ℥j. Refractive errors must be corrected.

Medicinal.—Physiological doses of Salicylate of soda or Wintergreen oil; Rhus tox.^{3x}; Bryonia^{3x}; Thuja^{3x}; Sepia^{6x}; Mercurius^{3x}; Aconite^{3x}; Terebinth.^{2x}

IRITIS.

Causes.—Rheumatism and gout; syphilis; tuberculosis; after operations and penetrating wounds of the eye; constitutional diseases, such as variola, typhoid, etc.; it may occur from colds or eye-strain.

Symptoms.—Ciliary neuralgia, worse at night and in damp weather; a zone of injection about the cornea; the pupil contracted and does not react well to light; sensitive to touch over the ciliary region when pressure is made through the lids; the iris discolored; the eye sensitive to light; the pupil may be irregular in outline.

TREATMENT.

Local.—Atropine, grs. iv. to ℥j.; or, Duboisine, grs. ij. to ℥j.; hot fomentations. A tablespoonful of Hamamelis added to $\frac{1}{2}$ glass of hot water and applied on cloths is sometimes of much service for relief of pain and congestion; darkened room and rest in bed in severe cases; wash out the conjunctival sac twice per day with warm Boracic-acid solution.

Medicinal.—Aconite^{3x}; Rhus tox.^{2x}; Hamamelis^{1x}; Belladonna^{2x}; Arnica^{3x}; Bryonia.^{2x}

GLAUCOMA.

Causes.—The most widely accepted view is that the excretion of fluids from the eye, or the drainway of the eye, is blocked, while secretion into the eye continues, producing increased tension; the eye becomes hard, and finally bulges out at its weakest point, *i. e.*, the entrance of the optic nerve. In those predisposed to glaucoma, the attack is apt to be brought on by nervous excitement, grief, worry, or violent exertion.

Symptoms.—Increased tension, or hardness of the eyeball; neuralgia of the infra- and supra-orbital branches of the 5th nerve; the conjunctiva and sub-conjunctival tissue inflamed; the pupil dilated, and does not react to light; the anterior chamber shallow; the cornea anesthetic.

TREATMENT.

Local.—*R.* Eserine, grs. j.; Cocaine, grs. ij.; Aqua, ℥ij. *M.* Drop into the eye two or three times a day. Iridectomy; massage of the eye-ball through the lids.

Medicinal.—Belladonna^{2x}; Bryonia^{3x}; Gelsemium^{2x}; Spigelia^{3x}; Prunus spin.^{3x}

EYE-STRAIN.

Causes.—Over-use of the eyes in bad light; errors of refraction and errors of fixation.

Symptoms.—Headache; pain in the eyes; inflammation of the conjunctiva, iris or cornea; functional nervous disorders of all kinds; choroidal or retinal congestion.

TREATMENT.

Local.—Properly fitted glasses; correction of muscular errors; rest for the eyes. **Caution.**—Eye-strain should be looked for or excluded as the first step in the treatment of nearly all diseases of the eye.

CARE AND TREATMENT OF THE EYES.

GENERAL RULES.

1. Do not bandage an inflamed eye from which there is a muco-purulent or purulent secretion.

2. Do not use ice-packs on an inflamed eye. Cloths wrung out in ice-water are preferable.

3. Do not use irritating lotions when the cornea is in an active state of inflammation.

4. Do not use atropine-solution in an eye when there is increased tension, and do not repeat the instillation when the drug seems to increase the tension which was previously normal.

5. Cold applications should be made immediately in cases of perforating wounds of the eye.

6. Where there is inflammation and pain, hot fomentations will usually give the most relief; when the desired result is not obtained with these, cold should be tried.

7. Calomel should not be used in the eye when the patient is taking Iod. internally.

8. Convalescents from systemic disease should be allowed to rest a little if any. A convalescent is usually able to use his eyes for near work for as long a time with impunity as he is able to use his legs for walking. It may be inferred that his eyes are no stronger than the rest of his body.

9. Make it a rule never to allow the use of domestic remedies in the eyes, for by reason of their probable septic quality they often do harm.

10. A saturated aqueous solution of Boracic acid may be used freely in all external diseases of the eye without harm, and in many cases with very great benefit. It acts best when warmed.

SECTION XVI. DISEASES OF THE EAR.

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DISEASES OF THE EXTERNAL EAR.

OTITIS EXTERNA CIRCUMSCRIPTA.

(AURAL BOILS.)

Causes.—Traumatism (ear-pick; unskillful instrumentation); unsanitary surroundings; stale lotions or instillations. Infecting agent, generally the *Staphylococcus pyogenes albus*.

Diagnosis.—Severe pain and swelling of the canal; the probe, carefully used, will locate the tender spot. *Duration*:—2 to 4 days.

TREATMENT.

Hepar sulph.^{6x}—Unhealthy condition of the skin; sticking pain in the ear; auricle sensitive to touch; tinnitus. When indicated, the constitutional symptoms are quite pronounced and the infiltration marked.

Picric acid.^{6x}—Recurring aural boils, especially in debilitated subjects. There is redness and localized tenderness of the meatus.

Calcarea picrata.^{6x}—Almost a specific to this condition. It seems to combine the good effects of Hepar sulphur and Picric acid, and its clinical indications are similar to those remedies.

GENERAL MEASURES.

Poultice.—If used, small enough to drop into the fossa (do not cover the whole auricle). Small hot sponges are best. Lotions used may contain Cocaine or Morphia, to relieve pain.

Incision.—When indicated, freely incise; follow with applications of Boracic acid in alcohol (saturated solution), or Perchloride-of-mercury.

Pain.—Allayed by applications of glycerine and opium, on cotton. Glycerine alone is palliative.

FOREIGN BODIES.

TREATMENT.

Good light, an ear-speculum and head-mirror, to locate the foreign body. To remove—use the syringe. Turn the patient on his side, or have the head tilted to one side. Use the syringe from below. To straighten the canal, pull the auricle up and back. In some cases the forceps or wire-loop may be necessary, but whenever possible use the syringe.

Insects.—To kill, use the vapor of Chloroform; or, instil Alcohol, or Oil. Then syringe out.

Vegetable Substances.—Water causes peas, beans, etc., to swell; do not use it. *Agglutinative method.*—Dip a

camel's-hair brush, or cotton string, in collodion or glue; allow it to adhere to the foreign body. It may be readily removed: or, use adhesive-plaster, or pine pitch.

HEMATOMA AURIS.

(BLOODY TUMOR.)

Causes.—Usually traumatism (athletes, pugilists and foot-ball players). It is sometimes called "insane ear," but is more likely the result of brutality on the part of the asylum keeper than it is of irritation of the restiform body.

Diagnosis.—A purple swelling on the anterior surface of the auricle; fluctuating or doughy; may or may not be pain; always a history of rapid formation.

Treatment.—To be of use, must be prompt. Evacuate the blood by aspiration, puncture or incision. After this, bandage so as to exert pressure.

WAX IMPACTION.

Cause.—Usually the result of the patient's efforts to keep clean; the use of ear-picks, or corner of the wash-cloth; the wax is pushed past the constriction in the external canal to the cul-de-sac beyond.

TREATMENT.

Syringe.—Warm water and the syringe used gently and slowly, without force or painful symptoms, will usually suffice. If a small passage is first made between the wax and the wall of the canal, it will facilitate removal. If wax is very hard, add to the water Sodium-bicarb. (10 grs. to 1 oz.) Hydrogen-peroxide is the best agent to quickly soften. Olive-oil, or liquid albolene, applied the night before, facilitates. Buck's ear-curette, in skillful hands, is useful, but the syringe is better and safer.

ECZEMA OF THE AURICLE.

Etiology.—Constitutional or general disturbance; rheumatism; gout. *Remote Causes:*—Gastric; intestinal; ovarian; or uterine irritation. *Exciting causes:*—Chronic suppuration of the middle ear; local irritation ("ear-flaps," bonnet-strings, hair-brush); generally-acting causes, both ears affected; local cause, one ear.

TREATMENT.

Arsenicum.^{6x}—Dry, scaly, bran-like eruption. Itching and burning. The burning is intense, increased by scratching and worse at night. Rubbing the affected part may cause bleeding. Feels better in the warm air.

Graphites.^{6x}—Eruption with moist, sticky exudation. Skin looks unhealthy and, wherever the surface is broken it is covered by a thin, watery, transparent fluid. Rawness and sore appearance, especially behind the ears. The patient offers little resistance to handling the part. Better in the open air.

Hepar sulph.^{12x}—Redness, heat and itching of the affected part; moist eruption; great sensitiveness to the lightest touch or slightest cold.

Kali muriaticum.^{6x}—Obstinate eczema in children, especially when accompanied by the characteristic stomach disturbance, sores at the corners of the mouth, etc.; dry, scurfy eruption.

Mezereum.^{6x}—Eruption covered with a thick and hard crust. If there be any moisture, it is thick and pus-like. The itching is worse at night, especially upon getting warm in bed, and is aggravated by scratching. The patient feels much better in a cool place, particularly in the open air.

Oleander.^{3x}—The skin is so sensitive that slight friction, even of the clothing, causes irritation. In the folds of the skin may be found an eruption which is moist and oozing. The itching is but temporarily relieved by scratching. The skin symptoms of Oleander, while more closely resembling simple dermatitis than true eczema, are usually associated with the characteristic gastro-enteric symptoms of the remedy.

Petroleum.^{3x}—Hive-like swellings and vesicular eruption, forming thick scabs with oozing pus. The harsh and dry skin may fissure and crack. Burning and itching, worse in the open air or upon the slightest exposure. Feels better in the warm air.

Rhus tox.^{6x}—Swelling, burning, itching and tingling of the skin. Vesicles on a red surface; aggravation from cold air; tissues about the eruption are red and angry-looking. Itching relieved by scratching.

GENERAL MEASURES.

Hygiene.—Best conditions. Cure a chronic otitis media.

Local.—Dusting-powder, for oozing and moisture. Use, Stearate, or oxide, of zinc; starch; lycopodium; rice-powder. Blow it on the surface by means of an insufflator. Oxide-of-zinc ointment, for soreness and smarting. Mercurial and tar ointments, and silver-nitrate in solutions (1 to 5%) are sometimes useful.

DISEASES OF THE MIDDLE EAR.

ACUTE CATARRHAL INFLAMMATION.

(OTALGIA; EARACHE.)

Causes.—The pressure of a foreign body or mass of hardened cerumen may produce an earache which is quickly removed in the common-sense way. It may be reflex from the stomach or from defective teeth. Exposure to cold; wetting the hair (a pernicious habit); abuse of quinine or salicylic acid; pressure of a foreign body, or hardened wax.

TREATMENT.

Aconite.^{2x}—Earache following a sudden change of temperature; if in a child, there are usually the common congestive symptoms of the drug; noise, even music, is *intolerable*; tinnitus accompanies the violent pain; worse *at night*; aggravated by warmth; better during the day, *especially* in the open air. Unless given immediately

after exposure, in the writer's experience, *Aconite* is useless. In this respect it differs from *Ferrum*, which otherwise is very similar in its action. Where the period of usefulness of the former drug is short, the latter is indicated for several hours. *Aconite*, when indicated in earache, is most serviceable in the lower dilutions.

Belladonna.^{3x}—The patient is feverish; flushed face; headache; often, the sore-throat and other characteristic symptoms. In the ear digging, boring, tearing, shooting pains, which come and go suddenly. With each paroxysm of pain the child may start from his sleep and utter a sudden cry. The congestion of the tympanum and tympanic membrane is pronounced. Rolling of the head from side to side, moaning; tinnitus; usually some deafness; stitches in the throat on swallowing. All the symptoms are worse at night, and relieved from warmth.

Borax.^{3x}—An exceedingly nervous patient. The hearing power is apparently increased; the slightest sound startles; earache paroxysmal; with each attack a sudden start; soreness and feeling of heat in the ear; dread of downward motion. The Borax earache comes on in the early hour of the morning and, unlike *Belladonna*, is made worse by warmth.

Capsicum.^{3x}—While not frequently indicated in acute earache, this remedy is of great value when the mastoid is painful to touch. There is burning pain in the ear, worse from cold and at night. Warm applications relieve the pain. Capsicum is especially to be thought of in sub-acute inflammation of the Eustachian tube, with great pain, and sense of dryness and heat in the throat, extending to the ear.

Chamomilla.^{3x}—Sometimes useful in infantile earache; excessive fretfulness; desire to be carried about; digestive disturbances. The patient is worse at night, and from the slightest cold. Hot applications relieve the pain.

Dulcamara.^{3x}—Earache with every change in the weather, especially cold, damp or rainy; the neck stiff and painful; cracking sound in the ear, on moving the jaws. All the pains are relieved by the application of dry heat.

Ferrum phos.^{3x}—One of the most reliable remedies in acute earache. Cases following exposure to cold or wet weather. Like *Pulsatilla*, it has tinnitus, but, unlike it, there is no deafness. On the other hand, similar to *Borax*, there is abnormal sensitiveness to sound. The pain is throbbing, with a feeling of tension and heat in the ear, or there may be sharp, stitching pains, occurring in paroxysms. The patient feels better in the open air.

Magnesia phos.^{3x}—Otalgia purely nervous in origin. Pain in the ear, and also back of the ear. Worse in the cold air; aggravated by washing the face and neck in cold water. Hot applications relieve the pain.

Plantago.^{3x}—Tearing pains of a neuralgic character. The earache is reflex from dental irritation or associated with toothache.

Pulsatilla.^{6x}—Earache associated with tinnitus and deafness; sensation of fullness and violent pain, as if something were being forced out of the ear. The darting, tearing, pulsating pains are worse in the evening and forepart of the night. The earache may come on as soon as the patient is warm in bed. He is better in the cool air, and cold applications relieve the pain. *Pulsatilla* is more useful in subacute cases, in earache accompanying actual otitis.

Sanguinaria.^{3x}—Sometimes at the climacteric earache is an annoying symptom. This remedy is useful in such cases. There are tinnitus and painful sensitiveness to sudden sounds. The pain is worse in the open air.

GENERAL MEASURES.

Dosage.—In administering a remedy for earache it is well to give it in warm water, and at intervals of 10 to 15 minutes. By this method, rapid absorption takes place and relief speedily follows.

Eustachian Tube.—In the treatment of earache, it is well to see that the Eustachian tube is opened either by Val-salva's method, or the Politzer bag.

Applications.—Heat may be applied by gently *pouring* warm water into the external canal. Avoid the use of the piston-syringe; the force of the jet so applied may greatly aggravate the pain. Pour the liquid from a warm spoon; or, use a fountain-syringe *near the level of the head*. If the appliances are at hand, use steam instead of water. Rubber-tubing, attached to a radiator valve, is a splendid way of conducting the steam to the ear. *Dry heat* is grateful. Apply by the hot-water bag; bags of salt; or, the Japanese pocket stove.

Oils.—In general, oils and fats are not to be used; they obscure the parts; this is objectionable if the case progresses to the surgical point. However, the old household remedy, laudanum and sweet-oil, has doubtless relieved many earaches. Warmed strained honey, frequently used in the country, is helpful because it applies and retains heat.

Palliatives.—The vapor of Chloroform relieves some cases as by magic. To apply—Place in the bowl of a pipe a bit of cotton saturated with Chloroform; with the mouth over the bowl, force the vapor through the pipe-stem to the ear of the patient. Tobacco smoke may be used in similar manner. Aconite^{Tr.} or Bryonia^{Tr.} applied on cotton gives relief in some cases. This may be used:—R. Camphor-chloral, 5 drops; Almond oil, 25 drops; Glycerine, 30 drops. Mix. Warm and drop into the ear. Or this:—Plantago major, 4 drams; Belladonna^{Tr.} 15 drops; Aconite rad.^{Tr.} 10 drops; Magendie's solution, 20 drops; Water to make 1 oz. Mix. Warm; drop into the ear every 5 minutes, if necessary.

CHRONIC CATARRHAL INFLAMMATION.

(CATARRHAL DEAFNESS.)

Cause.—Always secondary to a primary chronic rhinitis, with all the causes of the latter.

Diagnosis.—The history of the case renders the diagnosis easy. By exclusion the aural lesion is readily located. Examination shows the external ear to be normal; the tuning-fork on the mastoid proves the normality of the internal ear and auditory nerve. The dull and retracted tympanic membrane, the tinnitus, the aggravation from damp weather, and the deafness, all point to the middle-ear as the seat of trouble.

TREATMENT.

Factors.—In the treatment, three factors must be considered: (a) The remote cause; (b) the primary condition; (c) the restoration of function.

Remote Cause.—Correct:—Unhygienic surroundings; uncongenial climate; depraved general health.

Primary Condition.—The chronic rhinitis must be relieved. Spurs; hypertrophied turbinates; polypi; adenoids, or other abnormal nasal conditions must be removed. Nasal stenosis and aural health are never companions.

Restoration of Function.—Open the Eustachian tubes once a day by Valsalva's method (holding the nose, inflating the cheeks and blowing); or the Politzer bag; employ some form of aural massage; use a modern electrical appliance; or, simply Siegle's pneumatic speculum. An excellent method of applying aural massage is the attachment of a telephone-receiver to an ordinary faradic coil. The vibrations may be increased or diminished in rapidity and force by the vibrator regulator. If the patient has no better facilities, the noise of a fanning-mill or saw-mill will be found of value. Spend 15 minutes a day in the clatter of machinery.

TREATMENT.

Therapeutics.—In no other aural disease is such individuality shown as in chronic catarrhal otitis. A résumé of symptoms is out of the question. Careful study of the aural, nasal, throat and general symptoms will lead to the choice of the internal remedy, which is a necessity in the successful treatment of this obstinate condition. Compare the Calcareas; the Mercuries; the Kalis (especially Kali muriaticum); Hepar; Hydrastis; Pulsatilla; Sanguinaria; Causticum; Graphites; Silicea; Sulphur.

SUPPURATIVE INFLAMMATION.

(OTORRHEA; "RUNNING EAR.")

Causes.—It may follow the acute catarrhal form; or scarlatina or other of the exanthemata. It may be an evidence of tubercular diathesis.

Prognosis.—Favorable as to life, but, as ordinarily treated by the general practitioner, unfavorable as to cure. It is not "outgrown." Do not look upon it as trivial. In the acute form, if pain persist after the discharge is established, the prognosis must be guarded. In the chronic form the sudden cessation of the discharge and the development of pain are dangerous symptoms

In each instance there is the possibility of mastoid involvement.

TREATMENT.

Capsicum.^{3x}—Acute pain in and about the ear; mastoid swollen and sensitive on pressure; useful in a chronic case which suddenly assumes acute symptoms.

Mercurius.^{6x}—Suppuration, with glandular involvement; small perforation of the membrane; white, fetid, or bloody discharge.

Hepar sulph.^{6x}—Feeling of heat and discomfort in the ear, which is very sensitive to the lightest touch or the slightest cold. The discharge is slight, sour, and very offensive.

Hydrastis.^{3x}—Thick, tenacious, stringy muco-purulent discharge, which is bland and unirritating. The dropping of mucus into the throat is usually associated with the ear symptoms.

Silicea.^{12x}—Useful in cases complicated with caries or necrosis of the ossicles or bony walls of the middle ear. The discharge is small in amount. The lining of the external auditory canal may be ulcerated. The perforation of the tympanic membrane seems to repair rapidly under this remedy.

Kali phos.^{6x}—Chronic suppuration, when the discharge is thin and dirty; on slight manipulation the parts bleed. This remedy is especially to be considered in the cases of possible tubercular origin.

Calcarea carb.^{12x}—The patient is inclined to fat; skin fair; flesh flabby; sweat of the head; discharge white, thick, sticky; tendency to the formation of granulation-tissue, tumors, or mucous polypi (Calc. iod.).

GENERAL MEASURES.

Acute Cases.—Paracentesis, if there be much bulging of the tympanic membrane. To make this operation, the head must be supported and the auditory canal well illuminated; make the incision carefully in the postero-inferior quadrant of the tympanic membrane. After puncture or spontaneous rupture of the ear-drum, make instillations of Hydrogen-dioxide (every 2 hours)

Sub-acute and Chronic Cases.—Carefully syringe the canal; instil Hydrogen dioxide; wipe dry with bits of cotton; insufflate with impalpable powder of Boracic acid. Repeat this treatment often enough to keep the canal clean and dry (at first, about every day; later, once or twice a week).

Complicated Cases.—In cases where there is necrosed or carious bone the ordinary antiseptic methods will fail. In such a case proceed as follows:—In a test-tube heat an ounce of water to about 115° F. With this mix one dram of Glycerinum pepticum (Fairchild) and four drops of Hydrochloric acid, C. P. (16 drops dilute acid, U. S. P.). Fill the external canal with this solution and allow it to remain half an hour. Syringe out the ear, wipe it dry and insufflate with Boric acid. Repeat the treatment after three or four days. Two or three treatments will be sufficient to digest the dead bone and cure the case.

MASTOIDITIS.

Diagnosis.—The diagnosis is frequently difficult. There are two reliable signs:—(a) Local tenderness of the mastoid on deep pressure; (b) depression or sagging of the postero-superior wall of the auditory canal, close to the tympanic membrane. Be careful to examine both sides of the head, so to be sure that the tenderness is not physiological. The cringing of the patient will make this symptom unmistakable. Where an otorrhea has existed, the cessation or lessening of the discharge may indicate involvement of the mastoid cells. There are pain and sleeplessness, with perhaps little if any rise in temperature.

TREATMENT.

Therapeutics.—The remedies and indications are fully considered under Suppurative Otitis.

Operation.—In undoubted mastoiditis, the radical operation with trephine, chisel, or gouge, is indicated. This must be thoroughly done and under the strictest asepsis. As a life-saver its value is beyond computation.

DISEASES OF THE INTERNAL EAR.

Nature.—In the present state of aural knowledge, most internal ear conditions must be considered as symptoms rather than as diseases.

Etiology.—Among the causes are defective development; hemorrhage; tumors; anemia; hyperemia; or, inflammation. These causes, of course, may or may not be due to general disease.

Symptoms.—The hearing is impaired, possibly for all sounds, or for certain tones; the deafness may be total. On the other hand, there may be abnormal sensitiveness to noises, or perversion of sound. Tinnitus, nausea, and giddiness are common symptoms.

TREATMENT.

General.—The treatment consists in the improvement of the general health, or the removal of the primary condition.

Therapeutics.—Refer to the remedies under Acute Catarrhal Otitis. In addition, compare—Cinchona; Chenopodium; Hydrobromic acid; Salicylic acid; Pilocarpin.

ARTIFICIAL AIDS TO HEARING.

Devices.—Many have been described. Unfortunately any inconspicuous instrument is likely to be a failure in every case. There have been recorded very few reliable instances of relief from the artificial "ear-drum." In a general way it may be said that for all cases of deafness, the instrument most certain of satisfactory results is the "London Hearing Horn."

SECTION XVII.
DISEASES OF THE NOSE, THROAT AND
LARYNX.

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DISEASES OF THE NOSE.

ACUTE CATARRHAL RHINITIS.

(COLD IN THE HEAD.)

Symptoms.—Chilliness; sneezing; watery discharge; aching; "stiffness;" depression; fever; dry throat and mouth; frontal headache (severe if the sinuses are involved); the nasal discharge soon becomes thick and yellowish; smell may be lost.

TREATMENT.

Preventive.—Keep the body warm and dry; meshed linen underwear; thick soles to shoes; avoid bundling the neck.

Camphor. Tr.—As soon as the first chilly sensation is felt. A drop on sugar every 15 minutes; three or four doses will usually be sufficient to cause a feeling of grateful warmth, and no more will be needed.

Aconite. 2x.—To be given as soon as the first indications of chilliness are present; particularly if after exposure to cold winds.

Arsenic alb. 6x.—Free, watery, acrid discharge; frequent sneezing; nose feels stopped up, but still it runs and burns; edges of nostrils excoriated; burning discharge.

Arsenicum iod. 2x.—Much like Arsenicum alb., with an added asthmatic tendency.

Ammonium carb. 3x.—Acrid, watery discharge during the day; dry and stuffed at night, causing mouth-breathing.

Euphrasia. Tr.—Acrid discharge from the eyes; bland from the nose; constant sneezing.

Mercurius. 3x.—Profuse, fluent, corrosive discharge; worse when warm in bed at night.

Pulsatilla. 3x.—Frequent alternation of fluent and dry coryza; sneezes as soon as he gets near the heat, especially in the evening; feels better in open air. Frequently adapted for later stages of a cold.

Sambucus. 1x.—Snuffles of infants; cannot breathe through the nose; starting from sleep from inability to breathe.

SIMPLE CHRONIC RHINITIS.

Diagnosis.—The application of Cocaine shows a *shrinkage of tissue*; in hypertrophic rhinitis, there is no

shrinkage. The lower turbinals can be pressed back with a probe; in hypertrophy they remain rigid.

TREATMENT.

Local.—Cleanse well the mucous membrane (see methods).

Ammonium mur.^{3x}—Clear watery mucus running from the nose; corrosive; itching in the nose; hoarseness, with burning in the larynx.

Antimonium crud.^{3x}—Margins of the nostrils crack; cold air pains the nostrils when breathed.

Argentum nit.^{3x}—Headache, with chilliness and sneezing; yellow or bloody discharge; itching.

Calcarea carb.^{3x}—Offensive smell in the nose, like rotten eggs; nose dry and stuffy at night, free during the day; cervical glands enlarged; tendency to fat; head sweats during sleep.

Hepar sulph.^{3x}—Frequent catarrhal attacks; sensitive to all draughts; bloody mucus.

Hydrastis. Tr.—Thick, yellow, sticky discharge; sensation of a hair in the right nostril; inspired air feels cold to the nose; dull frontal headache.

Kali bich.^{2x}—Small ulcers on the septum; pain at the root of the nose; discharge yellow, and draws in strings.

Phosphorus.^{3x}—Green or bloody discharge; a little blood on the handkerchief every time it is used.

Sanguinaria. Tr.—Coryza with pain in the root of the nose; pain in frontal sinuses; dry, tickling cough; voice lost.

Sticta. Tr.—Fullness in the nose, with dryness of the mucous membrane; desire to blow the nose, but no discharge; dry cough, worse at night.

HYPERTROPHIC RHINITIS.

Symptoms.—Frequent cause of nasal obstruction; dull pains in the forehead and eyes; mental dullness.

Diagnosis.—Cocaine does not shrink the turbinals; the probe does not easily move the anterior margin of the middle turbinals. Turbinates frequently in contact with the septum. Rhinoscopy shows, posteriorly, the lower turbinals enlarged, looking like a mulberry. A mass on each side of the septum having the appearance of grub-worms, often seen.

TREATMENT.

Instruments.—Knives; cutting-forceps; scissors; the galvanic cautery; the galvanic needle; caustics (Chromic acid; Tri-chlor-acetic acid; Glacial acetic acid). For the removal of posterior hypertrophies, the cold-wire snare.

Operation.—To remove hypertrophied turbinals:—
(1) *Galvano-cautery.*—Apply a solution (4%) of Cocaine (see *Rule 6*); use the galvano-cautery by having the knife at dull heat, and apply it flat on the hypertrophied area, keeping it in position long enough to produce a good eschar. (2) *Galvanism.*—Have the patient hold a sponge-electrode on one hand; insert the needle, attached to the *negative* pole, into the sub-

stance of the hypertrophy, and turn on a current of about ten milliamperes for from 3 to 5 minutes. Repeat once a week. (3) *Scissors or cutting-forceps*.—Insert carefully, and remove no more than is absolutely necessary to prevent contact. (4) *Acids*.—Fuse a very little on a silver probe; be careful to touch only the point selected. (5) *Cold-wire snare*.—Adjust carefully, using the rhinoscopic mirror or the finger to aid in placing it, and then tighten slowly, giving plenty of time to divide the mass, thus avoiding hemorrhage. (6) *Saw*.—All spurs or ridges that arise from the septum, touching the opposite wall, should be removed with the saw.

Medicinal.—*Ferrum iod.*^{3x}—The nose stuffed at night, so that he must sleep with the mouth open; suddenly relieved between 5 and 6 in the morning.

Ammonium mur.^{3x}—Stoppage of one nostril during the day, and both at night.

Lycopodium.^{6x}—Nose "stuffed"; breathing impeded; the child starts up, rubbing the nose.

ATROPHIC RHINITIS.

(DRY CATARRH.)

Symptoms.—The membrane dry; the turbinals more or less completely absorbed; inspissated mucus, in crusts, adhering to the walls; the nostrils feel dry to the patient; erosion of the septum, due to picking off of scabs; sense of smell often lost.

TREATMENT.

Local.—Remove the crusts with Solution No. I., II., IV. or V. Rub thoroughly with pledgets of cotton, and when clean apply Sprays Nos. C, F, R, with the nebulizer. If scabs are very hard to remove, Hydrogen-peroxide, applied on cotton, to soften them. If ozena is present, use Solution No. III., once a day. Spray No. S, applied with the nebulizer, or directly to the membrane with cotton, has proved a most excellent remedy in the hands of the author to prevent the scabs from reforming.

Medicinal.—*Alumina.*^{3x}—Old people; hard scabs; greenish-yellow discharge; septum ulcerated; constipation.

Argentum nit.^{3x}—The nose bleeds when picked; also, apply locally as a stimulant.

Aurum met.^{3x}—Syphilitic caries; bones of the face tender to pressure; after abuse of mercury; mental despondency.

Hepar sulph.^{3x}—After abuse of mercury; the nose sensitive to touch.

Kali bich.^{2x}—Plugs and "clinkers" in the nose; ulcers on the septum look as if punched out.

Kali iod.^{1x}—Membrane very dry; dryness extending to the larynx, producing hoarseness.

Mercurius sol.^{3x}—Pain in the cheeks and frontal sinuses; pains worse at night.

Cinnabaris.^{3x}—Dryness of the nose, with heavy pain at the base.

Graphites.^{3x}—Great dryness of the nose; discharge of lumps and masses of dried mucus.

PURULENT RHINITIS OF CHILDREN.

Etiology.—Dependent upon no dyscrasia. Increased mucous secretion, and rapid desquamation of epithelial cells. The first stage of dry catarrh, or *ozena*. Peculiar to children.

Symptoms.—Yellowish muco-purulent discharge *from both nostrils*; “dirty-nosed;” absence of odor.

TREATMENT.

Local.—Cleanse the nasal cavities daily with Solution No. I., using the post-nasal syringe. Use at night four or five drops of a bland oil (as Benzoinol), dropped into each nostril with a dropper. *Caution.*—Great care should be observed to press the piston of the post-nasal syringe slowly, to avoid throwing the solution into the eustachian orifices.

Medicinal.—**Alumina.**^{6x}—Thick, tenacious, yellow muco-pus, hard to dislodge.

Calcarea carb.^{3x}—Thick, yellowish muco-pus.

Cyclamen.^{Tr.}—Thick, yellow discharge, with much sneezing.

Lycopodium.^{6x}—Nose “stuffed up” at night.

Natrum carb.^{3x}—Thick, yellow discharge, with the nose red and scaly at the tip.

FIBRINOUS RHINITIS.

Symptoms.—First, chilliness; then fever; pain in the limbs; loss of appetite; sneezing; profuse, watery discharge; nasal stenosis; this followed by sero-mucous and muco-purulent discharge, also profuse.

Diagnosis.—A pearly-white membrane covers the whole or part of the nasal lining; secretions must be carefully wiped off to discover it. Cocaine has little power to reduce the swelling in these cases. Make a bacteriological examination when possible.

Treatment.—Perfect rest in bed until the fever has abated. A sustaining diet. Remove all secretions; use Solution No. F, in nebulizer.

Medicinal.—**Ammonium caust.**^{3x}—Nasal discharge ex-coriating; great prostration.

Apis mel.^{Tr.}—Prostration; drowsiness; thirstlessness.

Arsenicum alb.^{3x}—Restless; aggravation after mid-night; thirsty all the time, but a little satisfies.

Lachesis.^{6x}—Aggravation always after sleeping.

HAY FEVER.

(ROSE-COLD; HAY ASTHMA.)

Symptoms.—Itching of the roof of mouth and inner canthi; watery, nasal discharge; swelling of the nasal mucous membrane; difficult breathing; loss of smell and taste. Aggravation during the daytime.

TREATMENT.

Local.—Anticipate the disease. About two weeks before the attack is expected, commence to wash and sterilize the nasal and post-nasal cavities with an antiseptic solution. This must be done *thoroughly* and *frequently*. Hydrozone ($\frac{1}{2}$) at first; just before the onset ($\frac{3}{4}$); (dilute with sterilized water).

Diet.—Regulate the diet; meat in small quantities only; not more than once a day; avoid all sweets and starches.

Medicinal.—Arsenicum iod.^{3x}—Sneezing; acrid discharge from the nose, which excoriates; worse after midnight; enlargement of glands of the posterior wall of the pharynx; prostration.

Euphrasia.Tr.—Irritation and sneezing all day, with copious, bland discharge from the nose; excoriating discharge from the eyes.

Gelsemium.Tr.—Great prostration; intense frontal or occipital headache.

Kali iod.—Implication of accessory cavities; discharge watery and colorless; excoriating.

Sabadilla.Tr.—Great itching of the nasal membrane, with violent sneezing; profuse watery discharge from the nose and eyes; worse in the open air.

DEFORMITIES OF THE NASAL SEPTUM.

Symptoms.—External deformity may be detected in some cases; alternating nasal stenosis frequent; epistaxis from no apparent cause.

Diagnosis.—By anterior examination of the nasal cavities.

TREATMENT.

Operation.—(1) *The Saw.*—Remove the angle of bone. (2) *Punch.*—Remove a small portion of cartilage; or, make a stellate incision, allowing the septum to be restored to its natural position and retained there by nasal plugs or splints. (3) *Forceps.*—Refracture the septum, then, by properly adjusted splints, retain the position until union of the fragments has taken place. (4) *Burs and Trephines.*—Remove projecting deformities.

ABSCESS OF THE NASAL SEPTUM.

Causes.—Generally the result of traumatism. It may involve the whole anterior nasal cartilage, causing great deformity.

Symptoms.—Soreness and tenderness on pressure; more or less increasing stenosis; low down in each naris a bulging mass, easily indented with a probe.

Treatment.—Free incision, to evacuate the pus and prevent closure of the wound too quickly. Wash the cavity thoroughly with Electrozone (1 to 6) daily until it is healed.

FOREIGN BODIES IN THE NOSE.

Diagnosis.—A discharge from one nostril, consisting of muco-pus mixed with cheesy flakes, which are inspissated mucus, and characteristic. To confirm the diagnosis,

use a probe. In a young child, anesthetize with Cocaine or a few whiffs of Chloroform, to keep it quiet, to facilitate examination.

Treatment.—If the body is located anteriorly, it can usually be removed with a pair of forceps. If too large to remove in that way, crush it, and then remove in pieces. If in the posterior nares, place one finger in the pharynx and dislodge the body backward with a probe.

PARASITES IN THE NASAL CAVITIES.

Occurrence.—Rare in temperate zone; not uncommon in tropics.

Symptoms.—Formication in the nose, with frontal headache; muco-purulent, bloody discharges; severe nose-bleed if vessels are attacked; swelling of the nose and face.

Diagnosis.—Easy to distinguish by careful examination.

Treatment.—Inject into the nose Chloroform and water, equal parts. It may be necessary to open and cleanse the accessory cavities if the maggots reach them.

SYPHILIS OF THE NASAL PASSAGES.

Primary Ulcer.—Primary sore is rare in this locality. *Diagnosis:*—An ulcer, with a hard base, and granular surface; it bleeds easily on touch; no pulmonary disease; if no marked epistaxis is present, and enlargement of the sub-maxillary glands on the side of ulceration is noticed, the case must be suspiciously watched, and the characteristic eruption (from 3 wks. to 6 ms. later) looked for.

The Mucons Patch.—Scarcely ever found in the nose.

Superficial Ulcer.—Ulcer with well-defined borders on the floor of the nose, turbinals or septum (the latter most frequently); the surface depressed in the center and covered with thick, grayish-yellow discharge; this removed, shows an ulcer of light pink color; it bleeds easily; does not extend rapidly.

Gummy Tumor.—It appears on the septum or turbinals; when on the septum it is smooth and round; usually normal in color; firm and hard to the touch; it develops rapidly, becoming full-grown in a few days, then remaining stationary for a long time.

TERTIARY SYPHILITIC ULCER OF THE NOSE.

Diagnosis.—Boring night-pains of the gummy tumor disappear when it breaks down into an ulcer. The ulcer has a bright, shining, red areola, extending some distance. The probe discovers denuded bone. A peculiar clear-white, cheesy substance accumulates above the ulcer, which comes away in masses while cleaning, and is very characteristic.

TREATMENT.

Local.—The parts must be kept perfectly clean. Use an antiseptic solution frequently. Remove the necrosed tissue and any spiculæ or sequestræ as soon as separable.

tion has taken place. Dust freely with Iodoform or Nosophen.

Medicinal.—**Corallium rub.**^{3x}—Chancre very red.

Kali iod.^{1x}—Gnawing bone-pains; throbbing and burning in the nasal and frontal bones; greenish-yellow and excoriating ozena; violent headache; tendency to infiltration of bones as well as soft tissues.

Mercauro. Tr.—The lesion tends to reappear.

Lachesis.^{6x}—After abuse of mercury; blueness around the chancre; nightly bone-pains; ulcers phagadenic; burning on touching.

Nitric acid.^{3x}—Granulations bleed easily; sensation of a splinter in nose; cracks in the corners at the margins of the nose or mouth.

LUPUS OF THE NOSE.

Diagnosis.—Ulceration shows a granular, elevated mass, covered with grayish mucus; is slow in destructive action. For differential diagnosis between lupus, carcinoma, sarcoma and tuberculosis, use the microscope.

Treatment.—Scrape away all diseased tissue. Apply, with a pointed glass rod, pure Nitric acid in which is dissolved copper filings (as much as will be taken up). Apply to the entire periphery of the ulcer. Treat twice a week. Attend to the general health.

RHINO-SCLERMA.

Diagnosis.—Hard, button-like plates or nodules just inside the nostril, or on the alæ or upper lip; the first thing the patient observes is the hard feeling to the touch. The hardness increases, and the nose becomes flatter; it may extend internally until the larynx is stenosed. Firm pressure causes pain that lasts some time. Prognosis, not good.

Treatment.—Most authorities advise early removal with the knife, curette or galvano-cautery.

Medicinal.—**Conium.**^{3x}—Indicated by the stony hardness of the parts.

NASAL POLYPI.

Symptoms.—Difficult nasal breathing; violent sneezing; watery discharge, muco-purulent later; by reflected light a tumor appears, glistening and shiny; it can be moved with a probe.

Treatment.—Removal with cold-wire snare, galvano-cautery snare, or forceps. Apply Cocaine solution (4%) before operating. Stronger solutions are hardly necessary. With the cold-wire snare, insert the loop between the growth and the septum, turn it horizontally and allow it to slip upward, encircling the tumor; tighten the loop carefully and slowly until the polyp is severed. Repeat this upon each tumor, and examine at the end of a week to discover any polypi that may have been hidden in the cavities but are apparent later. See the patient at intervals of a month or so for some time, and remove any tumors appearing. The hemorrhage is usually slight if care is taken not to injure the mucous membrane.

NASAL FIBROMATA.

Diagnosis.—The appearance of the growth is irregularly round; reddish-pink in color; hard in character; frequent epistaxis. They are rare in the nasal cavities.

Treatment.—Surgical interference is necessary. Transfix the tumor with a needle; adjust the loop of a galvano-cautery snare. This method prevents severe hemorrhage, which is to be guarded against.

NASAL OSTEOMATA.

Diagnosis.—Determine the presence of bone by a probe; or, by the finger. Early external deformity is usual. Exophthalmos may be due to it. Often severe pain (pressure on the sensory nerves). The point of attachment is relatively small; frequently broken off; after which, remove as a foreign body.

Operation.—Surgical measures are to be taken according to the size of the tumor. A free incision will, in many cases, have to be made.

NASAL PAPILLOMATA.

Diagnosis.—Small, grayish, warty growths, near the margin of the nostril. If far from the opening, they are softer and larger.

Treatment.—Removal in the same manner as polypi.

ANGIOMA OF THE NASAL PASSAGES.

Diagnosis.—Tumor of reddish or purplish color.

Treatment.—The cold-wire snare, with the loop at the extreme base of the pedicle before tightening; then tighten slowly, consuming hours, sometimes, to avoid hemorrhage. *Caution.*—Do not puncture with a probe; severe hemorrhage results.

SARCOMA OF THE NASAL PASSAGES.

Diagnosis.—A flabby, bluish-gray, pedunculated tumor, on the inner or outer wall of the cavity. Confirm the diagnosis with the microscope.

Treatment.—Complete eradication as soon as recognized. Use the curette.

CARCINOMA OF THE NASAL PASSAGES.

Diagnosis.—Use the microscope at once.

Treatment.—Make an external opening; reach the regions invaded; remove all diseased portions. Results are discouraging.

THE ACCESSORY SINUSES OF THE NOSE.

Varieties.—Diseases of the maxillary, ethmoidal, sphenoidal and frontal sinuses, where pus issues from them.

Diagnosis.—A discharge of pus from one nostril (the only other conditions which have that symptom are foreign bodies; syphilis; neoplasm). The pus is bright-yellow; smells of sulphureted hydrogen. Apply Cocaine solution (4%); with cotton carefully wipe away all dis-

charge. In order to detect the origin press with a probe, causing a free discharge. (a) *Anterior* discharge denotes disease of the antral or *frontal* sinuses, or anterior ethmoidal cells; (b) Discharge in the *pharynx*, comes from the *posterior ethmoidal* cells or *sphenoidal* sinuses. (c) *Intermittent* discharge is from the *maxillary* sinus. (d) *Continuous*, from the others. To promote discharge from the *antrum*, throw the head well forward; or, lie on the unaffected side. For the others, an upright position.

Exophthalmos is common in ethmoidal disease. In disease of the sphenoidal sinus sometimes sudden blindness (pressure on the optic nerve in the optic foramen); also *exophthalmos*.

Treatment.—Establish free drainage in all cases. First remove all nasal obstructions. In *maxillary* sinus, remove the first or second molar tooth; drill through the tooth cavity and make an opening into the antrum. Cleanse the cavity by syringing through the artificial opening daily; use solution of Electrozone (1:6), until the solution escapes through the nasal orifice. Insert a silver drainage-tube, to keep the opening from healing shut. Experienced operators only should open the ethmoidal and sphenoidal sinuses. In all, order the use of cleansing and disinfectant solutions. The opening into the frontal sinus is made immediately below the eyebrow, and near the bridge of the nose. Incise through the skin, elevate the periosteum, open the bone with a drill or trochar. The normal orifice must be opened and kept patulous, to insure free drainage.

ACUTE NASO-PHARYNGITIS.

Symptoms.—Appears suddenly after taking cold; sensation of dryness and burning in the back of the throat and palate; feverish; headache; malaise; notable prostration.

Treatment.—*Aconite*.^{3x}—Dispense on No. 50 pellets, one every half-hour as soon as the first symptom appears until improvement is noted, then every two hours. A short time will usually serve to abort the whole condition.

Camphor. Tr.—On pellets, one every half-hour after the exposure, will usually prevent all symptoms from appearing.

Gelsemium.^{2x}—Especially indicated where there is marked prostration, sensation of trembling and drowsiness.

ADENOIDS OF THE PHARYNX.

(HYPERTROPHY OF THE PHARYNGEAL TONSIL.)

Diagnosis.—Nasal stenosis; peculiar, vacant facial expression. Chronic suppurative otitis; progressive deafness; thick, tenacious nasal discharge; mouth-breathing and snoring during sleep; night-terrors are frequent. Confirm the diagnosis by digital exploration.

TREATMENT.

Medicinal.—In young children many cases will be cured by the administration of *Calcareo iod.*^{2x}—One tablet before each meal. Also, use a bland oil (benzoinol), dropping 4 or 5 drops (with a dropper) into each nostril night and morning. Relief will be immediate in many cases.

Surgical.—When medical treatment fails after a reasonable time, remove the growths. As an anesthetic, Ether is the safest. Operate in the early morning hour, fasting.

Operation.—Place the patient on the right side, with a sand-bag to the back (in order to retain the position). Anesthetize the patient. Draw a rubber tissue-cap over the head (to prevent blood from soiling the hair). Fasten the mouth-gag in the left side. The operator stands at the right of the patient. Render the hands aseptic. Introduce the fore-finger of the left hand into the mouth, along the right posterior pillar into the pharynx, retaining it there to guide the forceps, to prevent injury to the tissues. Insert the forceps by the right hand. Use first a large-sized forceps, suited to the size of patient; follow by a smaller pair; lastly, a curette, to smooth the walls of the pharynx. Meantime, the nurse is ready with small pieces of folded sterile gauze, held on handles, to clean the pharynx of all blood that accumulates as the operator withdraws his instruments. The hemorrhage is usually of short duration. After the operation place the patient in bed; keep quiet for 24 hours. Diet, light and nutritious. [Some authorities advocate the use of the curette alone, claiming greater rapidity and equally good results.]

DISEASES OF THE NASO-PHARYNX.

FIBROMA.

Diagnosis.—Practically the same symptoms and treatment as that found under the head of *Fibroma of the Nose*.

MYXO-FIBROMA.

Diagnosis.—A tumor of a grayish-red color (the true fibroid has a characteristic whitish-pink tinge). Insert a probe to discover mobility.

Treatment.—The treatment is purely surgical; removal is best accomplished with the cold-wire snare. In cases of very large tumor it requires skill and patience to adjust the loop. Apply Cocaine (4%) before applying the loop.

SARCOMA.

Diagnosis.—A microscopical examination only is certain.

Treatment.—A radical operation under an anesthetic, as early as recognized, would seem to be the only rational method.

CARCINOMA.

Diagnosis.—The microscope must decide. It is very rare.

DISEASES OF THE PHARYNX AND
TONSILS.

ACUTE PHARYNGITIS.

Diagnosis.—Chilliness; dryness and soreness of the throat; constant desire to clear the throat; tongue coated; small yellowish patches on the post-pharynx or tonsils; general hyperemia of the mucous membrane, extending to the pillars, soft palate and uvula; the tonsils somewhat swollen.

TREATMENT.

Local.—Solution No. I., II., IV., or V.

Medicinal.—Aconite.^{3x}—Throat dry; pricking; burning; febrile excitement.

Belladonna.^{3x}—Inflammatory redness of the soft palate, uvula and tonsils; throat very dry; burning, shooting pains when swallowing; constant desire to swallow.

Capsicum.^{Tr.}—Chilliness down the back; the uvula feels elongated; the throat sore, smarting and biting.

Gelsemium.^{Tr.}—Fauces dry, irritated and burning; the tonsils inflamed; burning in the esophagus.

Hepar sulph.^{3x}—The throat feels scraped; sensation of a fish-bone in the throat.

Mercurius.^{3x}—The throat raw, burning; the pharynx red and swollen; worse at night.

Phytolacca.^{2x}—The throat sore on the right side; sensation of red-hot ball lodged in the fauces; hot fluids aggravate.

CHRONIC PHARYNGITIS.

Diagnosis.—The pharynx has a healthy color, but is sometimes studded with little elevations, between which is a glazed appearance.

TREATMENT.

Local.—Attend to the toilet of the nose and pharynx perfectly. Apply Calendula Oil to the posterior wall of the pharynx.

Medicinal.—Argentum nit.^{3x}—Mucus difficult to dislodge; must hawk much to expel it.

Kali bich.^{2x}—Throat sore; mucus in hard lumps from the posterior nares.

Phosphorus.^{3x}—Rawsness and scraping in the pharynx; worse evenings; throat dry day and night.

ELONGATED UVULA.

Symptoms.—Constant irritation in the fauces; in some cases serious cough.

Treatment.—Amputation. Apply solution of Cocaine (4%) to the entire uvula a few moments before operation. With a good light, either direct or reflected, have the patient hold the tongue-spatula; grasp the tip of the uvula with a pair of long dressing-forceps, holding taut but not pulling; use a pair of long blunt-pointed curved scissors to cut the uvula, making the cut obliquely upward and backward, leaving a small portion of the uvula remaining.

After-Treatment.—Rinse the mouth frequently with an antiseptic wash. Use no irritating food or drink for a day or two.

PERITONSILLAR ABSCESS.

Diagnosis.—Sore throat, usually unilateral; swelling of the soft palate directly above the tonsil, bright red in color. When suppuration is present, evacuation should be done with a spear-pointed knife, at a point one-half inch above and one-half inch external to the junction of the soft palate with the uvula.

Medicinal.—Sulphide-of-calcium.^{1x}—One gr. every two hours as soon as the diagnosis is made; will generally abort it promptly.

HYPERTROPHY OF THE TONSILS.

TREATMENT.

Medicinal.—Calcarea carb.^{3x}—The tonsils large and smooth; the child fat and chubby; profuse perspiration on the head.

Calcarea phos.^{1x}—The child inclined to be thin; takes cold easily; poor appetite.

Calcarea iod.^{3x}—Glandular enlargements in other localities.

Baryta iod.^{3x}—The tonsils look *worm-eaten*.

Surgical.—When the tonsils have been frequently inflamed, some adhesion of the pillars will exist; break these up before amputating the tonsils. *Instrument:*—Matthieu's, or Mackenzie's tonsillotome (I prefer the former). *Operation:*—Pass the instrument alongside of the tonsil; be sure to engage the lower portion first into the ring of the tonsillotome. Hemorrhage is liable to follow, especially in adults. Make pressure with the thumb, enveloped in several folds of a light handkerchief. The actual cautery may be applied directly to the cut surface.

TONSILLITHS.

(STONE IN THE TONSIL.)

Diagnosis.—Calculus forms in the crypt of a tonsil; it usually projects from the tonsil a short distance. For positive diagnosis explore with a probe.

Treatment.—Remove with pair of stout forceps; then amputate the tonsil as soon as inflammation subsides.

MYCOSIS OF THE FAUCES.

Diagnosis.—Small, milky-white, soft, moist-appearing, pointed shoots, projecting from the mucous membrane. Usually found first, and most developed, in the crypts of the tonsils.

Treatment.—Remove the growth and the tissue which favors it. Scrape with a sharp curette; follow with application of Chromic acid or Nitrate-of-silver. Puncture with the galvano-cautery is also efficacious, and is easily manipulated.

Medicinal.—Constitutional treatment.

HYPERTROPHY OF THE LINGUAL TONSIL.

Symptoms.—Dry, irritating, hacking cough; no expectoration; the voice tires easily; desire to swallow something that seems lodged in throat; lack of confidence in the voice in singers.

Diagnosis.—Masses of enlarged glands at the base of tongue, in the glosso-epiglottic fossæ, sometimes filling the entire space. Use the laryngoscopic mirror.

Treatment.—The best method is to remove with the guillotine, applying a solution of Cocaine (4%) to the parts before operating.

SYPHILIS PHARYNGIS.

(SYPHILIS OF THE FAUCES.)

Diagnosis.—*Chancre.*—When on the tonsil the ulcer is sluggish, has an indurated base, and has unilateral enlargement of the cervical and submaxillary glands. Induration usually involves the whole of the tonsil. The eruption following will quickly confirm the diagnosis.

Erythema.—It appears from 6 weeks to 4 months after the primary lesion. The mucous membrane is of a purplish-red, confined mostly to the soft palate and pillars. The sharp line of demarcation between the affected membrane and the healthy tissue is characteristic.

Mucous Patch.—It usually appears from 6 weeks to 3 months after the primary lesion; it may occur at any period; is most contagious of all the secondary manifestations. The saliva easily conveys the contagion. On first appearance it looks as if the healthy membrane had been touched with a stick of silver-nitrate. They usually occur in groups.

Superficial Ulcer.—Appears from 1 to 3 years after the primary sore; usually on the tonsil, soft palate and anterior pillar.

Gummy Tumor.—It often appears on the posterior surface of the soft palate, and escapes observation until ulceration occurs. It may appear many years after the primary lesion. Hard, dense and resisting; not painful.

Deep Ulcer.—The direct result of the breaking down of the gummy tumor. Appearance same as described in the nose.

TREATMENT.

Local.—The primary sore should be kept perfectly clean and dressed with a solution of Tr. Calendulæ (1:20), in distilled water, daily. A pledget of cotton wet with the solution should be placed against the sore and changed as often as it becomes dry.

Medicinal.—*Mercurius biniod.*^{1x}—The soft tissues of the pharynx involved; left side; ulceration superficial.

Mercurius protoiod.^{2x}—The posterior wall of the pharynx; right side; worse on empty swallowing; profuse salivation; cervical glands enlarged; worse at night in bed.

Nitric acid.^{3x}—Superficial ulceration; splinter-like pains,

Kali bich.^{1x}—Deep ulceration of the mouth; ulcers on the edge of the tongue; deep, circular, punched-out excavations.

Kali iod.^{1x}—Deep ulceration of the throat, with glandular involvement. Gnawing, boring bone-pains.

Phytolacca.^{1x}—The throat dark, livid, purple. Syphilitic rheumatism; throat very sore on swallowing.

TUBERCULOSIS PHARYNGIS.

Diagnosis.—It can only be confounded with the ulceration of syphilis, and the presence or absence of the bacilli will confirm.

Treatment.—Cleanse the ulcerated parts thoroughly with solution No. 1. Dust with Orthoform powder, to relieve the pain.

Medicinal.—**Arsenicum iod.**^{2x}—Great prostration, with burning in the throat. One grain every 2 hours.

LUPUS OF THE FAUCES.

Diagnosis.—The ulcer has marked hyperemia, and very slight secretion; very slow in progress; circumference of the ulcer not clean-cut, but nodular; general health not affected.

Treatment.—Scrape all diseased tissue away with a sharp curette. Dissolve copper in Nitric acid, C. P., making a saturated solution; apply to the periphery of the ulcer with a pointed glass rod. This has given the author the best results of anything he has heretofore used.

BENIGN TUMORS OF THE FAUCES.

Papillomata.—Little warty growths, frequently appearing on the tip of the uvula or edges of the soft palate or pillars. They produce symptoms only when considerable size is attained; then coughing, and sometimes vomiting.

Fibromata and Angiomata.—Very rare in this region.

Adenoma.—Frequently appear on the palate; difficult to distinguish from a fibroma. *Adenomata* are usually found between the ages of 25 and 50; fibroma usually occur earlier in life. Make microscopic examination.

Treatment.—Enucleation by the knife.

MALIGNANT TUMORS OF THE FAUCES.

Sarcomata and Carcinomata.—They are frequently found in these parts. A positive diagnosis depends upon the microscope.

DISEASES OF THE LARYNX.

ACUTE LARYNGITIS.

Symptoms.—Hoarseness and aphonia; cough, rarely troublesome; the laryngoscope shows the mucous membrane bright red; the cords more or less red, according to the degree of inflammation.

Treatment.—Disuse of the voice above a whisper.

Medicinal.—**Aconite.**^{3x}—Feverish; throat rough; sensitive to air; thin, frothy expectoration. Usually the first remedy needed.

Arum tri.^{3x}—Hoarseness; rawness of the throat; control of the voice lost; dry cough, which is painful.

Argentum met.^{3x}—Exudation like boiled starch, easily expectorated.

Hepar sulph.^{3x}—Cough loose; slight expectoration; little fever. Usually after Aconite and Spongia have been given.

Belladonna.^{3x}—Violent attack; high fever, with red face and throbbing carotids.

Phosphorus.^{3x}—Extreme rawness of the throat; continuing hoarseness; relapses.

Spongia.^{3x}—Sawing respiration; must throw the head back to breathe.

CHRONIC LARYNGITIS.

Symptoms.—Dryness of the throat; constricted sensation; the voice tires and becomes hoarse, easily; hoarse cough with scanty expectoration.

TREATMENT.

Argentum met.^{3x}—Hoarseness; exudation like boiled starch, easily expectorated.

Calcarea carb.^{3x}—Painless hoarseness, worse in morning.

Carbo veg.^{3x}—Long-lasting hoarseness, worse evening and from talking.

Causticum.^{3x}—Hoarseness, roughness; burning of the throat; worse morning.

Pulsatilla.^{Tr.}—Throat rough; cannot speak aloud.

Rhus tox.^{3x}—Hoarseness of singers, from overstraining the voice; the throat feels stiff.

Sulphur.^{6x}—Voice rough; hoarseness; aphonia; talking fatigues and excites pain; shooting pains through the left chest to the back.

CHRONIC SUB-GLOTTIC LARYNGITIS.

Symptoms.—Progressive hoarseness, ending in aphonia; dyspnea, first slight, then becomes worse until, frequently, relief by tracheotomy is required; frequent acute exacerbations occur.

Diagnosis.—The laryngoscope shows rounded, swollen masses just below the cords; they appear dense, and are always symmetrical.

Treatment.—Dilating bougies, well oiled and passed carefully through the point of stricture. If the bougie is made hollow, it can remain longer *in situ*, and be more beneficial.

Medicinal.—Calcarea iod.^{1x}; Kali iod.^{1x}

LARYNGITIS SICCA.

(ATROPHIC LARYNGITIS.)

Symptoms.—Morning aggravation; small, greenish-yellow crusts are raised, with relief; fetid breath; the membrane under the crusts looks irritated; the laryngoscope shows the crusts adhering just under the cords.

Treatment.—Secure a healthy action of all the respiratory tract above the cords; remove the crusts with a cotton brush after using Solution Nos. I., III. to the parts.

Also use Spray No. F 3 times daily, with a Globe nebulizer.

Medicinal.—*Ammonium mur.*^{3x}—Hoarseness, with burning in the larynx. Expectoration of small lumps of dry mucus.

Kali bich.^{2x}—Voice rough and hoarse; tickling in the larynx; also in the mouth and ears.

Lachesis.^{6x}—The throat sensitive to touch; sensation of something in the larynx that cannot be raised.

Sanguinaria. Tr.—The throat very dry; sore; thick mucus from the throat.

EDEMA OF THE LARYNX.

Symptoms.—Sudden dyspnea, worse on inspiration. Rapid in development.

Diagnosis.—The laryngoscope makes the diagnosis easy.

TREATMENT.

Medicinal.—*Apis mel.*^{1x}—Is usually the only remedy necessary.

Arsenicum.^{3x}—Where there is general anasarca.

Kali iod.^{1x}—Where there is a syphilitic history.

Local.—Inhalations of steam; puncture of the swollen areas; intubation or tracheotomy may be demanded.

SYPHILIS OF THE LARYNX.

Diagnosis.—*Erythema.*—Mucous membrane has a peculiar dusky-red hue; circumscribed areas of infiltration are confirmatory.

Mucous Patch.—Found on the upper surface of the vocal cords most frequently; may be on the epiglottis, arytenoids or ventricular bands.

Superficial Ulcer.—Very rare.

Gummy Tumor.—Appears suddenly; usually breaks down quickly; is smooth, symmetrical and rounded.

Deep Ulcer.—Rarely seen under five years after the primary sore; it occurs on the epiglottis, vocal cords, ventricular bands, and arytenoid commissure, in order; it has sharp-cut edges, areola dark red, surface excavated, and profuse secretion of pus.

Cicatricial Stenosis from Syphilitic Ulceration.—No disease is so distortive in its effects upon the larynx as syphilis. Frequently a tertiary ulcer will exist near at hand to furnish conclusive evidence.

Treatment.—The medicinal treatment is the same as for like conditions in the pharynx. In the cicatricial stenosis it is sometimes positively harmful to give Potassium iod., as it causes an iodic laryngitis. Dilatation by bougies, or three-bladed dilators, affords the best results. The knife must be used only in skilled hands.

TUBERCULOSIS OF THE LARYNX.

Symptoms.—Impairment of the voice early in the disease. Pain on swallowing quickly follows, which increases as the ulceration progresses. Cough, with difficulty in expelling the secretions. The larynx sensitive to pressure.

Diagnosis.—Use the laryngoscope; at first the swollen arytenoids are seen; the epiglottis soon becomes swollen; becomes "turban-shaped." The color of the membrane is dull and leaden; soon shows little yellowish points over its surface, which are tuberculous nodules, and soon break down into ulceration. The edge of the ulcer is ragged; the membrane all around is anemic and pale.

TREATMENT.

Local.—Perfect cleansing of the parts by means of an alkaline solution, as Solution No. I., applied by an atomizer. The Globe nebulizer with the foot-pump is most efficient. After cleansing the parts, apply orthoform with a powder-blower, which will anesthetize the parts for many hours. Orthoform is not at all poisonous.

Medicinal.—Arsenicum iod.^{2x}—One grain every two hours will, in many cases, do good service.

Calcarea phos.^{1x}—One grain, three times daily.

NEUROSES OF THE LARYNX.

Paralysis of the Superior Laryngeal Nerve.—It may be uni- or bi-lateral. The laryngoscope shows the paralyzed cord pointing at the tip of the vocal process. No other disease produces this condition of the cords.

Recurrent-laryngeal Paralysis.—When unilateral, the voice is impaired at first; later it improves. The paralyzed cord lies in cadaveric position. The opposite cord finally comes around to meet it, giving good voice. When paralysis is bi-lateral, the voice is completely lost.

Bi-lateral Abductor Paralysis.—Inspiratory dyspnea, coming on at intervals; induced by any excitement. *Diagnosis:*—The laryngoscope shows the cords lying almost parallel during inspiration; phonation is not interfered with.

Unilateral Paralysis of the Abductors.—The cords look normal during phonation; on inspiration the affected side is motionless in the median line.

FOREIGN BODIES IN THE LARYNX.

Symptoms.—Slow inspiration, followed by violent expiration.

Treatment.—Should be removed as quickly as possible. Violent blows on the back and in the act of expiration. Inversion of the body. The laryngoscopic mirror may be used to direct curved forceps into the larynx to extract bodies from it. The index finger may also direct the forceps.

Tracheotomy.—When dyspnea becomes great; when the body has gone out of reach; when it is necessary to open into the larynx.

TUMORS OF THE LARYNX—BENIGN.

Papillomata.—The most frequent; usually sessile; soft; slightly movable during inspiration and phonation; grayish-white or pinkish-white; wart-like; usually on the anterior portion of the cords.

Fibromata.—They are hard in appearance; covered with mucous membrane; more or less injected.

Cystomata.—Are soft to the touch of the probe; usually on the epiglottis or vocal cords.

TREATMENT.

Operation.—Anesthetize the parts by applying a solution of Cocaine (20 %) thoroughly before attempting to remove the growths from the larynx. A *papilloma* is best removed with the curved forceps; *fibromata* with a snare, if they project to much size; if deeply imbedded, the cutting-forceps.

Cystomata are easily evacuated by the knife.

TUMORS OF THE LARYNX—MALIGNANT.

Sarcomata.—They are soft, irregular in outline, and grayish. The microscope must decide.

Carcinomata.—Can only be differentiated from sarcoma by the use of the microscope.

TREATMENT.

Operation.—Early removal of all diseased tissues offers the best results. *Thyrotomy* can only be done at an early period of the disease. *Resection*, while the disease is confined to one side of the larynx; total extirpation as a last resort.

Medicinal.—*Arsenicum alb.*^{6x}—Burning of the sore, as though of hot coals; as if a red-hot knife were thrust into the part; extreme restlessness.

Lachesis.^{6x}—The surface around ulcer swollen, and pus forms slowly.

Morphia sulph.^{3x}—Extreme susceptibility to pain; pain so violent as to threaten convulsions; twitching and jerking of the limbs.

METHODS OF TREATMENT.

GENERAL RULES.

(1) The first step in nose-and-throat treatment is a perfect toilet of the parts.

(2) All solutions and instruments used should be warmed to about 100° F.

(3) In using the post-nasal syringe, always have the ring of the piston parallel with the curve of the tip, so that in passing it inward the curve will pass flat-wise over the tongue, making it less liable to cause the patient to gag. Introduce the tip back of the palate, keeping in the median line, press the piston gently and caution the patient against turning the head to either side, to avoid having the fluid enter the Eustachian orifices.

(4) In using the Birmingham douche, the patient should be very careful to keep the head perpendicular, to prevent the solution from entering the Eustachian tubes.

(5) After using the solutions in either manner, if there remain in the nasal cavities any plugs or masses of mucus, a piece of cotton twisted on an applicator will serve to loosen them and so change their position that they can be expelled.

(6) In making applications of Cocaine to the nose or throat, do not use an atomizer, but twist a piece of cotton on an applicator, saturate it with the solution and apply it directly to the area to be anesthetized.

(7) In using sprays with compressed-air power, do not use more than ten pounds pressure. The Globe atomizer, being perfectly non-irritating, gives the best results.

SPRAYS.

(A) **Glyco-thymolin**:—Containing Sodium; Boric acid; Benzoin; Salicylic acid; Eucalyptol; Thymolin; Menthol; and Pine. (Alkaline reaction.)

(B) **Lavoline**:—A liquefied vaseline without color, taste, odor or irritating properties.

(C) **Benzoinol**:—A similar preparation, but with the addition of Benzoin.

(D) **Camphor-Menthol**:—Pure; the liquid product resulting from bringing together equal parts of Camphor-gum and Menthol crystals without heat.

(E) *R.* Camphor-mentholis, 3%; Lavolinis, 97%.—M.

(F) *R.* Calendulæ, Tr. 3% (prepared from fresh plant); Lavolinis, 97%.—M.

(G) *R.* Mentholis, 3%; Lavolinis, 97%.—M.

(H) *R.* Olei pini sylvestris, 4%; Benzoinolis, 96%.—M.

(I) *R.* Iodini; Acidi carbolicis, \overline{aa} , grs. ij.; Benzoinolis, oz. j.—M.

(J) *R.* Iodiformi, gr. ij.; Benzoinolis, oz. j.—M.

(K) *R.* Olei pini sylvestris, min. xxx.; Olei eucalypti, dr. j.; Olei gaultheriæ, min. xxx.; Camphor-mentholis, dr. j.; Terebinthinæ Canadensis, dr. j.; Tincturæ benzoini, q. s. ad. oz. iv.—M.

(L) *R.* Thymolis, gr. x.; Eucalyptolis, gr. xx.; Mentholis, gr. xxx.; Olei cubebæ, gr. xl.; Benzoinolis, oz. iv.; Olei rosæ, q. s.—M.

(M) *R.* Aristolis, 10%; Mentholis, 3%; Benzoinolis, 87%.—M.

(N) *R.* Creasoti, 4%; Acidi carbolicis, 3%; Olei picis liquidæ, 3%; Olei gaultheriæ, 4%; Benzoinolis, 86%.—M.

(O) *R.* Aristolis, 5-10%; Ætheris, 95-90%; M. Sig. Spray for tuberculous ulcers.

(P) *R.* Morphiæ sulphatis, gr. iv.; Acidi tannici; acidi carbolicis, \overline{aa} , gr. xxx.; Aqua destillatæ, oz. ss. M. Sig. Spray for tuberculous ulcers.

(Q) *R.* Sodii chloridi; Sodii bicarbonatis; Sodii bicarbonatis, \overline{aa} , dr. j.; Aqua, Oj.—M.

(R) ℞. Calendulæ, 4% (from fresh plant); Hamamelidis, 8% (from fresh plant); Pini strobi, 8%; Lavulinis, 80%.—M.

(S) ℞. Succus calendulæ; Glycerini, $\overline{\text{aa}}$, dr. j.; Aqua rosæ, q. s. ad. oz. ij.—M.

SOLUTIONS.

(FOR POST-NASAL SYRINGE OR BIRMINGHAM'S DOUCHE.)

(I.) ℞. Glyco-thymoline, one part; warm water, 3 to 6 parts.—M.

(II.) ℞. Seiler's Tablets, No. ij.; warm water, 4 to 6 oz.—M.

(III.) ℞. Electrozone, one part; warm water, 6 parts.—M.

(IV.) ℞. Boracis, dr. ij.; Acidi carbolici, grs. xvj.; Glycerini, dr. ij.; Aqua rosæ, q. s. ad oz. viij.—M.

(V.) ℞. Sodii chloridi, dr. ss.; Glycerini, dr. iij.; Acidi carbolici, m. x.; warm water, oz. viij.—M.

VASO-CONSTRICTOR.

Supra-Renal Extract.—The aqueous extract of suprarenal gland is a powerful local vaso-constrictor agent, and a contractor of erectile tissue. It can be used in very considerable amounts without dangerous or deleterious effects, locally or constitutionally. It seems to make any drug used locally more effective. It reduces swelling and prevents hemorrhage which would otherwise be troublesome. With its help operations can be done in the nose and throat without pain, and with little or no loss of blood.

Solution.—The solution is made as follows:—Use in the proportion of ten grains of the desiccated gland (Armour's) to the drachm of glycerine-and-water solution (glycerine, 1 part; water, 3 parts). Put a half-ounce of this mixture in a wide-mouthed bottle, and shake it well. Let it stand in the room at ordinary temperature (68° F.) for 48 to 52 hours. During this time shake the bottle at intervals. Then filter the mixture through ordinary filter-paper into a clean bottle. The result is a clear, amber-colored solution, ready for use. Keep it in a cool place. It will remain suitable for use for some time. Apply locally.

NOTE.—The author desires to state that in naming the attenuation of remedies in this SECTION the lowest found useful has in each instance been recorded. In his own practice the higher attenuations are most frequently used.

SECTION XVIII.

OBSTETRICS.

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DIAGNOSIS OF PREGNANCY.

Probable Signs.—(Maternal).—*Uterus*:—Amenorrhea; increase in size of the body and softness of the cervix; intermittent contractions; maternal souffle; Hegar's sign. *Vagina*:—Vaginal pulse; purple discoloration. *Abdomen*:—Increase in size; linea albicantes; pigmentation of the linea alba; changes in the umbilicus. *Breasts*:—Increase in size; erect, hypersensitive nipples; hypertrophy of Montgomery's follicles; primary and secondary areola; linea albicantes. *Inferential signs*—as cravings; urinary disturbances; dyspnea; nausea and vomiting; colostrum in the breasts of a woman never pregnant before.

Positive Signs.—Passive and active fetal movements (felt both by abdominal and vaginal ballottement), together with the fetal heart-sounds, render the diagnosis of pregnancy indubitable.

Date of Labor.—*Naegle's Rule*:—Compute nine calendar months from the beginning of the last menstrual period, and add seven days. This rule is generally correct within a week.

HYGIENE OF PREGNANCY.

The Bowels.—When sluggish, regulate by (a) diet; (b) exercise; (c) selected remedy; (d) enemata; (e) suppositories, or mild laxative.

The Breasts.—Avoid compression; develop the nipples by gentle massage and friction (*Caution*—undue irritation of the nipples has caused abortion); gentle massage and absolute cleanliness; prevent *cracked nipples*; interdict *sexual intercourse* (especially in cases of irritable uterus, and at the months).

Hygiene.—*Diet*:—Easily digestible, nutritious, but not stimulating. *Exercise*, moderate. *Clothing*, seasonable; a well fitting binder. *Bathe*, regularly (avoid vaginal douches).

PERNICIOUS VOMITING OF PREGNANCY.

Symptoms.—The normal symptoms increase in severity, the woman becomes weak; emaciated; epigastric tenderness; sordes may develop; insomnia; mental aberration, with total inability to retain food. (218)

TREATMENT.

Local.—Treat a catarrh of the cervix; interdict sexual intercourse; carefully regulate the diet; try iced drinks; resort to rectal nourishment.

Medicinal.—*Arsenicum*.^{3x}—Very, pale; thirsty; cold water seems to lie on the stomach; vomits fluid as soon as taken; restless and uneasy.

Cocculus.^{3x}—Intense nausea; scarcely able to get up in the morning; yellow-coated tongue; marked aggravation from riding.

Cuprum.^{3x}—Violent vomiting, relieved by drinking cold water.

Gossypium.^{3x}—Great distress, weakness and prostration.

Ipecac.^{3x}—Continual nausea; eructations; sour vomiting.

Pulsatilla.^{3x}—Nausea and vomiting, particularly in the evening.

Sepia.^{6x}—Feeling of emptiness in the pit of the stomach; aversion to meat; nausea in the morning; bitter, saltish taste in the mouth; constipation.

DIAGNOSIS OF LABOR.

Signs.—Irritability of the bladder and rectum; increased vaginal discharge; slow, rhythmic contractions and pains; effacement of the cervix; dilatation of the os.

MANAGEMENT OF ACCOUCHEMENT.

The Bed.—A firm mattress, covered by a rubber sheet (1½ yard wide); over this a linen sheet. Spread another impermeable sheet, and cover this in turn by a folded sheet. Fix the sheets to the bed with safety-pins; when labor is completed, the upper set is drawn off, and the bed underneath is dry.

Armamentarium.—*Obstetric Bag (Contents)*:—Obstetric forceps; soft-rubber catheter; placenta forceps; intra-uterine irrigator; dressing-forceps; four artery clips; needle-holder; curette; scissors; fountain syringe; hypodermic syringe; Kelly pad; absorbent-cotton; four gauze bandages (8 yards, 4 inches) for packing; nail-brush; Boric acid (sat. sol.); Silver-nitrate (2% sol.); normal salt solution for its neutralization; ergot; Mercuric-bichloride tablets; chloroform; transfusion apparatus; needles; silk and catgut sutures; sterile bobbin for ligature of the cord.

The Patient.—Give an enema (soap-water) to cleanse the lower bowel; the urine should be passed or drawn; scrub the lower abdomen and thighs, then wash with Mercuric bichloride sol. (1 to 500). If there is leucorrhœa, give a copious douche of Mercuric bichloride (1 to 4000), followed by a Creolin douche (2% sol.). The Creolin douche overcomes the hardening and drying of the tissue caused by the bichloride of mercury.

The Operator.—Clean and pare the nails; scrub the hands and arms (5 minutes) with green soap and nail-

brush; then an alcohol scrub; then immerse the hands (5 minutes) in Mercuric bichloride sol. (1 to 500). After cleansing, sterilized rubber gloves may be used.

First Stage.—During the period of dilatation, cleanse the vulva frequently with an antiseptic solution. The patient may move about the room at will, until dilatation is complete; after the rupture of membranes she must not leave the bed.

Second Stage.—In bed let the patient assume any comfortable position. When dilatation is *complete*, rupture the membranes artificially (*Method*:—Use the fingernail, or sterilized scissors-blade, being *cautious* not to injure the child's head.) *Signs* of complete dilatation:—(a) During the pain the membranes no longer come in contact with the uterine tissues at the os; (b) the os is dilated to allow the biparietal diameter (9.5 cm.) to pass; (c) the periphery of the external os is in contact with the pelvic ring.

Head at the perineum.—Put the woman in the lateral position; as the head lengthens (thinning out the perineum, dilating the anus, separating the labia), pass one hand between the widely separated thighs, control the expulsion of the head by drawing it well up against the pubic arch; with the other hand make pressure on the perineum to prevent too rapid extension of the head, thus guarding against laceration of the perineum.

Prophylaxis of Laceration is Slow Expulsion.—*After the head is born.*—Keep the shoulders crowded against the pubic arch until these pass the vulva, when the body follows rapidly. As soon as the head is delivered, ascertain if the cord is about the child's neck or arms; if so, treat as directed under *Vertex Presentation*.

Third Stage.—Cleanse the eyes and mouth with Boric acid (sat. sol.) Next direct attention to the cord; when the pulsations cease, or grow less perceptible, tie the cord about three centimeters from the fetal attachment, and again at the vulva. The vulvar tie serves as an index of placental separation. The progressive expulsion of the placenta is indicated by the gradually increasing distance between the vulvar orifice and the ligature. Cut the cord about one centimeter on the placental side of the fetal ligature. Now grasp the uterus, through the abdominal walls, in the palm of the hand (to induce contractions). As the placenta presents at the vulva support it in the hands (to prevent tearing of the membranes). After removal of the placenta examine the perineum; if it is torn, repair at once.

Episiotomy.—In performing episiotomy, to prevent perineal tears, make the incision either with a blunt-pointed bistoury, or a pair of scissors; *Direction*, either lateral, radial or posterior. Lateral incisions have great advantages.

DELIVERY OF THE SECUNDINES.

Method.—During the delivery of the fetus, follow the uterus down with the hand, to ascertain if contraction is

taking place; if it is not, stimulate the action of the uterus by kneading. In order to promote complete separation and delivery of the after-birth, make gentle friction of the uterus through the abdominal wall, and at the same time make pressure downward and outward in the direction of the axis of the pelvis (Credé).

Caution.—Never treat delayed or retained secundines by the expectant method. If the placenta is not born at the end of a half-hour, and if the Credé method fails, then anesthetize the woman, cleanse the vaginal canal; put a Sims speculum in place, grasp the cervix with a pair of single volcella forceps; remove retained portions of the placenta with the placenta forceps; thoroughly curette the interior of the uterus; wash out with Mercuric bichloride (1:4000); then swab out with Iodine and Carbolic acid, equal parts. If possible, after curettage, explore the cavity of the uterus with the finger in order to make sure of the complete removal of the secundines.

Duration of Labor.—Excluding dystocia, the duration may be set down as 12 hours in a primipara; 6 hours in a multipara. Dilatation of the cervix occupies about five-sixths of this time; the delivery of the fetus and secundines the remaining portion. The placental stage takes about 20 minutes to a half-hour. Be cautious about making statements as to when labor will be completed, as the length of time is variable, and error is frequent.

Prognosis of Labor.—The more frequent the presentation, the more favorable the prognosis. The anterior positions of the cephalic-ovoid have the lowest mortality. In making a prognosis, bear in mind that such conditions as multiple pregnancy, laceration of the cervix and perineum, render the maternal prognosis more grave. Fetal mortality varies with position and presentation; it is more grave in such conditions as—pelvic (maternal) deformities; abnormal position of the placenta, etc.

APPARENT STILL-BORN.

Prognosis.—If the child is blue, with distinct heart-beat, the prognosis is comparatively fair; if it is blanched or white, with feeble or absent heart-beat, the prognosis is very grave.

Treatment.—Direct insufflation is the main reliance; either mouth-to-mouth; by the use of a catheter; or some specially constructed insufflator introduced into the trachea. Expand the lungs about 15 times a minute (let expiration be accomplished by the natural elasticity of the lungs). Other agencies.—Irritation of the skin; interrupted current; ether-spray to the epigastrium; alternate hot and cold baths; dilatation of the sphincter: rhythmic traction on the tongue; Shultz's indirect method of insufflation; oxygen. Apparently dead babies have been resuscitated after an hour of labor. The prognosis of the future life of these babies is grave; many develop some laryngeal or pulmonary trouble.

MATERNAL CONDITIONS FOLLOWING LABOR.

GENERAL CARE.

The Vulva.—Cleanse frequently with a warm antiseptic solution; apply an occlusive antiseptic dressing. Change the pads according as the discharge is scant or profuse.

The Vagina.—*Never give a vaginal douche*, except when it has been impossible to obtain an aseptic condition of the genital passage before labor, or in failure to maintain it during accouchement.

Retention of Urine.—Use hot cataplasms; sit up in bed to micturate. If these fail, catheterize under strict antiseptic precautions. Wait a considerable time before resorting to the catheter.

Bowels.—On the third day (if no action before), use a soap-water enema.

Diet.—In the first 72 hours, a low, non-stimulating diet; after this, gradually resume ordinary diet as the progress of the case indicates.

Exertion.—At the end of the first week, let the patient change from back to side at will; by the fourteenth day, out of bed for a half-hour, increasing each day; by the end of the third week, out of the room; end of the fourth week, out of the house; but no unusual exertion until involution is complete.

AFTER-PAINS.

Frequency.—Rarely occur in primiparæ; quite frequent in multiparæ; often aggravated by a full bladder or rectum; irritation of the nipple sometimes excites the pains.

Treatment.—*Local*:—Hot applications.

Medicinal.—**Arnica**.^{3x}—It often affords much relief if administered soon after confinement.

Belladonna.^{2x}—Suddenly appearing and disappearing paroxysmal pain, with a sense of weight in the parts; congestive, bearing-down pain; sensitiveness; thirst; hot, dry skin (save in the folds of the skin).

Chamomilla.^{3x}—The patient is cross; ill-natured; complains that the pains are unbearable; desire for fresh air.

Coffea.³⁰—A very nervous patient; severe pains; desire to sleep, but inability to do so.

Cuprum.³⁰—Severe pains of multiparæ, women who have borne a great number of children.

Consult.—Cuprum ars.; Caulophyllum; Cimicifuga; Gelsemium; Ignatia; Pulsatilla.

ACCIDENTS.

LACERATION OF THE CERVIX.

Treatment.—Do not repair at once unless it causes hemorrhage; then place a stitch around the bleeding vessel; or, bring the two bleeding surfaces together with catgut or silk stitches.

LACERATION OF THE PERINEUM.

Treatment.—Prevent as far as possible. Episiotomy is too seldom resorted to in this country. If the perineum tears, sew it with either interrupted or continuous cat-gut sutures; carefully remove all clots before bringing the surfaces together. Use the most rigid antiseptic precautions. Open the bowels, at least every second day, by a mild laxative; or if the tear is not complete, an enema, if given by a *skilled* nurse. Keep the line of suture scrupulously clean by frequent ablutions and copious Bichloride douches (1:4000). Keep the patient on her back ten days.

PROLAPSE OF THE CORD.

Treatment.—If diagnosis is made before rupture of the membranes, put the patient in the Trendelenburg, or knee-chest position, force the cord up, away from the superior strait and the presenting part. *After rupture*, replace by the hand, or any of the various repositors. The best treatment is replacement, followed immediately by the application of forceps to the head, or podalic version. If the fetus is dead, allow labor to pursue its own course.

Prognosis.—Fetal mortality (30 to 60%); danger to the mother is increased according to the interference required.

RETAINED SECUNDINES.

Treatment.—If the placenta and membranes are not expelled within a half-hour, resort to the Credé method. Manual extraction is permitted, and sometimes is demanded, but it must be done under the strictest antiseptic precautions. *Caution:*—Never give *Ergot* until the uterine cavity is empty.

PLACENTA PREVIA.

Location.—For practical purposes it matters not whether the mal-position be defined as central, partial, marginal, or lateral; it is sufficient to know that the placenta is implanted on the lower uterine segment.

Diagnosis.—*Presumptive evidence:*—Recurrent hemorrhages in the last three months of gestation, when there has been no previous bleeding. But the diagnosis is not positive until vaginal examination reveals an increased thickness of the lower uterine wall, an indistinct sense of ballotement, and the actual presence of the placenta made out by touch. *Hemorrhage is the important symptom.*

Prognosis.—*Mortality.*—Maternal, 50%; fetal, has been recorded as low as 5%.

Treatment.—If the hemorrhage is slight, cleanse the vagina and thoroughly pack with gauze. This controls hemorrhage and promotes dilatation of the cervix. Unless the patient can be kept under the physician's immediate care (seldom possible), the uterus must be emptied. *Prompt and active interference is called for.*

Method.—Make forcible dilatation of the cervix with steel dilators (under strict antiseptic precautions); continue with the hands. After there is sufficient dilatation to admit the hand, either penetrate or displace the placenta, perform podalic version, and promptly deliver the child.

RUPTURE OF THE UTERUS.

Symptoms.—A history of prolonged labor; the pains, which have been strong and efficient, suddenly cease; instead, there is a sudden, severe, sharp, lancinating pain, rapidly followed by collapse, and bloody discharge from the vagina. Vaginal examination reveals the os well dilated; the presenting part is either absent, or difficult to reach. Digital examination reveals the rent in the uterus; if the tear is complete, the intestines may be felt through the opening; if incomplete, it may pass unrecognized, unless symptoms of peritonitis call attention to it.

Treatment.—Prophylaxis—recognize the dystocic condition and give it appropriate care. After rupture, the only treatment is laparotomy and suture of the tear. If the rent is large, complete removal of the internal genital organs may be the best procedure.

HEMORRHAGES.

Treatment.—If there is hemorrhage before the expulsion of the appendages, deliver at once. In hemorrhage following the delivery of the appendages, explore the vagina and cervix for some bleeding point; control with ligature, hot injection, or tampon.

POST-PARTUM HEMORRHAGE.

Treatment.—In hemorrhage due to uterine inertia, knead the uterus, as in the Credé method. Press one hand deep into the belly, behind the uterus; bring the organ up against the symphysis pubis; with the other hand in the vagina make pressure against the anterior uterine wall. The anterior and posterior walls are thus brought in contact, effectually closing the bleeding sinuses. *Other Measures:*—Packing; Iodine; ice in the uterine cavity, hot intra-uterine douches; vinegar; perchloride-of-iron. *Compression*, hot douches, and packing, together with the indicated remedy, are the best methods. For the subsequent shock, give infusion of normal salt solution; or, rectal injection, copious. For immediate heart stimulation, Strychnia.

Medicinal.—*Ipecac.*^{3x}—Constant flow of bright red blood; cutting pains about the umbilicus; constant nausea and vomiting; the patient feels cold; is very pale; gasps for breath; complains of giddiness and headache; every effort to vomit causes blood to flow with a gush. (30th.)

China. *Tr.*—Uterine atony; flow not so bright as *Ipecac.* but very profuse; also paroxysmal discharge of clots of dark blood; coldness and blueness of the skin; yawning; fainting; dizziness; ringing in the ears.

Caulophyllum.^{3x}—Passive hemorrhage, especially after premature delivery or hasty labor; trembling weakness felt over the entire body; sensation of exhaustion.

Sabina.^{3x}—Dark blood, with blackish clots, mixed with thin, watery blood; pain extending from the back to the pubes; atony of the uterus; painless loss of dark-red blood immediately after delivery.

Belladonna.^{2x}—Profuse flow of bright-red blood, which feels hot; hot, red, flushed face; throbbing of the carotids; pulsations felt over the entire body; pressure in the sexual organs; darkness before the eyes.

Secale.³⁰—Passive hemorrhage of dark blood; sallow face; slightest motion aggravates the flow; strong contractions of the uterus; every gush of blood preceded by a sharp, contractive pain.

Trillium.^{3x}—Profuse flow of dark, thick, clotted blood; women who give a history of habitual flooding after parturition.

Consult.—Arnica; Arsenic; Chamomilla; Hamamelis; Millefolium; Ustilago.

PUERPERAL ECLAMPSIA.

Symptoms.—*Prodromata*.—Headache; disturbances of vision; epigastric pain; dyspnea; malaise; albuminuria. Sometimes there are no prodromata. *The attack*.—A period of invasion, followed by a stage of tonic spasm, lasting about a minute; then a clonic stage, of variable duration. After the clonic stage, coma, from a few minutes, to several hours. The intervals between the attacks are variable; the number of paroxysms is also variable (as high as 160 reported).

Prognosis.—*Mortality*.—Maternal, 25%; fetal, 66%.

Treatment.—*Prophylaxis*.—Great care during the gravid stage; proper hygiene; diet; exercise; regulation of all the organs of excretion (the kidneys in particular; examine for albumin frequently); if an attack is feared, put the patient on a strict milk diet. Only rarely is it necessary to induce labor. *The attack*.—If the fetus is still in the uterus, the main reliance is chloroform, an immediate emptying of the uterus; failing to get prompt action from the drug administered, give chloroform to control and prevent a recurrence of the convulsion.

Measures.—Give chloroform; promptly induce labor: free sweating; normal salt solution (hypodermic, in a vein, or in the rectum).

Medicinal.—**Aconite.**^{3x}—In the prodromal stage; anxiety and restlessness; fear of death.

Arnica.^{3x}—During a pain the blood rushes violently to the head and face; tendency to loss of consciousness.

Belladonna.^{2x}—Stupid; convulsive movements; face red and hot, or livid; violent pulsations of the carotids; renewal of the spasms at every pain; starting and crying out as if frightened; fearful visions. (Also 30th.)

Cuprum.^{3x}—Spasms, with violent vomiting; opisthotonos; spasms begin as a cramp in the fingers and toes or in the whole of the extremities.

Cuprum ars.^{2x}—Although not well proven, I have seen evidence of signal service in the hands of Drs. I. G. Smedley and E. W. Mercer.

Consult.—Ignatia; Ipecac; Hyoscyamus; Stramonium.

SORE NIPPLES.

Causes.—Most common in primiparæ; or in flat, inverted, or malformed nipples (the child's efforts being violent). *Excoriations* are due to maceration of the epithelium, from milk and friction of the child's tongue. Appearance—red, raw, sensitive spots. *Fissure* at the top is a deepened sulcus between papillæ; at the base, a crack in a large, pendulous nipple.

Sequel.—Bacteria may infect; mammary abscess is a frequent result.

Prophylaxis.—Avoid pressure of clothing or corset; in the late months apply daily this lotion:—℞. Alcohol. Water, equal parts; Alum (10%). Draw out flat and inverted nipples daily, with a glass cone and rubber suction-pump (do not use this in the early months). During nursing, strict cleanliness of the nipples and the child's mouth (use Boric-acid solution). For hypersensitive nipples, use—℞. Liquor Plumbi subacetatis, ℥j.; Aqua, ℥jv. *M.* Apply on a compress. Also, ℞. Hamamelis (fl. ext.), ℥j; Aqua, ℥jv. *M.* For *excoriations*:—Carefully dry, and paint with Compound Tr. Benzoin. Use temporarily an Acme nipple-shield. For *fissures*:—Dry, then touch carefully with Silver-nitrate, and protect with Compound Tr. Benzoin, or a film of cotton sealed with collodion.

MASTITIS.

Prophylaxis.—Treat promptly and carefully excoriations and fissures. If the child does not nurse, do not let the milk over-accumulate.

General Measures.—If the breasts are distended, hot and heavy, use the breast-pump, and gentle massage, stroking from the margin to the nipple. Cover with cotton, and bandage evenly and with moderate pressure.

Medicinal.—*Belladonna.*—Breasts heavy, swollen, hot and painful; severe stitching and tearing pains; inflammatory redness radiating from a central point; fever; starting in sleep.

Bryonia.—The affected breast is hard, rigid, turgescient; tense or stitching pains; breasts hot, but not very red; feels sick on first sitting up, even in bed; thirst for large quantities of water; lips rough and dry; constipated; marked aggravation from motion.

Hepar.—When the condition has advanced to evident suppuration; pains sharp, stitching; breast excessively sensitive to touch; patient extremely sensitive to pain; feels faint from pain; sweats freely without relief.

Mercurius.—Breasts swollen, hard and painful; feels as if raw; milk is poor, and the babe refuses to nurse. All the gum, tongue and general symptoms point to this remedy.

Phytolacca.—Marked hardness from the beginning; breasts and nipples sensitive and painful; when the child nurses the pain goes from the nipple all over the body; breast may later assume a purplish hue; after suppuration, sero-pus discharged from the sinuses.

Consult.—Silicea; Sulphur; Apis; Arnica; Chamomilla; Pulsatilla.

FORCEPS.

Indications.—(1) In lingering labor, when the natural efforts are unable to effect delivery. (2) When speedy delivery is imperative in the interest of the mother (as hemorrhage, convulsions, etc.). (3) When speedy delivery is indicated in the interest of the child (threatening asphyxia; impending death of the mother, etc.).

Preparation.—Anesthetize the patient (for all save the low operation); dilate the cervix; cleanse the genital canal; render the instruments sterile (boil for 20 minutes). Put the woman in the lithotomy position, with the hips well down to the edge of the bed.

Methods.—(1) Pelvic; (2) Cephalic.

Pelvic Application.—Grasp the left blade in the left hand; introduce the right hand into the vagina; press the cervical tissue away from the child's head; pass the first blade along the palm of the hand in the vagina. Now take the right blade in the right hand; insert the left hand into the vagina; carefully pass the second blade along the left hand, between the hand and child's head. Always hold the forceps lightly in the hand, and introduce gently, causing the cephalic curve to follow the curve of the child's head, and the pelvic curve to traverse the normal curve of the pelvis. If the blades do not grasp the head in the bi-parietal or bi-malar diameter, it should be the endeavor carefully to rotate them until these diameters are accurately obtained.

Caution.—Difficulty in introducing the blades is usually due to the fact that the hand in the vagina does not separate and crowd the cervical tissue far enough away from the head; consequently, the blade is passed into the fornix of the vagina instead of into the uterine cavity.

Locking.—After introduction, should the blades not lock readily, push one blade in a little, or slightly withdraw, depress or elevate the handles, always being careful not to use force. *Rule.*—*Re-apply the forceps rather than use force in locking.*

Traction.—Always make traction with the flexed arm, first placing a folded towel between the handles (to prevent excessive compression of the head). Always pull in the direction of the pelvo-genital canal. As the head dilates the vulva, hold the forceps in one hand, and with the other hand support the perineum.

Cephalic Application.—This method is especially useful in posterior positions, when the presenting part has to rotate or be rotated through an arc of 90 degrees.

The Blades.—Select the blade which corresponds to the side on which rests the posterior fontanelle in vertex

presentations, and the chin in face presentations, and introduce that blade at once into the hollow of the sacrum; then pass the other blade to the side of the pelvis on which it belongs (which will be where the forehead is situated) and rotate it toward the pubic arch, so that the head is grasped in the transverse diameters.

Traction.—Traction and rotation are made at the same time, till finally, when the head commences to dilate the vulva, the pelvic curve of the forceps will exactly correspond to the normal curve of the pelvis. In persistent occiput-posterior positions, make traction directly outward, till the bridge of the nose comes under the pubic arch; then gradually elevate the handle of the forceps until the occiput sweeps over the perineum; then again make traction outward, depressing the handles to deliver the chin under the pubes.

Contra-indications.—Forceps are contra-indicated in face-posterior positions. If rotation has taken place, traction is made downward until the chin comes well under the arch; then elevate the handles, delivering the head over the perineum by a process of flexion.

After-coming Head.—Forceps should be applied to the after-coming head as a last resort; elevate or depress the child's body according as the operator obtains the most room in which to work.

Direction.—Always make traction in the direction of the axis of the pelvis, except in cases of persistent occiput-posterior, when traction is made as described above; and in occiput-posterior after-coming head, when traction is made outward, and slightly downward.

MANAGEMENT OF THE PRESENTATIONS.

VERTEX PRESENTATION.

Management.—There is little to be done (until the head begins to disengage) except to promote *anterior rotation of the occiput*. If this is tardy, pass two fingers in front of the sacrum, make pressure on the posterior parietal protuberance; or, pass the finger under the pubes and make downward pressure on the brow, thus forcing the sinciput back towards the sacrum. In difficult cases, to induce anterior rotation, use one blade of the forceps as a vectis, make pressure, as was done with the finger; at the same time increase the flexion of the head, for insufficient flexion is frequently associated with, and is an etiological factor in, delayed rotation. If these means fail, apply the forceps (see *Forceps Application*).

Indications for Forceps.—In vertex presentation forceps are indicated: (a) when rapid delivery is demanded for the safety of the mother (eclampsia; hemorrhage; loss of strength; rise of temperature); (b) when there is danger of fetal death (increased or decreased fetal heart-beat); (c) when there is either a deficient power of the uterus, or excessive resistance at the perineum, causing the fetal

head to remain stationary for two hours, with a markedly increased caput succedaneum.

Delivery.—As soon as the head is delivered, remove the forceps; cleanse the eyes and mouth; feel for the cord; if it is around the neck, gently pull it down over the child's head, or pass it up over the shoulders. In some cases it may be necessary to clamp the cord in two places and cut between the ligatures. Next, deliver the trunk, at the same time support the head. If the delivery of the trunk is delayed, instruct the woman to bear down; at the same time, make slight traction upward (to effect the escape of the posterior shoulder) then downward, while the anterior shoulder passes under the pubes. With one hand supporting the perineum, rapidly deliver the rest of the body.

FACE PRESENTATION.

Management.—If extension is complete, the operator need only aid the anterior rotation of the chin; remember that *anterior rotation is absolutely necessary*. The head descending, the chin being anterior, the mento-cervical groove engages under the pubic arch, and flexion of the head takes place. Take special care to prevent laceration of the perineum. After the head is born, manage the rest as described under vertex presentations.

Chin-Posterior.—There are three methods of interference: (1) Early flexion in poorly extended face-posterior positions, converting them into occiput-anterior positions; (2) Version; (3) Application of forceps to the side of the child's head, anterior rotation being thus forcibly accomplished. All of these methods failing (or if the child is dead), perform craniotomy at once. An important rule in poorly extended face and brow presentations is, *early interference, converting dystocia into eutocia*.

BREECH PRESENTATION.

Management.—Early in the last month, cephalic version can sometimes readily be accomplished; if successful, hold the fetus in position by suitable abdominal binder. *During labor* (especially the stage of dilatation), examinations must be made with utmost care (to preserve the integrity of the bag of waters). As soon as labor is diagnosed, put the woman to bed; when expulsion begins, place her on her back, across the bed. Now (with the woman in the dorsal obstetric position) watch the delivery of the breech; as soon as the umbilicus appears at the vulva, draw down a loop of cord (to prevent undue traction being made on the umbilicus); as the scapula escapes at the vaginal orifice, bring down the posterior arm, if it has become extended. *Method:*—Go up with one or two fingers over the back of the posterior shoulder, out onto the arm toward the elbow or forearm, and force the arm down over the face of the child. After the posterior arm is delivered, manipulate the anterior in a similar manner, bringing it out under the pubic arch or down toward the lateral wall of the pelvis. No interference in the delivery of the trunk is justifiable; but it is necessary in the de-

livery of the after-coming head. During the birth of the trunk, aid flexion of the head by making pressure through the abdominal wall with the hand, and, as the body is born, the child is straddled on the left arm; put two fingers of the left hand in the mouth to prevent the head extending; with the right hand make traction on the shoulders, delivering the head by extension, the back of the child coming up toward the abdomen of the mother.

Forceps should always be prepared as soon as the diagnosis of breech is made (not to be applied to the breech, but for immediate use in the delivery of the after-coming head, if necessary). Embryotomy may be indicated. For expulsion of the trunk, use the fillet (if necessary). In some cases the trunk can be extracted by passing one or two fingers around the thigh, thus making traction.

TRANSVERSE PRESENTATION.

Management.—Transverse presentation calls for version, in one or another of its forms, either before labor has started, or just after dilatation is complete.

VERSION.

Varieties.—(1) Cephalic; (2) Pelvic; (3) Podalic. Methods (*a*) postural; (*b*) external; (*c*) combined external and internal; (*d*) internal. In this connection *internal podalic version* only will be considered.

Indications.—Transverse presentations; minor grades of pelvic deformity (true conjugate not under 8 cm.); placenta previa; prolapsus of the cord; mal-presentations of the cephalic ovoid; pathological conditions jeopardizing the life of the mother and child (as eclampsia, etc.).

Contra-Indications.—Firm engagement of the presenting part; permanent tetanic contraction of the uterine wall, with ascent of the ring of Bondl.

Treatment.—Anesthetize the patient, dilate the cervix; the membranes should be unruptured, or only recently ruptured. Render the hand and genital canal aseptic; lubricate the arm and hand, except the palm.

Choice of Hand.—Select the hand which, after careful study of the case, will grasp a foot most readily. If the presentation is a vertex, then the hand which, when between mid-pronation and supination, closes toward the belly of the child. Grasp either one or both feet, or a knee. Obstetricians differ as to which foot to grasp, but to me it appears to be preferable to grasp the near foot in dorso-anterior positions, and the remote foot in dorso-posterior positions. For beginners a good rule is to grasp a *foot*, no matter whether it is near or remote, anterior or posterior, and make traction on it.

Procedure.—Study the position of the fetus; introduce the lubricated hand into the vagina; rupture the membranes; enter the sac; displace the part presenting, and grasp a foot. Make traction; as soon as a portion of the fetus protrudes through the vulva, cover it with a warm towel; continue traction; at the same time watch for

the umbilicus to appear at the vulva; then pull down a loop of cord to prevent undue tension: In making traction, do it in such a way as to aid in anterior rotation of the back. When the scapula makes its appearance at the vulvar cleft, ascertain whether the arms have extended; if so, pass the finger over the back of the child, out onto the arm towards the forearm, and make pressure so as to bring the hand down over the face and chest of the child. The posterior arm is delivered in a similar manner. Now straddle the child on the left arm, and with the fingers of the left hand in the mouth of the child, to keep up flexion of the after-coming head, grasp the shoulders with the right hand and make traction, bringing the back of the child to the belly of the mother. Should the occiput rotate posteriorly, and the head remain flexed, deliver by a process of extension, the child going down between the mother's thighs; but if it goes posteriorly, and extends, then the chin of the child has to slip up behind and above the pubes, allowing the mento-cervical groove to engage under the pubic arch. The head is delivered by flexion, the belly of the child coming up to the belly of the mother. Have at hand forceps for the after-coming head. Five minutes is a long time to devote to this difficult part of the delivery of a breech, or podalic version.

UTERINE DISPLACEMENT.

Treatment.—It demands interference only in the case of an incarcerated retro-displaced uterus. If it is impossible to replace and keep it in proper position, it will be necessary to induce abortion; or, it may be treated on the expectant plan, awaiting developments.

PELVIC DEFORMITIES.

Pelvimetry.—Make accurate measurement in all cases some time before the seventh month.

NORMAL PELVIC DIAMETERS.

Inter-crestal,	28-29cm.	External conjugate	20.25 cm.
Inter-spinous,	25-26cm.	Diagonal conjugate	12.75 cm.
Inter-trochanteric,	31 cm.	True conjugate	11 cm.

Rule.—Subtract 9 cm. from the external conjugate to obtain the true conjugate. Take 1.75 cm. from the diagonal conjugate to obtain the true. These constants (9 cm. and 1.75 cm.) must be varied with the particular form of pelvic deformity, but space will not permit full discussion.

The Fetus.—After the pelvis has been carefully measured endeavor to obtain an approximate idea of the size of the fetus. Experience only will aid in this.

Classes.—For practical purposes pelvic deformities may be divided into two classes—*Generally contracted, and Simple flat pelvis.* The indications for treatment are given in the following table:

Generally Contracted Pelvis.		Simple Flat Pelvis.	
LIVING CHILD.	DEAD CHILD.	LIVING CHILD.	DEAD CHILD.
Up to 6½ cm. Sectio Cæsarean (absolute indication); or Induced Labor. (Abortion.)	Sectio Cæsarean (absolute indication); or Induced Labor. (Abortion.)	Sectio Cæsarean (absolute indication); or Induced Labor. (Abortion.)	Sectio Cæsarean (absolute indication); or Induced Labor. (Abortion.)
6½ to 8 cm. Sectio Cæsarean. (Relative.)	Perforation.	6½ to 7½ cm. Sectio Cæsarean. (Relative.)	Perforation.
		7½ to 8 cm. (a) 32-36 Week. Induce Premature Labor. (b) 36-40 Week. Sectio Cæsarean. (Relative.)	Perforation.
8 to 8½ cm. (a) 32-36 Week. Induced Labor. (Premature.) (b) 35-40 Week. Sectio Cæsarean. (Relative.)	Perforation.	(a) 32-36 Week. Induced Labor. (Premature.) (b) 36-40 Week. Version. (Prophylactic.)	Perforation.
8½ to 9 cm. (a) (32-36 Week. Induced Labor. (Premature.) (b) 36-40 Week. Spontaneous event. Forceps or perforation.	Perforation.	Spontaneous event. Forceps.	Forceps, or perforation.

All measurements refer to true conjugate diameters.

PREMATURE EXPULSION.

Symptoms.—*First three months:*—Colicky pain; slight bloody discharge; returning after a period of amenorrhea; vaginal examination shows the early signs of pregnancy. *Second three months:*—Pain; hemorrhage; loss of fluid; discharge of part or all of the product of conception. *Third three months:*—The same symptoms as the second period, and labor exactly simulating labor at term. The question to be decided is whether the trouble is threatened or inevitable.

Treatment.—If hemorrhage is slight, and not much dilatation, and the uterine contractions are weak, treat as only threatened, putting the patient to bed, at rest on the back, with non-stimulating diet. Administer the indicated remedy. Should the case not be controlled, the hemorrhage become more severe, or part of the fetus come away (inevitable abortion) then empty the uterus. Anesthetize the patient, dilate the cervix, and remove the fetus. Curette the walls of the uterus and wash out the cavity as in septicemia. Septicemia is the complication to be feared.

Medicinal.—Aletris,^{3x}—Habitual tendency to abort in women with a general weakness of mind and body, anemic and feeble, with a relaxed condition of the genital organs, and a disposition to prolapsus.

Caulophyllum.^{3x}—Severe pain in the back and loins with marked want of uterine tonicity. Uterine contractions are tormenting, irregular, feeble, and attended with only a slight loss of blood.

Cimicifuga.^{3x}—Pains fly across the abdomen and seem to double the patient up; chills and pricking sensation in the mammæ; abortion following fright (compare *Aconite*; *Opium*).

Cinnamomum.^{3x}—The chief indication is, “after a false step,” or strain in the loins, with profuse flow of bright red blood (*Rhus*; *Calc. c.*; *Nux*; *Sulphur*).

Kali carb.^{3x}—Habitual tendency to abort in the second or third month; weak back, pains commence in the back and pass off down the thighs; much backache when walking; stitches in the region of the kidneys; pale face; edematous swelling over the eye.

Mercurius.³⁰—Those who habitually abort, with a syphilitic history. It should be used as a prophylactic measure.

Sabina.^{3x}—Pain commencing in the small of the back and going around through to the pubic bones; discharge profuse; blood clotted, or fluid; at first, bright red; later, dark; worse from every motion.

Viburnum.^{3x}—Threatened miscarriage; pains begin in the back and pass around to the hypogastric region, ending in intense squeezing, cramping and bearing-down; pains extend into the thighs; very frequent and early abortions.

TUMORS.

Benign.—If the new growth involves the lower uterine segment, or that portion which has to dilate, treat it expectantly. Operate on fibroids when hemorrhage or pain demands it.

Malignant.—In carcinoma, much should be risked to save the life of the child. Cæsarean section is called for. Defer operation as long as possible.

Other Tumors.—Those interfering with the passage of the fetus (cysts of the ovaries and broad ligaments) should be operated according as they present symptoms which will complicate labor.

POLYHYDRAMNIOS.

Symptoms.—Sudden or gradual abnormal increase in the size of the abdomen; palpation of the fetus, and auscultation of the fetal heart-sound, are unsatisfactory or negative. As the uterus increases in size, there is compression of the contents of the chest, with dyspnea and obstruction of the circulation.

Treatment.—If the case be acute, it may be necessary to tap the sac through the abdomen or vagina, or induce accouchement. In the chronic form, adopt the expectant method.

HYDROCEPHALUS.

Diagnosis.—At the onset of labor, detect wide-open sutures; large fontanelles; abnormal mobility of the bones; and a possible sense of fluctuation.

Treatment.—The life of the child is not to be valued; craniotomy is the operation of election. Avoid the use of forceps and consequent laceration of the soft parts.

DEATH OF THE FETUS.

Symptoms.—Absence of quickening and of the fetal heart-sound; the uterus either does not increase in size, or it becomes smaller; the liquor amnii becomes red, greenish or chocolate-colored; secretion of milk is established; sense of weight in the abdomen (Stoltz' sign).

Treatment.—As syphilis is the most frequent cause, administer Mercury to the mother during the gravid stage. In habitual cases, induce labor before the time when death usually occurs, if the child is viable. If there is positive evidence of the death of the fetus, bring on abortion or premature labor.

MULTIPLE PREGNANCY.

Signs.—Two distinct and separate fetal heart-sounds; the abdomen very tense; proportionately large for the stage of gestation; palpation reveals two distinct cephalic ovoids, and an increased number of fetal small parts; often, edema of the supra-pubic region; after labor comes on, in some cases there may be felt two distinct bags of water.

Prognosis.—It varies greatly, with the complications. Complications occur in only 25% (because labor is usually premature).

Complications.—(1) Both heads presenting at once (the first coming into the pelvis slightly ahead of the second); (2) the first child a breech, the second vertex (the two chins becoming impacted or locked); (3) a transverse and a breech.

Treatment.—If both heads engage, endeavor to push back the second head; then fix the first head, or deliver it with forceps. Craniotomy may possibly be indicated. In locking of the chins, push back the second child; if this is impossible, try to deliver with the forceps. If this is of no avail, perform decapitation, and deliver the second child with forceps. If the case is one of eutocia, double-ligate the cord to prevent fatal hemorrhage from the second child. The appendages usually follow the birth of the second child.

PUERPERAL SEPSIS.

(PUERPERAL SEPTICEMIA.)

Etiology.—Due to infection; the *Streptococcus* is most frequently found; others are the pyogenic *Staphylococcus*; *Bacillus coli communis*; *Gonococcus*. The avenue of entrance is an abrasion of the mucous membrane, through which the germs enter the veins or lymphatics.

Symptoms.—The various forms, according to the nature and source of the infection, may be considered under the following classification:

1. *Acute General Septicemia, without Suppuration:*—Chill; rapid, weak, irregular, thin pulse; fever; dry tongue; offensive breath; vomiting; scanty, albuminous urine; delirium. This form is quickly fatal; though autopsy shows no lesion; microscopic examination of the blood reveals the presence of the causative germ.

2. *General Septicemia, with Suppuration:*—Multiple abscesses in various parts of the body (genital organs; nervous, respiratory, circulatory, digestive and urinary systems). Initial chill; fever; general malaise; dry skin; various other symptoms of deep, septic intoxication. Prognosis grave.

3. *General Peritonitis Originating in the Genital System:*—Severe chill; pain in the abdomen; followed by symptoms of peritonitis—distension of the abdomen; dry tongue and skin; vomiting; hiccough; diarrhea or constipation. Death, as a rule, is due to extension of the primary affection to the pleural or pericardial cavity; or, from general septic intoxication.

4. *Pelvic Peritonitis (Abscess of the Broad Ligament and Adnexa):*—The symptoms of peritonitis; examination shows the inflammatory process confined to the pelvic peritoneum, or reveals the mass in the broad ligament or adjacent organs (tubes and ovaries).

5. *Metritis:*—Pain in the uterine region; chill; fever; rapid pulse; the uterus enlarged and sensitive. *Prognosis:*—It may terminate by resolution, or run into a chronic form. Recovery is the rule.

6. *Vulvo-vaginitis:*—On the third or fourth day diphtheroid membrane appears. These membranes may be the source of the infection of the veins and lymphatics, which, in turn, give rise to a phlebitis and adenitis, or a general septicemia. *Prognosis:*—Recovery is the rule.

7. *Mastitis:*—Similar membranes to the ones found at the vulva may form on the nipples; these spots of exudate may be the starting-points of a deep mastitis; a simple abrasion may be the point of entrance of the septic germ, and the origin of a parenchymatous mastitis.

8. *Cystitis:*—Has its origin in a septic catheter; it may spread to the ureters and kidneys, giving rise to complications.

9. *Phlebitis:*—Phlegmasia alba dolens.

Other Forms.—Septic infection may manifest itself in the form of tetanus, ischio-rectal abscess, and suppuration of the pelvic joints.

Diagnosis.—According as the disease is local or general, the diagnosis must be based on different data. *General malaise* and *offensive lochia* demand attention. Chill, rise of temperature, rapid pulse and headache, added to these symptoms, render the diagnosis positive. The localized forms give rise to symptoms varying with the organ or organs involved. It must be *differentiated* from typhoid fever; acute articular rheumatism; diphtheria; tuberculosis; malaria; and the conditions resulting from the absorption of toxic materials found in the fecal matter.

Prognosis.—It varies with the form; character; intensity of the infection; severity of the fever.

TREATMENT.

Prophylaxis.—*Absolute cleanliness.*—An aseptic condition of the genital canal, operator, and all persons and articles coming into contact with the woman about to be confined. If the genital passage is not aseptic, give an antiseptic douche before and after labor. *Complete removal of the secundines* is imperative.

Lochia.—In case of offensive lochia, give an antiseptic douche, Mercuric bichloride (1:4000). If after giving douches twice a day, the putrid condition still persists, wash out the uterine cavity. This failing, curette the uterus.

Serum-therapy.—Anti-streptococcic serum is the form used; since this can antagonize only infection due to the streptococcus, the cases of double infection (streptococcus *plus* colon bacillus, pyogenic staphylococcus, bacillus pyocyaneus, etc.), we have at the best only a limited treatment of which to avail ourselves, but one which, nevertheless, is worthy of consideration.

Hypodermoclysis.—Hypodermoclysis, and intra-venous injection of normal salt-solution, may prove of some service.

General Infection.—In general septic infection, without suppuration, make use of stimulating treatment, serum, transfusion, and the administration of drugs called for by the particular condition; but, as the disease is so rapidly fatal, there is little that can be done. In case of suppuration, the pus, wherever located, must be treated on general surgical principles. *General peritonitis* calls for application of heat or cold, with measures as for general septic infection without suppuration. *Localized suppuration of the broad ligament, tubes or ovaries* calls for coeliotomy, incision and drainage, or the removal, if possible, of the organs involved. Inflammation of the uterus and endometrium demands rest, application of heat or cold, and specific medication. It is possible for this condition to demand hysterectomy. *Vulvo-vaginitis* and superficial metritis require the cleansing of the infected area, plus an antiseptic dressing. *Pain* should be controlled by heat, or the ice-bag. *Cystitis* demands local treatment, washing out the bladder with a saturated solution of Boric acid, Potassium permang. solution, solution of blue Pyoktannins, milk-diet, and, in the

severe grade, vaginal cystotomy. The septic infection of the breast, penetrating the deeper cellular structures, demands support of the breast by binder, heat or cold, and if abscess threatens, the removal of the child from the breast. If suppuration occurs, treat as a suppurating focus in any part (incision and free drainage). *Phlebitis*, in the form of *phlegmasia alba dolens* calls for guarded prognosis; put the patient to bed at *absolute rest* on the back; wrap the infected limb in absorbent cotton. As soon as the tenderness along the line of the infected vein begins to disappear, use *gentle massage* and friction. With suppuration in the deep cellular tissue, open and drain the pus cavity.

Sapremia.—This is a common form of sepsis. *Cause:*—Infection by saprophytes. *Time:*—It usually appears in the first three days. *Symptoms:*—Rise in temperature; rapid pulse; enlarged uterus; foul lochia; changes in the decidua, blood-clots, or retained secundines. *Treatment:*—At once curette the uterus. *Method:*—Thoroughly cleanse and shave the parts, put the woman in the lithotomy position; introduce a Sims speculum; grasp the cervix with tenaculum forceps; gently pull down the uterus; measure the cavity; dilate the os with steel dilators sufficiently to admit a curette; remove the retained secundines with placental forceps; then thoroughly scrape the entire wall of the uterus; irrigate the cavity with Mercuric bichloride (1:4000); follow this by an application of Iodine and Carbolic acid, equal parts, to the uterine wall. Iodoform gauze pack is required only in case it is necessary to control hemorrhage.

Medicinal.—Arsenicum; Baptisia; Belladonna; Bryonia; Cantharis; Carbolic acid; Cimicifuga; Crotalus; Hyoscyamus; Lachesis; Mercurius; Pulsatilla; Rhus tox.; Secale; Terebinth.

SECTION XIX.

GYNECOLOGY.

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DISORDERS OF MENSTRUATION.

AMENORRHEA.

Etiology.—*Primary* amenorrhea results from congenital absence or under-development of the internal genitals; malnutrition; mental over-stimulation; phthisis; chlorosis. *Secondary* amenorrhea is produced by mental shock; violent emotions or hysteria; over-study and lack of exercise; super-involution of the uterus or atrophy of the ovaries; chilling during menstruation; pelvic inflammation; acute febrile diseases; systemic diseases, such as phthisis, anemia, Bright's disease, diabetes, chronic malarial cachexia. It may also be a sequel to a radical change in residence, or traceable to the anemia of syphilis, obesity or morphinism. Absence of the menstrual discharge is the *result* and not the *cause* of *constitutional disease*.

Differential Diagnosis.—The physiological absence of menses due to *pregnancy* must invariably be excluded by search for its symptoms and signs, or by the aid of *time*. Simple *delayed puberty* occurs occasionally in perfectly healthy girls. *Retention* of the menses from vulvar or vaginal atresia must not be confounded with absence of the menses.

TREATMENT.

Aconite.^{2x}—Acute suppression from chilling or wetting; face flushed; fever; sharp pains and hypogastric tenderness.

Belladonna.^{2x}—Acute suppression; congested face; throbbing headache; bounding pulse; pelvic congestion with bearing-down pains.

Pulsatilla.^{2x}—Delayed puberty; menses late, scanty and irregular; leucorrhœa and dysmenorrhœa; pallor and lassitude. Particularly adapted to young girls.

Ferrum.^{3x}—Anemia; debility; cardiac palpitation; sudden flushing of the cheek. Iron may often be given to advantage in material doses in the form of *Peptonate of iron*, or in combination with *Manganese*.

Calcarea carb.^{3x}—Subjects of scrofulous diathesis; pallid or bloated face; circulation poor; extremities cold.

Phosphorus.^{3x}—Delicate constitution; tendency to pulmonary tuberculosis; cough; hemoptysis.

Cimicifuga.^{1x}—Rheumatic tendency; nervousness; hysteria.

Manganese dioxide.—This is a valuable remedy in obstinate cases. It may be given four times a day, either *alone* or *in combination* with iron. *Dose*:—One grain.

GENERAL MEASURES.

Baths.—For *acute* suppression, sitz-baths (110° to 115°); hot fomentations; mustard foot-baths.

Electricity.—In super-involution; or slight under-development. *Galvanic* current; positive pole to the abdomen; negative in the uterus or vagina. Also the faradic current.

Hygiene.—Change of residence; fresh air; nutritious diet; tonics. Free elimination of waste products (by both bowels and kidneys) is important.

Limitations.—Treatment is useless if amenorrhœa is due to incurable systemic disease, or extreme under-development of the genital organs.

MENORRHAGIA AND METRORRHAGIA.

Causes.—(a) Local; (b) Constitutional. (a) *Local*:—Pelvic congestion (from wet or chill); inflammations; retained fragments of placenta; retro-displacements; inversion-uteri; venous stasis (from disease of the heart, spleen, or liver); abdominal tumors; impacted feces. (b) *Constitutional*:—Plethora; purpura; hemophilia; scorbutus; debility (prolonged lactation). *Psychical*:—Fright and violent emotions.

TREATMENT.

Immediate Control.—Keep the patient recumbent; empty the bowels; douches (110°–115°) 15–20 minutes' duration, every 2 to 4 hours. *Pack the vagina*:—After a douche; with the patient semi-prone, retract the perineum with a Sims speculum; pack the vagina from the fornices outward with multiple tampons of cotton attached at intervals of 6 inches to a common string (cover the first tampon with powdered alum); do not let tampons crowd against the urethra. *Remove* in 12 or 24 hours; if the hemorrhage has not ceased, repack after an antiseptic douche. Cases resisting this treatment—curette under an anesthetic, with antiseptic precautions; then apply to the endometrium pure Iodine, or Iodized-phenol.

In the Intervals.—Correct displacements; cure inflammations. *In chronic endometritis*:—Galvanism, the positive electrode in the uterus; also, apply to the endometrium (once in 5 days) Iodine; Iodized-phenol; Ichthy and-glycerine. Also, curettage, and repair of lacerations.

Medicinal.—*Hamamelis*.—Long-continued flow of da venous blood; hemorrhagic diathesis. *Dose*:—Tr. drops, if dilution fails.

Hydrastis.—Menorrhagia from subinvolution and metritis, after child-birth or miscarriage; profuse bloody leucorrhœa, and cervical erosion; also, menorrhagia due to myomata. *Dose*:—Tr., 10 drops.

Ergot.—Sudden, severe hemorrhage. *Dose*:—Fl. ext., 5 to 20 drops; or, *Ergotine*, gr. j. or ij.

Ipecac.^{2x}—Profuse hemorrhage, with nausea and chilliness.

China.^{1x}—After excessive loss of blood; faintness, coldness, ringing in the ears. Cases of malarial origin.

Sabina.^{3x}—After parturition or miscarriage; profuse paroxysmal flowing; pain from the sacrum to the pubes.

Oil of Cinnamon.—For obstinate, passive hemorrhage.
Dose:—1 to 3 drops in milk, or in capsules, every four or six hours.

DYSMENORRHEA.

Varieties.—(a) Neuralgic; (b) congestive (inflammatory); (c) Mechanical; (d) Membranous.

Étiology.—*Neuralgic:*—In neurotic subjects; girls suffering from mal-nutrition (in-door confinement). *Congestive:*—Uterine inflammation; retro-displacement; ovaritis, acute or chronic; salpingitis, pelvic cellulitis, or peritonitis. *Mechanical:*—Conditions hampering uterine contractions, or hindering exit of blood from the uterine canal, as, flexions, uterine under-development; cervical stenosis; spasm of fibers at internal os; intra-uterine polypi; uterine fibro-myoma. Chronic endometritis, producing hypertrophied decidua menstrualis, causes *membranous* dysmenorrhea.

Prognosis.—Good, if the cause is removable; neuralgic, guarded; also in crippled pelvic organs.

Symptoms.—*Neuralgic:*—Waves of sharp, cutting pain, beginning and ceasing with the flow; neuralgia in other parts; pelvic organs normal. *Inflammatory:*—Not free from pain during the intermenstrual period; pain increases with the menstrual congestion; partially relieved with the flow; pain dull, bearing-down, or burning; sometimes sharp and knife-like. *Obstructive:*—Pain intense, intermittent, colicky, beginning before, and ceasing with free discharge; flow scanty; sometimes clotted; intermenstrual pain rare. *Membranous:*—Pain simulates those of abortion; intermittent, labor-like, agonizing; increases until the decidua is expelled, then suffering ceases, followed by free bloody discharge; later mucopurulent; general health seriously affected in time.

TREATMENT.

Local.—For severe pain, hot applications to the hypogastrium and vulva; hot foot-bath. Never give opiates or alcoholic stimulants. In the intermenstrual period treat endometritis, cervical stenosis, uterine displacements, pelvic inflammation.

Hygiene.—Dress; diet; exercise; regulate the bowels, for anemia iron and tonics.

Electricity.—In neuralgic and congestive cases, the galvanic current. Use the inter-uterine electrode with antiseptic precautions. Neurotic cases may benefit by marriage and pregnancy, inadvisable in inflammatory cases. Membranous cases, curettage; apply Iodized-phenol to the denuded canal; second curettage is often called for.

Medicinal—Viburnum. Tr.—Spasmodic, cramping pain, in the lower abdomen and thighs, resembling labor-pains.

Caulophyllum.^{1x}—Colicky pains; scanty flow; sympathetic contractions of the rectum and bladder.

Pulsatilla. 2x—Delayed, scanty and clotted flow; painful swelling of the breasts; lachrymose disposition; neurotic subjects.

Belladonna. 1x—Inflammatory dysmenorrhœa; intense bearing-down pains; throbbing headache; fever.

Cimicifuga. 1x—In rheumatic subjects, and those subject to neuralgia; pains severe in the back and thighs. Give it throughout the month, and increase the frequency of doses when period commences.

Gelsemium.—Dysmenorrhœa due to muscular spasm; nervous subjects; headache precedes the flow; the patient voids much watery urine. *Dose:*—Tr. or 1x.

Hamamelis. 1x—Dysmenorrhœa dependent upon chronic ovarian irritation.

VAGINA AND URETHRA.

VAGINISMUS.

Etiology.—It occurs in young, nervous women; usually with sensitive carunculæ myrtiformæ; rigid, over-sensitive hymen, urethral caruncle; anal or vulvar fissure; vulvitis; hemorrhoids; sometimes no local lesion is discoverable.

Diagnosis.—Differentiate from dyspareunia (pain on sexual intercourse *without* muscular spasm).

TREATMENT.

Local.—Determine the cause and treat accordingly. Remove a sensitive hymen; carunculæ; urethral caruncle; dilate the vaginal orifice; stretch or divide fissures. When no cause is discoverable use dilatation under anesthesia. Have the patient wear a glass dilator several hours daily for two or three weeks. Give general tonic treatment for neurotic conditions.

PRURITUS VULVÆ.

Etiology.—Inflammation or eruption of the vulva; diabetic urine, or vaginal discharges; worms; pediculi simple congestion; reflex.

Symptoms.—Paroxysmal, intense itching, especial about the clitoris and labia minora (may lead to masturbation).

TREATMENT.

Local.—Remove every discoverable cause. *Solutions.* B. Carbolic acid (5%); Silver nitrate (3 to 5%); Cocain hydrochlorate (5%); an emulsion Chloroform (4 parts); Oil of bitter-almonds (60 parts); dusting-powder: Subnitrate-of-bismuth. *Ointment:*—B. Carbolic acid, m., x.; Menthol, gr. xx.; Ung. aqua rosæ, oz. j.; M. Sig.—Apply locally. Or, Ointment of Resinol. Protect the parts from irritating discharges by ointment of Carbolyzed-vaseline or oxide-of-zinc.

URETHRAL CARUNCLE.

Nature.—It is a small angioma.

Symptoms.—Dysuria and dysparuenia; the least touch causes pain; it bleeds easily.

Treatment.—Under an anesthetic, burn off the base with actual cautery; or, excise through the base and stitch with cat-gut sutures.

INFLAMMATORY DISEASES.

VULVITIS.

Etiology.—Lack of cleanliness; threadworms, pyogenic discharges; masturbation, or excess in coitus; irritation from diabetic urine; gonococcus.

Symptoms.—*Simple vulvitis*.—The parts are bathed in watery or mucous discharge. *Purulent vulvitis*.—Yellowish discharge; increased redness; swelling; burning on urination or on motion; pruritus of varying intensity; may be slight fever, especially in children. *Precaution*.—Purulent specific vulvitis tends to upward extension; treat promptly and energetically. The adjacent glands may become inflamed.

TREATMENT.

Local.—Remove the cause; preserve perfect cleanliness. Bathe every 1 or 2 hours with (1) Boric acid (sat. sol.) (2) *Liquor plumbi subacetatis* (3 to 0). (3) Mercuric bichloride (1:3000). At night a compress of one of the above. Keep the patient at rest. In chronic cases a stronger solution of Mercuric bichloride; or, paint the inflamed surface with Silver-nitrate solution (2%). For pruritus, Carbolic-acid lotion (2%); or, oxide-of-zinc ointment, containing Menthol (2%); Medicinal, see under vaginitis.

INFLAMMATION OF BARTHOLINIAN GLAND.

Etiology.—Infection from purulent vulvitis or vaginitis.

Symptoms.—The labium majus swollen and painful; pain worse in walking or sitting; the enlarged gland feels like a large lima-bean; tenderness; throbbing; redness; with abscess, fluctuation, and the labium edematous. Usually a small red areola—"Gonorrhoeal macule" (Sanger)—appears at the orifice of the duct. Pus may be spontaneously evacuated through the duct, and the sac refill and empty again.

TREATMENT.

Local.—Early, the ice-bag, or fomentations of Boric acid (sat. sol.). Chronic enlargement; with or without a center of pus, enucleate and suture the wound from the bottom outward. For Bartholinian-abscess, make a free incision, irrigate, cauterize with pure Carbolic acid, pack the cavity with Iodoform gauze. Make free incision, press the sides of the swelling to throw it prominently forward; make a longitudinal incision on the skin-aspect of the labium, from below upward. Drain from the lowest point.

VAGINITIS.

Varieties.—(a) Simple; (b) Specific; (c) Senile.

Etiology.—Due to micro organisms (the gonococcus most frequent). Invasion is favored by impairment or destruction of the vaginal epithelium; as, injury from obstetric operations; pessaries; use of chemicals; excessive coitus;

masturbation; threadworms; lack of cleanliness; unhealthy discharges. A low constitutional state predisposes.

Symptoms.—*Acute*:—Pain and heat in the vagina; increased secretion; pruritus; frequent urination, with dysuria; dispareunia; at times, fever. *Chronic*:—The discharge is the main symptom; deterioration of general health in protracted cases. *Physical signs*:—Heat, redness, enlarged papillæ (in the granular form). In gonorrhœal cases, pressure causes a pus-discharge from the duct of the Bartholinian glands; also, from the urethra when it is involved. Senile vaginitis shows redness, in patches; adhesions; the discharge is serous or sanious.

Diagnosis.—Differentiate from pelvic abscess, discharging into the vagina. Differential diagnosis of the simple and gonorrhœal forms is of the greatest importance. The presence of the gonococcus is the crucial test. Clinical signs are as follows:

Simple Vaginitis.

No history of exposure;
Inflammation milder;
Urethritis unusual;
Adenitis not common;
Inflammation of vulvo-vaginal gland, rare;
Yields readily;
Less tendency to extension;

Gonorrhœal Vaginitis.

History of exposure;
Inflammation more severe;
Urethritis common;
Adenitis, inguinal, common;
Inflammation of vulvo-vaginal gland;
Intractability;
Extension upward in time involving the uterus tubes and ovaries;
Vegetations.

Vegetations rare, except occasionally in pregnant women.

Prognosis.—The simple form yields readily to treatment. Gonorrhœal vaginitis is obstinate, and, if neglected, leads to serious results. If complicating parturition, it threatens ophthalmia to the child and sepsis to the mother. Latent gonorrhœa may exist in crypts of the vulvo-vaginal glands, or Skene's glands, long after the vaginal symptoms have disappeared.

TREATMENT.

Local.—Remove every source of local irritation. In acute cases, frequent douches of Boric acid (sat. sol.); Creolin (1:100); Kali permang. (1:300). After the acute stage, especially in specific cases, irrigate with Mercuric bichloride (1:2000); swab the vaginal walls with Silver-nitrate (3 to 5%). Thoroughly reach every fold of the mucous membrane; then introduce a strip of gauze or lint, covered with Vaseline, to keep apart the inflamed walls. Repeat this application after 3 or 5 days, as indicated, using the douche in the intervals. For *chronic vaginal leucorrhœa*, use this astringent douche:—*℞*. Alum, grs. iij.; Zinc sulph., grs. ij.; Acid, tannic, grs. ij.; Acid, boric, grs. vj.; Colorless ext. Hydrastis, gr. j. *M.* Make powder or tablet. Dissolve one powder in a quart of water, and use as a vaginal douche. If the inflammation has invaded the uterus permanent cure demands treatment of the endometritis.

General Measures.—Rest; non-stimulating diet; free action of the bowels; hot hip-baths.

Medicinal.—*Belladonna*.^{ix}—Dryness and burning in the vagina; bearing-down feeling, as if the pelvic organs

were being forced from the vulva; swelling of the external genitals; fever and headache; the pains worse on motion.

Mercurius cor.^{3x}—Discharge thin and watery, blood tinged.

Cantharis.^{3x}—Vaginitis or vulvitis; with dysuria and urethral discharge; pruritus.

Kreosote.^{2x}—Yellow; offensive, acrid discharge—smarting and burning on urination; pruritus; vagina hot and swollen.

Calcarea carb.^{3x}—In scrofulous subjects; profuse milky discharge; menstrual flow excessive and too early.

Hydrastis.^{Tr.}—Chronic vaginitis; thick, tenacious discharge, especially in vaginitis attending subinvolution, endocervicitis, or the congestion due to displacements, and accompanied by gastric and hepatic derangement.
Dose: 5 drops Tr.

UTERINE INFLAMMATIONS.

Etiology.—All forms, acute or chronic, are caused by infection (during the puerperium; course of operations); or by gonorrhœa; excessive coitus; "cold" during the menses; extension; or the presence of uterine tumors, displacements, or tuberculosis.

ENDOCERVICITIS.

Cause.—Cervical laceration (with infection); gonorrhœa; uterine retroversion. Seldom seen except as a chronic condition.

Local Signs.—The cervix enlarged; the vaginal portion veiled by a tenacious, white secretion (may be drawn in strings); the os externum bright red; granular (the typical "erosion") retention-cysts (shot-like).

Symptoms.—The thick, tenacious discharge may be clear, opaque or blood-tinged; usually not offensive; menorrhagia; as a rule, sterility; dull, dragging pains in the back and limbs; failure of general health in time.

Diagnosis.—Differentiation from early malignant disease of the cervix is highly important. In endocervicitis, when punctured the nodules contain a gelatinous fluid (Nabothian follicles); the mucous membrane is movable over the firm, underlying tissues; use the microscope on a bit of excised tissue.

TREATMENT.

Local.—With a speculum expose the cervix; remove the thick secretion; apply Iodized-phenol (Iodine, 4 parts; carbolic acid, 1 part) the whole length of the cervical canal. Puncture retention-cysts with a sharp bistoury, then apply to the cervix a tampon medicated with Boroglyceride, or Hydrastis and glycerine; a vaginal douche daily between treatments. In inveterate cases, with polypoid growths, curette, and perform trachelorrhaphy if there is laceration; correct uterine displacement. For cervical erosion apply a tampon, medicated with Chlorate-of-potash (saturated aqueous solution).

ENDOMETRITIS.

Varieties.—(a) Acute; (b) Chronic.

Local Signs.—The uterus is enlarged; but not very tender; the sound excites bleeding; it may show tenderness and a softened or irregular lining.

Symptoms.—Menorrhagia; metrorrhagia; leucorrhœa (less gelatinous than in endocervicitis); dysmenorrhœa; sterility; tendency to abortion; anemia; debility; backache; pelvic pains; nervousness; indigestion.

METRITIS.

Varieties.—(a) Acute; (b) Chronic.

Local signs.—*Acute.*—Marked tenderness; rigidity over the lower abdomen; heat in the pelvis; uterus enlarged, softened. *Chronic.*—The uterus gradually becomes hard, enlarged, tender (less so than in acute).

Symptoms.—*Acute.*—Heat and pain in the pelvis and lower abdomen; worse by motion, urination or defecation; menses or lochia suppressed; there may be chill and fever (in septic cases). *Chronic.*—Menorrhagia; metrorrhagia, with dysmenorrhœa; debility; backache; dragging pelvic pains; neurotic; dyspeptic. If pregnancy occurs, abortion is apt to follow.

Diagnosis.—In acute, exclude pregnancy with metritis; in chronic, exclude small uterine fibromata.

TREATMENT.

Acute.—Carefully curette if there is possibility of retained placental fragments; follow by prolonged antiseptic irrigation. Further treatment as for pelvic peritonitis.

Chronic.—Correct errors of diet; overcome constipation (by Cascara; Flaxseed; Rubinyat; Hunyadi); avoid over-exertion; quiet and rest; temporary change of residence; rest at the menstrual periods; avoid coitus.

Local.—Replace and support a displaced uterus (wool-tampon, or pessary); hot hip-bath at night for premenstrual pain; prolonged hot douches (see peritonitis); tampons (every 2 to 4 days) medicated with Boroglyceride (1:4); Glycerine and colorless Hydrastis (1:8); Glycerine and Ichthyol (1:10). For persistent discharge from the endometrium, Iodized-phenol; or, Glycerine and Carbolic acid (equal parts); or, pencils containing Ichthyol (10%).

Electricity.—The galvanic current to reduce congestion.

Curetage.—In most cases of chronic endometritis; in extreme cases vaginal hysterectomy is occasionally demanded.

Medicinal.—*Acute metritis.*—Aconite^{1x}; Verat. vir.^{1x}; Belladonna^{1x}; Arsenicum alb.^{1x} *Chronic metritis.*—Hydrastis^{Tr.}; Mercurius cor.^{3x}; Cimicifuga^{1x}; Kreosote^{2x}; Calcareo carb.^{3x}; Nux vomica^{2x}; Kali bich.^{3x}; Chininum ars.^{2x}

INFLAMMATION OF THE ADNEXA.

SALPINGITIS.

Varieties.—(a) Acute; (b) Chronic; (c) Tuberculous.

Etiology.—Septic infection (streptococcus), after abortion, labor, or operation; acute gonorrhœa (or latent in the male); extension; chill; tuberculosis.

Symptoms.—*Acute Salpingitis*.—The symptoms usually come on suddenly, after confinement, or operation, or by extension of a pre-existing septic endometritis; there is tubal leakage. The symptoms are those of the accompanying peritonitis. *Chronic salpingitis*.—Usually in women 20 to 35 years; follows labor or abortion, with protracted illness and subsequent sterility; or after gonorrhœa. Menorrhagia; dysmenorrhœa; pain on defecation or coitus, over the affected tube; moderate fever; pain never absent, irregular exacerbation; chronic invalidism.

Signs.—Bimanual examination (vaginal or rectal), an elongated swelling behind or beside the uterus, exquisitely sensitive; when small, difficult to detect; when large, can be felt through the abdominal wall.

Diagnosis.—Differentiate from (a) retroflexed uterus; (b) fecal accumulation; (c) small uterine fibroid; (d) enlarged ovary; (e) appendicular abscess; (f) tubal pregnancy.

Sequelæ.—It may result in (a) occluded ostium; (b) adherent tube; (c) hydrosalpinx; (d) pyosalpinx.

Treatment.—*Acute salpingitis*.—Treat as for pelvic peritonitis; serious infection of the peritoneum, consider celiotomy or colpotomy. *Chronic salpingitis*.—Rest; regulate the bowels; hot douches; medicated tampons; sometimes the galvanic current. With diagnosis of occlusion of the tube and distension (pain and invalidism) remove the tube by either the abdominal or vaginal route. Leave the ovary if possible. In young women minor degrees of tubal deformity (occlusion and distention or contortion with adhesions) warrant conservative surgery (form a new ostium; cleanse the canal; liberate the tube).

OVARITIS.

Etiology.—Causes the same as in salpingitis, which usually accompanies; it also occurs secondary to parotitis.

Symptoms.—*Acute*.—Localized peritonitis; sharp or stinging pain; radiates to the thigh; when the ovary is prolapsed, excessive pain on defecation, or in sitting; the ovary is enlarged, and exquisitely sensitive to touch. *Chronic ovaritis*.—Symptoms almost identical with those of chronic salpingitis. Abscess formation, the ordinary symptoms of pelvic suppuration.

Treatment.—The same measures as for salpingitis;

Operations.—(a) liberation of the ovary from adhesions; (b) resection of the diseased portion and suture; (c) complete removal (by ventral or vaginal incision).

PELVIC PERITONITIS.

(PERIMETRITIS.)

Varieties.—(a) Adhesion; (b) Serous; (c) Purulent; (d) Acute; (e) Chronic.

Etiology.—Same factors that cause salpingitis. Other causes:—Irritation of neoplasms; careless uterine irrigation (fluid forced through the tubes).

Acute.—Rigors; fever (102°-104°); the pulse, at first rapid and bounding; later, weak, wiry or thready and irregular; pain, sharp, cutting or burning; worse on slightest motion; nausea; vomiting; constipation (rarely diarrhea). Symptoms of abscess may appear later.

Chronic.—General health, poor; neurotic; pain, variable; aggravated by menstruation, exercise, coition or defecation; irritable bladder; dysuria; constipation; proctitis; as a rule, sterility.

Local Signs.—*Acute.*—Rigid abdominal walls; both thighs flexed; tympanites; tenderness and pain over the lower abdomen. Vaginal heat; tenderness; thickening (due to plastic exudation); or, bogginess (serous effusion); or bulging (encysted fluid). *Chronic.*—Thickened tissues; adhesions; displacements of the uterus and appendages.

TREATMENT.

Acute.—Absolute rest; liquid diet; bowels, clear with saline water, or salts enema; hot fomentations; turpentine stupes; hot douches. **Method.**—The patient on her back (water, 112° to 120°); let it run continuously for 15 or 20 minutes; repeat every 2, 3 or 4 hours until the inflammation is checked. If placental fragments have been left, empty the uterus and irrigate freely. For excessive pain, *suppositories.*—Pulv. Opii, gr. j.; Ext. Belladonnæ, gr. $\frac{1}{4}$. Insert 1 suppository every 4 hours until the pain is controlled. Or, give Morphine hypodermically (gr. $\frac{1}{4}$; Atropine, gr. $\frac{1}{15}$). For weakness (especially from suppuration) systematic alcoholic stimulation. For pus accumulation, abdominal or vaginal incision.

Convalescence.—An abundance of simple, concentrated nourishment; tonics. Protect the abdomen by a flannel band. Guard against relapse.

Chronic Form.—Hot douche, Boro-glyceride; or, Glycerine and Ichthyol (1:10); apply on a wool tampon. Apply on the abdomen (above Poupart's ligament) Ichthyol (20%); Iodine (Tr.); Fly-blister. Surgical measures for the resulting adhesions; displacements; pus accumulations.

PELVIC CELLULITIS.

(PARAMETRITIS.)

Varieties.—(a) Acute; (b) Chronic.

Seat.—Usually the base of the broad ligaments and the utero-sacral ligaments.

Etiology.—Septic infection in abortion, labor, or during operations on the uterus and vagina; sometimes secondary to peritonitis. Trauma provides an infection-*atrium*.

Symptoms.—*Acute*:—Chill; fever; pain (dull, extends to lower abdomen) one leg flexed; painful defecation and urination. *Chronic*:—As in chronic pelvic peritonitis.

Local Signs.—Early, heat and tenderness; then, bulging of one fornix, or bagginess about the cervix; later, hard, brawny infiltration, which fixes the uterus. One side usually affected; the uterus crowded aside. In old cases the uterus is drawn toward the affected side or anteflexed, (from cellulitis of the utero-sacral ligaments).

Prognosis.—Usually, subsidence of inflammation and absorption in a few weeks; rarely, suppuration and pelvic abscess.

TREATMENT.

Local.—As in pelvic peritonitis. Open pus accumulations (*a*) through the vagina; (*b*) above Poupart's ligament; (*c*) median abdominal incision; according to location and size. Use large tubular drainage. Dilate old sinuses for freer drainage.

MEDICATION IN PELVIC INFLAMMATION.

Aconite.^{1x}—The initial fever; restlessness; thirst; rapid pulse; pain cutting and darting; the abdomen hot, very sensitive to touch.

Belladonna.^{1x}—Acute stage; face flushed; pulsation of the carotids; throbbing in the pelvis and abdomen; darting, stabbing pain.

Bryonia.^{1x}—Signs of exudation; pains sharp; worse on slightest motion; white-coated tongue.

Cantharis.^{2x}—Dysuria; frequent urination; bloody urine.

Apis.^{3x}—Stinging pain; scanty urine; edema of the feet.

Terebinthina.^{2x}—Excessive tympanites; great prostration.

Arsenicum.^{3x}—Especially in septic cases; great weakness and prostration, with restlessness.

Mercurius biniod.^{2x}—After acute stage, to favor absorption of exudate.

Cimicifuga.^{1x}—In subacute or chronic cases when there is a rheumatic tendency.

Consult.—Calcarea carb.^{3x}; Hepar sulph.^{3x}; Silicea^{3x}; in chronic and suppurative cases.

UTERINE DISPLACEMENTS.

ANTEFLEXION.

Etiology.—*Congenital*:—Due to under-development; *acquired*:—Due to utero-sacral cellulitis.

Symptoms.—Dysmenorrhea; sterility; the menstrual pain is intermittent and cramping; begins shortly before the flow and is relieved with free discharge; menses scanty; reflex nervous symptoms; vesical irritability.

Local Signs.—The cervix points downward and outward, or directly outward. The fundus is felt through the anterior fornix, making a right, or acute, angle with the cervix.

Diagnosis.—Differentiate from:—Small fibroid in the anterior wall of the uterus; vesical tumor or calculus (rare).

TREATMENT.

Local.—*Slow dilatation* (with graded sounds) or *rapid dilatation* (under anesthesia). Use strict antiseptic precautions. Pregnancy and parturition generally work radical relief. *Stem pessaries* should seldom be used; never if inflammation exists; placed with antiseptic care; remove immediately if decided pain occurs. Hard rubber or aluminum pessaries are best. The stem should never be long enough to reach the uterine fundus. Internal remedies will not correct a uterine displacement. In ill-nourished girls, attend to proper hygiene and diet.

RETROVERSION AND RETROFLEXION.

Etiology.—(a) Increased weight of the uterus from subinvolution, pregnancy, chronic congestion, or a fibroma; (b) diminished support, from parturition; injuries of the pelvic floor; increased intra-abdominal pressure; a distended bladder; sudden fall.

Symptoms.—The condition may be present and present no symptoms. When present—weight; bearing-down; backache; constipation; pain on defecation; dysuria. Consecutive ovarian prolapse causes dyspareunia; dysmenorrhea; sterility.

Reflex Symptoms.—Gastric and vesical derangement; neuralgia; headache (vertex or occiput). With co-existent pelvic inflammation—menorrhagia; leucorrhœa; pain; tendency to abortion.

Signs.—Bimanual examination shows fundus absent anteriorly, but present posteriorly, where it can be felt through the posterior fornix. The sound confirms this. The degree of mobility or fixation is determined at the same time, by bimanual manipulation.

Diagnosis.—Differentiate from:—Fecal impaction; fibroid (in posterior uterine wall); a large prolapsed ovary or tube; hematocele; exudate in the cul-de-sac.

TREATMENT.

1. Simple retroversion, without adhesion:—Reposition, and retention by a wool support, or hard-rubber pessary.

2. Retroversion with moderate symptoms of pelvic inflammation, or with prolapse of one or both ovaries. Hot douches; wool-tampons, medicated with Boro-glyceride; or, glycerine and Ichthyol. Elevate the uterus as much as can be done without severe pain. When tenderness subsides, replace the organ and carefully adjust a pessary. Marked inflammation contra-indicates reposition or the use of a pessary.

3. When light adhesions bind the uterus backward:—Cautious manipulation, and stretching *per vaginam* or *per rectum*; elastic wool supports. Firmer attachment calls for *cœliotomy*, freeing the uterus, and *ventral suspension*.

4. Retroversion of a pregnant, non-adherent uterus:—Correct the malposition; fix a pessary; let it be worn until the fourth month.

METHODS OF REPOSITION.

1. **Bimanual Manipulation.**—The preferable method.
2. **Sound.**—The use of a sound or repositor as a lever. Its dangers are sepsis and uterine perforation.
3. **Posture.**—Or, posture and manipulation. Put the patient in the knee-chest position; retract the perineum with Sim's speculum; the in-rushing air distends the vagina and forces the fundus forward and upward. Should the fundus lodge under the sacral promontory, make traction on the cervix with a bullet-forceps, and press the fundus forward with a firm tampon held in the beak of a long forceps. A pessary may be inserted before the patient resumes the dorsal posture. This is the safest method for replacing a pregnant uterus. When the uterus has grown so large as to become firmly impacted in the sacral curve, I have successfully replaced it by making pressure through the rectum instead of the vagina, thus being able to reach the fundus.

Pessaries.—Of immense service when wisely used; they may do great harm if carelessly or improperly employed. The most useful types are the Smith, Hodge and Thomas.

Rules for Using.—1. Never use a pessary when inflammation or adhesions are present.

2. If there is ovarian prolapse, extra care is needed. The Thomas pessary is especially adapted to such cases.

3. While examining and replacing the uterus an estimation of the size and shape of the vagina is made, and a pessary is selected to correspond.

4. When inserted, see that it is possible to pass the finger-tip readily between the pessary and the vaginal wall. The vagina must not be stretched. Have the patient rise and take a few steps; then re-examine in the standing posture. If the uterus and support are right, and she feels no discomfort, the fit will most likely be satisfactory.

5. A proper pessary is worn unconsciously; it retains the uterus in perfect position, and relieves symptoms. Instruct every patient to report immediately if it gives rise to decided pain, or direct her how to remove it herself.

6. Remove a hard rubber pessary at least once in three months; cleanse and replace (if necessary). For slight leucorrhœa, an astringent douche.

Operations.—1. To secure a healthy uterus reduce weight from subinvolution, and get a supporting pelvic floor and outlet; curettage, trachelorrhaphy and colpoperineorrhaphy may be indicated.

2. Chronic retro-version, with disease of one or both ovaries or tubes, or retro-version with adhesion, is an indication for cœliotomy and ventro-fixation.

UTERINE PROLAPSE.

(HERNIA OF THE PELVIC FLOOR.)

Varieties.—(a) *Partial prolapse:*—The uterus descends, but not outside the vagina. (b) *Complete prolapse:*—

(Procidentia) the organ has issued from the vulva and hangs between the limbs.

Etiology.—(a) Stretching or rupture of the pelvic floor in labor; (b) increased intra-abdominal pressure from abdominal tumors, ascites or violent straining; (c) traction from below by cervical tumor or hypertrophy. Retroversion is the first step in prolapse; the causes of the former *predispose* to the latter.

Symptoms.—Weight; dragging in the pelvis; “falling of the womb;” difficulty in urination and defecation; discomfort in walking; frequently menorrhagia; leucorrhœa; sterility.

Signs.—In partial prolapse the cervix lies low, near the vaginal outlet, and the uterus is retroverted. Straining or coughing causes bulging of the anterior or posterior vaginal walls (cystocele or rectocele). In complete prolapse the uterus, as well as the bladder and rectal wall, is outside the vulva, between the thighs. From exposure and friction against the limbs the vaginal walls may be inflamed, eroded, or they become skin-like from thickening of the epithelium. Cystitis may be the outcome of the vesical prolapse. The uterus becomes enlarged and the cervix hypertrophied.

Diagnosis.—Differentiate from:—(a) Simple elongation and hypertrophy of the cervix; (b) an inverted uterus; (c) large polypus hanging from the cervix; (d) cystocele; (e) rectocele.

Prognosis.—When once established prolapsus uteri does not improve of itself. It often becomes worse after the menopause. The prospect for relief from operative measures is excellent.

TREATMENT.

Local.—Replace the uterus and retain it within the vagina by a large pessary or an inflatable rubber ring, until a permanent retention can be effected by an operation. When inflammation or ulceration is present in cases of complete prolapse, remedy these conditions by rest in bed, douches, hot hip-baths and the use of powdered Boric acid, or Boro-salicylic powder. Then use a pessary. For those who refuse an operation, and for the feeble and aged, the inflatable rubber ring or the vaginal stem pessary must be relied upon to palliate.

OPERATIONS.

1. Elongated, hypertrophied cervix—cervical amputation.
2. Restore the integrity of the vaginal floor and outlet as completely as possible by anterior colporrhaphy and posterior colpo-perineorrhaphy.
3. In intractable cases, ventro-fixation, combined with one or more of the preceding operations, as the case may indicate.
4. Vaginal hysterectomy may occasionally be warrantable in women past the child-bearing period.

PROPHYLAXIS.

Uterine Displacements.—These can be prevented by careful conduct of labor and prompt repair of laceration

Explain to each patient the necessity for remaining a sufficient length of time in bed, and avoiding exertion.

UTERINE INVERSION.

Varieties.—(a) Partial; complete; (b) Acute; chronic.

Etiology.—It is only possible when the cavity is dilated in parturition, or from an intra-uterine polyp. Many of the cases occur from dragging on the cord of an adherent placenta.

Symptoms.—*Acute Inversion:*—Pain; hemorrhage; shock. Later, septicemia. *Chronic:*—Menorrhagia; metrorrhagia; leucorrhœa; and pelvic pain.

Signs.—A mass lies in the vagina or between the thighs—around the upper part is the collar-like smooth rim of the cervix. The sound passed within this shows a cavity of diminished depth. The openings of the Fallopian tubes can be found in the projecting mass.

Diagnosis.—Differentiate from—uterine polyp; prolapsus uteri.

Prognosis.—Sudden inversion endangers life from shock and hemorrhage; later, from sloughing, hemorrhage, and consequent exhaustion.

TREATMENT.

Local.—For recent cases use taxis under anesthesia, with antiseptic precautions. When the inversion is reduced, use antiseptic irrigation, and pack the uterine cavity with Iodoform gauze.

Chronic:—Bimanual manipulation under anesthesia; the gradual pressure of a repositor; when both these means fail, extirpate the uterus.

UTERINE TUMORS.

FIBROMYOMA.

Etiology.—The exact cause is unknown; associated with the period of sexual activity; marriage increases their frequency; injuries in connection with child-bearing and abortion, and chronic uterine inflammation, are undoubted exciting causes.

General Considerations.—Fibromyomata usually first come under notice between the ages of 25 and 35 years. They are generally multiple, range in size from a pea upward, and contain muscular and fibrous tissue in varying proportions. Originally globular, the shape may be modified by irregular pressure. Ninety-five per cent are found in the corpus uteri.

Classification.—1. *Interstitial or intra-mural;* which may grow so as to become either—2, *Submucous;* or, 3, *Subserous or Subperitoneal.*

Symptoms.—(a) In *submucous* tumors *uterine hemorrhage* is the characteristic symptom. First menorrhagia, then metrorrhagia, causing in time *anemia* and *debility*. Rarely, death is a direct result. A small polyp may excite as serious loss of blood as a large sessile tumor. *Leucorrhœa* is another drain. Pain may be dull or *expulsive*. One-third of the married women who have

these tumors are sterile. Abortion often follows pregnancy.

(b) *Subserous* fibromyoma has no characteristic symptom. It may attain considerable size undetected. Symptoms are mainly due to the mechanical effect of the tumor. Small ones cause displacements; large ones may produce pressure-symptoms in the bladder, rectum, ureter, pelvic veins and sacral nerves, or may crowd upon the diaphragm. Hemorrhage is uncommon.

(c) *Interstitial* growths have symptoms partaking more or less of the character of those of one of the other classes. When small, the symptoms and signs are almost identical with those of subinvolution with endometritis.

Diagnosis.—Small tumors are difficult, often impossible, to detect. Make digital exploration of the uterine cavity; it is easiest done during menstruation. Large tumors present little difficulty. *Differentiate* from pregnancy (the error has been made by surgeons of eminence); retroflexion; chronic metritis; pyo- and hydro-salpinx; ovarian tumors; inverted uterus; malignant uterine tumors.

Secondary Changes.—(a) Colloid degeneration; (b) calcification; (c) malignant degeneration; (d) suppuration or sloughing.

Prognosis.—Autopsies show that many are unrecognized in life, and have caused only vague symptoms. Many other women have impaired health from anemia and pain.

Causes of Death.—Hemorrhage and uremia are the most frequent immediate causes. Septicemia from suppuration, peritonitis, and complications arising from pregnancy and abortion, have caused death.

Pregnancy usually causes a rapid increase in the tumor's development, and may become the gravest menace. After parturition the fibroma sometimes disappears in the process of involution. The majority undergo shrinkage after the menopause. Some continue to grow.

TREATMENT.

Expectant.—Small myomata, in most cases, produce no symptoms (discovery is accidental). Even larger ones, in the majority of cases, require no treatment. Any that may give rise to symptoms calling for relief should be treated as follows:

General.—Avoid active exercise and great exertion; rest during the menstrual period; correct constipation. For small tumors, a pessary; a large abdominal bandage may relieve pressure symptoms. A pelvic tumor may be tilted and lodged above the sacral promontory, thus relieving pelvic pressure.

Electricity.—It has been over-estimated in its capacity radically to reduce fibromata. It does relieve symptoms, retard growth and stop hemorrhage. The galvanic current; positive uterine electrode, and large abdominal pad (50 to 150 Ma.)

MEDICINAL.

Ergotin.—*Dose:*—Grs., i. to ij.; 4 times a day, to check hemorrhage and retard growth. Of little use in hard tumors.

Hydrastis.—*Dose*.—Fl. ext., gtt. 10-20. A good hemostatic. (For treatment of excessive hemorrhage, see Menorrhagia.)

Iodide-of-Lime.—It has power to arrest the growth, and sometimes decrease the size. (It owes its application for this purpose to Dr. A. G. Beebe, of Chicago.)
R. Black Iodide-of-lime (Nichols), ℥ij.; Aqua, ℥xvi; M.
Sig.—One teaspoon 4 times daily; continue for months.

OPERATIVE TREATMENT.

MINOR OPERATIONS.

1. **Curettage.**—Effective for hemostasis.
2. **Removal of Polypi.**—Twist a slender pedicle; cut a thicker one with scissors.
3. **Ligation of Uterine Arteries.**—(Per vaginam). This is resorted to to check growth and relieve symptoms.

MAJOR OPERATIONS.

Indications.—Large, rapidly growing tumors; tumors filling the pelvis and causing serious pressure-symptoms, or exhausting and obstinate hemorrhages. Pregnancy, when the tumor remains in the pelvis and rapidly enlarges.

Discomfort, pain and hemorrhage are relative indications and must be carefully weighed in each case before deciding upon a serious operation. The operation selected will be one of the following:

1. **Oophorectomy.**—Intended simply to hasten the menopause. (This operation is being discarded in most cases for those mentioned below.)
2. **Myomectomy.**—Removing the tumor without the uterus.
3. **Hystero-Myomectomy.**—The removal of both tumor and uterus.

CARCINOMA UTERI.

CARCINOMA OF THE CERVIX.

Etiology.—Age, 40 to 50; few under 20 or over 70. Less than 5% are multiparæ. Heredity, 7 to 13%. *Real cause*, unknown.

Symptoms.—The inception is insidious. Suggestive symptoms are: (a) *Hemorrhage*—between the menses, in a woman past 35 years. It may occur after coitus, or the insertion of a douche-point. It may be post-climacteric.

(b) *Leucorrhœa.*—First a watery discharge noticed upon rising in the morning. In time it acquires the characteristic fetor.

(c) *Pain.*—In the lumbar region, or lower abdomen, dull, lancinating or burning. This is a comparatively late symptom.

(d) *Dysuria*—or, rectal tenesmus (when the infiltration implicates these viscera).

(e) *Cachexia*.—In advanced stages (result of indigestion, anemia, and septic intoxication). Late symptoms—edema of the limbs and uremia.

Local Signs.—Early, one or both lips nodulated and hard; the mucous membrane immovable over the underlying tissue, the cervix enlarged; if ulceration has begun, the surface irregular. Later, with para-uterine infiltration, thickening of the base of the broad ligament and uterine fixation. Ulceration more and more extensive; may open into the bladder or rectum.

Diagnosis.—Early, microscopical evidence (a bit of excised tissue). Differentiate from—hypertrophied cervix (lacerated and eroded); cervical hypertrophy (with retention-cysts); small fibroma; a sloughing fibroid; syphilitic ulceration.

Prognosis.—If total removal is practiced in the earliest stages, while the disease is a local one in the cervix, permanent cure can be expected.

TREATMENT.

Radical.—*Indications.*—(a) A movable uterus; (b) slight, if any, involvement of the vaginal vault; (c) fair general condition (including unimpaired kidneys).

Methods.—(a) Supra-vaginal amputation of the cervix, which has been almost superseded by, (b) total hysterectomy per vaginam.

Palliative.—(a) Hemorrhage and discharge, the spoon curette and cautery; or, follow the curette with chemical cauterization; or, pack the resulting cavity with cotton pledgets impregnated with Zinc-chloride (Zinc-chloride, ʒiv.; aqua ʒiv.); protect the vaginal walls by cotton medicated with Sodium bicarb.

(b) For disinfection and cleanliness, douche frequently with a solution of Bichloride of mercury (1:2000); Potassium permanganate of potash (1:100); Thymol; Sanitas. Protect vulva and thighs from the discharge, by the use of Oxide-of-zinc ointment or Vaseline.

(c) *Pain.* Opiates in some form; first in suppositories; later in hypodermic injections of morphia, gradually increasing the dose as tolerance is established.

CARCINOMA OF THE BODY.

Frequency.—But 3% of the total number. The victims of carcinoma of the body are usually at or past the menopause, and are generally nulliparæ.

Symptoms.—Post-climacteric hemorrhage; watery discharge; pain (may be absent for a long time). Cachexia.

Prognosis.—In carcinoma of the body early extirpation gives a larger percentage of permanent cures than in cervical carcinoma (because in the former there is less chance for extension into surrounding parts).

Treatment.—Must always be total hysterectomy, if the uterus alone is involved and the patient's condition fairly good.

SARCOMA.

Frequency.—Much less common than carcinoma.

Location.—Either in the cervix or body.

Age.—Many cases occur earlier in life than carcinoma, even under 20 years.

Symptoms.—Early, hemorrhage; serous discharge; moderate pain; later, emaciation and cachexia.

Diagnosis.—Differentiate from endometritis; retained fragments of placenta; uterine fibroid; corporeal cancer. Microscopic evidence is important.

TREATMENT.

Local.—If the sarcoma is confined to the uterus, hysterectomy; if not, palliative measures (as in carcinoma). Inoperable cases, Coley's mixture (there is sufficient testimony in its favor to encourage its further use).

OVARIAN TUMORS.

CYSTIC TUMORS.

Varieties.—(a) Simple unilocular or multilocular cysts; (b) papillomatous cysts; (c) dermoid cysts; (d) parovarian cysts.

Symptoms.—Early, there are no distinctive symptoms; discovery is usually accidental. The late symptoms of a large abdominal growth need not be detailed here.

Local Signs.—(1) *Pelvic tumor*:—On bimanual examination, a round, firm, more or less elastic mass, beside or behind the uterus; it may be movable, or fixed.

Diagnosis.—Differentiate from—(a) encysted peritonitic effusion; (b) pyo- or hydro-salpinx; (c) cyst of the broad ligament; (d) ectopic pregnancy; (e) solid ovarian tumors; (f) hematocele; (g) dermoid cyst (this is harder; apt to excite peritonitis).

(2) *Large abdominal tumor*:—Abdomen distended (more on one side); the swelling acuminated; superficial veins distended; *liniæ albicantes*; percussion shows resonance in the flanks, not changed on shifting position; fluctuation; the uterus displaced, but distinct from the tumor.

Diagnosis.—Differentiate from (a) dropsy (free or encysted); (b) distended bladder; (c) phantom tumor; (d) obesity; (e) uterine fibroid; (f) fibro-cyst; (g) hematocele; (h) ectopic pregnancy; (i) cysts of the pancreas and omentum; (j) enlarged spleen or kidney.

TREATMENT.

Operation.—Extirpation whenever the patient's general condition does not absolutely preclude recovery. Large ovarian tumors complicating pregnancy should be removed. In the early months the risk of abortion is not great.

SOLID TUMORS.

Varieties.—(a) Fibroma; (b) Sarcoma; (c) Carcinoma.

(a) *Fibroma*.—Generally affects the whole ovary so that it retains its normal contour. Growth is slow. Ascites is present, and may first attract attention.

(b) *Sarcoma*.—Usually in young women; generally bilateral; develops rapidly; ascites; cachexia.

(c) *Carcinoma*.—Primary cancer is rare; bilateral in half the cases; ascites; the fluid often blood-tinged; emaciation; edema of the lower limbs.

Diagnosis.—Early, differential diagnosis between these three is difficult or impossible.

NOTE—In the female ascites which appears uninduced by cardiac, renal or hepatic disease points either to peritoneal tuberculosis, malignant disease of the ovary or a movable solid tumor.

Treatment.—Fibromata are to be removed. Sarcomata and carcinomata if the extirpation can be made complete. Coley's mixture should be tried.

ECTOPIC PREGNANCY.

Varieties.—*Primary forms*:—(a) Tubal (the great majority); (b) Interstitial (infrequent); (c) Ovarian (very rare). *Secondary forms*:—They are produced by rupture of the primary forms:—(a) *Tubal*—by rupture produces—tubal mole; aborting intraligamentary; tubo-ovarian; abdominal pregnancy; (b) *Interstitial*—intra-uterine; abdominal; intraligamentary; (c) *Ovarian*—abdominal pregnancy.

Etiology.—Anything that interferes with the progress of the ovum through the tube to the uterus: (a) Salpingitis; (b) tubal polypi; (c) diverticula; (d) peritoneal adhesions; (e) uterine myoma.

Symptoms.—History of sterility; then ordinary symptoms of pregnancy; usually, after missing one or more periods, the menses return, with expulsion of decidua shreds; irregular hemorrhages continue; pelvic pain; localized peritonitis; *sudden, agonizing pain, with symptoms of shock and internal hemorrhage, indicating tubal rupture (between 4th and 5th week and 4th month)*; may quickly cause death of mother; often destroys the fetus. When the fetus develops, motion about the 5th month; later, false labor; after a few hours, pain ceases; the fetus dies; amniotic fluid absorbed; the tumor shrinks.

Local Signs.—The ordinary vaginal changes; the uterus enlarges (to size at 2 months); retains normal contour; the cervix softens; a tumor to one side of the uterus—later, in same side of the abdomen; by the microscope, decidua cells in the shreds from the uterus. In the later months the fetus can be outlined, and the heart-sounds heard.

Diagnosis.—A decidua expelled by a woman with a growing pelvic tumor.

Prognosis.—Always fatal to the child; frequently to the mother (unless relieved by operation). In the early months, death from hemorrhage; later, septic peritonitis. After suppuration the fetus may be spontaneously extruded through the rectum, bladder, abdominal wall. A sinus persists until all is discharged.

TREATMENT.

Early Months.—Unruptured, or, rupture with profuse hemorrhage, cœliotomy, and removal of sac and contents. If the condition is aseptic, close the abdomen without drainage. In cœliotomy after rupture, give stimulating

enema before removing the woman from the table. Inject a pint of normal salt-solution beneath each breast.

Old Cases.—With repeated hemorrhages, and a distinct tumor felt through the vaginal fornices (especially with symptoms of suppuration), make vaginal incision and drain.

Later Months.—(a) *Living Fetus*.—Operate without awaiting full term. False labor is apt to occur at any time; fetus apt to be puny. *Method*.—If the risk of excessive hemorrhage is not too great, *remove the sac and placenta*. Otherwise, tie the cord, near the placenta, and over it pack a large Iodoform gauze drain. If possible, stitch the opening of the sac to the lower angle of the abdominal wound. The placenta will come away piece-meal. (b) *Dead Fetus*.—(Cessation of placental circulation, with disappearance of bruit.) Enucleate the sac and contents. Use no drainage unless the case is septic.

GENITAL FISTULÆ.

URINARY FISTULÆ.

Varieties.—Urethro-, vesico- and uretero-vaginal; vesico- and uretero-uterine. The vesico-vaginal is by far the most common.

Causes.—The great majority—pressure of soft tissue between the fetal head and the symphysis pubis in labor; later, sloughing. Direct laceration is less frequent. Not the use of forceps, but delay in resorting to them is a cause. Other causes, pressure from ill-fitting pessary; vesical calculus; direct injury in a vaginal hysterectomy; ulceration from malignant disease (cervix; vagina; bladder).

Symptoms.—Involuntary loss of urine, per vaginam (*immediate*, when from laceration; 3 to 10 days later, when from sloughing). About the patient, a constant urinous odor; the vaginal walls and vulva inflamed, excoriated (sometimes a phosphatic deposit). The general health fails.

Diagnosis.—Large fistulæ are easily detected; a flexible sound can be passed through the urethra into the vagina. Small fistulæ may be hard to locate. *Method*—Inject stinized milk into the bladder.

TREATMENT.

Local.—*Small* fistulæ tend to heal; to favor, touch the edges with Silver-nitrate every week or ten days. *Mod-erate sized*.—Pare the edges obliquely down to the vesical mucous membrane; bring together the resulting broad denuded surfaces; secure in opposition by sutures (silver wire; silk worm gut; 2 layers of catgut). When the tissues are excoriated and inflamed, restore (as nearly as possible) to healthy condition before operating (frequent Boric acid douches). *Small and medium-sized* fistulæ—another method:—Split the edge ($\frac{1}{4}$ in.); turn the resulting flaps in opposite directions; bring together the broad freshened surfaces by vaginal sutures, including the *entire thickness of the tissues*. Save the vesical mucous membrane.

Special.—Very large fistulæ, plastic operations (see gynecological text-books). Incurable cases:—Completely close the vagina, making it a diverticulum of the bladder (menstruation will take place through it.)

After-Treatment.—In small fistulæ, empty the bladder frequently. In large, for 5 or 6 days a soft rubber retention-catheter. Pack the vagina lightly with Iodoform gauze. Remove non-absorbable sutures in about 12 days.

RECTAL FISTULE.

Cause.—Rupture of the vaginal septum, or complete perineal tear, with partial closure. Due to—(a) hard pressure; (b) ulceration from a foreign body; (c) carcinoma.

Symptoms.—Escape of feces and flatus per vaginam.

Diagnosis.—Only difficult when very small. Search every pit on the vaginal septum with a probe; or, inject milk into the rectum and watch for its appearance through the vaginal wall.

TREATMENT.

Local.—Very small fistulæ, use Silver-nitrate. Larger, as in vesico-vaginal fistulæ (p. 258). When the opening is low, divide the remnant of perineum and repair as for complete laceration.

INJURIES OF THE PELVIC FLOOR.

LACERATION OF THE PERINEUM.

Varieties.—(a) Partial; (b) Complete.

Etiology.—Parturition (primiparæ; the head and genital passage disproportioned); rigidity of tissues; precipitate labor; delivery with occiput posterior; unskillful instrumentation; delivery of a large submucous myoma (rare); direct violence.

Results.—Partial rupture, tendency to vaginal prolapse (rectocele). Complete rupture, incontinence of feces and flatus.

TREATMENT.

Primary Operation.—Superficial perineal lacerations (up to $\frac{1}{2}$ inch); treat by simple cleanliness. All laceration of greater extent, suture at the termination of labor, or within twenty-four hours thereafter. *Caution:*—The tear may extend high up the posterior vaginal wall in one sulcus or the other. *Find the upper limit of the tear, and suture with catgut from this point outward.* Neglect of this will result in the formation of a pocket above the newly-made perineal body, into which the lochia must gravitate, and non-union will be the probable result.

Secondary Operation (Perineorrhaphy).—(a) *Partial Rupture:*—Place the patient in lithotomy position. With sharp-pointed scissors split the recto-vaginal septum in the median line, close to the vaginal mucous membrane. Cut upward on either side, just within the labium majus, to the height of the original perineal body. Then raise the flap of vaginal mucous membrane, dissecting about one inch up the septum. Lift flap upward. With the rectum

guarded by the index and middle fingers of left hand, encircle the denuded area with medium catgut or silk-worm-gut suture, carried by a long straight or curved needle. Bury the suture throughout, if possible. The first stitch is the lowest. Two or three are then introduced above, the upper one including the flap, and fixing it as a roof to the new perineal body. When there is decided relaxation of the vagina, carry the flap, lifting higher up in the median line of the septum, *to the crest of the rectocele*. Then, in order to narrow the vagina, excise the triangular flap. Begin the suture at the highest point (the apex of the triangle) and close the wound by two or three superimposed lines of continuous suture, or by a single line of interrupted sutures, closing first the vaginal and then the cutaneous portion of the tear. Use well-prepared carbolyzed or chromicized catgut of medium size.

(b) **Complete Rupture.**—In the median line split the recto-vaginal septum with a sharp bistoury; carry the incision directly outward on either side to the cutaneous margin. From the ends of this cut, carry incisions upward and downward, the cuts making the letter H, and outlining four flaps, two anterior and two posterior. Dissect up the flaps so as to expose the torn sphincter ends, and high enough anteriorly to provide for a new solid perineal body. Turn the two posterior flaps down and unite them by interrupted sutures of chromicized catgut, tied within the rectum. These sutures must include enough tissue to make the apposition a broad one, or the new septum will give way. It is a wise plan to insert one stay-suture (of silk-worm gut) on the skin surface, having it deeply encircle the cut ends of the sphincter muscle. Next unite the anterior flaps to close the floor of the vagina. Finally, close the intermediate space by interrupted sutures carried from side-to-side.

After-Treatment.—Dust the line of sutures with Aristo. Carry strips of Iodoform gauze into the vagina, and leave for 36 hours. Catheterize every six hours, if the patient is unable to void urine. On the 3rd day move the bowels by a laxative, and every other day thereafter. Inject through a large soft-rubber catheter 6 ounces of olive oil, prior to the movement, and follow it by a solution of Boric acid. Keep the patient in bed at least two weeks.

CYSTOCELE.

Symptoms.—The patient experiences discomfort from pouching down of the anterior vaginal wall, especially upon coughing or straining; frequent micturition.

Diagnosis.—Sometimes mistaken (by the patient) for uterine prolapse. Examination reveals the error. Confirm the diagnosis by passing a sound into the bladder.

TREATMENT.

Anterior Colporrhaphy.—Retract the vaginal walls. Estimate the amount of tissue to be removed, and outline an ellipse with the scalpel. Pick up the edges of the ellipse with the forceps; with blunt-pointed scissors remove

flap of *mucous membrane* only. Keep the points of the scissors turned toward the flap, and away from the bladder. Close the wound in the direction of the vaginal canal, by continuous catgut suture in layers.

Stoltz Operation.—When the anterior vaginal wall needs to be *shortened*, as well as narrowed:—Outline a circle over the most prominent part of the cystocele. Dissect off the vaginal mucous membrane; surround the freshened surface by a purse-string of stout silk. Invert the bladder with a forceps-beak; close the wound by traction upon the ends of the thread, and tie. Remove the suture in two weeks.

RECTOCELE.

Etiology.—It is caused by stretching in repeated child-birth, and by laceration of the posterior vaginal wall. The muscular fibers may separate, without an open wound of the vaginal mucous membrane.

Symptoms.—Pouching down of the posterior vaginal wall, especially on standing, straining, or coughing; constipation. The finger introduced into the anus immediately turns forward into the pouch. Do not mistake for uterine prolapse (which may accompany).

TREATMENT.

Colpo-Perineorrhaphy.—This operation is needed to secure radical benefit. (See description under Perineorrhaphy.)

LACERATION OF THE CERVIX.

Varieties.—(a) Unilateral; (b) Bilateral; (c) Stellate.

Etiology.—Parturition, especially in precipitate or protracted labor. It may occur in early abortion. Rarely occasioned by uterine operations.

Results.—It affords an infection atrium for pelvic inflammation. Sequelæ.—Subinvolution; chronic cervical inflammation.

OPERATION.

Indications.—Laceration (with hypertrophy and induration); erosion; retention-cysts; subinvolution. Moderate laceration, with thin lips of normal density, and with no resulting symptoms, does not call for repair. Primary trachelorrhaphy is not done except in deep lacerations, with hemorrhage from the circular artery.

Secondary Operation.—Place the patient in the lithotomy position. Use lateral vaginal retractors. Grasp the cervix with bullet-forceps, and draw the uterus down to the vulva. Carry a stout silk traction-thread through the median line of each lip. Do preliminary dilatation and curettage. With stout sharp-pointed scissors (curved on the flat) pare the torn lips, cutting well into the angle of the tear, and removing all cicatricial tissue, but leaving untouched a central strip of mucous membrane for the new cervical canal. The cut should be somewhat on the bias, that is, deeper on the cervical periphery than next the canal. Examine the cut surface to see that no scar-tissue or retention-cysts are left. Unite the lips with

carbolic or chromic catgut; begin near the upper angle of the tear. Use a long (Emmet) cervix needle. When all sutures are placed, introduce a small sound, and see that the new canal is of proper size, and in line with the uterine canal. Replace the uterus and pack the vagina lightly with Iodoform-gauze. Apply an antiseptic pad to the vulva, held in place by T bandage.

After-Treatment.—Remove the packing in 36 hours. Let the patient urinate naturally, if possible, giving a slight *external* douche each time. Give no vaginal douche unless discharge appears. Then give a mild carbolic or bichloride douche, once or twice daily. Move the bowels on the third day, and every other day thereafter. Keep the patient in bed 12 or 14 days. She may be allowed to recline in any position, and turn freely in bed.

GENITAL TUBERCULOSIS.

Varieties.—(a) Primary (infrequent); (b) Secondary.

Location.—Fallopian tubes; uterus; ovaries; rarely in cervix; vagina, vulva.

Modes of Infection.—(a) Primary, per vaginam, by dirty hands; instruments; coitus (the man having genito-urinary tuberculosis); (b) bacilli in the blood stream (either as a primary or secondary infection); (c) direct extension from neighboring organs (intestines; bladder; peritoneum); (d) auto-infection (pulmonary, intestinal or urinary discharge).

TREATMENT.

Local.—If the disease is strictly local, and not too much tissue involved by extension, attempt extirpation. If secondary to lungs, kidney or bladder, palliative treatment. When *peritoneal*, operate (abdominal incision and drainage); remove tubular appendages at the same time. Many permanent cures have been made in this way.

HEADACHE.

Causes.—Headaches due to the pelvic disorders of women may be produced by (a) Uterine displacements; or (b) Pelvic inflammation, chronic or acute.

Characteristics.—The pain is often vertical or occipital, or in the form of migraine. It occurs oftenest or is most aggravated at the menstrual period.

THERAPEUTICS.

Gelsemium. 1x — Belladonna. 2x — Pulsatilla. 2x — Cimicifuga. 1x — Ignatia. 2x — Sepia. 3x — Zinc Phosphide. 2x — Acetanilid Comp., gr. V.

General.—Direct diet and exercise; regulate the bowels; and overcome anemia.

Local.—Correct all local disorders. The simple replacement of the uterus will often bring remarkable relief.

SECTION XX.

SURGERY.

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SURGICAL EMERGENCIES.

HEMORRHAGE.

HEMOSTATIC MEASURES.

DIGITAL COMPRESSION.—Press the artery fairly against a neighboring bone, between the wound and the heart. Avoid bruising nerves and other structures. Employ it only until other means can be obtained.

Common Carotid.—Press backward and inward at the inner edge, lower half, of the sterno-mastoid muscle.

Subclavian.—Depress the shoulder and press, with the thumb, at the angle between the posterior edge of the sterno-mastoid and the clavicle; press downward, backward and inward against the first rib, or backward against the vertebræ.

Axillary and Brachial.—Inner border of the coraco-brachialis and biceps muscles.

Abdominal Aorta.—A little above and to the left of the umbilicus.

Femoral.—Under the middle of Poupart's ligament; or in the upper half of the thigh between the middle of Poupart's ligament and the inner femoral condyle, when the limb is everted.

TOURNIQUETS OR CONSTRICTORS.—A trousers-suspender makes a good constrictor in case of emergency.

Petit's.—Consists of two plates, a screw, strap and buckle.

Spanish Windlass.—A handkerchief or piece of cloth folded into a cravat, tied loosely about the limb and twisted tight by a stick thrust through the loop.

Esmarch's.—An elastic $\frac{3}{4}$ -inch rubber strap or tube two feet long, stretched about the limb.

Caution.—It is well to have a pad over the artery, held in place by a constrictor. A band is a better constrictor than a cord.

FORCED FLEXION.—For hemorrhage—

Below the Elbow.—Place a pad in the bend of the elbow; bandage the elbow in extreme flexion.

Above the Elbow.—Place a pad in the axilla and bind the forearm across the back.

Below the Knee.—A pad in the popliteal space, with the knee bound in extreme flexion. Or bend the knee over the sharp back of a chair.

COMPRESSION IN THE WOUND.—Where many small vessels ooze, apply a graduated compress (a cone-shaped pad) and cover with a tight bandage. Where a large vessel bleeds in the bottom of a cavity or punctured

wound, and cannot be easily reached, pack the cavity with strips of gauze and apply a bandage. Leave the packing 2 to 5 days.

Mikulicz' Pack.—For large, oozing cavities:—Take a large double or triple sheet of gauze and push its middle into the bottom of the cavity, like a lining; pack this pocket with small pieces of gauze. This pack is safer and less painful to remove than ordinary packing; remove the small pieces first.

Acupressure.—Under antiseptic precautions introduce pins or needles through the skin about the vessel and out again in such a way as to compress the vessel against other tissues (skin or bone) or between the pins.

Acufloppressure.—A thread is wound under the projecting ends of the pins, thus pressing from above.

Cöaptation of the Tissues.—Snugly suture the tissues together (will often stop bleeding from a good sized artery where the tissues are firm, as in the scalp).

Artery-forceps.—Leave on a few minutes; will generally produce permanent occlusion of small arteries. Forceps or clamps may be left in place (under or running through the dressings) for 36 to 48 hours if ligation of a large vessel is impossible. Avoid, as much as possible, grasping and devitalizing other tissues than the vessel (death has occurred from pinching a nerve).

Torsion.—Grasp the artery only, with forceps. If it is small, twist it off; if large, draw it out, grasp it further up with another pair, and twist it between them (four or five turns, or until resistance ceases).

Ligation.—The simplest, safest and best method. Enlarge the wound, if necessary, and expose the bleeding vessel. Grasp it with forceps and tie it with a reef-knot, using catgut, or silk (waxed thread will do in an emergency). Cut the ends of catgut short. If the silk, thread or wound itself is non-sterile, let an end protrude from the wound and remove the ligature in a week to 10 days.

Rules.—(a) *Always tie a vessel both above and below where it is cut.* (b) *If the branch of an artery is divided very close to the main trunk it is safest to tie the main trunk also.* (c) *If a large vein is torn partially, catch the tear together with forceps and apply a lateral ligature.* (d) *When a mass of tissue (like an ovarian pedicle or piece of omentum) is ligated, puncture it with a dull needle and tie it in two or more sections with, perhaps, a final ligature about the whole.*

Instruments.—Artery-forceps; retractors; tenaculum; aneurism-needle; scalpel; scissors; catgut or silk.

Elevation of the Part.—This will do much to prevent or limit hemorrhage; especially in venous oozing.

Suture.—Longitudinal wounds in large vessels, especially veins, may be sutured by the Lembert stitch, with a cambric needle and fine silk.

Styptics.—Alcohol; turpentine; acetic acid (vinegar); persulphate-of-iron (Monsel's solution); perchloride-of-iron; ergot; gelatine solution (1 part to 16 parts normal salt-solution); Park's mixture (Antipyrine and Tannin).

15% solutions of each, mixed equally); Chloroform and water (ʒj. to ʒxvj.); Alum; Tannin; Gallic acid, Silver nitrate. Desiccated adrenals, grs. v. to ʒj. sat. boric ac. sol.

Cold.—Expose the bleeding surface to the air; apply ice, ice-water, ice-bags.

Heat.—Water at 120° F. is of great value on bleeding surfaces. Normal salt-solution, hot, is better. Some apply a current of live or super-heated steam for a fraction of a minute.

Actual Caутery.—At a dull red, applied to a point or a surface, will stop almost any hemorrhage.

Internal Medication.—Aconite^{2x}; Belladonna^{2x}; Ergonon^{1x}; Ferrum^{3x}; Hamamelis^{1x}; Ipecac^{2x}; Millefolium, Tr.; Phosphorus.^{3x-6x} Ergot (fl. ext.) ʒj.; Opium (pulv.), gr. j.

SPECIAL CASES.

Partially Divided Vessel.—Divide it completely, and twist or ligate, if necessary. If it is large, suture.

Canalized Vessels.—In atheroma, crush the sides together; pass a ligature about it through the surrounding tissues. In bone, break in the bony septa; or, plug with a stick, with gauze, or with wax (Horsley's antiseptic wax).

Epistaxis.—*Slight.*—Apply pressure to the cheeks, at their junction with the alæ nasi; use a nasal douche of hot water (110° F.); ice to the nape of the neck; use Tannin as snuff; use styptics in solution (Alum, Iron-persulphate). Enjoin rest; keep the neck straight.

Severe Epistaxis.—Plug the nostril. *Method.*—Pass a loop of double thread (by means of a catheter or Bellocq's canula) along the floor of the nose to the pharynx; seize the loop; fasten it to a plug of lint or cotton, already attached to a string, which is brought out of the mouth and retained for withdrawal. By means of the double thread in the nose, draw the plug into the posterior nares; tie the ends of the thread over a plug inserted into the nostril in front. Remove by the string through the mouth when no longer needed.

Socket of a Tooth.—Plug it tightly with cotton dipped in a styptic, or with plaster-of-Paris; bind the jaws together. If persistent, apply the actual cautery.

Palmar Arch.—Expose the vessel by enlarging the wound if necessary; incise parallel to the tendons. Ligate both sides. Or, apply a graduated compress (an inverted cone), a splint, and a firm bandage.

Intercostal Vessel.—Resect the rib (if necessary); catch the ends of the vessel and ligate. Or, throw a ligature about the whole rib. Or, produce pressure upward and outward by a gauze pack in a wound between the ribs.

Corpus-spongiosum, or the Prostate.—Pass a large, stiff catheter and apply counter-pressure to the perineum.

Urethra.—Locally—cold applications; hot injections; Hamamelis; or, introduce a catheter, and apply compression by means of a bandage. If from an external, longitudinal wound, make close coaptation by fine sutures, and draw the urine with a small catheter 4 or 5

times a day. In a transverse wound, after hemorrhage is checked, introduce a sound at intervals during the healing process, to prevent stricture. In hemorrhage into tissues about the deep urethra, make free incisions to relieve tension; use antiseptic irrigation, and keep the urethra patent by use of a catheter or sound.

Bladder.—Empty the rectum. If clots have accumulated, break them up with a metal catheter or lithotrite, and Boric acid (sat. sol.); draw the clots out with a syringe, aspirator or evacuator. Wash the bladder with a hot or cold Boric acid solution, and inject, if necessary, a mild styptic (vinegar-water; Tannic-acid, or Alum-solution). Apply ice to the hypogastrium, perineum and in the rectum, if necessary. As a last resort make a suprapubic cystotomy.

The Rectum.—Seize the vessel, if possible, and tie it or apply the actual cautery. If this cannot be done, inject styptics or very hot or very cold water; apply ice inside the rectum, and to the anus. Finally, fasten a piece of gauze or cloth about a large catheter or rubber-tube, so as to make a bag, or "petticoat" about it; introduce the tops of the tube and bag beyond the bleeding point, and pack gauze or cotton about the tube and inside of the bag. Then draw down on the tube to obtain compression. *Instruments:*—Rectal speculum; tenaculum; dressing and artery-forceps; irrigator.

Reactionary Hemorrhage.—(Occurring during the congestive reaction after accident or operation.) Elevate the part and apply a compress. Or, if necessary, treat it as *secondary hemorrhage*.

Secondary Hemorrhage.—If necessary, open up the wound with the fingers or blunt instruments; catch and ligate the vessel.

GENERAL MEASURES.

Indications.—For weakness and faintness from loss of blood.

Position.—Horizontal, or, with foot of bed elevated. Keep the patient warm.

Stimulation.—Ammonia; Ether; Strychnia and Atropine; Alcoholics. (See *Shock*.)

Auto-Transfusion.—Bandage the limbs from their extremities, to give the heart more blood to work upon.

Normal Saline-Solution.—The solution is 0.7% of common salt in water (about 2 drams to the quart); some add Sodium-carbonate (0.1 to 0.4%). After filtering and sterilizing it should be injected at 110° to 115° F.

Intravenous Method.—Expose and dissect up a vein (for $\frac{3}{8}$ in.) at the flexure of the elbow. Pass a grooved director and a double ligature beneath it; incise into it diagonally, or make an oblique notch, and introduce the point of a small canula into the side toward the heart. Tie the vein off below, and around the canula above. Then allow the solution to run into the vein from a funnel connected by a tube to the canula. Have the tube and canula filled when it is introduced, to avoid air-embolism. Inject slowly, and knead the abdomen meanwhile; when

the pulse becomes full, remove the canula; tighten the upper ligature and dress the wound. The veins can be seen more easily if a constrictor is applied above the elbow, tight enough to congest them; remove it before trying to inject. Make the operation aseptic, and have the canula and inside of the tube and funnel sterile.

Instruments.—Scalpel; scissors; grooved director; canula; rubber tube; funnel or irrigator; ligatures.

Subcutaneous Method.—Use a fine aspirating-needle instead of a canula and run the solution under the breasts and into the cellular tissue of the abdomen and thighs.

Quantity and Rate.—As much as 2 quarts may be infused at a time; but not faster than a quart in 10 minutes.

SHOCK.

Indications.—This condition is caused by the patient's bleeding into his own veins, and the treatment is much the same as for severe hemorrhage.

General Measures.—Loosen the clothing about the neck and chest; have the patient recumbent and raise the foot of the bed. Keep up the bodily warmth by a warm room, warm coverings, hot bottles or bricks to the extremities, axillæ and between the thighs. Mental stimulation—cheerfulness, encouragement.

Stimulation.—Warm, stimulating drinks; alcoholics; coffee; ammonia; ether; but not more than is absorbed. Subcutaneously:—Strychnia sulph. ($\frac{1}{30}$ gr.) every 10 or 15 minutes, for three doses; and, (if there is cold sweat) with Atropine ($\frac{1}{100}$); ether, 30 m. (injected into the muscles) every 5 to 10 minutes; Aqua ammonia 10 m.; Arom. Spts.-of-Ammonia, 30 m.; Digitalis (Tr.), 10 m. By inhalation, Amyl-nitrite. Warm enemata of normal salt-solution, with some stimulant.

Salt-Solution.—Intravenous or subcutaneous infusion of normal salt-solution is, perhaps, the most valuable measure. (See under *Hemorrhage*).

Operation During Shock.—The rule is *not* to operate. But operate at once in:—intestinal obstruction; compound skull fracture; visceral rupture into the peritoneum; or like conditions. Also, if the connected fragments of a mangled limb or a severe compound fracture are keeping up the shock. Use ether, and make the operation as short as possible.

With Reaction.—Give warm, nourishing, liquid food (small quantities and often):—Coffee and scalded-milk, equal parts; malted milk; milk; beef-tea; soup.

URINARY RETENTION.

From Stricture.—Pass a soft-rubber, a flexible, or a warm No. 8E. metal catheter; use no force. If these will not pass, place the patient in a hot bath (102°-104° F.) until general relaxation takes place; put him between warm blankets; give a starch enema containing Opium (Tr.) m. xx.; apply a hot, moist compress, or a mustard plaster, to the hypogastrium, and try the catheter.

again. If one will not pass, and a filiform bougie will, carry in a tunneled catheter over it; or, tie it in place for gradual dilatation and drainage. If these measures fail, employ—

Suprapubic Aspiration.—Shave and render the skin about the pubes as near aseptic as possible. With a fine aseptic needle or trocar, puncture about a half-inch above the pubic symphysis. This may be repeated two or three times a day for several days until an instrument can be passed, or perineal section be performed. (See *Genito-Urinary Surgery*.) Do not draw all the urine at once from a much or a long distended bladder.

From Enlarged Prostate.—See that the rectum is empty. Pass a soft-rubber, a large metal prostatic catheter (one with a long, large curve), or a flexible catheter on a stylet, shaped to hook forward of the middle lobe. If this is impossible, employ suprapubic puncture for a few days until a catheter can be passed, or a permanent tube be introduced above the pubes for drainage.

From Impacted Calculus.—If it is near the meatus, draw out the calculus lengthwise, with a fine pair of forceps. If near the bladder, push it gently back into the bladder. If neither can be done, incise, in the median line, down to the stone, and remove it, observing asepsis. (See under *Foreign Bodies*.)

URINARY EXTRAVASATION.

As soon as the injury to the urethra occurs, pass, and tie in place, a good-sized catheter. If this is impossible, make a median perineal cystotomy, and drain. Incise freely into all infiltrated tissues, and introduce drainage.

INTESTINAL OBSTRUCTION.

From Fecal Impaction.—If the impaction is in the rectum or sigmoid, remove it by hot water and a spoon, through a speculum if necessary. Give small doses of cathartics often, unless there is inflammation. If higher up, and warm water flushings will not remove it, open the abdomen, crush the impacted mass and push the pieces down.

From Intussusception.—*Early (first 24 hours).*—With the patient on his back, hips elevated, shoulders low, introduce a long tube into the rectum, passing it up as high as possible, and slowly inject large quantities of warm water or olive oil. Do not have the syringe-bag higher than 3 feet above the patient. As the fluid is coming away, manipulate the abdomen with the hands, so as to move the coils of intestines. Repeat the entire process several times, if necessary. Sometimes it is well to anesthetize the patient. In children, inflate the bowel with air until the abdomen is much distended. Keep stimulants at hand, as syncope sometimes occurs. These measures avail oftener in children. *After 24 hours*—or when the above measures fail, operate.

OPERATION.

Indications.—Whenever intestinal obstruction from volvulus bands or flexures is reasonably suspected, operate at once.

Method.—Open the abdomen in the median line, below the umbilicus, or over the obstruction (if it can be located). Explore all the hernial rings, then the cecum. If this is distended, find an empty loop of intestine and follow it up to the obstruction; relieve the obstruction according to its nature; resect any dead intestine and make an anastomosis, or fasten the ends into the wound. (See under *Abdominal Surgery*.)

From Strangulated Hernia.—In examining remember that beside (1) inguinal, (2) femoral, (3) umbilical and (4) ventral hernia, it may occur (5) through the obturator foramen (felt inside the femoral vessels, just below the pubes); (6) through the great sacro-sciatic notch; (7) between the rectum and the prostate or vagina; (8) through the quadratus lumborum muscle; or (9) diaphragm, or (10) behind the peritoneum.

Taxis.—Do not attempt it if gangrene is suspected. Empty the stomach; get the patient's consent to operate if necessary; give an anesthetic (except in recent hernia). With the patient supine and the legs drawn up a little, bring the gut into line and steady it with one hand. Manipulate the neck of the tumor into the ring with the other. In femoral hernia first push the gut downward, then upward into the ring. Never use force nor persist for over 15 minutes. Attempt may be made to dilate the constricting ring by insinuating the tip of the finger and gently pressing away from the gut; the skin is, of course, carried with the finger. Reduce the part first which came out last. Try changing the patient's position, inversion, etc. If serum in the sac prevents reduction, aspirate (1 to 2 drams) with an ordinary aseptic hypodermic needle. If these measures fail, operate.

OPERATION.

Method.—Cut down, layer by layer, to the sac; seize and open it; seize the intestine. Relieve constriction. Pass a finger into the canal; if the ring cannot be dilated, nick it a little with a probe-pointed hernia-knife or with a guarded bistoury ($\frac{1}{2}$ inch exposed), guiding the knife on the finger. In *indirect* inguinal hernia, nick upward and outward; in *direct* inguinal and femoral, upward and inward. Isolate the sac from surrounding tissues and from the gut, meanwhile keeping the gut warm and watching to see if its circulation returns. If it does, reduce the gut, ligate the sac and cut it off at the ring. Stitch the pillars of the ring and the fascia together with buried kangaroo-tendon, or silk-worm-gut, and suture the skin. If the gut is dead, resect the dead part and make an anastomosis; and if there is doubt of the asepsis of the operation, fasten the loop of gut into the wound temporarily. If the patient's condition will not permit enterorrhaphy, simply fasten the gut into the wound and let it slough, forming an artificial anus. Ligate off and remove any gangrenous omentum and return the stump into the abdomen. (See under *Hernia*.)

CRUSHING INJURIES.

- (1) Check hemorrhage by temporary measures until better treatment can be given the limb.
- (2) Treat the shock usually present.
- (3) Treat the limb, according to the amount of injury and the patient's condition, as under *Lacerated and Contused Wounds; Compound Fractures; Indications for Amputation.*

CUT-THROAT.

- (1) *Stop* hemorrhage by permanent measures.
- (2) Disinfect the wound.
- (3) When the larynx, trachea or esophagus is injured, clear them; stitch them nicely with chromicized catgut; insert a tracheotomy-tube where one is, or is likely to be, needed.
- (4) *Suture* the muscles, fasciæ and skin in respective layers (with catgut).
- (5) *Dress* the wound with the head flexed on the chest.
- (6) *Feed* well, using a stomach-tube if the esophagus is injured.
- (7) *Watch* the patient to prevent a suicidal attempt.

GUNSHOT WOUNDS.

First Aid.—The fate of the wounded man is in the hands of the surgeon who first attends him, and depends to a great extent upon the degree of *asepsis* observed during the *first examination and dressing*. Bullets are aseptic when they enter a part; treat the wound as aseptic.

1. Bring about reaction from shock.
2. If hemorrhage is severe, enlarge the wound, find and tie the vessel.
3. Examine the clothing to see if pieces have been carried into the wound. If so, remove them (if possible) and treat the wound as if infected.
4. Learn the direction in which the bullet entered, and look for a wound of exit. If the bullet is easily located by palpation or by the aseptic finger or probe, and can be *easily* removed, do so. If it is not easily located and easily removable, do not attempt to do so unless it is likely to interfere with some important function.

5. Apply an antiseptic dressing and put the part at rest; splint if necessary.

Instruments.—Scalpel; grooved director; aneurism-needle; large-headed Nelaton's probe; bullet-forceps; artery forceps, needles, catgut, silk-worm-gut, bone and cranial instruments if necessary.

POISONED WOUNDS.

Dissection-Wounds.—Wash the part with warm water and encourage bleeding. Then irrigate it with a mild *antiseptic solution*, and dress it, or cauterize it with *Nitric or Carbolic acid*. If inflammation appears later,

immediately apply a hot antiseptic dressing and keep it hot until the inflammation subsides or localized suppuration appears. *Internally*.—Give Arsenic^{3x}; or, if the glands are affected, Arsenicum iod.

Dog-Bites.—Immediately apply a constrictor above the bite, suck out the wound (do not let it come in contact with an abraded surface of the mouth); wash it out with warm water, encourage bleeding. Excise the wound and cauterize with Nitric or Carbolic acid, or the actual cautery. The application of pure Nitric acid is of great value in hydrophobia even up to 24 hours after the bite occurs. Do not kill the dog until observation shows that he actually has hydrophobia. If he has, send the patient, before 6 days after the bite, to a Pasteur institute.

Snake-Bites.—Use the immediate treatment described for a dog-bite. Or, after ligating the limb, inject with a hypodermic syringe, as soon as possible, a solution of Potassium permanganate (1 to 100) as nearly in the line of penetration of the serpent's tooth as possible. Keep the patient quiet and gradually relax the ligature, stimulating by Ammonia or Strychnia, and using artificial respiration.

Insect-Bites.—Remove the sting, if visible. Apply Aqua ammonia; Ledum pal.Tr.; or a compress of moist clay.

FOREIGN BODIES.

Indications.—They are, in general, to be removed when they produce infection, or irritation, or interfere with function.

In the Esophagus.—If the body is soft or smooth, have the patient swallow a mouthful of food, or push it gently into the stomach with an esophageal bougie. If it is sharp, extract it with esophageal forceps, or an expanding ("umbrella") probang. Do *not* produce vomiting. If other measures fail, resort to esophagotomy or gastrotomy. A body 9 inches from the incisors presses against the aorta and may produce ulceration.

In the Urethra.—If the bladder is full, inject a little oil into the meatus, pinch it together, and let go, when the urethra is distended by a forcible effort at urination. If this fails and the body is in the pendulous urethra, tie a rubber-tube around above it, and try a wire loop or urethral forceps. A pin or hair-pin may be managed after a sharp point is forced through the under side of the urethra. If these measures fail, incise down to, and remove the body, and stitch up the wound, observing asepsis.

In the Bladder.—Crush up the body with a lithotrite, while the bladder is distended, and wash out the fragments with an evacuator. Or, perform a perineal, or better still, a suprapubic cystotomy, and remove it.

In the Rectum.—If a small body, remove it with the fingers or forceps, through a speculum if necessary. If large, anesthetize and dilate the sphincters.

Embedded in the Tissues.—If it can be palpated, cut down *freely* upon it and remove it. If it cannot be felt

but produces disturbance by infection, irritation or pressure, locate it with the X-rays, cut down, and remove it. A small body, like a sliver or needle, is often extracted by burying under its end the sharp point of a knife, catching the body against the knife-point with the thumb-nail, and withdrawing.

In the Larynx.—Have the patient slowly draw a full breath; then as he throws his head quickly forward, slap him smartly on the back. Try inverting him. If these measures fail, anesthetize the pharynx and larynx by a Cocaine spray (4%) and, using a laryngoscope and laryngeal forceps, remove the body. If it obstructs respiration, perform tracheotomy at once.

TRACHEOTOMY.

Instruments.—Scalpel; curved bistoury; tenaculum; two strabismus hooks; artery-forceps, tube with tapes.

Anesthetic.—Chloroform or local anesthesia may be employed if time permits. If no anesthetic is used, wrap a child in a shawl to secure the limbs.

Operation.—Place the patient on a firm table in front of a good light; put a small, firm pillow (quart bottle rolled up in a towel will answer) under his neck to make the trachea prominent. Stand on the right side of the patient, seize the trachea between the thumb and finger of the left hand and fix it until exposed by the incision. Make the incision free, extending from the cricoid cartilage ($1\frac{1}{2}$ to 2 inches) downward, including integument and cellular tissue. Deepen it by successive cuts, or by hooking of tissues aside, until the trachea is reached, *keeping strictly in the median line.*

The trachea reached, clear four or five rings by blunt hooks or handle of the scalpel. Then hook the tenaculum into the trachea at the highest point exposed, and make traction upward (now for the first time releasing the trachea from the grasp of the left hand), with the sharp bistoury cut from *below upward* a sufficient extent of trachea to admit the canula. Hold the wound open with the blunt hooks until, by suction, the trachea is cleared of blood, mucus or other foreign matters. Then insert the outer tube, and secure it by tying tapes about the neck. Put the inner tube, slightly moistened with glycerine, in place; cover the opening with several thicknesses of gauze, to filter the air, and place the patient in bed. The tube should be large enough to permit quiet breathing.

During the operation seize bleeding vessels with catch-forceps, which are allowed to fall toward the sides of the neck, making lateral traction. Check *free* hemorrhage by forcipressure; if time be limited; or torsion, if not, before the trachea is opened. General oozing, from congestion, is best checked by opening of the trachea, relieving congestion, and by pressure of the canula. Should the thyroid isthmus appear in the track of the incision, hook it upward or downward, or incise it.

After operation, the inner tube must be removed often, and thoroughly cleansed, the small bristle brushes used

for feeding bottles answering well; or, a stiff feather, properly trimmed.

If operation be made for foreign body hold the trachea open and extract the body by suitable forceps; if this is not feasible, insert the tube and wait.

Urgent Cases.—In very urgent cases admit air to the lung by a transverse incision, the breadth of a medium-sized scalpel, with one plunge into the center of the cricothyroid membrane. Introduce a pair of forceps and spread them enough to admit air and distend the opening until a tube can be introduced.

In the Main Bronchi.—Remove the body through a low opening in the trachea.

CEREBRAL CONCUSSION AND CONTUSION.

DIFFERENTIAL DIAGNOSIS OF HEAD-INJURIES.

Concussion.	Compression.	Alcoholism.
History of injury.	History of injury or arterial changes.	History of alcoholism; loaded breath.
Comes on instantaneously, passes off gradually.	Comes on gradually and tends to get worse.	Comes on gradually, and gradually lessens.
Semi-conscious; can be aroused.	Cannot be aroused.	Can be aroused.
Special senses blunted.	Special senses lost.	Special senses blunted.
Pupils equal; usually respond to light.	Pupils usually irregular; one or both dilated, not responding to light; may be strabismus.	Pupils equal, dilated.
No paralysis.	Hemiplegia often.	No paralysis.
Sphincters relaxed; bladder can expel water.	Sphincters contracted. Bladder paralyzed.	Urine often retained; high colored, contains alcohol. Sphincters paralyzed.
Pulse quick, weak, irregular.	Pulse full, slow, labored.	Pulse full and strong, slow.
Respiration feeble and shallow.	Respiration stertorous, slow, puffing.	Slow puffing ("steam-boat") respiration.
Temperature usually sub-normal.	Temperature about normal, but one side may differ from the other.	Temperature sub-normal.
Nausea and vomiting, on reaction.	No vomiting.	Vomiting common.
Skin cool and pale.	Skin hot and red.	Skin cold and clammy.

TREATMENT.

First Stage.—*Insensibility and Shock*:—Absolute quiet; darkness; the general measures for shock (except stimulation). Hot irrigation to the shaved head. Rarely use stimulants; if absolutely necessary, give inhalations of ammonia or inject Aromatic-spirits-of-ammonia.

Second Stage.—*Reaction and Cerebral Irritation*:—Quiet; darkness; elevate the head; ice-cap; insure copious excretions; milk-and-lime-water diet.

Convalescence.—Long-continued rest in bed; quiet; much sleep; plain, non-stimulating diet; little meat.

Medicinal.—*First Stage*:—Aconite^{1x} (by injection). *Second Stage*:—Belladonna.^{1x} *Third Stage*:—Arnica^{3x}, Kali iod.

COMPRESSION.

TREATMENT.

From Hemorrhage.—(*Extra or Sub-dural.*) Trephining and hemostasis.

Depressed Fracture.—Trephining and elevation of bone.

Foreign Body.—Trephining and removal.

Abscess and Extravasation.—(*From injury, if accessible.*) Trephining and evacuation. (See *Skull Fracture.*)

For Shock.—In cases of injury, especially after and during operation:—hot-water irrigation to the head. After operation, and in inoperable cases, give the treatment described for *Concussion and Contusion* (second stage).

ASEPSIS AND ANTISEPSIS.

ANTISEPTICS AND GERMICIDES.

Moist Heat.—At 212° F. (boiling) will kill any bacteria or spores, exposed directly to it, in 2 to 3 minutes.

Dry Heat.—At 331° F. requires at least an hour to do this with certainty.

Acetate of Aluminum.—Is a non-poisonous,* non-irritant, mildly astringent antiseptic, used as a lotion or wet dressing in a 1% solution.

Aristol.—Is a non-irritating, practically non-poisonous* powder, far superior in antiseptic properties to Iodoform. It may be safely dusted into the peritoneum. When rubbed into a line of suture in skin or mucous membrane it seals it, preventing infection from discharges, etc.

Alcohol.—Is moderately germicidal, but is painful on raw surfaces.

Bichloride of Mercury.—Is the strongest of chemical germicides, but penetrates the tissues poorly and is intensely irritating and poisonous.* It is used in solutions (1:500 to 1:10,000) as an irrigating or hand-solution, and as a wet dressing. It tarnishes nicked instruments. Solutions rapidly deteriorate unless it is dissolved with an equal quantity of common salt, acetic, citric, or tartaric acid.

Boric Acid.—Is not a strong antiseptic, but seldom irritates or poisons.* It is used dry, as a powder, or in saturated or dilute solutions, and is an important constituent in the following valuable preparations.

Thiersch's Solution.—Boric acid, 12 parts; Salicylic acid, 2 parts; Water, 986 parts.

Senn's Dusting-Powder.—Boric acid, 4 parts; Salicylic acid, 1 part. *M.* Triturate.

Balsam of Peru.—Is a mild antiseptic and a tissue stimulant; it is used pure.

Benzoin (Comp. tr.).—Is a somewhat stronger antiseptic and stimulant, and dries quickly into a resinous coating.

Calendula (Fl. Ext.).—Though not germicidal, is used by some with success as a dressing for accidental wounds and for ulcers.

* When used locally.

Campho-Phenique.—(Said to be a saturated solution of camphor in carbolic acid). Is strongly antiseptic, but slightly irritant and non-poisonous.* It is used full strength and also reduced. It is prepared as a powder or liquid.

Carbolic Acid.—Is a very strong antiseptic, penetrates better than bichloride, sometimes produces poisoning,* is a tissue-stimulant, and a local anesthetic; is less irritating than bichloride. It is used as a caustic (95%), as a hand, instrument, and irrigating solution ($\frac{1}{2}$ to 5 %). A good moist dressing is—

Beebe's Lotion.—Carbolic acid (5 %); 2 parts, Glycerine, 1 part; Calendula (Fl. Ext.) $2\frac{1}{2}$ % of the whole. *M.*

Creolin.—Is a stronger antiseptic than Carbolic acid; almost non-poisonous* and non-irritating. It is used as an irrigating hand or wet dressing; solution ($\frac{1}{2}$ to 5 %).

Eucalyptol.—Is a slightly irritant, almost non-poisonous* germicide. It is used almost pure in nose-and-throat sprays, and in urethral injections.

Formaldehyde.—(Formal, or Formalin, 40 % sol.) Is a non-poisonous*, highly irritating, strongly germicidal gas. For disinfecting houses, clothing, etc., the gas is evolved by special apparatus. It is used as an irrigating solution (0.4%) in chronic abscesses, sinuses, etc. It hardens tissues.

Hydrogen-Peroxide.—A gas; sold in solution, is slightly irritating, non-poisonous*, with deodorant and slightly germicidal properties. It is used as an irrigating fluid, and foams on contact with pus, blood and serum.

Iodine.—Is very irritating, seldom poisonous,* strongly germicidal (said to be a specific against tubercle bacilli). The tinctures are applied to the skin as counter-irritants, and sometimes to infected wounds. A solution (1%; mahogany-color) is used for irrigation in tubercular infections.

Iodoform.—Is not germicidal, but limits the development and neutralizes the ptomains of bacteria; it is highly irritating and poisonous* to some people. It is used as a dusting-powder, and, in tubercular foci, in emulsion (10% in glycerine).

Ichthyol.—Is a syrupy fluid of fishy odor, highly antiseptic, non-poisonous* and is said to penetrate through the skin. Applied pure, it irritates and burns; but in reduced strengths it allays irritation. It is used as a lotion (1-50% solution in water) and in salve (20-50%). Oil-of-Citronella (m. 20 to 1 fl. oz.) is used to deodorize it.

Lysol.—Is a liquid soap, non-poisonous,* of twice the germicidal power of Carbolic acid, and not so irritating. It penetrates the skin, dissolving out its fat. It is used for irrigating, hand, and instrument solutions ($\frac{1}{2}$ to 5%).

Mustard.—Is a very powerful germicide; valuable in disinfection of the skin.

Potassium permanganate.—Is a powerful germicide and deodorant. Used pure or in strong solutions, it is a caustic, and tissue-stimulant. It is used as a hand so-

* When used locally.

lution (followed by oxalic acid) and an irrigating solution ($\frac{1}{8}$ to 5%).

Silver-nitrate.—Is a very powerful germicide, caustic and tissue-stimulant. It is used pure ("lunar caustic") or in solution ($\frac{1}{2}$ –40 grs. to the ounce).

Silver-lactate.—Has been used in weak solution (0.1–.2%) for irrigation of tubercular abscesses, joints, etc., with brilliant results.

Tannic acid.—Is used as a dusting powder (styptic and antiseptic) to abraded surfaces, sometimes with equal parts of Boracic acid.

Thymol.—Is a fragrant, powerfully germicidal substance, caustic when pure, used as an ingredient of many proprietary antiseptic compounds. It is used as an ointment (2–20 grs. to the ounce), as a lotion (1 part to 995 of water and 4 of alcohol).

Turpentine.—Is powerfully germicidal, poisonous* and highly irritating. It is used to disinfect the skin.

*When used locally.

STERILIZATION.

THE OPERATOR'S HANDS.

The Hands.—Keep the nails short. Rub soap (green soap best) with a little water into the hands and arms and under the nails until nearly dry; then scrub it out thoroughly with a brush, and clean under and about the nails with a steel instrument. Wash again with soap and water (warm running water is best). Then treat in one of the following ways:

1. Soak the hands in Bichloride (1:1000); or Carbolic ($2\frac{1}{2}\%$); or Creolin (1%), and rinse in sterile water.

2. Soak in Potassium permanganate (saturated solution) until a mahogany red; bleach with Oxalic acid (saturated solution); rinse in sterile water.

3. Dry the hands on a sterile towel and rub Turpentine into them thoroughly.

4. Scrub the hands with a mixture of soap, corn-meal and mustard-flour until they tingle or grow red; rinse in sterile water.

5. Rub ordinary Chloride-of-Lime ($\frac{1}{4}$ – $\frac{1}{2}$ oz.) and Sodium-carbonate, "washing-soda" (1 to 2 oz.), with a little water, into a creamy mixture all over the hands and arms until a sense of coolness is felt; rinse in sterile water and in very dilute Ammonia water.

Gloves.—In addition to disinfecting the hands, some use sterilized rubber-gloves. Some use them in septic cases to protect the hands.

FIELD OF OPERATION.

The Skin.—Scrub the part thoroughly with soap, water and a brush; shave it; scrub with ether and treat by one of the methods described for the hands. Smear it with soft soap, wet up, and cover with cotton or gauze, or, instead of soft soap, apply dressings or cotton saturated with a solution of Bichloride (1:1000); or Carbolic (1 – $2\frac{1}{2}\%$); or Creolin (1%), for 8–24 hours. At the time of

operation, again, if desired, scrub with water, ether, an antiseptic, and rinse.

The Vagina.—Cleanse the surrounding parts thoroughly; swab it out with soap and water and a mild disinfectant (as Thiersch's solution).

The Rectum.—Empty the bowel thoroughly; just before the operation, insert a plug with a string to it high up; then use disinfectants.

Bladder and Urethra.—Irrigate with a return-catheter and Boric acid, or Thiersch's solution, 1 or 2 times a day for 3 or 4 days before the operation. Give Oil of Eucalyptus (5 m. t. i. d.) for 2 or 3 days before the operation.

SOLUTIONS AND INSTRUMENTS.

Water and Saline Solution.—Boil it for 5 minutes. Keep it in a covered vessel and pour it or dip it out with a sterile dipper.

Glycerine, Vaseline, Soap, etc.—Place the container in a water-bath and boil for an hour.

Instruments.—Boil them for 5 minutes in a 1% solution of Washing-soda, or soak them for 15 minutes in Carbolic acid, 5%. Edged and aluminum instruments are not boiled, but are dipped for 1 to 2 minutes in Carbolic (95%). During operation, lay the instruments, not in use, in pans of Carbolic (2½%) or Lysol (2%) solution. After operation, wash them thoroughly in cold water, using soap and a brush; rinse in hot water and dry. For care of catheters, see under *Enlarged Prostate*.

Brushes.—Wash out all soap; soak them until bleached in Oxalic acid (sat. sol.); rinse in sterile water and store dry.

Gauze and Cloth Articles.—Pin them up in small packages in muslin wrappers and mark the contents outside with pencil. Subject them to live steam for 1 to 2 hours in an "Arnold" steam sterilizer, or by suspending them in a hammock, made by a sheet or large towel, above water in a covered wash-boiler. Or they may be boiled or wrung out of a weak antiseptic solution, and carefully baked.

The Room for Operation.—Avoid stirring up dust just before or during an operation. Remove heavy draperies and upholstered furniture and spread cloths wrung out of Carbolic sol. (2½%) on the carpet, or, if the floor is bare, wipe it with a rag dipped in the same.

SUTURES AND LIGATURES.

Silk or Linen.—Boil it in water for 5 minutes.

Silk-worm Gut.—The same, or carbolize it in Carbolic acid (95%).

Silver or Iron Wire.—Boil or carbolize it.

Catgut.—*Formalin method.*—Roll it tightly on glass reels or rods, not overlapping any strands. Place in Formalin (1:25) for 12 hours, then in running cold water for 24 hours. Boil in water for 10-15 minutes depending upon the size. Store in the following mixture, where it will turn dark: Iodoform (5%); Glycerine (4%); 95% Alcohol (91%). M.

Morris' Method.—Wind it on reels or make it into small coils and place it in Commercial Ether, 1 week; in Bichloride-Ether (1:4000), 1 week; Chromicize, if desired, and store in Bichloride-Alcohol (1:4000).

Johnston's Quick Method.—Ether, 24 hours; then in the following solution: Bichloride, 20 grs.; Tartaric acid, 100 grs.; Alcohol, 6 ozs.; small gut remains 10–15 minutes; large, 20–30 minutes. Store in Palladium Chloride and Alcohol (1 drop to 6 ozs.).

Alcohol and Heat.—Place it with absolute alcohol in a screw-capped jar, and subject it to boiling heat, in a water-bath, for 2 hours, with the cap only moderately tight. Then screw down the cap and keep it stored.

To Chromicize.—Soak the catgut for 8–24 hours depending upon its size and the desired degree of chromicization), in the following:—Potassium Bichromate, 15 grs.; dissolved in Sterile Water, 1 fl. oz., add Alcohol, 15 fl. oz.

Kangaroo Tendon.—Boil it in Alcohol for 1 hour. Store in Alcohol, 8 ounces, Palladium Chloride, 1 drop.

NOTE.—Actively *antiseptic* ligatures are better than merely *aseptic* ones.

ANESTHESIA.

LOCAL ANESTHESIA.

Cold.—To produce surface anesthesia, apply a piece of ice dipped in salt, covered with a layer of gauze, or a bag containing finely chopped—Ice, 2 parts; Salt, 1 part. Or spray with Ether or Rhigolene, by an atomizer. A fine stream of Ethyl, or Methyl-chloride, directed upon the skin anesthetizes it in one-half to one minute.

Carbolic Acid.—Paint the proposed line of incision, or needle-puncture, with carbolic acid 95%, and wait one to two minutes.

Cocaine Hydrochlorate.—Use by the following methods:—

Surface Application.—Maximum, 1 gr. The Eye—4% solution, 1 to 2 drops, 3 to 4 times, at 5-minute intervals. Nose, Palate, Tonsils and Pharynx—2–4% solution, painted on 3 or 4 times, at 5-minute intervals, or 2% spray. Urethra, Rectum, etc.—10% solution, by swab or syringe. Ulcers (for curettage), 4% solution, painted on.

Hypodermic Injection.—Maximum, $\frac{1}{2}$ gr. in all. Constrict the part, if possible. Inject a 4% solution, two to three minims at a time, in several places. *Caution.*—Injections into the Urethra are especially apt to be followed by serious symptoms.

Eucaine Hydrochlorate is much less apt to poison than Cocaine, but, in rare cases, sloughing has followed its use. Its solutions may be boiled, and are used in the same manner as Cocaine solutions.

Infiltration-Anesthesia.—It consists in injecting, in successive beads, or areas, one of the following solutions: *B.* Cocaine Hydrochlorate, 2, or 4, or $\frac{1}{2}$ parts; Morphine hydrochlorate, $\frac{1}{4}$ part; Sodium-chloride, 2 parts; Carbolic acid (5%), 3 parts; Cold sterile water, add 1,000 parts, *M.* *Method:*—The needle is entered at the edge of

one area to produce the next; the deep tissues are reached in the same way. There is no danger of poisoning, even if many injections are made, and it has been used for operations of considerable magnitude, as for appendicular abscess, hernia, amputations, stretching the sciatic nerve, etc. Its disadvantages are the production of edema at the site of operation, and its slow action.

GENERAL ANESTHESIA.

PREPARATION OF THE PATIENT.

Bowels.—Give a saline cathartic (Mag. sulph., $\frac{1}{2}$ oz.; or, Mag. citrate, 1 oz.) 12 hours before, and a copious enema or colonic flushing, 3 to 4 hours before.

Stomach.—Forbid solid food for 8 hours, and liquid for 3 to 4 hours before.

Precaution.—Examine the heart, lungs and urine. Ascertain how the patient has acted under anesthesia on previous occasions.

Have at Hand.—Mouth-gag; tongue-forceps; hypodermic syringe (loaded with Strychnia $\frac{1}{30}$, Atropine $\frac{1}{100}$ gr.); Amyl-nitrite pearls; inhalers—Esmarch's (for chloroform)—towel-and-paper, or Allis' (for Ether, or a mixture); bottle with grooved cork for the anesthetic; 2 towels; a basin; sweet-oil, or vaseline.

ADMINISTRATION OF THE ANESTHETIC.

Assistant.—Always have a *third person present*, as a witness and assistant.

Position.—Have the patient recumbent, only a very small pillow, and with the clothing loose about the neck and chest.

The Skin.—Apply vaseline, or oil the skin about the nose and mouth, and lay a towel over the eyes to prevent irritation from the anesthetic.

Mouth.—Clear the mouth of foreign substances, false teeth, etc.

Bodily Warmth.—Prevent the patient being chilled, or being burned by hot bricks, bottles, etc. A person anesthetized is more susceptible to heat than when conscious.

Suggestion.—Gain the patient's confidence; reassure him; let him examine the inhaler; encourage him to breathe deeply. Have him count after you slowly as he goes under.

Quantity.—Start with a little anesthetic, or hold the inhaler away from the face, and *gradually* crowd it, but do not choke or smother the patient.

Crowd.—During the stage of *excitement* crowd the anesthetic, and get through.

Uniformity.—In moderate or full anesthesia continue to administer a little at a time; do not let the patient vacillate from profound anesthesia to semi-consciousness.

Total Quantity.—Use as little anesthetic as possible, and watch every breath, and all other symptoms *continuously*.

SYMPTOMS OF ANESTHESIA.

Primary Anesthesia.—It is not followed by nausea, and can be used for short operations, such as opening abscesses. Have the patient hold up an arm and count. When the arm drops, and he stops counting, operate quickly.

Incomplete Anesthesia.—It has a dilated pupil, reacting to light, and the conjunctival or corneal reflex present. When going under, respiration may be irregular and the pulse rapid from nausea or nervousness. Vomiting occurs in this stage.

Stage of Excitement.—The pulse rapid, patient struggles; talks, sings; may vomit.

Moderate Anesthesia.—It has a contracted pupil, reacting to light, with the conjunctival or corneal reflex lost. General muscular relaxation occurs and the pulse and respirations grow regular.

Full Anesthesia.—It has a contracted pupil, not reacting to light, with the conjunctival or corneal reflex lost; general muscular relaxation; pulse regular and neither slow nor very rapid; respirations deep and regular.

Profound (Dangerous) Anesthesia.—It has a dilated pupil, not reacting to light, with the conjunctival or corneal reflex lost; general muscular relaxation. Pulse may be rapid or slow, weak and irregular, and respirations may be deep and snoring, or shallow and irregular.

ACCIDENTS.

Vomiting.—Do not allow the patient to linger in the vomiting stage. If unavoidable, turn the head to one side and use a basin and towel.

Respiratory Obstruction.—Remove the cause. Keep the head thrown rather forward and the chin well up. Hold the tongue forward by the fingers behind the angles of the jaw, or by tongue-forceps, if necessary. Quickly extract a foreign body with the fingers or forceps; swab out mucus or vomited material. Tracheotomy *early*, if necessary. Artificial respiration.

Respiratory Failure.—Partial inversion of the patient; artificial respiration (Sylvester method); rhythmic traction on the tongue (16 to 18 times a minute); rectal dilatation; stimulation, by Strychnia ($\frac{1}{30}$ – $\frac{1}{10}$ gr.).

Circulatory (Heart) Failure.—Quickly invert the patient and inject Strychnia $\frac{1}{10}$ with Atropine $\frac{1}{100}$ gr.; give inhalation of Amyl-nitrite; produce artificial respiration; knead the chest over the heart; dilate the rectum. Slap and rub the trunk and limbs, and *keep up the bodily warmth*.

Resuscitation.—It should not be despaired of until the heart has stopped one half hour, and the body grows cold.

TREATMENT FOR SEQUELAE.

Vomiting.—For prolonged nausea and vomiting, keep the patient's head low; allow only hot water or pieces of cracked ice for one or two hours; then a little strong-black coffee; no solid food for 8 hours. Inhalations of Vinegar, lavage of the stomach; a mustard-plaster on the epigastrium; 6-8 hourly doses of—Camph. monobrom-

Citrated caffeine; Acetanelid, equal parts (1 gr.) are all of value.

Other Sequelae.—As Shock, Renal Congestion, Bronchitis, etc., are considered in the articles on those subjects.

ANESTHETICS.

CHLOROFORM.

Action.—It is a circulatory *depressant*; death generally comes from heart-failure. As administered, it does not irritate the respiratory tract, the stomach or the kidneys, as does Ether. Its effects are rapid. Its vapor should be mixed with 95% of air. An hour's anesthesia requires one to three fluid-ounces.

Contra-Indications.—(a) All cases of heart-disease, except with aneurism or marked atheroma. (b) When the anesthetist is inexperienced.

Parturition.—It is safe in labor-cases.

ETHER.

Action.—It is a circulatory *stimulant*, but the necessary quantity dangerously *irritates* the respiratory tract, the digestive organs and the kidneys, especially when these organs are delicate. Death from its use generally occurs after the patient leaves the table. Its vapor requires admixture with less air than does chloroform; some claim only 5%. An hour's anesthesia uses six to twelve fluid-ounces.

Contra-Indications.—(a) When true albuminuria exists. (b) In children, old people and those having delicate bronchi and lungs. (c) When aneurism or pronounced atheroma exists; (d) When vomiting is much to be feared. (e) In operations about the nose and mouth. (f) When rapidity of action and small bulk is much desired. (g) In the neighborhood of a naked flame.

CHLOROFORM AND ETHER, MIXED.

Proportions.—Chloroform 1 part, to 2 or 3 parts of Ether, by volume.

Action.—The Ether, being a circulatory stimulant, overcomes the depressing effects of the Chloroform. The Chloroform, by reducing the amount of anesthetic necessary, prevents the irritating effects of the Ether upon the respiratory tract, kidneys and stomach. It requires a free admixture of air, almost as much as pure Chloroform. An hour's anesthesia requires two to four fluid-ounces.

Indications.—Many consider it by far the safest anesthetic for general use. Deaths from its use are almost unknown.

THE A. C. E. MIXTURE.

A. C. E.—The addition of Alcohol to Chloroform and Ether serves only to prolong the stage of excitement and render the anesthetic more bulky. Ether, itself, is a *sufficient stimulant*.

SCHLEICH'S MIXTURE.

Discarded.—The mixture of Petroleum-ether (Benzin) with Chloroform was intended to overcome the depressing effects of the latter, but careful experiments have shown that it depresses the circulatory system fully as much as pure chloroform.

WOUND TREATMENT.

RULES FOR AN ASEPTIC OPERATION.

1. *Sterilize the site of operation* as described, and surround it with sterile towels; or, work through a hole in a sterile sheet. In emergency, recently washed and boiled towels and sheets will do. *Have everything sterile* that touches the wound or cloth about it—hands, instruments, gowns or aprons, sutures, sponges, dressings, etc.

2. Stop hemorrhage *completely* before closing the wound. (See *Hemostasis*.)

3. For irrigation, sterile water; or, better, normal salt-solution.

4. Suture in layers; allow *no dead spaces* for the accumulation of fluids; permit as *little tension* on the stitches as possible.

5. Provide *no drainage*, unless, for some special reason, it is expected that fluids may accumulate in the wound.

6. Dress with a dry powder, or collodion and cotton. Some prefer to apply a sterile strip of protective over the line of suture, and over this a pad of cotton moistened with an antiseptic lotion and covered by a sheet of protective.

TREATMENT OF AN INFECTED WOUND.

1. Avoid mixed infection by observing aseptic precautions. While disinfecting the skin about it, plug the wound with Iodoform-gauze, and avoid washing septic matter into it.

2. Stop hemorrhage completely.

3. Disinfect the wound by irrigating all parts of it with a *mild*, warm antiseptic solution. Apply caustics or tissue stimulants, if indicated. Be sure that all foreign bodies are removed.

4. Suture perfectly, in layers, providing for exit of infected fluids. Silk-worm gut sutures may be introduced and left to be tied later, when healthy granulating surfaces appear. *Never bury silk*.

5. Provide for drainage by a rubber or glass tube with holes along the sides, or by a few strands of catgut or silk-worm gut, or a tightly twisted wisp of gauze. Remove these as soon as possible, often after 48 hours.

6. Apply a *moist* antiseptic dressing.

INCISED WOUNDS.

Suture.—In suturing, unite the ends of divided *muscles* by "mattress" or "quilt" sutures. Unite the ends of a cut *nerve*, if large, with a stitch of fine chromic.

catgut, transfixing them $\frac{1}{8}$ – $\frac{3}{8}$ of an inch from the cut surfaces. If the ends of *tendons* cannot be drawn together, lengthen them by splitting toward the cut end, and suture with kangaroo-tendon. Tendon-suture is more necessary in the forearm and hand than in the leg and foot. Other steps as described for an aseptic operation or an infected wound, as the case may be.

LACERATED WOUNDS.

Treatment.—Trim enough to secure good coaptation; and treat as an "infected wound."

LACERATED AND CONTUSED WOUNDS.

1. Stop hemorrhage; remove foreign bodies; disinfect thoroughly.

2. Trim up the wound, removing only such tags as are sure to slough; *save all tissue on the face*. The vitality of a part depends upon its circulation. See *Indications or Amputation*.

3. Introduce sutures, if practicable, allowing for free drainage. Apply a moist antiseptic dressing, *e. g.*, Creolin ($\frac{1}{2}$ –1%); Acetate-of-aluminum (1%); or, Beebe's Lotion. Keep it warm, if necessary, to preserve the vitality of the part. The continuous, hot antiseptic bath is also used for this purpose.

In Crushing Injuries.—Much tissue is saved by trimming off as little as possible at first, applying the continuously hot antiseptic pack, and, after inflammation subsides and the lines of demarcation appear, trimming up the tissue left to fit, and suturing.

Crushed Fingers.—After cleansing and disinfecting, wrap each finger with several layers of narrow gauze bandage. Thoroughly saturate this with Comp. Tr. Benzoin; dry and apply more, until a stiff, antiseptic splint is formed. Do not disturb this dressing for 7–14 days, unless symptoms of suppuration arise.

CONTUSIONS.

Early.—Employ cold, elastic compression by a firm bandage over wool or oakum, and astringent lotions.

Later.—After extravasation is ended, apply an Arnica compress (Tr. Arnica, 1 part; Water, 16 parts) and heat.

Discoloration.—May be rapidly reduced by applying leeches to the spots.

Blebs—Fracture-blisters.—Empty each one at the edge and apply an antiseptic dressing.

Hematoma.—Try rest, and pressure with aseptic aspiration. If these fail, incise, evacuate, stop hemorrhage and drain, observing rigid asepsis. Stimulate the cavity-wall, if necessary.

PUNCTURED WOUNDS.

Treatment.—If necessary, enlarge for hemostasis or thorough disinfection. Treat the wound as incised or lacerated, aseptic or infected, as the case may be.

TREATMENT OF SURGICAL INFLAMMATIONS.

LOCAL MEASURES.

Removal of the Exciting Cause.—As a foreign body.

Rest.—Most important; sometimes indispensable; including immobility and relief from functional activity, *e. g.*, muscular relaxation.

Elevation.—Of the part, lessens congestion.

Heat.—If intense, produces local anemia and prevents congestion. As generally employed, it relieves stasis and congestion (therefore pain), and promotes tissue-change and cell-activity.

Dry Heat.—Is applied by bottles, or bags, filled with hot water; by steam; or hot-water coils; hot bricks; plates; sand-bags; shot-bags; or freshly-ironed flannel compresses.

Hot Air.—At a temperature of 250°-300° F., gradually applied and removed, by the apparatus designed for this purpose, is of value in many cases of rheumatism, neuralgia, neuritis and joint affections. It is applied daily for $\frac{1}{4}$ -1 hour.

Moist Heat.—Is especially useful in acute, infective inflammations. It produces great relaxation, even softening to flabbiness. It is applied in the form of

1. **Fomentations, or Stupes.**—Dip a pad of flannel in hot water; wring it out by twisting it in a towel and apply, covering it with a thick waterproof material. Change the pads as often as they cool, applying the fresh pad the instant the cool one is removed. To avoid frequent changing, apply a steam or hot-water coil, or hot-water bag over the flannel.

Turpentine Stupes.—After wringing out the flannel, sprinkle over it 10-20 drops of Turpentine, or add the Turpentine to the hot water.

2. **Hot Antiseptic Compresses.**—*Intermittently hot:*—Apply a thick layer of gauze wrung out of a hot antiseptic solution. Cover this with a protective layer of cotton and a bandage. This will not wet the bed, but cannot be reheated without removal.

Continuously Hot.—Apply a very thick layer of gauze or absorbent-cotton, a layer of protective and a bandage. Cut holes through the bandage and protective at various points and into them pour, with a funnel, the solution as hot as can be borne. Arrange to drain off the surplus of solution for a few minutes. Repeat this every 1 to 4 hours. This is the most effective way of applying moist heat.

Solutions.—Boracic acid (sat. sol.); Thiersch's solution; Creolin solution ($\frac{1}{2}$ %); Tartaro-acetate-of-aluminum solution (1 %); Carbolic acid solution (1 %), for a short time only.

3. **Poultices.**—Are gradually being displaced by the dressings just described. Poultices favor microbial development in the skin, but may, however, be made up with a weak antiseptic solution.

Rules.—(a) Apply the poultice as hot as it can be borne. (b) Change it before it gets cold. (c) Have the next one ready when one is removed. (d) Keep it warm by a thick protective, and by external heat when practicable. (e) Peritonitis requires thin poultices. (f) Protect the part when they are discontinued.

Flaxseed or Linseed Poultice.—Add ground flaxseed slowly to a little cold water, while stirring rapidly. Add boiling water and continue stirring after the right consistency is attained, thus making it smooth and light. Spread it evenly on a piece of muslin a little larger than the finished poultice. Oil the surface of the poultice with Olive oil or Vaseline, and turn the edges of the muslin over it. The surface may be covered with a thickness of gauze.

Oatmeal and Bran Poultices—Are made in the same way.

Thick Boiled Starch.—Made in the same way.

Mustard Poultice.—Add to a flaxseed poultice 1 part of mustard flour for every 5 parts of flaxseed used; it should remain on the part only 10 to 20 minutes.

4. **Water-Bath.**—Continuous immersion of a part, or even of the whole body, in warm water or a weak antiseptic solution, is sometimes employed with great benefit for sloughing wounds and large purulent areas, burns, etc.

Cold.—Constricts the vessels, prevents exudation, retards cell-proliferation, favors absorption, and relieves pain, swelling and tension. It is contra-indicated in intense congestion, advanced inflammation, or in weak or debilitated patients.

Dry Cold.—Is applied by rubber bags filled with cracked ice or by ice-water coils. Protect the skin by 2 or 3 layers of flannel.

Wet Cold.—Drop ice-water slowly from a bucket upon the surface covered with 2 or 3 layers of muslin or gauze; provide for drainage.

Alternate Heat and Cold.—Is useful to stimulate the circulation of a part in chronic ailments, as in sprains, ulcers, etc.

Compression.—Supports the vessels; prevents exudation and passive congestion and favors absorption. It should be applied from the extremity of the limb to a point above the affected area.

Astringents and Sorbefacients.—Often of use. *Lead-Water and Laudanum* (Tr. Opium, 1 part; Liquor Plumbi Subacetatis, 1 part; Water, 16 parts) is a cooling and soothing lotion and is applied on cloths, saturated. Tr. *Iodine* or Comp. Tr. *Iodine*, are used painted on. *Silver Nitrate* (Lunar Caustic), is brushed over, pure or in solution. *Ichthyol* in ointments (25-50%) or in solution (2-10%) is very valuable. The *Mercurial Ointments* are also useful.

Counter-Irritation.—Relieves congestion early; later, it promotes absorption.

Rubefacients.—Friction; hot water; Turpentine; Capsicum; or one of the following vesicants applied for a short time:

Vesicants.—Shave the part and apply—Chloroform Compress, a few minutes; Ammonia and Lard, aa, 5 minutes; Cantharidal Collodion (or Plaster), 2-6 hours. Mustard and Flour, with luke-warm water, 15-60 minutes.

The Resulting Blister.—Drain at the edge, and allow it to heal; or if prolonged irritation is desired, cut away its top and apply an irritating ointment, as a mercurial one. Several small blisters are better than one large one. Do not apply too near to the inflamed tissues. Poultices hasten vesication and diminish its pain.

Acupuncture.—Is performed by inserting, aseptically, steel needles into the subcutaneous tissues for a few minutes.

Setons.—One or more strands of silk or other material are passed under the skin a short distance, and both ends are left protruding; the strands are moved back and forth at each daily dressing, and sometimes a stimulating ointment is applied to them.

Actual Caution.—Is sometimes, though seldom, indicated, and is best applied by the Paquelin thermo-cautery, quickly, at a white heat, for vesication.

Dry Cupping.—Apply a cup, exhausting the air by a pump; or, stick a pit of paper or cotton to the bottom of a wine-glass with collodion; saturate it with alcohol, light it, and apply the glass to the skin.

Local Depletion.—Is accomplished by—

Multiple-Puncture.—By needles or a sharp-pointed bistoury, observing asepsis.

Scarification.—Aseptically, by needles or knives.

Leeching.—Cleanse the skin, smear it with a little blood or milk, and apply the leech. Sprinkle it with salt to make it let go. Leeches should not be applied to inflamed tissues, over large superficial vessels or nerves, or to parts having much loose cellular tissue.

Wet-Cupping.—Apply a cup for a short time, scarify or puncture, and again apply it, exhausting slowly.

Massage and Passive Motion.—Are of great service in chronic inflammations and when rest is abandoned.

GENERAL TREATMENT.

Diet.—Give plenty of nourishing and easily assimilable liquids, as peptonized milk, milk-punch, egg-nogg, meat-juice, beef-tea, etc., gradually allowing solid foods.

Hygiene.—Good ventilation and cleanliness are of the highest importance. Maintain free excretions.

Stimulation.—Alcoholics are indicated where there is absorption of animal or bacterial poisons.

Remedies.—Aconite^{2x}; Belladonna^{2x}; Mercurius^{3x}; Hepar^{3x}; Silicea^{6x}; Arsenicum^{3x}; Iodine^{3x}; Mercurius iod.^{2x}; Arsenicum iod.^{3x}; as indicated.

ABSCESS.

Diagnosis.—It rests upon:—1. History.—Localized signs of inflammation; chills; irregularly high temperature; high pulse; sweats. 2. Fluctuation 3. Pointing. 4. Sur-

face edema. 5. Exploratory puncture; (to be made with a fine needle under strict asepsis).

Treatment.—Prevent pus-formation, if possible, by early treating the inflammation which leads to it.

ACUTE ABSCESS.

Drainage.—As soon as pus is diagnosed make free incision. Let the pus escape spontaneously, or use only very *gentle* pressure. Irrigate the cavity with sterile water or salt-solution, and follow with an antiseptic solution (preferably Carbolic). Never distend the cavity. Stop hemorrhage. Secure free drainage by fenestrated tubes, and, when necessary, by counter-openings at dependent points. Apply an absorbent, antiseptic dressing (usually moist). Irrigate and re-dress daily at first, removing the tubes as soon as the cavity will drain without them (often in 2 or 3 days). Put the part at rest and use local tissue stimulants if necessary. If the abscess is near large vessels or important structures, use:—

Hilton's Method.—Incise the skin, nick the deep fascia, push a grooved director through the tissues until it enters the abscess, as shown by sudden decrease of resistance and by pus along the groove. Pass a forceps along the groove into the cavity and withdraw it with the blades spread apart.

CHRONIC ABSCESS.

(COLD ABSCESS.)

Treat the Cause.—Usually it is tuberculosis. Treat by hygienic and dietetic measures, internal medication, and, when due to bone or joint disease (as spondylitis), by mechanical means.

Aspiration and Injection.—Under strict asepsis, draw off the contents of the cavity through an aspirating needle or fine trocar. Wash out the cavity with saline solution and inject Iodoform emulsion (10% of Iodoform in Glycerine). Work this into every part of the cavity by manipulation. Repeat 2 or 3 times, if necessary.

Opening.—Under the strictest antiseptic precautions, incise into the cavity and irrigate. Curette (thoroughly, if at all) the wall, or dissect it out, or cauterize it with Zinc-chloride (10%), or Carbolic (95%). Institute drainage and apply an antiseptic dressing.

Medicinal.—Calcareacarb.^{3x}; Calcareafluor.^{3x-6x}; Calcareaphos.^{3x}; Mercurius^{3x}; Mercuriusiod.^{2x}; Kaliiod.^{3x}; Iodine^{3x}; Iodoform^{2x}; Silicea^{6x}, as indicated.

SPECIAL CASES.

Brain.—Trepine over the suspected spot and locate the pus definitely by exploratory puncture. Evacuate carefully and drain by a soft rubber tube.

Antrum of Highmore.—Drain it into the buccal cavity by a gimlet-hole through the superior maxilla, just above the canine tooth, or through the socket of an extracted tooth.

Breast.—Incise in a line radiating from the nipple, or enter the abscess beneath the breast by a cut at the inferior thoracic-mammary junction.

Mediastinum.—Open by trephining through the sternum. If it has discharged through an intercostal space and does not heal well, make a counter-opening through the sternum.

Empyema.—If repeated aspiration fails, resect a piece of a rib (6th on the right, 7th on the left) in the axillary line, open the cavity through the periosteum, which should be left, and evacuate slowly. Drain by one large or two smaller rubber tubes. Do not operate in tuberculous cases.

Lung.—Locate the cavity by exploratory aspiration, and leave the needle as a guide. Resect a piece of rib. If the two layers of pleura are not adherent, suture them together and wait 48 hours. Then open the cavity by thermo-cautery at a dull red. Drain by a rubber tube.

Pericardium.—Aspirate in the 5th interspace. With the needle as a guide, make a one-inch incision to the pericardium and nick it. Introduce a forceps and withdraw open. Drain by a soft rubber $\frac{1}{4}$ to $\frac{1}{8}$ inch tube. Irrigate if the pus is foul.

Liver.—Locate by exploratory puncture in the *anterior axillary line*, 7th or 8th interspace; *mamillary line*, just below the nipple; *scapular line*, below the angle of the scapula. When located, incise along the edge of the ribs. Stitch the liver to the abdominal wall, if it is not already adherent, by stitches into it an inch deep. Wait 48 hours. Then, with an aspirator-needle as a guide, open the abscess by the thermo-cautery at a dull red. Irrigate and drain by a very large tube.

Appendicular.—See *Abdominal Surgery*.

Peri- or Ischio-Rectal.—See *Rectal Surgery*.

SINUSES AND FISTULE.

Foreign Body.—Remove any irritating foreign body, as a silk ligature, necrotic bone, etc.

Application.—Apply Carbolic Acid (95%), Lunar-caustic; solution of Zinc-chloride (10%) or Formaldehyde, along the tract.

Curette.—If these fail, curette or dissect out the wall of the whole tract and stitch up the fresh wound.

SURGICAL INFECTIONS AND FEVERS.

DIFFUSE CELLULITIS.

Synonyms.—Acute Cellulitis; Phlegmonous Inflammation or Suppuration; Purulent Infiltration.

Disinfect the Wound.—Open it up thoroughly; curette away all sloughing tissues (medulla of bone, if necessary, in compound fractures); disinfect with antiseptic irrigating fluids, or even mop the wound with strong disinfectants, as Zinc-chloride (10%) solution.

Drainage.—Open any edematous parts and pus-pockets, establishing free through-and-through drainage by counter-openings, inserting rubber tubes.

Dressing.—Employ continuously hot moist antiseptic dressings, both to prevent and to limit suppuration.

If these measures do not produce improvement in 6-8 hours, employ hot, continuous antiseptic irrigation. Finally, if necessary, resort to high amputation.

General Measures.—Diet and stimulation, etc., as described for inflammations.

Medicinal.—*Arsenicum*^{3x}; *Arnica*^{3x}; *Apis*^{3x}; *Crotalus*^{6x}; *Baptisia*^{Tr.}; *Lachesis*.^{12x}

PURULENT EDEMA.

General.—Treat as described for *Diffuse Cellulitis*. If high amputation is necessary, curette and apply strong antiseptics to the under side of the skin flaps.

ACUTE LYMPHANGITIS AND LYMPHADENITIS.

Disinfect the wound as described above. Apply Tr. Iodine or Ichthyol to the inflamed areas and apply hot, moist antiseptic dressings up to a point above the inflammation. If suppuration occurs, evacuate, disinfect and drain.

Remedies.—*Arsenicum iod.*^{3x}; *Mercurius iod.*^{2x}

CHRONIC ADENITIS.

Nature.—It is generally tuberculous.

Treatment.—Remedies should be tried, as in many cases they will cause the enlarged glands to disappear. But if, under internal treatment, the glands grow larger or more numerous, or begin to suppurate, operate, continuing internal treatment afterward.

Medicinal.—*Arsenicum iod.*^{3x}; *Calcarea carb.*^{3x}; *Calcarea fluor.*^{3x}; *Calcarea iod.*^{3x}; *Calcarea phos.*^{3x}; *Carbo animalis*^{6x}; *Conium*^{3x}; *Iodide-of-lime* (Nichols), $\frac{1}{2}$ – $\frac{1}{2}$ gr.; *Kali iod.*^{3x}; *Kali phos.*^{3x}; *Mercurius bin.*^{2x}; *Mercurius prot.*^{2x}; *Iodine*^{3x}; *Phosphorus*^{3x}; *Protonuclein* (2-4 grs. 3-6 times a day).

Operation.—Under strict asepsis dissect out the whole chain of glands, if possible, without rupturing them. Employ dry dissection by the fingers, and blunt dissector as much as possible, and avoid wounding large nerves and blood-vessels. If glands are ruptured, quickly sponge away their contents, dissect out the sac, and before suturing the wound thoroughly irrigate with an Iodine solution (1%). Close without drainage unless the wound has been infected during the operation. Other steps as under *Wound Treatment*.

PHLEBITIS.

Aseptic.—Rest in bed; elevation and compression of the part; cold early; heat later; paint with Iodine (Tr.) or Ichthyol.

Medicinal.—*Hamamelis*^{1x}, *Lachesis*^{12x}; *Pulsatilla*.^{1x}

Pyophlebitis, Thrombophlebitis.—Ligate the vein above the septic focus and, if possible, below. Open the vessel and wash out the infective material. Apply a moist antiseptic dressing. Other measures as described in *Pyemia*.

ERYSIPELAS.

Prophylaxis.—Isolate each case; burn all dressings; sterilize (by boiling) all clothing that comes in contact with the patient. Avoid contact of the discharge with abrasions of the patient's or attendants' skin.

Local.—*Hot moist compress* of Creolin, 1%, or Carbolic acid solution; Ichthylol and water; or, Alcohol and water, equal parts. To these a little Laudanum may be added.

Moist Compresses of Lead-water and Laudanum; Alcohol; or, a Cranberry poultice (made by mashing up raw cranberries with cold water into a paste.)

Salves.—Ichthylol (20-50%) in Lanolin.

Medicinal.—*Apis*^{3x}; *Arnica*^{3x}; *Belladonna*^{1x}; *Rhus*^{2x}. Anti-streptococic Serum, 10-30 cc., injected subcutaneously, has given good results.

General Measures.—Give nourishing, liquid diet; stimulate with Alcohol or Strychnia as required; maintain free excretions.

Phlegmonous Erysipelas.—Institute radical treatment early. (See *Diffuse Cellulitis*.)

FURUNCLE—BOIL.

Locally.—Apply hot moist antiseptic dressing. As soon as pus is detected; incise aseptically and evacuate it. Apply a moist antiseptic dressing. The application of Ichthylol Ointment (10-20% in Lanolin) is of value to areas where the boils are multiple.

General Measures.—Correct any digestive, sexual or constitutional disturbance or unsanitary condition which may be the cause.

Medicinal.—*Arnica*^{3x}, to prevent recurrence. *Belladonna*^{3x}; *Mercurius sol.*^{3x}; *Hepar*^{3x}; *Silicea*^{6x}

CARBUNCLE.

Local.—*Early.*—Apply a cold antiseptic compress covered with an ice-bag. Inject a few drops of Carbolic acid (95%) into its center.

When Foci Appear, apply continuously hot antiseptic compresses, and operate if necessary.

Operation.—Anesthetize; thoroughly disinfect the skin; incise freely by crossed incisions, multiple if necessary, from edge to edge. Curette out all necrotic tissue and apply Zinc-chloride (10%) solution. Dress with a moist antiseptic dressing. *Note.*—Never use the knife in diabetic cases.

General Measures.—Treat the low constitutional condition predisposing to it. Give plenty of nourishing foods. Encourage the excretions. (See *Septicemia*.)

Medicinal.—*Apis*^{3x}; *Arnica*^{3x}; *Arsenic*^{3x}; *Belladonna*^{1x}; *Bryonia*^{1x}; *Hepar*^{3x}; *Lachesis*^{12x}; *Silicea*^{6x}; *Sulphur*^{2x}

GANGRENE.

Preventive Measures.—Relieve pressure, tension, or constriction of the part. Employ warmth, massage and slight elevation. Treat atheroma, diabetes or other constitutional condition which may cause it

Wait for the Line of Demarcation.—Except in the cases to be mentioned, meanwhile applying continuously hot, moist antiseptic compresses. Then amputate or trim up and suture.

High Amputation or Excision at Once.—This is to be performed in all cases of progressive gangrene, either senile or diabetic. In amputating for senile gangrene, a clot higher up in an artery, which does not bleed, may sometimes be broken up and dislodged by a rubber catheter.

General Measures.—As for septicemia. . Feed liberally; stimulate with whisky or Strychnia, as seems necessary.

SEPTICEMIA AND SAPREMIA.

Remove the Cause.—Immediately evacuate pus or putrid matter from the tissues or from a natural cavity, as the womb, bladder, kidney, peritoneum, pleura, middle ear, or from an artificial cavity (abscess), and drain.

General Measures.—*Favor the Excretions* by an active saline purgative and a hot bath. In many cases the intravenous infusion of saline solution is of great value.

Nourish Well.—Concentrated liquid foods every 3 hours.

Stimulate.—Alcohol, and other stimulants as required.

Medicinal.—Alcohol (large doses), has been much used; Arsenicum^{3x}; Arnica^{3x}; Baptisia^{Tr.}; Crotalus^{6x}; Lachesis.^{12x} Anti-streptococcic Serum has given good results in some cases. Dose, 10-30 cc. by subcutaneous injection.

PYEMIA.

General.—Treat the same as for septicemia; and in addition, watch for, and evacuate immediately, all accessible secondary abscesses.

TETANUS.

Prophylaxis.—Treat *all* wounds as described under *Wound Treatment*.

Local.—When tetanus exists, look for a wound; open it; excise diseased tissue; cleanse with Hydrogen-Peroxide; cauterize with Bromine or pure Nitric acid, and drain.

General Measures.—Isolate the patient in a quiet, darkened, well-ventilated room. Keep the bowels open; catheterize if necessary; give nourishing liquid food. If swallowing causes convulsions, give an inhalation of Amyl Nitrite before the attempt. If this fails, administer Chloroform and feed through a stomach-tube or through a catheter passed through the nose.

Medicinal.—Curare; Gelsemium; Passiflora; Physostigma. Phytolacca; Strychnia; and other drugs have been given in cases which have recovered.

Antitoxin.—Recoveries have followed injections of Tetanus Antitoxin hypodermically, and recently some have injected it into the frontal lobes of the brain. *Dose:* 15-20 centigrammes.

Carbolic acid.—Remarkable results have followed subcutaneous injections of Carbolic acid (2%) solution. *Dose:*—first day, 10 cc., subsequent days, more gradu-

ally, up to 20-30 c. c. a day. Avoid marked symptoms of poisoning.

Adjuvants.—Free stimulation with Strychnia, or, sometimes, Alcohol. Relieve suffering with Morphine, Chloral, Potassium bromide, and anesthetics when necessary.

ULCERS.

Healthy.—Put the part at rest; elevate if possible; keep the ulcer clean and apply a non-irritating dressing, as—

Senn's Dusting-Powder (Boric acid, 4 parts; Salicylic acid, 1 part). Dust on thickly and cover with gutta percha tissue or oiled silk.

Aristol.—Apply in the same way.

Iodoform.—In some venereal cases.

Beebe's Cerate.—Dry mutton-tallow, 3-4 parts; Olive oil, 1 part; Carbolic acid, 5% of the whole. Melt together, and stir while cooling. Spread thinly on muslin, and apply.

Zinc Ointment may be used in the same way, but is not so good.

Skin-Graft.—As soon as a healthy granulating surface appears, skin-graft large ulcers.

Exuberant.—Shave or curette off the fungous granulations; stimulate with Lunar caustic. Apply a non-irritating dressing and compression.

Edematous.—Same treatment as just described.

Chronic, Callous or Indolent.—Curette or stimulate by caustic (especially Silver-nitrate). Cut through the hard edges all around, by radiating incisions; dress with Balsam-of-Peru, or Comp. Tr. of Benzoin.

Sloughing or Phagedenic.—Remove all sloughing tissue, and disinfect thoroughly, applying strong caustic. Apply continuously hot wet antiseptic dressings. *Constitutional Treatment.*—Stimulate and nourish well.

Irritable or Erethistic.—Curette; apply pure Carbolic acid or Lunar-caustic. Divide the exposed or imprisoned nerves by section through the floor of the ulcer. Chloral (20 grains to the ounce) allays the pain.

Varicose Ulcers.—Elevate the limb. Support the veins by an elastic stocking or by a rubber bandage applied from the toes up, just tight enough for each turn to hold the preceding one *without reverses*. Treat as described for *Chronic Ulcers*. These measures seldom or never give permanent benefit without *radical treatment* of the varicose vessels.

Operations for Varicose Veins.—Before anesthetizing, while the patient is standing, apply a ligature about the upper-third of the thigh, just tight enough to obstruct the venous flow.

Trendelenburg's Method.—Tie the internal saphenous vein at two points, below the saphenous opening, and divide it between the ligatures.

Fergusson's.—Make a long incision over the vein and excise the part between the ligatures.

Schede's.—Circumcise the leg, in its upper third, down to the deep fascia, and excise all the vessels on each side of the wound.

Local Measures.—In either of these operations use chromicized catgut for ligatures. After ligating, remove the constrictor, suture the wound, and apply a dry powder dressing and a thin pad. Bandage the limb firmly *from the toes to above the wound*. Leave the dressing in place for 4 days, unless there are marked symptoms of inflammation; then sponge the wound with Alcohol and re-apply the dressing.

Syphilitic Ulcers.—Dust with Calomel^{1x}; Mercurius sol.^{3x}; Iodoform or Aristol.

Lupus.—Curette thoroughly, removing all diseased tissue, and dust with Iodoform or Aristol. Treat the healthy ulcer, which should result, as has been indicated. If only a small area is involved, apply pure Nitric acid carefully.

SKIN-GRAFTING.

Prepare the Ulcer.—Curette the healthy ulcer lightly and irrigate it with hot normal salt-solution, stopping all hemorrhage by pads wet with the same.

The Grafts.—Have the site from which the grafts are to be taken (the inner side of the thigh is best) thoroughly disinfected, and wash it with salt-solution. Draw the skin tense and with a wet razor shave off strips of only the upper layer of the skin.

Apply the Grafts.—Straighten these out in a basin of warm salt-solution, and apply them to the granulating surface, fitting them to cover it.

Dress the Grafted Surface.—Cover it with three layers of sterile gutta-percha strips (wet in salt-solution) and laid at right-angles to each other, with small gaps between adjacent strips, for drainage. Over this apply a sterile pad of gauze wet with salt-solution; cover with a piece of protective, a layer of cotton, and a bandage. In 48 hours remove the dressing down to the gutta-percha tissue and irrigate with salt-solution. In 5 to 7 days remove the gutta-percha strips and dress as desired. Dress the skin-wound with a dry powder dressing.

Epidermis.—Scrapings or minute clippings, will often start islands for skin proliferation.

BED-SORES.

Prevent.—*By Cleanliness.*—Keep the patient and his bed dry; bathe his shoulders and back once or twice a day; rub dry; then rub with Alcohol; dust with zinc-oxide, borated talc, or lycopodium powder.

Remove Pressure.—Have a smooth, soft, elastic bed, or water-bed, or cushion. Put a ring-pad around any reddened spot. Shift the patient's position often, if only slightly.

Harden the Skin.—Apply salt and whisky (2 fl. dr. to the pint) or a mixture of—Alum ($\frac{1}{2}$ oz.), Camphor, Tr. (2 oz.), and the whites of 4 eggs.

The Sore.—Remove all sloughs by an antiseptic pou-

tice and treat the remaining ulcer by a non-irritating dressing and stimulation. See *Ulcers*.

BURNS AND SCALDS.

Prognosis.—Fatal if a third of the bodily surface is affected.

First Degree (Hyperemia).—Immediately apply one of the following:

1. A compress saturated with Sodium-bicarb. (sal. sol.), or, a solution of Picric acid (1%).
2. A paste of Sodium-bicarb and water, with a flax-seed poultice applied over it.
3. A paste of Vaseline and Sodium-bicarb., or of flour-and-lard, covered with gauze or cotton and protective.
4. If these materials are not at hand, apply some other clean dressing that will keep the air out and the part warm.

Second Degree (Vesication).—Large blisters or blebs should be pricked at the edge and gently evacuated, leaving the upper layer of skin. Apply one of the above dressings, preferably the Picric acid, Soda, or carbolized Vaseline.

Third Degree (Eschars).—There is destruction through or beyond the skin. Anesthetize, if necessary, remove the clothing, trim away any dead tissue and apply a wet Picric acid or antiseptic compress, until all sloughs separate. Then treat the remaining ulcer as described under that subject.

Large Surfaces.—Where a large area is burned, suspend the patient, by a sheet, in a warm bath of Soda-solution, until shock is over, or even until the sloughs separate. Then dress as described under *Ulcers*.

Dressings.—Do not disturb them until the discharges loosen them. Absorbent-cotton, applied next to the skin, may be irrigated or washed off, thus avoiding the pain caused by pulling off gauze.

General Treatment.—Treat shock as described under that heading. Watch for duodenal ulceration (remedy, Kali bich.) and for other complications—cerebral, pulmonary, renal, and septic. In exhaustion from suppuration, nourish well.

FROST BITES.

General.—*Gradual Warmth.*—Place the patient in a cold room, sponge the frozen parts with cold water, using gentle friction. Gradually raise the temperature of the room. Or place him in a bath at 60° F. and gradually raise it to 90° F. After a time wrap him in warm blankets and apply mustard-plasters over the heart and spine. Employ *artificial respiration* if necessary. Give *stimulants*, in cool water, by mouth or enema, or subcutaneously. Do *not* give hot enemata.

Local.—*Gradual Warmth.*—Rub gently with ice, snow, or iced water, followed by dry, gentle friction. With re-

action, suspend the part and apply cooling applications, evaporating lotions, etc., for the pain. If the freezing is extensive, employ the continuous, mild, antiseptic bath. When the line of demarcation is established, amputate or excise the dead tissues. Treat cellulitis as described under that heading.

Chilblains.—When of the feet, order the patient to take regular outdoor exercise, to wear large shoes, woolen stockings, to avoid tight garters and loitering near a hot fire, to sleep in warm stockings, bathe the feet twice a day in cold salt water, rubbing dry with a flannel, and to apply one of the following lotions:—1. Kerosene; 2. Olive-oil and Turpentine, equal parts; 3. Iodine^{Tr.} and Soap-liniment, 1: 2.; 4. Cantharis,^{Tr.} or Capsicum,^{Tr.} and Soap-liniment, 1: 6.

TUMORS AND CYSTS.

LIPOMATA.

Diagnosis.—They generally grow slowly, in the subcutaneous connective-tissue. Soft, doughy, movable on the underlying tissues, but often adherent to the skin. Capsulated or diffuse.

Treatment.—If pain, inconvenience or cosmetic considerations indicate removal, incise over the tumor and tear or cut it out, observing asepsis. Introduce drainage for 24 to 48 hours.

FIBROMATA.

Diagnosis.—Hard, dense, sharply-defined, painless; generally grow slowly. In the breast they are freely movable, but when arising from fixed structures, as the periosteum, they are adherent.

Treatment.—Where they are easily accessible, remove them aseptically. Fibromata of the breast, in young women, generally yield to internal medication; Conium^{3x}; Iodine^{2x}; Iodide-of-Lime (Nichol's). *Dose:*— $\frac{1}{3}$ to $\frac{1}{2}$ gr.

Epuils should be dissected away, together with the underlying bone.

Keloids should not be excised. Use cataphoresis; apply an amalgamated stick of Zinc, covered with 3 to 4 layers of moist gauze, as the positive electrode, and apply a large pad near by, as the negative electrode. Galvanic current, 5-15 Ma. _____

CHONDROMATA.

Diagnosis.—They generally occur at the ends of bones and in the young. Smooth, nodular, inelastic, immovable, painless; grow slowly; often ossify.

Treatment.—If medication fails, chisel off the growth and some of the underlying matrix, observing rigid asepsis, especially in a joint. Amputation is sometimes necessary.

Medicinal.—Calcarea fluor.^{6x}; Hecla lava^{3x}; Lapis albus^{3x}; Silicea.^{6x}

OSTEOMATA.

Treatment.—Treat the diathesis which may be the cause, as syphilis, gout, etc. Removal is indicated for

pain, pressure on important structures or cosmetic effect. The removal must be thorough to prevent return. Always remove subungual growths; split and remove part of the nail to do so.

ODONTOMATA.

Treatment.—These are tumors arising from tooth tissue. They are sometimes confused with sarcomata of the jaw, but are *not* malignant, and simply require removal.

MYXOMATA.

Treatment.—Complete aseptic removal, with cauterization of the surfaces from which they arise, if from membrane.

MYOMATA.

Course.—They sometimes become sarcomatous. (See *Enlarged Prostate, and Uterine Tumors.*)

ANGIOMATA.

Treatment.—Never employ injections.

Capillary Angioma (Nævus).—Apply the positive galvanic electrode ($\frac{3}{4}$ -1 inch in diameter) covered with gauze saturated in Ergot (fl. ext.) or Ergotol, and a flat pad, negative electrode near by; current, 10-15 Ma.

Cavernous Angioma.—If small, use galvano-puncture with the positive electrode. If large, excise aseptically. The following is suggested for large cavities:—Insert an insulated needle and through it pass a quantity of finely-drawn gold wire, to which attach the positive electrode, 10-15 Ma. for $\frac{1}{2}$ to 1 hour. Then cut off the wire protruding, leaving the rest inside.

Arterial Angioma.—It requires the ligation of the vessels flowing into and out of the tumor, and excision of the tumor where possible. The gold-wire treatment just suggested may be of value.

LYMPHANGIOMATA.

Treatment.—Excise when possible. In other cases, multiple galvano or igni-puncture.

SARCOMATA.

Diagnosis.—Usually occurs before middle life, and is of rapid growth. Usually firm and fleshy, but sometimes fluctuates. Usually non-capsulated, and is adherent to the surrounding tissues and undergoes early degeneration. Adjacent lymph-glands not involved early. Sarcoma originates in connective-tissue.

Treatment.—*Complete* extirpation as early as possible, if it can be accomplished.

Coley's Mixture (of erysipelas and prodigious toxins) should be tried with or without operation. Inject 2-3 m. the first day, and gradually increase the dose so as to cause a febrile reaction about once a week. Inject the fluid every day or two, near to, or distant from, the tumor.

PAPILLOMATA.

Ordinary Warts.—Apply fuming Nitric acid, and pare away the dead tissue until the acid penetrates to the base of the growth. A drop of Carbolic acid (95%) will relieve pain. Then keep the spot dry and dusted with an antiseptic powder. Or excise aseptically.

Venereal Warts.—Especially when about the genitals, and numerous, often disappear if bathed often with Hydrogen-peroxide solution, dried thoroughly, and kept dusted with Calomel. Salicylated collodion, often applied, sometimes causes them to disappear.

Medicinal.—Antimon. crud.^{3x}; Nitric acid^{3x}; Thuja^{2x}; Staphysagria.^{3x}

Other Papillomata.—Require complete removal, together with the tissues from which they spring.

ADENOMATA.

Treatment.—When they persistently increase in size or do not respond to treatment, excise them aseptically. When occurring in the breasts of young women (the so-called "fibro-adenoma") they often disappear under medicinal treatment. See *Fibromata*.

CARCINOMATA.

Diagnosis.—Generally after the age of 30–35 years. Hard, nodular, adherent to the surrounding tissues. non-capsulated; neighboring lymph glands generally enlarged early.

Treatment.—Thoroughly excise the tumor with plenty of adjacent tissue, as early as possible, and dissect out the adjacent lymph-glands.

Of the Breast.—Remove the whole organ and the chain of lymphatics running into the axilla, in one piece if possible. Make an elliptical incision, wide of the nipple, one end of which extends up into the axilla. Observe strict asepsis. Other steps as in *Wound Treatment*.

CYSTS.

Varieties.—Retention-cysts; Sebaceous cysts ("Wen"); Exudation-cysts (ganglion), Dermoid cysts; Hydatid cysts.

Treatment.—Excise, aseptically the whole growth, including the sac. If it is feared that a part of the sac is left, swab the cavity with Carbolic acid (95%) and drain for 24 hours. If due to constitutional disturbance, correct it.

BONE DISEASES.

ACUTE OSTEOMYELITIS.

Treatment.—As soon as a diagnosis is made (pus will, probably, already be present), incise freely to the bone, through the periosteum, and locate the pus by drilling. Cut a groove in the bone; evacuate the pus; curette away all diseased, bony tissue; disinfect, cauterizing with a strong solution of Zinc-chloride; pack the wound for 7

hours, leaving it open. Amputation, at the joint above, may be necessary in some cases.

ACUTE PERIOSTITIS.

Treatment.—Very early, during hyperemia; in some cases, hot dressings may abort the inflammation. Try the application of Iodine^{Tr.}; Guaiacol; Ichthyol. Even before pus is formed, incise through the periosteum under local or general anesthesia. Leave the wound open, insure free drainage, and dress with a moist, perhaps hot, antiseptic dressing. Incise fingers at the "corners," rather than on the sides, palm, or back.

TUBERCULOSIS.

Constitutional Treatment.—Is very important. Diet and hygiene should receive careful attention.

Medicinal.—Calcarea carb.; Calcarea phos.; the Iodides; Ichthyol; Guaiacol.

Local.—Rest, by splints or extension, or both.

Operation.—"Ignipuncture" (puncture into the focus with the thermo-cautery); curettage; or extirpation of the focus.

CARIES AND NECROSIS.

Treatment.—Remove all the diseased or dead bone by the curette, dry the walls and touch with Carbolic acid (95%). Leave the wound wide open and let granulations fill it in from the bottom. When the bony cavity is clean, dust it with Iodoform and pack it with decalcified bone-chips.

FRACTURES.

GENERAL CONSIDERATIONS.

DIAGNOSIS.

Method.—Make diagnosis under anesthesia, if necessary, by—

1. **Crepitus.**—*Grating* (felt or heard).
2. **Abnormal Mobility.**—Motion where it should not occur.
3. **Easy reduction and spontaneous displacement.**
4. **X-rays;** the fluoroscope, or skiagraph.
5. **Deformity** (not diagnostic); compare with the opposite side.

PROGNOSIS.

Simple Fractures.—If properly treated, usually recover without deformity. *Exception:*—Fracture of the clavicle.

Compound Fractures.—May be followed by tetanus; suppuration; septicemia. Prognosis is grave in bad cases; guarded in the majority.

Ununited Fracture, or Delayed Union.—Is liable to occur in (a) Intra-capsular fracture of the femur; (b) fractures of the olecranon and patella; (c) fractures of the humerus and tibia, in debilitated subjects.

Fibrous Union.—Occurs, often, in fractures of the patella; olecranon; coracoid process of the scapula; and in some cases of delayed union.

Progressive Neuritis.—Sometimes follows fractures, especially about the ankle and knee.

Favorable Influences.—Perfect coaptation and immobilization; perfect circulation in the part; youth and perfect health.

Unfavorable Influences.—Dyscrasia, as syphilis or tuberculosis; habitual use of alcohol or drugs; exposure; exhaustion; old age.

REPAIR.

First Stage.—*Absorption of debris*—about 1 week.

Second Stage.—*Exudation of callus*—about 2 weeks.

Third Stage.—*Ossification of callus*—about 3 weeks.

Fourth Stage.—*Resorption of provisional callus*—may take a year.

TREATMENT.

(1) **Coapt the Fragments.**—(“Reduction;” “Setting.”)—Anesthetize if necessary, to relieve pain and to relax the muscles. In some cases, continuous traction (extension) is necessary to produce and to maintain coaptation.

(2) **Immobilize the Fragments.**—Until union is established. This is accomplished by “fixed dressings;” as a plaster-of-Paris “cast,” or a hardened bandage, or by “removable dressings,” as splints, fracture-boxes, etc.

Muscular Relaxation.—In many cases where it may be difficult perfectly to reduce a fracture, if a proper dressing is applied the muscles will relax and the dressing will complete the reduction. In applying dressings allow for muscular relaxation and avoid applying them too tightly; remember that every turn of the bandage increases the pressure.

Swelling.—If the patient is seen before swelling occurs, apply the proper dressing and cold at once. The dressing may have to be removed if too great swelling occurs later. If swelling is already present, apply a temporary splint, elevate, and apply heat or cold. When swelling has somewhat decreased, apply a permanent dressing, and change it, if it becomes too loose. Arnica^{3x} internally.

When there is doubt as to whether the dressings are holding the fragments properly, it is best to examine with the X-rays, if possible.

Plaster-of-Paris.—*Kind:*—Use the ordinary, coarse, “Michigan” plaster. *Bandage Material.*—Coarse crinolin. It need not have the starch soaked out of it.

Making the Bandages.—Tear the crinolin into strips the full length of the piece and wind into large rollers. Bake the plaster $\frac{1}{2}$ to 2 hours in an oven. Then, with a Beebe’s plaster-bandage machine, or with a case-knife and a long table, spread the plaster on the crinolin strips just thick enough to fill the meshes and leave a thin layer on the surface. Roll into bandages, cutting when the roller is 2-3 inches in diameter. Keep these in a tight tin-pail or box.

Applying the Bandages.—As a lining, apply a smooth layer of "sheet wadding," or a soft, thick bandage extending farther each way than the plaster is to go; on a leg or foot, an old stocking; for a jacket, an old undershirt. Place 1 or 2 bandages at a time, on end, in a vessel of warm water deep enough to cover them. To make the plaster set quickly and hard, add a large tablespoonful of powdered *Alum* to each quart of water (salt makes plaster crumbly). When they are saturated, apply the bandages, without squeezing, rubbing the layers together. Have the "cast" thicker at the edges and turn the lining back over them, to cover them smoothly. Keep the part in position until the plaster "sets."

Care of the "Cast."—It should be "set" almost as soon as it is applied. Avoid breaking it before it is dry, 24-48 hours.

To Remove.—Insert a strip of "tin" under it and cut it longitudinally with a saw-edged plaster-knife; or soak it in hot water and peel it off.

Permanent Splints.—Almost indestructible, may be made by carefully removing plaster splints and saturating them with thin, hot glue (2-3 applications) and covering with cloth.

Interrupted or Fenestrated "Casts."—Are made with straps of iron, bent so as to bridge over part of a limb. Each end of the irons has pieces of wire cloth or perforated tin riveted to it. These catch the plaster of the bandage in their meshes and prevent the iron from working loose. To expose a small area, a hole may be cut in an ordinary "cast."

HARDENED BANDAGES.

Starched.—Apply a lining. Then saturate, in water, a heavily starched, crinolin bandage and apply. Or apply a muslin bandage, rubbing thick, hot, boiled starch into each layer.

Silicated.—Instead of the boiled starch, saturate the muslin with Sodium or Potassium silicate. A thin layer of plaster-of-Paris bandage may be applied over this (after covering it by tissue-paper) to hold it in shape until it dries.

SPLINTS.

Wooden Boards.—Sawed, not shaved; $\frac{1}{8}$ to $\frac{1}{2}$ inch thick.

Tar or Binder's-Board.—Soak it in hot water; mold it to the part, and bandage it on. It becomes hard, when dry.

"Fiber."—Is sold at supply houses, and is used the same as "tar" board, but is much firmer; $\frac{1}{8}$ inch is thick enough.

Sole-Leather.—May be used in the same way.

Plaster-of-Paris Bandage.—Several thicknesses laid together and wet, may be bandaged to a part for a splint.

Tin, Perforated Tin, and Sheet-Iron.—Make good splints when bent to fit the part.

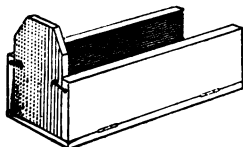
Wire Cloth.—Makes extremely good splints, is easily cut and molded for the part; and allows air to penetrate it. Use heavy cloth.

Re-inforcing.—Any molded splint may be stiffened by a strap of iron riveted to it.

Lining.—All splints should be lined by 3 to 4 thicknesses of cotton "sheet wadding."

Blanket Splint.—Fold a blanket lengthwise to a width equal to the length of the splint desired. Roll it from both ends, put the limb in the trough between the rolls and tie a bandage about them in 3 places. This is for temporary use.

Board-and-Blanket Splint.—The same, except that the blanket is rolled, at each end, over a board about 4 inches wide.



Hinged.—Have the sides hinged, for easy dressing. *Fig. 1.*—HINGED FRACTURE BOX.

FRACTURE-BOX.

COMPOUND FRACTURES.

Indications.—If amputation is not demanded, then—

1. Carefully remove all foreign matter and small detached pieces of bone from the wound.

2. Disinfect the wound thoroughly with a warm antiseptic solution, first cleansing the surrounding skin; avoid washing infective material into the wound. If an end of bone projects, do not reduce it before disinfecting.

3. Provide for free drainage; apply an antiseptic dressing, generally a moist one.

4. Apply an interrupted or fenestrated "cast," a fracture-box, or some splint that will allow easy inspection and dressing of the wound.

5. When the wound heals, treat as a simple fracture.

DELAYED OR NON-UNION.

Indications.—When resulting in ununited fracture or pseudo-arthritis.

1. Correct the constitutional and local causes of malnutrition of the part.

2. If a muscle or organized blood-clot is between the fragments, cut down and remove it.

3. Break up or remove any soft callus between the fragments; by a tenotome, drill or in an open incision.

4. Irritate the ends of the bone by rubbing them together, by drilling into them, or by a seton passed between them; or cut down and freshen them if necessary.

5. Drill, and wire, or screw, or nail the fragments together, or fasten them together with kangaroo-tendon, or silk-worm gut, after exposing them by incision.

6. Apply a proper splint in all cases.

SPECIAL FRACTURES.

THE SKULL.

Diagnosis.—Where any doubt exists about a fracture of the vault, incise, aseptically, down to the bone and feel

with the finger; tap on the bone with the handle of the scalpel. Blood, or cerebro-spinal fluid from the ears, nose or orbit, often indicates fracture at the base.

Prognosis.—Always guarded; depends upon the amount of injury to the brain. Compound or depressed fractures or fractures of the base are more serious than simple fractures of the vault.

TREATMENT.

Simple Fractures without Depression.—Insure rest in bed, quiet, low diet, mild purgation, moderate elevation of, and cold to, the head.

Medicinal.—Aconite; Arnica; Belladonna, as indicated.

Simple Depressed Fractures.—Elevation of fragments by operation.

Compound Fracture without Depression.—Disinfect the wound and surrounding scalp. If a hair or foreign body is found in the fissure, convert the fissure into a groove by chiseling away the outer table along it.

Compound Depressed Fractures.—(All punctured fractures.) Operate and elevate the depressed fragments.

Trephining.—Shave the whole scalp; disinfect it; and any wound. Expose the fracture by a "V" or "S" shaped incision. Remove a small piece of bone, using, if necessary, the mallet and chisel, or trephine. In using the mallet and chisel, hold the chisel almost parallel to the surface of the skull. In using the trephine, remove the center-pin when it is started and feel often in the saw-groove, with a flat probe, to see if it has penetrated anywhere, going very carefully at the last. When sawed all around, remove the button with an elevator. Through the opening raise the depressed fragments with the elevator. If any fragments cannot be lifted up, it may be necessary to cut away parts with the chisel or bone-forceps. Smooth the edges of the hole. Avoid opening a sinus, but if one is opened, plug, compress, ligate or suture it. If there are clots outside or inside the dura, remove them and ligate the bleeding vessel. Fluids in the brain may often be located and sometimes drained by a fine aspirating needle.

Closure.—Introduce drainage, if indicated; suture wounds of the dura with fine silk or catgut, permanently stop all hemorrhage, and suture the scalp with silk-worm-gut. Apply an antiseptic dressing and a head bandage.

Instruments.—Razor, scalpel, artery forceps, retractors, flat-ended probe, trephine, bone elevator, mallet and chisels, bone-cutting forceps (Rongeur and Devilbis), dural separator, bone curette, aspirating syringe and needles, needles, needle forceps, catgut, silk-worm-gut, and fine silk.

THE SPINE.

FRACTURES OF THE VERTEBRÆ.

Diagnosis.—Deformity; crepitus; symptoms of injury to the cord; the X-ray.

Prognosis.—Very grave; complete recovery rare.

Treatment.—Straighten the patient out, using careful extension and manipulation. Place him on a soft, flat bed with sand-bags to steady the spine; later, use a water bed, if possible.

After-Treatment.—If toward the end of the first month symptoms of cord-injury are stationary, perform laminectomy, provided that it is not certain that the cord is destroyed.

Plaster Jackets.—In some cases, continued extension by weight and pulley, etc., is beneficial. In all cases guard against bed-sores and attend to the evacuation of bowels and bladder.

THE FACE.

FRACTURE OF THE ZYGOMATIC ARCH.

Treatment.—Introduce a sharp instrument under the depressed fragment and lift it up.

CRUSHING IN OF THE ANTRUM.

Treatment.—If not opened, make an opening into it just above, and external to, the canine tooth. Introduce a sound, lift the bones into place, and pack with gauze for 7 to 10 days.

FRACTURE OF THE SUPERIOR MAXILLARY.

Treatment.—When the alveolar process is broken in, mold it into place, fasten any loose teeth to their neighbors and hold the parts together by the opposing jaw or by dental wax molded into a splint.

Time of Repair.—Let the patient begin to masticate in 4 to 5 weeks.

FRACTURES OF THE INFERIOR MAXILLARY.

Prognosis.—More or less displacement often remains.

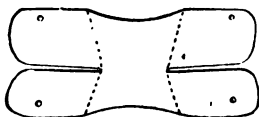


Fig. 2.—PATTERN FOR JAW-SPLINT.

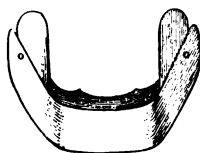


Fig. 3.—JAW-SPLINT.

Treatment.—Coapt the fragments by manipulation, removing any tooth that interferes, and replacing it after coaptation. Apply a splint over the chin to prevent lateral pressure, and bind the jaws together with a Barton's or a four-tailed bandage. Feed through a tube passed between or around the teeth. Some cases may require a molded internal splint of dental wax or vulcanite, wiring the teeth, or even drilling the bone and wiring through a facial incision. In wiring the teeth, have the strain come on the teeth, not next to the fracture.

Time of Repair.—It is fairly firm in 3 weeks. Let the patient masticate in 4 to 5 weeks.

THE THROAT.

FRACTURE OF THE HYOID.

Treatment.—Throw the fragments into position by forcibly elevating the chin, or by a finger in the mouth and

manipulation externally. Apply a high molded stock or collar to immobilize. Do not allow the patient to talk; control cough by drugs; feed by enema, later by a tube.

Time of Repair.—About 4 weeks; remove dressings in 3 weeks.

THE CHEST.

FRACTURE OF THE STERNUM.

Prognosis.—Favorable if uncomplicated.

Treatment.—Reduce displacement by bending the patient back over a pillow during deep inspiration. Immobilize the thorax by adhesive straps passed clear around it, with overlapping ends. Keep the patient in a semi-erect position with the head thrown back somewhat.

Time of Repair.—From 4 to 5 weeks; remove dressings in 3 weeks.

FRACTURE OF THE RIBS.

Prognosis.—Depends upon the severity of the visceral injuries complicating.

Treatment.—Reduce depressed fragments by pressing the sternum and spine toward each other. Have the patient raise the arms from the sides, and during a forced expiration apply, over the fracture, a strap of adhesive plaster, 3 inches wide, *completely encircling the chest*, and pin the overlapping ends together. Change the plaster in 7 to 10 days.

Time of Repair.—From 3 to 4 weeks; remove the dressings in 2½ to 3 weeks.

FRACTURE OF THE CLAVICLE.

Prognosis.—Usually some deformity.

Treatment.—Fold a stout piece of



Fig. 4.—ELBOW SLING.

cloth along one side, and sew across one end. Drop the flexed elbow into the corner thus made, protecting the point of the elbow with a ring pad. Convert this into a sling by straps from the free corners around the



Fig. 5.—MODIFIED VELPEAU BANDAGE.

neck. Place the hand on the well shoulder and put enough absorbent material between opposing skin surfaces to prevent intertrigo. Reduce by lifting the shoulder upward, outward and backward, and apply a modified Velpeau bandage (one in which the turns pass over the sound shoulder, instead of the affected one), passing across the chest *toward the affected side*. Sometimes a pad and strap is necessary to hold down an over-riding inner fragment. *Avoid bandaging too tightly*, and cover with a starched or plaster bandage.

To Avoid Deformity.—In a girl, keep her on a flat, hard bed with a low pillow, a narrow cushion between the shoulders, a shot-bag on the affected shoulder, the arm by the side, and the forearm across the chest.

Time of Repair.—Remove the dressings in 3 weeks.

FRACTURE OF THE SCAPULA.

The Body.—*Treatment:*—Reduce by lifting the shoulder and manipulation. Apply a firm pad, to press it against the ribs, and a bandage to hold it in place, and immobilize the shoulder and arm. Remove the dressings in 3 to 4 weeks.

The Spine.—*Treatment:*—The same.

The Neck.—*Displacement:*—The glenoid fossa and humerus drop downward. *Treatment:*—Lift directly up on the humerus, lay the forearm across the chest at right-angles, and bandage in this position, with a flat axillary pad and absorbent material between the skin surfaces. Remove the dressings in 5 weeks.

The Glenoid Fossa.—*Prognosis:*—It is apt to leave ankylosis. *Complications:*—It generally occurs with dislocation. *Treatment:*—As for fractures of the neck. Employ passive motion after 3 weeks. If necessary, break up ankylosis, under anesthesia, after 6 or 7 weeks. *Time of Repair.*—Dressings should not be permanently removed for 4 or 5 weeks.

The Acromion Process.—*Outside the Acromio-clavicular Articulation:*—Lift up the fragment by lifting on the humerus. Bandage as for fractures of the neck. *Remove the dressings* in 4 weeks. Bony union is not likely. *Inside the Acromio-clavicular Articulation:*—Treat the same as a fractured clavicle.

The Coracoid Process.—*Treatment:*—Apply a Velpeau bandage for 4 weeks.

The Bicipital Insertions.—*Treatment:*—Push the ends of the tendons back into place as well as possible. Immobilize the shoulder with the elbow flexed.

THE ARM.

FRACTURE OF THE HUMERUS.

The Anatomical Neck.—*Treatment:*—Apply a flat axillary pad, or an inverted "U" shaped splint of molded board, reinforced with an iron strap. Fit a shoulder-cap of the same, or of plaster-of-Paris bandage. Bandage these on with the forearm across the chest. *Remove dressings* in 5 weeks.

The Surgical Neck.—*Displacement.*—Both ends inward. *Treatment:*—Produce extension; push the ends into place, and while doing this apply the dressing just described. The time of repair is the same.

The Shaft.—*Treatment:*—As for the surgical neck.

The Shaft, Lower Quarter.—*Displacement.*—Upper fragment generally downward and forward. *Treatment:*—Produce traction and force the upper fragment upward and backward and into place. Apply a right-angled,

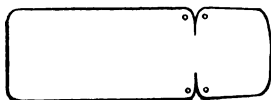


Fig. 6.—PATTERN.

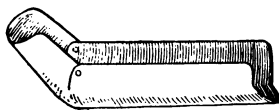


Fig. 7.—SHOULDER-CAP.

posterior splint with a short, right-angled, anterior splint to prevent the bandage from cutting at the elbow. *Remove dressings* in 3 to 4 weeks.

The Condyles.—*Prognosis*:—Permanent limitation of motion, even after 6 to 12 months, often results.

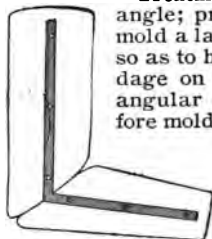


Fig. 8.—ELBOW SPLINT

Treatment.—Flex the elbow to nearly a right-angle; press the fragments into position, and mold a lateral, angular splint about the elbow so as to hold the fragments in place, and bandage on the splints. Fig 8 shows a lateral, angular elbow splint, braced with iron (before molding). Some advise immediate incision and nailing of the fragments into place. Institute passive motion in 3 weeks. Remove the dressings permanently in 4 weeks.

ALL FRACTURES ABOUT THE ELBOWS.

Prognosis.—Always danger of more or less permanent ankylosis or limitation generally some temporary limitation for several months.

Diagnosis.—Locate the four cardinal points, *i. e.* (1) Inner Condyle; (2) Outer Condyle; (3) Olecranon; (4) Head of the Radius.

X-Rays.—Most valuable in exactly determining the situation and direction of fractures and of the effectiveness of any dressing applied.

FRACTURES OF THE ULNA.

The Olecranon.—*Prognosis*:—Union is apt to be fibrous. *Treatment*:—Draw the upper fragment down and apply an anterior splint with the elbow very slightly flexed. Apply strips of adhesive plaster passing just above the small fragment, down and around the splint, to hold the fragment down. Drilling and wiring or nailing may be necessary. Institute passive motion in 3 weeks, always pressing down on the upper fragment. Time of union, 5 to 6 weeks.

The Coronoid Process.—*Complication*:—Occurs with a backward dislocation. *Treatment*:—Reduce the dislocation and push the fragment into place. Apply a posterior, right-angled splint and an anterior pad to hold the fragment in place. Begin passive motion in 3 weeks. Remove the dressings, permanently, in 4 weeks.

Just below the Coronoid.—*Treatment*:—Apply a posterior right-angled splint, with a pad at the back of the upper fragment to hold it forward, also an anterior, coaptation splint to hold the lower fragment backward. *Remove the Dressings* in 4 weeks.

The Shaft.—*Displacement*:—Ends of the fragments are drawn toward the radius. *Treatment*:—Same as for the shaft of the radius.

FRACTURES OF THE RADIUS.

The Neck.—*Displacement*:—The head is drawn toward the ulna, and the lower fragment upward. *Treatment*:—Produce traction and apply a posterior, right-angled

splint, a small anterior, angular, coaptation splint, and pad the forearm in moderate supination. Plaster-of-Paris bandage may be used later. *Remove the dressing in 4 weeks.*

The Shaft.—*Displacement:*—The ends of both fragments are drawn toward the ulna.

Treatment.—Reduce by traction and manipulation; dress with the thumb upwards. Apply anterior and posterior, flat, board splints, extending from the elbow to the palm, just wide enough to prevent lateral pressure of the bandage. Hold the splints in place by strips of adhesive plaster passed around them near each end. Bandage outside, and put the forearm in a sling. Do not let the fingers get stiff; keep moving them. *Remove the dressing in 4 weeks.*

Lower End of the Radius.—(*Barton's and Colles' Fractures*):—*Treatment:*—Apply splints as just described, together with the following pads: (a) A thick palmar pad against the lower end of the upper fragment; this should be thickest on the radial side and tapering toward the ulna and toward the ends. (b) A small, dorsal ring-pad over the prominence on the back of the lower fragment. Remove the dorsal splint in 3 weeks, and the palmar a week later. Keep the fingers limber. Begin passive motion in the wrist in 3 weeks.

FRACTURE OF BOTH RADIUS AND ULNA.

Treatment.—Such combinations of the dressings described for either bone, as the location of the fracture indicates.

THE WRIST.

FRACTURE OF THE CARPALS.

Treatment.—Push the fragments into place and immobilize by a plaster cast. *Time of Repair:*—About four weeks. Begin passive motion in three weeks.

THE HAND.

FRACTURE OF THE METACARPALS.

Treatment.—Apply a long, straight, anterior splint, with a large pad or ball in the palm, and a straight posterior splint. Apply extension by an elastic, fastened to the finger by adhesive plaster, and stretched to the projecting end of the anterior splint. With the 1st or 5th metacarpals a tight, trough-shaped splint may be slipped on from the side. *Remove the Dressings in 3 weeks.*

FRACTURE OF THE PHALANGES.

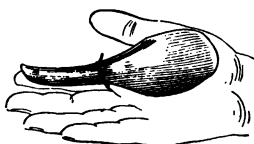


Fig. 9.—FINGER-SPLINT.

Treatment.—Apply a trough-shaped sheet-metal splint, for the finger, and spread it out flat in the palm. Bend it so as to dress the finger in slight flexion. If extension is needed, apply it as described for metacarpal fracture. The splint is made of sheet copper. *Remove the dressings in 3 weeks; passive motion in 2 weeks.* (See *Lacerated and Contused Wounds*

THE PELVIS.**FRACTURE OF THE COCCYX.**

Treatment.—Replace the fragments by external and rectal manipulation. Place the patient on a flat bed and introduce a tube, wrapped with gauze, into the rectum. Time of repair, 4 weeks.

FRACTURES OF THE PELVIC BONES.

Complications.—Lacerations of the bladder, urethra, rectum, blood-vessels or nerves, often occur.

Treatment.—Place the patient on a smooth mattress, replace the fragments, and apply strong adhesive straps encircling the pelvis, with pads where needed. If an acetabulum is broken or separated, treat like an inter-capsular fracture of the femur. Treat the complications as the nature of each demands. Remove the dressings in 6 weeks; let the patient be about in 12 weeks.

THE THIGH.**FRACTURE OF THE FEMUR.**

The Neck (Intra-capsular).—*Time of Life*:—Generally occurs in the aged, who do not bear confinement in bed well. *Prognosis*:—Bony union unusual.

Treatment.—If the patient is very feeble, put him to bed for only 2 weeks, steadying the limb with sand-bags, and applying a few pounds of extension by weight and pulley. In other cases, at least undertake treatment by Buck's extension with a long, side, "T" splint, or by a double-inclined plane, or by a Hodgen's suspension splint, or by a plaster-of-Paris dressing, with some arrangement to produce lateral pressure against the great trochanter through a fenestrum.

The Neck (Extra-capsular).—*Treatment*:—By Buck's extension, with a long, side "T" splint, or by a double-inclined plane; or, by a plaster-of-Paris dressing.

The Shaft (Upper Quarter).—*Displacement*:—The upper fragment is drawn upward and forward. *Treatment*:—Flex the limb into line with the upper fragment and apply the double-inclined plane, or Hodgen's suspension-splint.

The Shaft (Middle).—*Treatment*:—By any of the dressings described below, together with molded board, trough-shaped; coaptation splints, extending from the knee to the groin.

The Shaft (Lower Quarter).—*Displacement*:—The lower fragment is flexed on the leg. *Treatment*:—By the double-inclined plane, Hodgen's suspension-splint, or the plaster-of-Paris dressing. (See below.)

The Condyles.—*Treatment*:—Lateral, molded, angular, reinforced splints as in fractures of the humeral condyles. Remove the Dressings in 6 weeks; passive motion in 4 weeks.

FRACTURE-BED.

Bed.—Use a cheap, single bed; for an adult, have the side-pieces lengthened (to 7 or 7½ feet) by a carpenter. Use any ordinary length, flat, even mattress, preferably

of hair. Have a frame $7 \times 3\frac{1}{2}$ ft. made of hardwood boards, 3 or $3\frac{1}{2} \times 1$ inch, laid flat. Over this frame, stretch heavy canvas (the length of the canvas cross-wise), tacking it on the under side of the frame. Have two thicknesses across the middle and a 7-inch hole where the perineum will lie; the hole is bound firmly about its edge. Lay draw-sheets from top to bottom, meeting at this hole. The stretcher lies flat on the mattress and is lifted and blocked up, when necessary, to place a vessel beneath for evacuation of the bowels.

BUCK'S EXTENSION.

Method.—Shave the limb below the point of fracture. Apply the ends of a broad strap of "moleskin" adhesive plaster (3 inches wide, for an adult) to each side of the limb below the point of fracture, thus making a stirrup 2 inches below the bottom of the foot. Have the ends of the plaster split from the knee up. Place, in the loop below the foot, a rectangular piece of board, to spread the adhesive away from the malleoli. Apply a bandage from the lower part of the leg to the fracture. Draw a strong cord, with a knot at its end, through a hole in the block, or fasten it to a screw-eye in the block, and run this cord over a pulley fastened to the foot of the bed, high enough just to raise the heel off of the bed. Fasten weights to the rope. Now, if coaptation-splints are indicated, fit and bandage them on while the fragments are coapted, an assistant making strong traction meanwhile.

LISTON'S LONG SIDE-SPLINT.

Method.—It prevents rotation, and consists of a one-inch board, 4 inches wide, extending from the axilla to 3 or 4 inches below the foot, with a cross-piece at the bottom, which rests on the bed. This splint is fastened to the trunk and limb by adhesive-straps, or a starched bandage. The rope runs through a hole in the cross-piece, or over it. For children, have two side-pieces, to hold the legs apart. *Weights:*—For an adult male, 15 to 16 pounds; after a few days, 10 pounds. Raise the foot of the bed 3 to 5 inches for counter-extension. Remove the side splint in 3-4 weeks; then gradually remove the extension. Keep the patient in bed for 6 weeks, then crutches for 2 weeks.

DOUBLE-INCLINED PLANE.

Method.—The leg is fastened to the lower incline, the foot strapped to the foot-board, and the patient is thus hung from the knee, the weight of the body producing the extension. *The buttock should not rest on the bed.* Remove it in 6 weeks.

HODGEN'S SUSPENSION-SPLINT.

Method.—It consists of a heavy frame of wire, or rod, with strips of muslin fastened across it to make a cradle. An adhesive-plaster stirrup, applied to the leg, is attached to the cross rod at the bottom

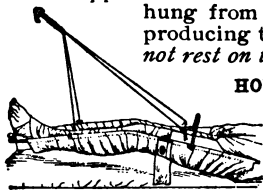


Fig. 10.—HODGEN'S
SUSPENSION-
SPLINT.

The cradle is slightly angled at the knee. The traction is obliquely upward, and the distance along the rope, from the splint to a pulley in the ceiling, is at least 10 feet. A weight of from 3 to 10 pounds is used. This apparatus allows the patient to be moved freely about the bed and allows easy access to any wound.

PLASTER-OF-PARIS SPLINT.

Method.—The patient stands, with the sound leg on a box, and is supported by two persons. Strong, snug casts are then applied, one from the axilla down to the knee, on the well side, and an inch or two down the broken thigh (if the fracture is of the shaft); another from the toes to just above the knee of the broken limb. When these are set, the patient is laid across 2 tables, anesthetized if necessary, and while extension is applied and the fragments perfectly coapted, the cast is completed and allowed to set. The tables are drawn apart, thus allowing the plaster bandage to be easily applied about the thigh and lapped over upon the parts already completed. *Remove* the cast in 6 weeks.

FRACTURES OF THE PATELLA.

Prognosis.—Union is apt to be ligamentous, but may be bony.

Treatment.—Apply a posterior splint and elevate the limb slightly. Reduce the swelling of the joint, aspirating if necessary. In addition, use one of the following means for treatment:

A. G. Beebe's Leather Collars.—These are made of rather thin sole-leather, shaped, and beveled on the under side, about the patella, and having small hooks, for laces, on three sides, except just where the patella comes. These 2 collars are first laced about the limb, above and below the bone, and are then drawn together by the laces on their third sides, thus coapting the fragments. While drawing up the laces between the collars, apply a strip of thick paper or card to prevent pinching. The collars are applied outside the posterior splint.

Wiring.—Under anesthesia and the strictest asepsis, *wire the fragments* together subcutaneously, drawing one end of a wire under, and one over the patella, by a curved needle with the eye in its point.

Malgaigne's Hooks.—Introduce them under strict asepsis and keep them covered by an antiseptic dressing. *Remove the Dressings* in 4 to 6 weeks. Begin passive motion, but allow no great strain for 4 to 6 months, unless it has been wired.

THE LEG.

FRACTURES OF THE TIBIA.

The Shaft.—**Prognosis.**—Delayed or non-union is not rare. **Complications.**—The skin is often punctured or the deep veins lacerated or ruptured



Fig. 11.—PATELLA COLLAR.

Treatment.—Coöpt the fragments and apply a plaster cast from the knee to the toes. If there is much swelling, use a fracture-box or board-and-blanket splint until the swelling subsides. *Remove the Dressings* in 4 weeks; crutches for 2 weeks more.

The Inner Malleolus.—*Prognosis*—:The same as for Pott's fracture.

Treatment.—Press the fragment into place and immobilize by a molded splint.

FRACTURES OF THE FIBULA.

Above the Lower Quarter.—*Treatment*:—Force the ends of the fragments away from the tibia by crowding the muscles between the bones, and treat as in fracture of the tibia. Remove the dressings in 4 weeks; crutches or a cane for 2 weeks more.

In the Lower Quarter.—(*Pott's Fracture*.)—*Prognosis*:—Stiffness and lameness of the ankle is apt to remain for some time. *Treatment*:—Apply either of the following: *Dupuytren's Splint*:—A flat board, 4 inches wide, from the knee to 2 inches below the heel. Pad it heavily above the internal malleolus, to fill up the concavity of the leg. Apply it to the inner side of the knee, leg and foot, with a strap of adhesive plaster passing around it and over the tip of the outer malleolus, and one or two just below the knee. Do not bandage over the fracture, and do not allow the leg to lie on the outside. A cross-piece will prevent this.

A Plaster-Cast:—Straighten the foot into position, crowd the ends of the bone outward into place, lay a trough of some stiff material over the outer malleolus and fracture, to prevent pressure, and apply a plaster-of-Paris bandage from the toes to the knee. Remove the dressings in 3 weeks; crutches or cane for 2 weeks more.

FRACTURE OF BOTH BONES OF THE LEG.

Treatment.—Place in a temporary splint and reduce swelling. Then with plaster-of-Paris bandage apply a boot, and a collar grasping the tuberosities at the knee snugly, having the collar extend down to near the fracture. When these are set, produce extension and counter-extension on them, coöpt the bones and complete the plaster "stocking" or cast. Remove the dressings in 4 weeks; crutches or a cane for 2 weeks more.

NOTE.—When the ankle is immobilized, always have it at a right-angle.

THE ANKLE.

FRACTURE OF THE ASTRAGALUS.

Treatment.—Push the fragments into place and immobilize by a plaster-of-Paris dressing, anesthetizing if necessary. Remove the dressing and begin passive motion in 3-4 weeks.

FRACTURE OF THE OS CALCOIS.

Treatment.—Flex the leg on the thigh and extend the foot; push the loose fragment down into place and hold it there by adhesive straps, or by aseptic nailing or wiring. Time of union, 4 to 5 weeks.

THE FOOT.**FRACTURE OF THE METATARSALS AND PHALANGES.**

Treatment.—Coapt the fragments and immobilize by a plaster-of-Paris dressing. Remove the dressings in 3 or 4 weeks.

DISLOCATIONS.**GENERAL CONSIDERATIONS.**

Diagnosis.—It is made (anesthesia if necessary) by—

1. Restriction of motion in certain directions.
2. Change in the normal relations of the bones, as shown by (a) Deformity; (b) Measurement of the limb; (c) Attitude of the limb.
3. Absence of bone crepitus.
4. Bones generally remain in place after reduction.
5. The X-ray.

SIMPLE RECENT DISLOCATIONS.

Prognosis.—Good, if properly treated. If the joint is used too soon after reduction, the dislocation may recur; this repeated, may lead to habitual dislocation. If not reduced shortly after the accident, an irreducible dislocation results.

TREATMENT.

Reduction.—Is indicated as soon as possible after the accident. Anesthesia is often required to relax the muscles and deaden pain. Reduction is best accomplished by—

Manipulation.—See the special dislocations. Everything depends upon a correct anatomical knowledge.

Extension and Counter-Extension.—By powerful mechanical contrivances. This may succeed where manipulation fails.

Incision.—Down to the bone. This is indicated (where the above measures fail) to relieve any obstacle to reduction, such as constriction of the head of the bone by a small rent in the capsule.

After-Treatment.—Immobilize the joint and keep it at rest for about two weeks, applying moderate compression. If there is severe synovitis apply heat or cold.

OLD DISLOCATIONS.

Prognosis.—*Ball-and-socket joints* are reducible after a longer period than other joints, and if left alone often result in useful artificial joints. Dislocated shoulders have been reduced after 4 months; hips, after 2 months. Old dislocations of *hinge joints* never develop into useful new joints.

TREATMENT.

Method.—If motion causes no pain in a ball-and-socket joint, produce a new joint by persistent active and passive motions. If it does, try—

Reduction.—Anesthetize if necessary, break up adhesions by careful manipulation, or if this fails to allow reduction, cut down and sever the restraining bands.

Begin passive motion as soon as the acute inflammatory symptoms subside. If reduction is impossible or unsuccessful, make a false joint by resecting the head of the bone.

COMPOUND DISLOCATIONS.

Prognosis.—Guarded. Much more serious than compound fracture. Depends upon the injuries to the surrounding structures and upon the chances of infection of the joint.

TREATMENT.

Amputation.—If amputation is not indicated, then proceed as follows:—

1. Cleanse and disinfect the wound and the head of the bone, thoroughly, with a warm, antiseptic solution, first cleansing the surrounding skin; avoid washing infective material into the wound.
2. Reduce the dislocation.
3. Provide for free drainage; apply an antiseptic dressing, generally a moist one.
4. Immobilize the joint. Begin passive motion as soon as the condition of the wound and joint will permit.

DISLOCATION COMPLICATED WITH FRACTURE.

Prognosis.—Danger of ankylosis if the fracture is very near the joint.

TREATMENT.

Method.—Anesthetize; reduce the dislocation by manipulation with careful traction while attempting to push the head of the bone into place. If the shaft of the bone is fractured, apply splints first. If these measures fail, incise down and drill into the bone, insert a gimlet or hook and drag the head of the bone into place, observing strict asepsis. Begin passive motion as soon as the fracture will permit.

SPECIAL DISLOCATIONS.

DISLOCATION OF THE LOWER JAW.

Prognosis.—Good. It may be reduced after 4 months' standing. If not reduced, the jaw accommodates itself to the new position, and, in time, a certain amount of motion is acquired.

Treatment.—*Reduction.*—Depress the lower jaw enough to free the condyle from the *eminentia articularis* of the temporal bone, and then push it back into its place. This is accomplished by inserting the thumbs (protected by cloth) behind the back teeth and making downward traction. A piece of wood may be used, as a fulcrum, between the molars; pry upward upon the chin and, when the condyle is free, push the jaw into position. *After-treatment.*—Apply a Barton's bandage; begin passive motion in 2 weeks.

DISLOCATION OF THE VERTEBRÆ.

Diagnosis.—Difficult to differentiate from fracture. Is made upon deformity; symptoms of cord injury; the X-ray.

Prognosis.—Very grave; if the patient lives, he is apt to be paralyzed.

Treatment.—The indications are to extend the spine

enough to disengage the locked parts and by gentle pressure to replace the displaced bones. This is, however, extremely dangerous to do, though it has been successfully accomplished in some cases. (See *Fracture of the Spine*.)

DISLOCATION OF THE CLAVICLE.

The Sternal End.—*Prognosis*.—Deformity is apt to result because of the great difficulty in maintaining reduction, but no permanent disability of the arm results.

Treatment.—*Reduce* by throwing the shoulder upward, outward and backward, and pressing the bone into place. *Hold in Place*.—Apply a small ring-pad upon the end of the bone and keep it pressed into place by a flat, steel spring passed over the shoulder with its ends strapped to the front and back of the chest. Over this apply the dressing described for fractured clavicle. Keep these dressings on for 6 weeks.

The Acromial End.—*Diagnosis*.—*Upward Dislocation*.—(a) The shoulder falls down and in; (b) the arm cannot be raised over the head; (c) spontaneous displacement after reduction; (d) the outer end of the clavicle is prominent, overriding the acromion process. *Downward Dislocation*.—(a), (b) and (c) the same; (d) the acromion and coracoid processes are prominent; (e) the clavicle leads down toward the axilla, beneath the acromion and coracoid process.

Treatment.—Reduce by pulling the shoulder outward and backward and pushing the bone into place. Hold in place by applying a pad over the end of the bone and a Desault or Velpeau bandage for 6 weeks.

DISLOCATIONS OF THE SHOULDER.

SUB-CORACOID.

Diagnosis.—(a) Apparent projection of the acromion process and flattening over the deltoid muscle; (b) *Dugas' Sign*.—The hand cannot be placed on the sound shoulder and the elbow touch the chest-wall at the same time; (c) the elbow is carried slightly outward and backward with the axis of the humerus pointing too much toward the chest-wall; (d) the head of the bone is not easily felt.

Prognosis.—Usually good. Reduction is sometimes difficult. There is always danger of injury to the large nerves or vessels.

Treatment.—*Reduction*—By *manipulation* (Kocher's Method).—Have an assistant hold the scapula. Flex the elbow to a right-angle, rotate the arm outward, raise the elbow upward and forward, rotate the arm inward, depress the elbow. Take care not to fracture the humerus. *Fulcrum in the Axilla*.—If the method described fails, place the knee or unbooted heel in the axilla, raise the arm sidewise and then lower it to the side while producing strong traction. When the knee is used, the patient is sitting; when the heel, reclining. *After-care*.—Apply a Desault bandage or place the fore-

arm and elbow in a well-fitting sling for 3 weeks, beginning passive motion after 10 days.

SUB-CLAVICULAR.

Diagnosis.—(a), (b) and (c), as in the subcoracoid form; (a) the head of the bone is readily seen and felt beneath the clavicle; (e) shortening of the limb.

Treatment.—Same as for Subcoracoid.

SUB-GLENOID.

Diagnosis.—(a), (b) and (c), as in the Subcoracoid form; (d) the head of the bone can be felt in the axilla; (e) considerable lengthening.

Dislocatio Erecta.—When the arm is vertically upward, in which position it is held.

Treatment.—*Reduction.*—By the knee or heel in the axilla with strong traction, especially outward. In *dislocatio erecta* produce traction upward and outward. *After-care*, as for subcoracoid.

SUB-SPINOUS.

Diagnosis.—(a) and (b), as in Subcoracoid; (c) the elbow is carried outward and forward with the axis of the humerus pointing too much toward the chest wall; (d) the head of the bone is felt below the spine of the scapula; (e) some lengthening.

Treatment.—*Reduction.*—*Manipulation.*—Raise the arm sidewise to a right-angle; rotate inward; sweep the elbow backward and inward while producing traction and pressing the head of the bone into place. *Extension and Leverage.*—Or, reduce by the knee or heel in the axilla. *After-care.*—As for Subcoracoid.

DISLOCATIONS OF THE ELBOW.

Varieties.—1. Both bones backward; often with fracture of the coronoid. 2. Both bones forward; with fracture of the olecranon. 3. Both bones outward or inward. 4. Ulna backward; often with fracture of the coronoid. 5. Radius forward—common. 6. Radius backward. 7. Radius outward—very rare. 8. Ulna backward and radius forward.

Diagnosis.—Keep in mind the four cardinal points of the elbow—(1. Internal Condyle; 2. External Condyle; 3. Olecranon; 4. Head of the radius—and remember their relations.

Prognosis.—Usually good; forward dislocations of the radius are liable to recur.

Reduction.—Place a hand or knee in the bend of the elbow and while producing traction away from the elbow in both directions, push the bones into place; and in dislocations of the head of the radius, pronating, if forward; supinating, if backward. *Subluxation of the Radial Head* occurs in children under 5 years of age, and is reduced by forcible supination and traction with the elbow at a right-angle. *After-care.*—Immobilize with angular splints for 2 weeks, beginning passive motion after the first week. *Complicating Fractures of the coronoid and olecranon* are to be treated as described under *fractures*.

DISLOCATIONS OF THE WRIST.

Treatment.—*Reduction.*—Bend the hand in the direction toward which the carpals are dislocated and push the bones into place. *After-care:*—Immobilize the wrist for 2 or 3 weeks with a splint or plaster "cast," allowing for free movement of the fingers. The prognosis is good.

The Os Magnum.—*Treatment.*—Reduce by traction and manipulation. Immobilize for 3 weeks.

DISLOCATIONS OF THE HAND.

The Metacarpals.—*Treatment.*—Reduce by traction and manipulation. Apply the splint used in fractures of these bones for 1 to 2 weeks.

The Metacarpo-Phalangeal Joints (of the Fingers).—*Treatment.*—*Reduction.*—Bend the finger backward (under anesthesia) and slide the overriding bone into place along the dorsum of the other, using, if necessary, Lewis splint to grasp the finger. *After-care:*—Apply the splint used in fractures of these bones for 2 to 3 weeks.

The Thumb.—*Prognosis.*—Reduction is often difficult because the head of the metacarpal button-holes the short flexors. *Treatment.*—*Reduction.*—Anesthetize. Adduct the thumb; produce extreme extension and suddenly flex at the same time pushing the bone into place. *After-care.*—Same as for the fingers.

The Phalanges.—*Treatment.*—*Reduction.*—Anesthetize. Bend the phalanx backward and slide the overriding bone into place along the dorsum of the other. *After-care:*—Immobilize for one week.

DISLOCATIONS OF THE RIBS.

Treatment.—Same as for fractures. For the costal cartilages, also the same.

DISLOCATIONS OF THE HIP JOINT.

Prognosis.—Usually good. Reduction is sometimes difficult. The sciatic nerve is sometimes caught over the head of the bone. Reduction is safely attempted as long as 4 weeks after the injury.

ON THE DORSUM ILII.

Diagnosis.—The head of the bone lies upon the dorsum ilii. The thigh is flexed, adducted, and the foot inverted. The limb is shortened 2-3 inches. *Reduction:*—While producing traction away from the joint, strongly flex, adduct and invert the limb, then abduct, evert and extend it.

INTO THE SACRO-SCIATIC NOTCH.

Diagnosis.—The foot is inverted, the thigh is much flexed and adducted. The limb is shortened about an inch. *Reduction.*—Same as for dislocation upon the dorsum ilii.

INTO THE OBTURATOR FORAMEN.

Diagnosis.—The head of the bone is felt in its new location. The thigh is flexed and abducted; the

slightly everted. The limb is lengthened 1 to 2 inches. *Reduction.*—While producing traction, flex, abduct and evert the limb, then adduct, invert and extend it.

UPON THE PUBES.

Diagnosis.—The head of the bone is felt upon the public ramus. The foot is everted, the thigh abducted. The limb is shortened about an inch. *Reduction.*—Same as for the last form.

TREATMENT.

Method.—Anesthetize to reduce, in all hip dislocations, and reduce with the patient lying on his back.

After-care.—Rest in bed with sand-bags to steady the limb for 3 to 4 weeks, beginning passive motion in the third week.

If the acetabulum has been fractured, treat as described under fractures.

DISLOCATIONS OF THE KNEE.

Prognosis.—Favorable in simple dislocations; it is usually incomplete.

Varieties.—(a) Lateral; (b) anterior; (c) posterior; (d) rotary.

Treatment.—*Reduction:*—Flex the joint over a fixed point, as the knee, and make traction in both directions away from it, pushing the bones into place. *After-care:*—Immobilize in a slightly flexed position, applying agents to correct the attending synovitis. Begin passive motion in the third week. An elastic knee support should be worn for several months.

DISLOCATIONS OF THE PATELLA.

Prognosis.—Usually favorable, except in case of complete rotation.

Varieties.—(a) External; (b) internal; (c) rotary (on its own axis).

Treatment.—*Reduction:*—Put the patient on his back; flex the thigh, fully extend the knee, and press the patella into place, depressing the margin farthest away from the joint. If rotated, anesthetize and try manipulation. If this fails, make a cutting operation and reduce by introducing a hook or screw into it. *After-care:*—As for dislocations of the knee. Ruptures of the ligamentum patellæ are to be treated as described under fractures.

DISLOCATIONS OF THE ANKLE.

Prognosis.—Usually good. Often complicated with fracture of the fibula.

TREATMENT.

Anterior or Posterior.—*Reduction:*—Flex the joint over a fixed point, making traction in both directions away from it, and slide the bones into place. *After-care:*—Dress with a plaster "cast," or by adhesive strapping and molded splints for 3 weeks, beginning passive motion after 2 weeks.

Lateral or Rotary.—*Reduction:*—Flex the knee and thigh, and with counter-extension at the knee, produce

traction on the foot and push the bones into place. *After-care*.—As for anterior and posterior. If complicated by fracture of the fibula, treat as directed under fractures.

Upward Between the Tibia and Fibula.—*Reduction*.—Anesthetize and reduce by powerful traction. *After-care*.—As just described.

DISLOCATIONS OF THE TARSALS.

Prognosis.—Good if reduced, but difficult to reduce.

Treatment.—*Reduction*.—Produce traction, and mold the bones into place. *After-care*.—As for ankle dislocations.

DISLOCATIONS OF METATARSALS AND PHALANGES.

Prognosis, and treatment, as in analogous conditions of the hand.

JOINT DISEASES.

SYNOVITIS AND ARTHRITIS.

Differentiation from Sprain.—Pressing the joint surfaces together increases the pain; drawing them apart eases it. In sprain, traction increases the pain.

Treatment.—Rest and immobilization by splints is indicated whenever symptoms of inflammation are present. As soon as they subside, begin passive motion.

Stages.—1st, Congestion; 2nd, Exudation; 3rd, Suppuration; 4th, Ulceration, Caries, Necrosis.

First Stage.—Rest; immobilization; pressure by a snug bandage (elastic or flannel). Extension sometimes relieves the pain. If acute, apply intense heat; if chronic, intense cold. Daily use of the hot air apparatus, at about 300° F., often benefits chronic cases. *Remedies.*—Arnica^{3x}; Belladonna^{1x}; Calcarea phos.^{3x}; Iodine.^{2x}

Second Stage.—Rest, immobilization, pressure, sometimes extension. If effusion is very great, aspirate it. If it remains after 1-2 weeks, aspirate and inject carbolic acid (1-2 drs. of 5%, or 10-30 m. of 95% for the knee), diffuse it throughout the joint by manipulation, and again immobilize. External applications of Iodine or Ichthyol are often of value. *Remedies.*—Apis^{3x}; Bryonia^{1x}; Calcarea^{3x}; Helleborus^{2x}; Iodine^{2x}; Phosphorus^{3x}; Pulsatilla.^{1x}

Third Stage.—Introduce a good sized aspirator needle into the joint, observing asepsis. (Puncture the skin with a bistoury.) Draw off the pus, wash out the joint with sterile water or salt solution and inject carbolic acid. If the inflammation is tubercular, inject iodoform emulsion (10% in glycerine) once a week. Immobilize, after injecting, until reaction subsides. If this fails, incise and drain. *Remedies.*—Merc. sol.^{3x}; Hepar sulphur^{3x}; Silicea^{6x}; Iodine^{2x}; Calcarea phos.^{3x} Treat any existing diathesis. Give good food with tonics and stimulants, as indicated.

Fourth Stage.—If there is an open sinus, wash out the

joint every 1 to 3 days, and inject antiseptics—carbolic, iodoform, etc. If much diseased bone is present, perform *Erasion* or *Resection*.

ANKYLOSIS.

Fibrous.—Try passive motion, massage, inunctions of Ichthiol, hot air or hot and cold douches, to obtain a movable joint. When these fail or improvement is too slow, anesthetize and forcibly break up the adhesions; then immobilize for a few days, and begin passive motion, etc., as soon as is safe. Repeat this if necessary. Cut any shortened tendons that may interfere with motion.

Bony.—If the joint is in a useful position, leave it alone. If not, put it in a useful position by forcible rupture, excision, or osteotomy. In the elbow, excision is indicated to get a movable joint.

ARTHROTOMY.

Indications.—To remove pus, foreign or adventitious bodies, for exploration, erosion, etc.

Operation.—Under the strictest asepsis, incise into the joint. For the location of large incisions see under "Excision." If the operation is clean, suture without drainage and dress with a dry antiseptic dressing. If infected, introduce a drainage tube for 36 to 48 hours and dress with a moist antiseptic dressing.

Instruments.—Scalpel, straight bistoury, scissors, dissecting forceps, grooved director, artery forceps, dressing forceps, aspirating needles and syringe, probes, needles, catgut, kangaroo tendon, silk-worm gut.

After-care.—Immobilize until the wound heals and any inflammatory reaction subsides and then institute motions, massage, etc.

ERASION.

Indications.—For the removal of diseased tissue, as in tubercular arthritis. It is oftener indicated, less severe, and generally more satisfactory than *Resection*.

Operation.—Incise into the joint in the locations indicated under *Resection*, if an opening does not already exist. Curette, gouge, chisel, or cut away with forceps all diseased tissue. Wash out with Carbolic acid (95%), followed immediately by alcohol, or if tubercular, irrigate with a weak, mahogany-colored solution of Iodine. Provide for free drainage. Dress with a moist, antiseptic dressing.

Instruments.—As in arthrotomy; also bone curettes, gouge, chisel, rongeur, and Liston's bone forceps.

After-care.—Immobilize the joint until ankylosis occurs or the wounds heal.

RESECTION, EXCISION OR EXSECTION.

Nature.—Consists in cutting off the ends of the bones evenly (removing some healthy with the diseased bone) so as to produce better approximation.

Indications.—Some cases of (a) injury, as compound dislocation, gunshot wounds, etc.; (b) disease, as tuber-

culosis of a joint; (c) deformity, as ankylosis in bad position.

Instruments.—Same as for Arthrotomy, together with bone-saws, bone-cutting forceps, drills, silver wire, periosteal elevator.

THE SHOULDER.

Anterior Incision.—Incise 3 to 4 inches downward from the joint just external to the coracoid process. Separate the fibres of the deltoid, retract the long head of the biceps to one side, elevate the muscular attachments with the periosteum. Saw the humerus, saving the tuberosities if possible, and curette away any diseased bone from the glenoid fossa. Disinfect. Drain through a posterior opening for 24–48 hours. Dress with a small pad in the axilla, the arm by the side, forearm across the chest. *After-care:*—Allow the patient to get up and begin passive motion after a week.

Deltoid Flap.—This operation is also made, turning up a flap composed of the deltoid or by a transverse skin incision over the muscle, sawing through the acromion process and turning the deltoid flap down.

THE ELBOW.

Incision.—Make a longitudinal incision to the bones, 4 to 5 inches long, with its middle over the olecranon a little to the inner side. Elevate the soft tissues and periosteum, guarding the ulnar nerve, and saw off the olecranon. Forcibly flex the joint. Saw the humerus through the base of the condyles and the radius and ulna at the level of the base of the coracoid after elevating the periosteum on all the bones. Disinfect, introduce drainage and dress with the forearm slightly flexed and midway between pronation and supination. Begin passive motion in a week, when the patient gets up.

THE WRIST.

Excision is *seldom indicated*; erosion is better. The joint is opened by incisions on the dorsum between the tendons.

THE HIP.

Anterior Incision.—Make an incision 3 inches long, downward and inward from a point $\frac{1}{2}$ inch below and external to the anterior superior spine. Go at once to the bone, open the capsule, saw or cut the neck from above downward with the head "in situ," and then remove the head. Leave the great trochanter if possible, though it may be removed, if badly diseased, by prolonging the incision. Curette away all diseased tissue from the acetabulum.

Posterior Incision.—Make a curved incision, 3–5 inches long, around the great trochanter, from a point midway between the anterior superior spine and the top of the trochanter, keeping well behind it. Expose the neck of the bone and perform the other steps as above. Disinfect the joint, introduce drainage, dress antiseptically, and *apply a plaster splint with a fenestrum, as described under Hip-joint Disease.*

THE KNEE.

Method.—Make a U-shaped incision, cutting the patellar ligament and lifting up the patella in the flap. Flex the knee, cut the lateral and crucial ligaments, avoiding injury to the popliteal vessels. Circumcise and dissect back the periosteum, saw off the ends of the bones far enough back to get healthy surfaces and in such a direction that when opposed they will make the limb very slightly flexed and with the natural lateral angle. Dissect away all infected membrane, etc. Disinfect, introduce drainage, and immobilize on a slightly angular, posterior splint with plaster bandage above and below.

THE ANKLE.

Excision is *seldom performed*; erosion is much the better operation. The joint is best entered by incision behind and below the external malleolus, retracting away or dividing the peronei tendons.

HIP-JOINT DISEASE.

Synonyms.—Coxitis; coxalgia; morbus coxarius. It is considered to be always tubercular.

Diagnosis.—*Examination:*—Place the patient, undressed, upon a table or hard mattress. Note the position of the limbs and ant. sup. iliac. spines in relation to the axis of the spinal column. The length of the limb is measured from the ant. sup. spine to the external malleolus of the ankle.

First Stage (Inflammation).—There is present:

- (a) *Lameness*, which often wears off during the day.
- (b) *Limitation of Motion*, due to reflex muscular spasm.
- (c) *Flexion*, slight, with slight adduction and inversion, but oftener with slight abduction and eversion.
- (d) *Pain*, in the front of the thigh or inside of the knee, worse at night, or from a blow upon the bottom of the foot, when the limb is extended.

Second Stage (Effusion into the Capsule).—

- (a) *Lameness* pronounced, affected limb pushed ahead.
- (b) *Limitation of motion*, from muscular spasm and effusion.
- (c) *Flexion* with marked *abduction* and *eversion*, shown by
- (d) *Apparent lengthening* of the limb, from tilting of the pelvis when the abducted limb is drawn inward, and by
- (e) *Arching of the back*, away from the table, when the popliteal space of the affected limb is made to touch the table.

(f) *Pain*, as in the first stage, but more severe; worse at night; patient starts and cries out in the sleep.

(g) *Atrophy* about the joint, and of the thigh.

Third Stage (Begins with Rupture of the Capsule).

- (a) *Muscular spasm*, preventing almost all motion.
- (b) *Flexion, adduction* and *inversion* of the thigh marked, causing
- (c) *Arching of the back*, as in the second stage, but more marked, and

(d) *Apparent shortening* of the limb, from tilting of the pelvis when the adducted limb is drawn outward.

(e) *Actual shortening* of the limb, from erosion of cartilages and bones, with displacement of the head of the femur.

(f) Great *pain*, upon the least motion.

(g) *Abscess* about the joint, or a *Discharging Sinus*.

PROGNOSIS.

First Stage.—Under prompt treatment, perfect recovery may occur in a few weeks. In most cases a freely movable joint results.

Second Stage.—Recovery, in from 6 to 24 months. Complete or partial ankylosis generally results.

Third Stage.—Recovery always leaves ankylosis, generally bony. Death often occurs from septicemia, tuberculosis elsewhere, exhaustion, or amyloid degeneration.

LOCAL TREATMENT.

Rest.—Keep the patient in bed until every symptom of inflammation has subsided.



Fig. 12.
THOMAS'
POSTERIOR
SPLINT.

Immobilization.—By a suitable splint. *Thomas' Posterior Splint* is the cheapest and most practical. It consists of a long, heavy, iron strap, extending from about the spine of the scapula nearly to the ankle. To this are riveted lighter, cross straps, one to pass about the thorax just under the axillæ, one about the thigh a little below the perineum, and one about the leg just above the ankle. These cross straps are bent about the parts and the ends may be locked together, in front, by wire loops. Suspenders, from the upper cross band, pass over the shoulders. The iron straps are covered with leather, bandage or adhesive plaster. *To apply it*, anesthetize, if necessary, straighten the limb, and bandage the knee back to the splint.

After-care.—When inflammation fully subsides, the patient is allowed to get about on crutches with a patten under the well foot, to hold the diseased limb off of the ground. The splint may be shortened so that the lower band is just above the knee. If this excites no relapse, the use of the limb may gradually be resumed and effort made to produce a movable joint. A *Plaster-Paris "Cast"* may be used, but is not as cleanly as the Thomas' splint. It should extend from the toes to the axillæ and down to the knee of the sound side.

Extension.—Is seldom called for, if the immobilization is thorough, but it may be applied by Buck's apparatus with a side or with the Thomas' splint, or by the splints especially designed for this purpose.

Injections.—Injections of Iodoform (Intra-articular and Parenchymatous) are of great value, and should be tried before resorting to more radical operations. (See *Arthritis*.)

Operative Treatment.—May be indicated and is con-

servative in some special cases. See *Arthrotomy*, *Erasion*, *Resection* and *Chronic Abscess*.

General Treatment.—Fresh air, sunlight and nourishing food, even to forced feeding.

Medicinal.—Arsenicum iod.^{2x}; Calcareo carb.^{3x}; Calcareo iod.^{3x}; Calcareo phos.^{3x}; Ferrum^{1x}; Ferrum phos.^{3x}; Iodine^{1x}; Kali. iod.^{1x}; Mercurius^{3x}; Mercurius iod.^{2x}; Phosphorus^{3x}; Protonuclein (2 to 4 grs. four to six times a day), with tonics and stimulants as indicated.

SPRAINS AND STRAINS.

Definitions.—A sprain is a partial or complete rupture of ligaments; a strain of tendons or muscles.

Diagnosis is made on:—(a) Absence of crepitus and rigidity. (b) Pain upon traction. (c) Tenderness over the ligament or tendon.

Prognosis.—Recovery in 1 to 2 weeks with good treatment.

TREATMENT.

Rest.—The limb should not be used at all.

Immobilization.—By adhesive-plaster strapping, plaster-of-Paris, or other hardened bandage.

Compression.—By strapping or an elastic bandage. If seen very early, a “cast” may be applied before swelling occurs.

Cold.—Early, to limit effusion or hemorrhage into the joint.

Aspiration.—If the joint contains much blood.

Heat.—If inflammation occurs.

To Reduce Stiffness.—As soon as the acute tenderness subsides, apply massage, friction, passive motion, hot and cold douches, dry heat, local inunctions of Ichthyol ointment (50% in Lanolin).

Adhesive Strapping.—(Of the Ankle.)—Shave about the joint. Have about 20 straps of rubber adhesive plaster, $\frac{3}{4}$ to 1 inch wide, 8 or 15 in. long, torn lengthwise of the piece. Cover in every part of the skin, from the toes well up the ankle, applying the ends smoothly and tightly, letting the final ends fall where they will. Produce more pressure on the tender spots by small pads of cotton on them, under the straps. A ring pad may be necessary over the bony prominence on the arch of the foot. Apply a soft roller bandage over all. When the dressing gets loose take off some of the straps and re-apply them more tightly. When the soreness is about gone, allow the patient to use the joint a little and then gradually take off the plasters.

Medicinal.—Aconite^{1x}; Arnica^{3x}; Belladonna^{1x}; Hypericum^{2x}; Rhus.^{3x}

BURSITIS.

Acute.—Rest and immobilization of the part, pressure, cold applications. If suppuration occurs, incise freely, evacuate, curette and pack with gauze for a few days.

Chronic.—Rest and immobilization, pressure, counter-irritation. If these fail, aspirate, wash out and inject a few drops of Carbolic acid (95%) and again employ rest

and pressure. If this fails, curette and pack, or dissect out the sac.

ENLARGED BURSE.

Example.—"Housemaid's knee."

Treatment.—Aspirate, inject Carbolic acid, and apply a splint and pressure by a bandage. Curette or dissect out, if necessary.

GANGLION.

Diagnosis.—A round, tense, fluctuating, freely movable swelling on the back of the wrist or front of the ankle.

Treatment.—Rupture the sac by a blow from a book or sudden pressure, or by subcutaneous incision with the edge of a Hagedorn needle. Or inject 2 to 5 drops of Iodine tr. or 95% Carbolic acid into the sac with a hypodermic needle, after emptying the sac. Immobilize for a few days.

FLOATING CARTILAGES.

Treatment.—To relieve locking of the joint, flex forcibly and suddenly extend. *To Remove the Cartilage:*—Bring it to a point where it can be felt, fix it with a needle or hold it with the fingers, administer a local or general anesthetic, incise into the joint and remove it. Observe the strictest asepsis.

POTT'S DISEASE.

(SPONDYLITIS.)

Diagnosis.—It is based upon:—

(a) *Tenderness of the Spine.*—The spine is sensitive to pressure at some point and to concussion, such as is caused by coming down upon the heels from tiptoes; the knees are bent in walking. The child screams when moved in its sleep. The patient tires easily, has a tendency to lean on things or brace the hands on the hips or knees for support.

(b) *Rigidity of the Spine.*—The patient bends the knees and hips to pick up an object from the floor. Place him on the table and try to bend the spine backward by the legs. In cervical diseases, try movements of the head.

(c) *Deformity.*—Abnormal prominence of the spines of one or more vertebræ causing an angular deviation, sometimes slightly lateral.

(d) *Pressure Symptoms.*—Chronic pain in the abdomen, often bilateral in the trunk or extremities, bladder irritation, grunting respiration, wry-neck, paresis or paralysis.

(e) *Spasm of the Psoas Muscle.*—It is often present.

(f) *Abscesses.*—Pointing in the neck, or in the back ("lumbar"), or in the groin ("psoas"), are common.

TREATMENT.

Local.—If the disease is *in the lumbar or lower dorsal region*, apply a *plaster jacket*, while suspending the patient by head and arms. If, *in the upper dorsal or cervical region*, fasten a jury-mast to the jacket and support the weight of the head and shoulders from this by a *harness* passing under the chin and occiput. Or, better still, place the patient on a flat bed, with some ap-

paratus to prevent lateral motion, and produce extension by a weight and pulley at the head of the bed, which is slightly elevated for counter-extension. Keep on the immobilizing apparatus until all sensitiveness has disappeared and bony ankylosis has taken place.

Plaster-of-Paris Jacket.—Suspend the patient by a rope and pulley attached to a cross-bar from which hangs a harness which passes under the chin and occiput. Have him reach up and grasp the cross-bar with the hands, in disease below the mid-dorsal region. The patient wears 2 tightly-fitting shirts, the outer one, sleeveless, to line the jacket. Apply the plaster bandage from the groin to the axillæ, just allowing for free motion of the arms and legs without cutting. Make the upper and lower edges thicker than the rest, and when nearly completed, turn the lining shirt back over the outside of the jacket at the top and bottom and paste it down by a turn of bandage. Also take 2 or 3 turns across the front of the abdomen. If Michigan plaster is used, the jacket should not be more than $\frac{1}{8}$ to $\frac{1}{4}$ inch thick.

To Straighten the Spine.—Some anesthetize the patient, produce traction above and below, and apply careful, but forcible, pressure over the prominence.

Abscesses.—Cold abscesses generally disappear with proper treatment to the spine. See "Abscess."

Hygienic Treatment.—Plenty of nourishing food, fresh air, sunshine, as for tuberculosis, elsewhere.

Medicinal.—Calcarea phos.^{3x}; Calcarea iod.^{3x}; Iodine^{2x}; Mercurius iod.^{2x}; Phosphorus^{3x}; Silicea.^{6x}

SPINAL CURVATURE.

ANTERO-POSTERIOR CURVATURES.

Method.—These are treated by removing the cause, as rickets, congenital femoral dislocation, hip-joint disease, etc., by exercise, straightening out of the spine, and by jackets or braces to support the weight during development.

LATERAL CURVATURE—SCOLIOSIS.

Diagnosis.—Is often made at a glance.

Deformity.—One shoulder is higher than the other, and on that side the scapula and ribs behind are more prominent, while the chest is flattened in front. The ribs of the opposite, lower or concave side are nearer to the brim of the pelvis. The line formed by the spines of the vertebræ does not fully represent the curvature. Absence of pain in most cases until far advanced.

TREATMENT.

Remove the Cause.—If one leg is too short, apply a thick soled shoe. Insist that any habitual one-sided position be discontinued, even by a change of occupation, if necessary.

Exercise.—In all cases, insist upon any and all exercises and positions which tend to lift up the low shoulder, to straighten out the spine, to press the ribs over to the concave side and to strengthen the muscles on the convex side.

Jackets.—To support the spine while exercise is developing the weak muscles, are indicated in only a very few cases where deformity is rapidly increasing. Patients are apt to rely upon the jacket and neglect the more important exercise. They are made of plaster of Paris (split open and laced), woven wire (braced), loop leather, aluminum, etc., and are removed for exercise.

Corrective Apparatus.—The patient may sleep over a sling of strong canvas, 8 to 10 inches wide, which passes under the convex side and is supported by uprights at the sides of the bed.

Myotomy.—Division of the shortened muscles on the concave side of the spine, may aid greatly in straightening up the patient.

Constitutional Measures.—To aid the growth of the muscular system to correspond with the rapid growth of the bones, these should not be neglected.

CONGENITAL DEFORMITIES.

HARE-LIP.

DOUBLE.

Time for Operation.—From 3 to 6 months of age.

Operation.—Trim up the middle portion and use it to form a septum for the nose. If the vomer projects, trim it off. Freshen the edges of the lateral portions and allow for cicatricial contraction at the line of union by making the freshened edges longer than the width of the lip with the convex side of the curve outward. Otherwise a notch in the lip will result. Dissect the lip up from the bones on either side, if necessary, to allow it to be easily drawn together.

Pass sutures through the whole thickness of the lip, tying them like any interrupted suture. The vermilion border of the lip is first caught together by a fine suture. Do not use hare-lip pins.

Dress.—With isinglass plaster straps or collodion and cotton, extending the dressing well over each cheek and drawing in the cheeks while applying so as to relieve tension on the sutures.

Instruments.—Straight bistoury, scissors, artery forceps, needles and needle forceps, bone cutting forceps, silk-worm gut, catgut.

SINGLE.

Operations.—The same as for double hare-lip, except that there is no middle portion to be disposed of.

CLEFT PALATE.

Treatment.—Operation as early as possible. The practical execution of these operations is so difficult, generally, that they should be intrusted to a specialist. Sometimes the gap is so wide as to make closure from the sides impossible. In such cases, when the patient begins to talk, an artificial palate may be fitted.

CLUB-FOOT.**TREATMENT.**

General.—Completely divide the tendons of all shortened muscles, subcutaneously (through a puncture) or by open incision, observing strict asepsis. In congenital cases, operate 2 to 3 weeks after birth; the earlier the better. In long standing cases, the bones are generally deformed and excision of a wedge of them is often necessary, beside the tenotomy, to allow the foot to be straightened.

Local.—Apply, over each puncture, or sutured incision, a very small pad of absorbent cotton slightly moistened with an antiseptic lotion, and hold it in place with a strap of adhesive plaster. Then, at once, apply a plaster *cast* from the toes well up the leg, twisting the foot into the proper position, or if possible, exaggerating the correction, and holding it so until the plaster sets. Apply the turns of plaster bandage in the direction that will tend to draw the foot into position. Remove the *cast* in two weeks, or earlier if there should be any signs of infective inflammation, and apply a new one. Apply new ones every 2-3 weeks, endeavoring to gain some each time on the deformity. In some cases it may be necessary to repeat the tenotomy in 2-3 months.

TALIPES VARUS.

(TALIPES "EQUINO VARUS.")

Treatment.—The muscles of any or *all* of the following tendons may be shortened, and if found to be tense, should be divided and the foot treated as above. (a) *Tibialis Posticus*.—Incise just behind the inner malleolus, lift it up on a grooved director and divide. (b) *Flexor Longus Digitorum*.—Lift up and divide it in the same incision. (c) *Tendo Achilles*.—Puncture just in front of the tendon, $\frac{1}{2}$ – $\frac{3}{4}$ inch above its insertion, and divide it subcutaneously, cutting backward. (d) *Short Flexors and Plantar Fascia*.—Puncture at the middle of the inner margin of the sole and, passing the tenetome just above those structures, cut downward subcutaneously. After the plaster boots are discontinued, a strong shoe is worn with a patch on the sole, thicker at the outer edge of the toes and tapering toward the inside and heel.

TALIPES VALGUS.

Treatment.—If from paralysis of the *Tibialis Anticus*, support the arch of the foot by carefully shaped pads or steel insoles in strong shoes. Treat the paralysis by electricity (Faradic and interrupted Galvanic currents), massage and such internal remedies as Strychnia, Phosphorus, Nux Vomica.

If from spasm of the *Peronei*, divide through an open incision just behind the external malleolus.

TALIPES EQUINUS.

Treatment.—Divide the *tendo Achilles*, as described above.

FLAT FOOT.

(PES PLANUS.)

Treatment.—In cases of long standing, break up the

interosseus structures of the foot by forcible manipulation under anesthesia. Then immobilize as for club foot, until the shoes with steel insoles may be worn. (See *Tulipes Valgus*.)

HAMMER-TOE.

Treatment.—Divide all the shortened structures on the under and often upper side of the toe, including the skin if necessary, and apply a flat, metallic splint reaching under the foot, to hold the toe straight until it heals.

SPINA BIFIDA.

Non-Operative Treatment.—Protect the sac by a layer of cotton and a metal shield shaped to fit. Apply collodion and cotton over and about spots where the skin is thin.

Injection Treatment.—Under strict asepsis, introduce a small trocar into one side of the sac, through healthy skin. Draw off a little of the fluid and inject $\frac{1}{2}$ fl. dr. of Morton's Fluid (Iodine 1, Potassium iodide 3, Glycerine 50 parts). Apply collodion and cotton to the puncture.

Operation.—Operation (for meningocele) is *not* indicated where the sac is small and covered with sound skin, or when a large portion of the column is fissured, or when paraplegia or hydrocephalus exists. Prepare as described under *Asepsis and Antisepsis*, and *Anesthesia*. Incise so as to give lateral skin flaps, expose the sac, ligate it, cut it off and return the stump into the canal. Freshen the bone margins and insert a piece of celluloid or silver to fill up the gap. Close the skin over this by a continuous catgut suture. Other steps as under *Wound Treatment*.

Instruments.—Scalpel; scissors; blunt dissector; artery forceps; dissecting-forceps; periosteal elevator; needle forceps; rongeur-forceps; needles; catgut.

AMPUTATIONS.

GENERAL CONSIDERATIONS.

INDICATIONS.

Operation.—Decision is in favor of operation under the following conditions:—

Blood-vessels.—If the circulation of the part is destroyed, as shown by absence of pulse or color, or by coldness. Wait for the line of demarcation.

Muscles and Nerves.—If these are so destroyed as to make the rest of the limb of no use if saved.

Bones.—If these are so comminuted that a large section is destroyed; the ends remaining will probably not unite.

Constitution.—If this is undermined by tuberculosis, syphilis, dissipation, excessive use of tobacco, alcohol, or other narcotic drugs.

Malignant Growths.—Sarcoma, carcinoma, etc. Amputate at the joint above, at the *lowest*.

Progressive Inflammations.—When other measures fail, as in *Osteomyelitis*.

PROGNOSIS.

Age.—The younger the patient, the more favorable the outlook.

General Health.—Tuberculosis, syphilis, dissipation, etc., cloud the prognosis.

Circumstances.—Demanding amputation influence the prognosis. Amputations after accidents, acute joint-diseases, etc., are more formidable than in chronic diseases.

TIME OF OPERATION.

Immediate.—During shock, is the *worst* time.

Primary.—After shock is over and before inflammation begins, is the *best* time if amputation is inevitable.

Intermediate.—During active inflammation, is a *bad* time.

Secondary.—After active inflammation subsides, is a *very good* time.

VARIETIES.

Flap Operations.—Made by lateral or antero-posterior flaps of muscles and skin; sometimes a long and a short, or even one long flap.

Teale's Method.—Rectangular flaps, each equal in breadth; one has a length of one-half the circumference of the limb, the other is only one-quarter as long.

Circular Operations.—First cut through the skin transversely around the limb, reflect the cuff of skin a distance equal to a little more than one-half the diameter of the limb, cut the muscles near this point, retract the muscles as much as possible and saw the bone.

Elliptical Method.—An oblique circular incision.

Oval or Racket Method.—The incision is shaped like a tennis-racket, with the pointed end upward.

OPERATIVE TECHNIQUE.

Preparation.—Elevate the limb for a short time, or apply an Esmarch bandage, if a diseased condition of the limb does not contra-indicate it. Apply a constrictor, or a compressor to the main vessel of the limb. Remove the Esmarch bandage. Cleanse and disinfect the parts as thoroughly as possible.

Incision.—Divide the soft parts by one of the above methods. Always allow for shrinkage of the soft tissues; make the combined length of the two flaps equal $\frac{1}{3}$ more than the diameter of the limb. Always take advantage of chances to save tissue by modifying the typical operations, as by a long and a short flap, etc.

Periosteum.—Circumcise the periosteum below where the bone is to be sawed, and dissect a cuff back with a periosteotome or chisel. If a disarticulation is made, avoid, as much as possible, wounding the articular surface left.

Bone.—Saw off the bone, trimming off the sharp edges with bone-forceps. While sawing the bone, hold the soft tissues back with a cloth retractor.

Tendons.—Draw down and cut off short the tendons and nerves divided, and allow them to retract back into the tissues.

Ligature.—Ligate the main arteries. Remove the compression slowly and ligate or twist all bleeding vessels. Control capillary oozing by hot, normal salt-solution and sponge the wound dry.

Disinfection.—Disinfect the wound, if necessary.

Suture.—Suture the periosteum and muscles over the head of the bone by catgut. Approximate the skin nicely by catgut or silk-worm gut. Do not trim the corners of the flaps too closely; any redundancy soon absorbs away, leaving a well-rounded stump.

Infusion.—In all large amputations have everything ready for intra-venous infusion. In shoulder or hip amputations have the vein already exposed, and, in some cases, infuse before operating. (See *Shock* and *Hemorrhage*.)

Dress.—If a large stump, or if perfect asepsis has been impossible, provide for drainage, by a rubber tube, for 36-48 hours, and use a moist antiseptic dressing. If no oozing of blood or serum is expected, apply antiseptic powder and dry gauze. Over these dressings apply a thick compress of some elastic material, a tight bandage and a stump-bag. Keep the limb elevated for 36-48 hours.

Instruments.—Large scalpel; long amputating knife, if desired; suitable bone-saws; dissecting-forceps; artery-forceps; scissors; periosteal elevator; bone-cutting forceps; bone-holding forceps; needles; needle-forceps; Esmarch bandage; cloth retractors; catgut; silk-worm gut.

SPECIAL AMPUTATIONS.

THE SHOULDER-JOINT.

Mortality.—About 25 per cent.

Operation.—Control hemorrhage by digital compression of the subclavian by an assistant, or by a constrictor held on the shoulder by Wyeth's pins (one anterior and one posterior, passed upward from the respective ends of the axillary folds), or held by straps passing under the other arm. Have another assistant hold the arm and another to seize blood-vessels.

Lateral Flaps.—Make a broad external one, including most of the deltoid, and extending a little below the level of the axilla and almost to its posterior border. Reflect this back, exposing the head of the humerus. Cut its muscular attachments and free it. Now, if a constrictor is not used, pass a knife just inside the humerus, and cut downward and inward for a short inner flap, while an assistant passes his thumbs back of the knife and compresses the axillary vessels until they may be ligated.

Racket Method.—Incise down to the bone from a little below and in front of the acromion, 4 inches down the *outside of the* (adult) arm. From the middle of this *make an oval incision around the inside of the arm, 2*

inches lower inside than outside. Reflect the anterior and posterior flaps, and disarticulate.*

THE ARM.

Rule.—Save all you can up to the surgical neck of the humerus.

Operation.—Have an assistant hold the arm. Use the flap, circular, or Teale's method. Anterior and posterior flaps are best in the upper third.*

THE ELBOW.

Operation.—Make a long anterior and a short posterior flap, or an elliptical operation, preferably lower in front. Lateral flaps may be used. In some cases the attachment of the triceps may be saved, turning the olecranon over the end of the humerus. In any case, have the condyles well padded. The key to the joint is the radio-humeral ligament.*

THE FOREARM.

Rule.—Save all you can up to one inch below the elbow.

THE WRIST.

(Radio-Carpal Articulation.)

Rule.—Do not save the carpals.

Operation.—Use the circular method, incising 1-1½ inches below the styloid process. The cuff is only skin and fascia. Draw it together like anterior and posterior flaps, leaving the corners. Divide the tendons well up. In disarticulation arch the cut upward, beginning at either side. Leave the styloid processes if an artificial hand is to be worn.*

THE HAND.

(Through the Metacarpals.)

Flaps.—Use anterior and posterior flaps. Save all of the thumb possible.*

Below the Middle.—Use the circular method, reflecting the cuff of skin and fascia to a distance equal to the diameter of the limb. In retracting the cuff, slit up one side if necessary. Cut the tendons at this point. Draw the parts together like anterior and posterior flaps. Teale's method may be used.

At or Above the Middle.—Use the circular method or anterior and posterior flaps with the length of each one equal to the diameter of the limb. The flexor flap retracts the more. After dividing the soft tissues to the bones, cut the inter-osseus tissues and use a three-tailed retractor when sawing the bones, sawing the radius a little in advance.*

THE METACARPO-PHALANGEAL JOINT.

All the Fingers at Once.—Flex the fingers on the palm and cut straight into the joints (from the end) for the short dorsal flap. Incise along the interdigital commissure for the long palmar flap, dissecting it up from the palm a little. Taper off the 5th metacarpal, if desired.

Thumb.—Use the racket method with the "V" on the radial side and encircling well down the thumb. In

*Other steps as in *General Considerations* (page 328).

dissection, leave the ball of muscle to oppose the fingers. Save the metacarpal bone if possible.

Index Finger.—Use the racket method modified by rounding the dorsal incision well over toward the ulnar side, and the palmar incision extending well down the side of the finger, thus throwing the scar away from the side of the hand. Save the head of the metacarpal.

Little Finger.—Use the racket method modified similarly. Carry the apex of the "V" well up and slope off the metacarpal bone to make a shapely hand.

Middle Fingers.—Use the racket method, from the knuckle behind, extending around the finger well down, to give plenty of skin. To make a *shapely* hand, cut away the head of the metacarpal bone and taper the shaft through the incision prolonged on the dorsum. If a *strong* hand is desired, leave the head of the bone. The joints are entered first from the palm, then the dorsum, then the sides. If it is necessary to wholly remove a metacarpal bone, do it through a prolongation of the dorsal incision.*

THE PHALANGES.

Rule.—Save every scrap of the thumb or index finger. If amputation is above the middle of the middle phalanx of a finger, suture the flexor tendons to the periosteum, or remove the whole finger.

Operation.—Is best made with a long palmar and short dorsal flap. If at a joint, strongly flex it and cut straight into it from its end, for the dorsal flap. Disarticulate by cutting the lateral ligaments. Close with only a few sutures so as to favor drainage.*

AT THE HIP.

Mortality.—About one-third.

Operation.—*Wyeth's Method:*—Apply an Esmarch bandage, if indicated, removing it when the constrictor is in place. Have two sharp steel pins $\frac{3}{4} \times 10$ inches. Introduce one an inch below and a little internal to the anterior-sup. spine of the ilium, emerging just back of the great trochanter; the other an inch below the crotch and internal to the saphenous opening, emerging one-half inch in front of the tuberosity of the ischium. Above these pins apply a tight constrictor. Protect their points with corks. Bring the hip well over the edge of the table. Have an assistant to hold and manipulate the limb. Make a circular incision to the deep fascia about 6 inches below the constrictor, and a longitudinal incision from the constrictor, passing over the great trochanter. Reflect the cuff of skin up to the lesser trochanter and, at this point, divide the muscles by a circular incision to the bone. Strip away the soft tissues from the bone below this, to allow room, and ligate the large vessels. Then dissect up the muscles above, keeping close to the bone. Open the capsule of the joint, forcibly flex, abduct and adduct the thigh, cut the *teres ligament* and disarticulate. Suture the tissues, es-

*Other steps as in *General Considerations* (page 328).

pecially muscles, firmly together, and introduce a drainage-tube for 48 hours.*

THE THIGH.

Rule.—Save every possible inch up to the trochanters.

Operation.—The best is the long anterior and short posterior flaps. The circular, and Teale's method, are good in the lower part. The tissues on the back contract most; it is best to have the scar behind rather than on the end of the stump. Protect the anterior edge of the bone by a thick pad of tissue.*

THE KNEE.

Through the Condyles.—Use a long anterior and a short posterior flap, including the patella in the anterior flap. Saw through the condyles or a little above them, saw off the posterior surface of the patella, and turn the remainder up against the end of the femur, stitching it in place with kangaroo-tendon, silk-worm gut or silver wire. In some cases a longitudinally cut piece of the tibia with the attachment of the patellar ligament may be turned up against the sawed end of the femur, instead of the patella.

At the Joint.—Use long anterior and short posterior flaps, or an elliptical incision lower in front. Or make bilateral flaps, lower in front and the inner one longer, thus throwing the scar in the inter-condyloid fossa. Disarticulation is accomplished by cutting from within, outward and downward.*

THE LEG.

Rule.—If the patient can afford an artificial leg, amputation is best made at the junction of the middle and lower thirds; if he will have to wear a "peg-leg," 2 inches below the tubercle of the tibia. Always leave the attachment of the patellar ligament, if possible.

In the Upper Half.—Use curved bilateral flaps, higher behind.

In the Lower Half.—Use the same, or the circular method, drawing the parts together like bilateral flaps. Round off the anterior corner of the tibia and divide the fibula higher up, sawing it first. Endeavor to get a good, thick pad of tissue over the lower end of the tibia and the scar behind.

Guyon's Supra-Malleolar Amputation.—Make an elliptical incision downward and backward over the point of the heel and crossing the front of the ankle. Disarticulate, saw off just above the malleoli, and turn the back of the heel forward for the end of the stump.*

THE FOOT.

Rule.—If an artificial foot is to be worn, operate above the ankle, as described.

Pirogoff's Amputation.—Incise horizontally across the joint between the tips of the malleoli. Connect the ends of this incision by another passing over the sole of the foot, but slanting one inch forward. Disarticulate. Strongly extend the foot and saw directly upward through the os calcis. Saw off the articular surfaces of

Other steps as in General Considerations (page 328).

the tibia and the malleoli, and turn the remnant of the os calcis up against the end. Fasten the two bony surfaces together by wiring or by stitching the periosteum. Avoid wounding the posterior tibial artery, if possible. This operation leaves a very serviceable stump, as long as the other leg.

Other Amputations through the foot are best made by a long plantar and a short dorsal flap, sawing through all the bones together wherever necessary and removing any small fragments which may be left. Transplant the tendon of the tibialis anticus if the first metatarsal is removed.*

THE TOES.

Operation.—Similar to those of the fingers.

TREATMENT OF STUMPS.

Motion.—As soon as union is firm, begin active and passive motion and massage. Support the circulation by an elastic bandage. Apply an artificial limb in from 2 to 3 months.

Other steps as in *General Considerations* (page 328).

ABDOMINAL SURGERY.

CELIOTOMY.

("LAPAROTOMY.")

Indications.—It is indicated for diagnosis or treatment of all serious cases of disease or injury of the abdominal contents when other measures are inefficient.

TECHNIQUE IN GENERAL.

1. **Preparation.**—The patient, operator and his assistants should be prepared as described under *Asepsis and Antisepsis* and *Anesthesia*. Special attention should be given to clearing out the patient's alimentary tract.

2. **Opening the Abdomen.**—Incise in the median line, preferably, cutting down, layer by layer, until the peritoneum is reached. Grasp this by forceps on each side of the median line and carefully nick between them. Introduce a finger, as a guide, into this opening and enlarge it with scissors. Before opening the peritoneum, check all hemorrhage. Catch the parietal peritoneum to the skin on each side by forceps or two temporary stitches.

3. **Exploration.**—Unless pus has been set free, introduce as much of the hand as may be necessary and carefully examine such parts of the cavity as require it; in some cases the whole cavity.

4. **If Pus Escapes.**—On opening the peritoneum, if pus escapes, ascertain whether it is circumscribed or diffuse. If circumscribed, wash out the pocket with a very gentle stream of saline solution, taking care not to distend it. If the infected fluid is diffuse, before closing the cavity flush every part of it with large quantities of warm saline solution, giving special attention to the space between the liver and diaphragm. Draw out the intestines and carefully sponge off every coil.

5. **Adhesions.**—If adhesions are found between the wound and the suspected location, carefully separate

them with the fingers ligating and cutting such bands as may demand it. If it is suspected that they enclose a collection of pus, wall off the rest of the abdominal cavity with large flat gauze pads, before proceeding.

6. **Pus in an Organ.**—*If a pus- or fluid-containing organ can be isolated, draw it up outside of the wound, if possible, and drain it; or ligate it off and remove it without opening, as seems indicated. If it cannot be isolated, and lies against the abdominal wall or vagina, close the abdomen and open directly into it from without.*

7. **Abscess.**—If an abscess cannot be managed by these methods, wall off the rest of the abdominal cavity with gauze pads, drain and wash it out through an aspirator-needle, or make a very small incision into it and rapidly sponge away the pus as it exudes.

8. **Outside.**—In operating upon abdominal organs, do as much of the work upon them outside the abdominal cavity as possible.

9. **Abrasions.**—If possible, isolate abrasions, or lines of suture in the visceral peritoneum, by a layer of omentum caught over them by a few catgut stitches.

10. **Drainage.**—If the infection is strictly localized, or much intra-abdominal oozing is expected, introduce a perforated glass drainage-tube (with rounded end) with a strip of gauze inside of it. Leave the tube in place for 24 to 48 hours or until any symptoms of peritonitis subside, drawing the fluid out of it every 4 to 12 hours with a sterile catheter and syringe. Sometimes a perforated rubber tube, or gauze surrounded with perforated gutta-percha tissue, is used as a drain. If the infection is not strictly localized, depend upon thorough flushing with saline solution and close without drainage.

11. **Closure.**—Carefully coapt the peritoneum with a continuous catgut suture. If necessary, introduce deep tension sutures down to the peritoneum, using silk-worm gut and tying them after the other sutures are finished. Coapt each layer of muscles or fascia separately by a continuous suture of chromicized catgut, or, when desired, by kangaroo-tendon sutures for the aponeuroses. For the skin, use a continuous catgut suture, or interrupted silk-worm gut stitches.

12. **Dressing.**—Apply a narrow strip of sterile protective directly over the line of suture, button-holing it, if necessary, for a drainage-tube. Over this apply a pad of sterile cotton moistened with an antiseptic lotion and cover with a sheet of protective, or use a dry powder or a collodion-and-cotton dressing, when no infection is expected.

13. **Avoid Hernia.**—Keep the patient in bed for 3 weeks if there is union by first intention, and instruct him to wear an abdominal supporter for 6 to 12 months afterward. The supporter should contain little or no elastic, and should not have a thick pad over the scar.

14. **Instruments.**—Scalpel; scissors; artery-forceps; pedicle-forceps; 2 pairs of dissecting-forceps; long retractors; aspirating syringe and needles; irrigator; needles

forceps; pedicle or aneurism needle; large curved surgeon's needles; calyx-eyed intestinal needles; or, for cambric needles; fine silk; silk-worm gut; catgut; kangaroo tendon; gauze sponges and pads; plenty of sterile salt in weighed packages, or sterilized salt-solution.

Caution.—Count all instruments, sponges and pads before opening, and again before closing the abdomen.

INTESTINAL SURGERY.

Enterorrhaphy.—(*Intestinal Suture.*)—Stitch wounds in the intestine together by Lembert's, Dupuytren's, Cushing's, or Halsted's suture. These go through the serous, muscular, and submucous, but not the mucous coat, and

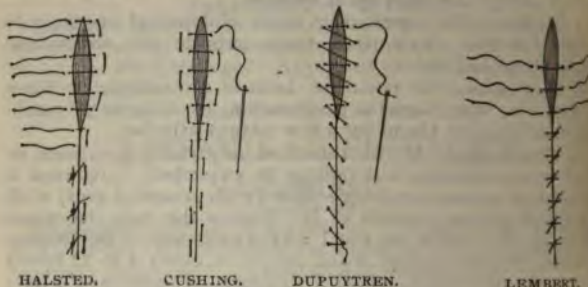


Fig. 13.—SUTURES.

fold the edges inward, approximating serous surfaces. Use fine silk, and catch into healthy tissues only.

Intestinal Resection.—Place temporary gauze sutures through the mesentery, about the intestine above and below; cut away the diseased part of the intestine and a "V" of the mesentery attached to it. Ligate any bleeding vessels in the mesentery, suture its edges together, wash the ends of the intestine, inside and outside with warm saline-solution, and suture them together, or, if necessary to gain time, apply a Murphy button (No. 3 for a small intestine, No. 4 for the large). The Laplace anastomosis forceps are a great convenience for rapid end-to-end suture.

Enterostomy is only to be performed in emergency for temporary relief. The method is about the same as for colostomy.

Colostomy is best made in the left inguinal region. Make an oblique, 2-inch incision, $1\frac{1}{2}$ inches from the anterior-superior-spine, crossing a line drawn from that point to the umbilicus. Grasp the colon and draw a loop into the wound. Hang the gut over a glass rod passed through its meso-colon next to it. Introduce stitches all around which catch together the skin, parietal peritoneum and visceral peritoneum. Open the gut at once if necessary; otherwise wait 24-48 hours, when the rod is removed. If the opening is to be temporary make a longitudinal incision in the gut.

Bodine's Method.—Stitch together, for 6 inches, the two limbs of a loop of the gut with a line of suture on each side of the mesentery. Stitch the parietal peritoneum to the skin all around the incision. Drop the united loop of intestine back into the abdomen until the ends of the lines of suture are level with the skin, and stitch it in place all around. Cut off part of the gut protruding, a little above the level of the skin. To close this artificial anus at any time, divide the septum between the two ends of the loop, and close the abdominal wound.

Instruments.—Scalpel; artery-forceps; scissors; glass rod $\frac{3}{8}$ - $\frac{1}{2}$ x 6 inches; surgeon's and intestinal needles; silk; silk-worm gut; catgut.

GASTRIC SURGERY.

Gastrorrhaphy.—Draw the edges of the wound together by a continuous suture through all coats, and then infold this seam by Lembert, Dupuytren, Cushing or Halsted sutures.

Gastrotomy.—Incise the abdomen in the median line above the umbilicus. Short incisions may be made in the stomach across its long axis, long ones longitudinally midway between the two curvatures. Draw the part of the organ to be incised out of the abdomen and take care that none of the contents escape into the abdominal cavity.

CHOLECYSTOTOMY.

Operation.—*For Gall-stones.*—Place a sand-bag under the patient's back. Incise at the edge of the right rectus muscle, an inch below the ribs. Expose the gall-bladder and surround it with pads.

Emptying.—If it is distended, aspirate it, and examine it and the ducts by the fingers external to them. If there are stones in it incise it and remove them by forceps, scoop or irrigation. If a stone is wedged into a duct, carefully manipulate it back into the bladder. If this fails, break it up with an instrument inside, or incise the duct and remove it.

Wound.—Close wounds in the gall-bladder and ducts by Lembert, Dupuytren, Cushing or Halsted sutures, and close the abdominal wound. Some stitch the gall-bladder to the abdominal wall about the incision (before opening it if the ducts are clear) and, in closing the abdomen, leave, for a week, a rubber tube, without perforations, to drain off the bile.

Occlusion.—Where the common duct is permanently occluded, connect the gall-bladder to the duodenum by a small Murphy button.

Removal.—When the gall-bladder is dangerously diseased, or friable and can be easily isolated, it may be tied off and removed with the stones in it.

Caution.—Danger lies especially in leakage of bile or septic matter into the peritoneal cavity.

APPENDICITIS.

Anatomy.—McBurney's point marks the root of the appendix; it is a point 2 inches from the right anterior superior iliac spine, on a line drawn from that spine to the umbilicus. The end of the appendix may lie as far as 4 inches from this point in any direction.

Diagnosis is made upon:—(a) General symptoms of peritonitis, especially vomiting, constipation and high pulse. (b) Local symptoms of peritonitis—pain, tenderness and muscular rigidity, sometimes a fluctuating tumor, especially marked at or near McBurney's point. (c) History of previous attacks.

TREATMENT.

General.—Rest in bed; bland nourishing liquid diet, turpentine stupes to the painful part of the abdomen, copious colonic flushings with warm water or saline solution; one or two 10 grain powders of Calomel and Sodium-bicarb., equal parts.

INDICATIONS FOR OPERATION.

1. If in 6 hours after the beginning of the attack the symptoms are no worse, wait.
2. If 6 hours later they are no worse, wait; if they are worse, operate at once.
3. If 12 hours later they are better, wait.
4. If 24 hours later there is no further improvement, operate at once.
5. In all severe cases, operate at once.
6. If there is a tumor, operate at once.
7. Operate, if possible, in an interval between attacks about 3 weeks after the attack, and in all cases, except such as make an absolutely clean recovery after a primary mild attack.

OPERATION.

Incision.—Midway between the anterior-superior iliac spine and the umbilicus, parallel to the fibres of the external oblique. If an abscess is located, incise directly over it.

Removal.—If part of the omentum is firmly adherent to the organ, ligate it off and cut it away. Ligate the meso-appendix and divide it. Circumcise the peritoneal covering of the appendix one-half inch from the cecum and dissect back a cuff of it to the cecum. Ligate the denuded root of the organ and cut it off. Cauterize the stump with Carbolic acid (95%). Catch the cuff of the peritoneum over the root of the organ and infold the whole into the cecum by intestinal suture.

Abscess.—If there is an abscess about it, and it be easily reached without breaking up adhesions, ligate and amputate the organ; otherwise simply treat the abscess. (See *Caliotomy* for steps not described.)

HERNIA.

DIFFERENTIAL DIAGNOSIS.

Enterocoele.—(Contains intestine.)—It is smooth; regular; tympanitic on percussion; gurgles when manipulated; disappears with a flop when reduced.

Epiplocele.—(Contains omentum.)—It is doughy and uneven; not tympanitic; gives no gurgle and no flop.

Enteropiplocele.—(Contains both.)—Characteristics of both.

Varieties.—The common forms are—(a) Inguinal; (b) Femoral; (c) Umbilical and (d) Ventral. (See *Intestinal Obstruction.*)

INGUINAL HERNIA.

DIFFERENTIAL DIAGNOSIS.

Varicocele.—It feels soft, doughy, and like a bunch of worms; appears first at the bottom of the scrotum on standing; no gurgling or tympanites.

Hydrocele.—It is translucent; fluctuates; no gurgling or tympanites.

Undescended Testicle.—Absence of the gland on that side; hard tumor in the inguinal region, with sickening pain on pressure.

Enlarged Inguinal Glands.—The tumor lies obliquely to the long axis of the canal; is hard; painful; freely movable at first; skin reddened; never appears suddenly.

TREATMENT.

Reduction.—See under *Intestinal Obstruction.*

Trusses.—If properly fitted and worn continuously will generally produce a permanent cure in $\frac{1}{2}$ to 2 years in children. In adults, except when the rupture occurs from very severe straining, trusses are merely palliative, preventing the descent of the gut and the attending dangers.

Fitting.—Measure from the lower part of the opening to the ant.-sup.-spine, then around the body 1 inch below the iliac crest to the other ant.-sup.-spine, then to the upper part of the hernial opening, or if a double truss is worn, to the lower part of the other hernial opening. The pad lies over the external ring in direct hernia, over the internal ring in indirect. The truss should lie close to the body beneath the iliac crest, should leave the abdominal and gluteal muscles free, and should prevent the descent of the gut without having a very strong spring. A double truss stays in position better than a single one, and is to be preferred where the other ring is weak. Hard pads are cleaner and do not irritate the skin as much as soft ones. A truss should not be uncomfortable after 2 or 3 days.

Test.—A truss should prevent descent when the patient sits on the edge of a chair with legs apart, bends forward and coughs.

Use.—It is applied before rising and removed after lying down. It should be kept scrupulously clean, and the skin under the pads bathed and dusted with borated talc daily. It should be worn for several months after the pillars seem strong.

Supporters are useful in large irreducible herniæ, or in those which cannot be retained in the abdomen.

Indications for Operation.—Irreducible herniæ, including incarcerated, strangulated and inflamed. Reducible hernia of over 3 months' standing in adults, or in children who have not improved after 1 year's use of a truss.

Contra-indications.—Cough; straining in urination or defecation; urethral discharge; thin, atonic abdominal walls.

OPERATION.

Preparation.—Prepare the patient as described under *Anesthesia*, and *Asepsis and Antisepsis*. Wrap the scrotum in a sterile dressing.

For Strangulated Hernia.—See under *Intestinal Obstruction*.

RADICAL CURE.

Incision.—Make a 3-inch incision upward and outward from one-half inch above and external to the pubic spine, exposing the external ring and the external oblique muscle. If the hernia and rings are large, pass a director under the external oblique and divide it up to and over the internal ring.

The Sac and Cord.—1. Make a small opening in the sac and introduce the forefinger as a guide in dissection, if it is empty.

2. With the fingers, separate the sac from the canal and cord, and for one-half inch all around inside of the internal ring.

3. If intestine is adherent inside the sac, free it and return it into the abdomen. If omentum, free it, ligate it off, by several small ligatures, and return the stump.

4. If the cord is enlarged by dilated veins, reduce its size by ligating most of them.

5. If the hernia is congenital, separate a strip of the back and all of the bottom of the sac from the rest, and catch this around the cord and testicle, for a tunica vaginalis, by a continuous catgut suture.

6. Pass the points of a forceps through a small opening in the abdominal wall, just above the internal ring, and out of the ring; catch the sac and draw it out through the opening, thus invaginating it. Secure its neck in the opening by a catgut stitch and cut off the rest of the sac.

7. Or, take a long suture, with a needle at each end, and, beginning at the bottom, pass these back and forth through the sac up to its neck and then pass them through the abdominal wall, $\frac{3}{8}$ inch apart, above the internal ring. Draw the ends tight, thus doubling up the sac into a wad just inside of, and above the internal ring, and tie them together.

Stitching.—Lift up the cord and below it, by interrupted kangaroo-tendon stitches, and a round, curved needle, draw together the pillars of the internal ring, leaving just room at the top for the passage of the cord without constriction. If the external oblique has been divided and the rings are large, with thin pillars, this muscle may be included in these stitches, letting the cord pass out at, above or below, the site of the internal ring, wherever the muscles are thickest. Otherwise, stitch the

external oblique over to Poupart's ligament above the cord, by mattress-sutures of kangaroo-tendon, restoring the canal and leaving an external ring just large enough for the passage of the cord. In the absence of kangaroo-tendon, use silk-worm gut. The wound having been dried, coat the skin with a continuous catgut suture.

Dressing.—If all steps have been under strict asepsis, as they should be, provide for no drainage; dress with a dry antiseptic dressing.

After-Care.—Keep the patient in bed for 3 or 4 weeks. Do not apply a truss.

Instruments.—Scalpel; probe-pointed bistoury; scissors; dry dissector; grooved director; artery-forceps; dissecting-forceps; short retractors; needle-holder; surgeon's needles; intestinal needles; smooth, round, curved needles; catgut; kangaroo-tendon (Marcy's); silk-worm gut; fine silk.

FEMORAL HERNIA.

Reduction.—See under *Intestinal Obstruction*.

Trusses.—Are not as likely to cure as in inguinal hernia. They are fitted according to the same general rules.

OPERATION.

For Strangulated Hernia.—See under *Intestinal Obstruction*.

Radical Cure.—Incise the skin for 3 inches, from $\frac{1}{2}$ inch below the pubic spine, parallel to Poupart's ligament. Isolate the sac, ligate it at its neck and cut it off, dropping the stump into the abdomen. With 2 or 3 kangaroo-tendon stitches, close the femoral ring by drawing together Poupart's ligament and the pectineal fascia, in a line from the pubic spine to the pectineal eminence. Close the canal by 4 or 5 stitches, drawing the falciform edge of the fascia lata to the pectineal fascia, allowing for the saphenous vein to escape at the upper and inner angle. Other steps as in *Inguinal Hernia*.

UMBILICAL HERNIA.

Trusses.—Will almost always cure recent cases in infants. For an infant, apply a hard pad, the shape of a plano-convex lens, flat side outward. (A large wooden button is good), and fasten it in place by a $1\frac{1}{2}$ inch strap of adhesive-plaster, passing clear around the trunk, and lapping. Change this strap as often as necessary to prevent soreness of the skin. A cure usually results in 1 to 2 months.

OPERATION.

Method.—Incise around the tumor, removing the umbilicus and some skin. Open the sac, free any adherent intestine or omentum, removing the latter. Dissect away the sac from the surrounding muscles down through the whole thickness of the wall. Cut it away and unite the parietal peritoneum by a longitudinal, continuous, catgut suture. Suture the fasciæ and recti muscles together by interrupted kangaroo-tendon stitches. Other steps as described under *Cæliotomy*.

VENTRAL HERNIA.

Trusses or Supporters.—Will not permanently cure.

Operation.—Essentially the same as for *Umbilical Hernia*.

OTHER FORMS.

General.—They are to be treated along the lines laid down above, as their age, condition, etc., indicate—by reduction by taxis or operation, cure by trusses or, usually, operation.

Operation.—It consists in exposure of the sac, its evacuation, isolation, ligature and removal, and the closure of the hernial opening by kangaroo-tendon sutures.

RECTAL SURGERY.**CONGENITAL OCCLUSION.**

Treatment.—If the occluding tissue is merely a membrane, incise it and keep the opening patent with a tube wrapped with gauze. If thicker, anesthetize, introduce a catheter into the bladder and make an antero-posterior incision at the site of the anus, working upward and backward. If the rectum is discovered, open it and, if possible, draw it down and stitch it to the anal margin. If it is not found after incising to a depth of 1 to 1½ inches, make an inguinal colostomy.

HEMORRHOIDS.

(PILES.)

EXPECTANT TREATMENT.

Diet.—Fobid alcohol, tobacco and constipating foods.

Exercise.—To increase the hepatic secretions and prevent portal congestion.

Bowels.—Use mild laxatives; avoid strong purgatives.

Reduction.—Reduce the pile each time it prolapses, after cleaning it carefully.

Local Astringents.—Frequent douches or injections with ice-cold water; lotions or suppositories of Hamamelis (fl. ext.), Sulphate-of-iron; Tannic acid; Alum.

Sedatives.—A Calomel ointment allays pain and itching. Cocaine ¼ grain, or Morphine ¼ grain suppositories, relieve severe pain temporarily.

Incise and turn out the clot in thrombotic piles.

RADICAL TREATMENT.

Operation.—Clear out the bowels thoroughly in preparation. Anesthetize and place the patient in the lithotomy position. Thoroughly dilate the sphincters.

For External Piles.—Catch the pile with a forceps or tenaculum and snip it off, cutting in lines radiating from the center of the anus. Catch the sides together with a continuous catgut suture.

For Internal and Mixed Piles.—Catch the lowest pile first at its highest and lowest points with tenacula or forceps. With scissors dissect it up from below, incising in lines longitudinal with the gut, until only a strip of membrane

and the vessels running into it from above remain. Ligate this pedicle with silk or catgut and cut away the pile. Catch the sides of the wound together with a continuous catgut suture.

Clamp-and-Cautery.—Lift the tumor away from the rectal wall and grasp its base longitudinally with an 8 inch artery forcep or an Adams' hemorrhoidal clamp, including in its grasp only mucous membrane. If the pile is partly external, cut away this part before applying the clamp, stitching the incised edges together after cauterizing. Burn the pile away with the Paquelin cautery at a red heat. Slowly relax the clamp, watching for hemorrhage. Small hemorrhoids may be cured by simply puncturing them with the point of the cautery.

Instruments.—Scissors; artery-forceps; 2 tenacula; needle-forceps; rectal speculum; needles; hemorrhoidal clamp; Paquelin cautery; silk; catgut.

Dressing.—Rub Aristol or Iodoform over the suture lines. Take 4 or 5 inches of one-half inch, thick-walled, rubber-tubing. Wind it to one inch thick at the ends, thinner in the middle, with Iodoform gauze, tying it on. Lubricate this with Vaseline and insert it into the rectum, reducing the anal margin and letting the sphincters grasp the thin part. Apply a large gauze pad and a "T" bandage. After 4 or 5 days give a copious enema through the tube and the plug will be expelled.

PROLAPSE OF THE RECTUM.

Expectant Treatment.—When the prolapse occurs, wash it with cold water and reduce it. If firmly caught, grease it with Vaseline, insert a finger into the rectum and employ taxis around it. Apply a graduated compress to be worn except when at stool. Keep the bowels soluble and prevent straining; have defecation performed in a recumbent position and precede it by a cold, astringent injection (Tannin; Alum; Hydrastis, fl. ext.). Astringent suppositories are sometimes valuable. Correct any attending genito-urinary trouble.

Operation.—Make longitudinal strokes in the bowel with the cautery, or use the clamp and cautery, as for hemorrhoids.

RECTAL ULCERS.

Simple.—Empty the intestines, cleanse the lower bowel and, through a speculum, cauterize the ulcer with Silver-nitrate or Carbolic acid (95 %). Keep the patient in bed and on liquid diet, injecting daily, Olive oil with Iodoform or Ichthyol. If this fails, operate.

Operation.—Anesthetize, dilate the sphincters thoroughly, incise the ulcer, cauterize with pure Nitric acid and dress as for a piles operation.

Fissure of the Anus.—Prevent constipation. Wash out the rectum with cold water and apply pure Ichthyol or Iodoform to the fissure.

Operation.—Anesthetize, dilate the sphincters with the thumbs until they touch the ischia. Incise the floor

the fissure, curette it, and brush it over with Silver-nitrate. Dress as for a piles operation.

Medicinal.—Graphites^{6x}; Nitric acid^{2x}; Natrum mur.^{6x}

Tuberculous Ulcers.—General measures for the treatment of tuberculosis. Cauterize every week or so with Silver-nitrate and apply Iodoform emulsion daily. Operation is generally not indicated.

Syphilitic Ulcers.—General treatment for syphilis. Cauterize with Silver-nitrate. Apply, daily, a strong Calomel ointment, or a powder of Calomel, 1:10.

RECTAL STRICTURE.

Gradual Dilatation.—Prescribe rest; non-stimulating diet; warm water injections; mild laxatives; hot hip-baths. Treat any existing disease which may have caused it. If gradual dilatation is possible, gently pass, every other day, warm and well-oiled, gum-elastic or soft-rubber bougies, gradually increasing the size.

Operation.—For fibrous strictures. Cleanse the bowels as thoroughly as possible. Anesthetize. Forcibly dilate the stricture with the fingers or some instrument. If necessary, incise it, cutting in the median line posteriorly. Thoroughly dilate the sphincters and dress with a tubal plug, as in a piles operation, but larger. After 5 days remove this and pass a large bougie every other day for 3 weeks, and at frequent intervals afterward.

ISCHIO-RECTAL ABSCESS.

Treatment.—Incise, early, up beside the rectum from the skin surface, cutting in a line radiating from the anus. Open all branches of the abscess freely. Irrigate with salt-solution, followed by Carbolic acid (5%), and introduce a straight drainage tube for 48 hours. See under *Abscess*.

FISTULA IN ANO.

Indications for Operation.—All cases, except in the last stages of phthisis or where there is much cough.

OPERATION.

Method.—Prepare as for an aseptic operation. Pass a grooved director through the sinus and with it raise up all the tissues between the rectum and the skin. Pass a bistoury along the groove and divide the whole mass of tissue. Explore carefully for any branches and lay these open into the first incision. Cut the sphincters at right-angles to their fibres, and only once at an operation. Remove, with curette or scissors, all the walls of the sinuses. Irrigate with warm salt-solution, and pack the wound with Iodoform gauze.

Instruments.—Bistoury; scalpel; scissors; grooved director; probe; artery-forceps; dissecting-forceps; sharp curette.

After-Care.—Remove the packing after 48 hours and allow the wound to granulate up, simply keeping it clean.

COCYGDINIA.

Treatment.—Correct affections of the neighboring organs. If obstinate, divide subcutaneously all muscular and ligamentous structures from the borders and tip of the coccyx. If the coccyx is luxated and displaced, or carious, remove it.

VARIOUS MINOR OPERATIONS.

PARACENTESIS ABDOMINIS.

(“TAPPING.”)

Indications.—Called for if the amount of effusion is so great as to seriously embarrass respiration or the heart's action.

Operation.—Make an ink-mark exactly in median line, midway between umbilicus and pubes. Turn the patient on his side, near the edge of the bed. The bladder must be empty. Ascertain by percussion the presence of fluid at the spot to be pierced. Apply a broad flannel belt, or a sheet, around the abdomen, the ends crossed behind, and held by an assistant, who gradually draws it tight as the fluid is withdrawn. Tap through a hole cut in the cloth at the proper point. Incise the skin at point selected, and introduce the trocar. Draw off the fluid *slowly*. When all is out, seal the wound with plaster, and pin the band tightly around the abdomen. Observe strict asepsis.

Dangers.—(1) Hemorrhage, from not keeping to middle line; (2) wound of bladder, from not emptying it; (3) wound of bowel, from not tapping in a thoroughly dull spot, or from plunging the trocar too deeply; (4) fainting; (5) infection.

VENESECTION.

Operation.—Patient recumbent. Apply tape to middle upper-arm, tight enough to congest veins, but not to affect pulse. Hang the arm down a little while; then choose the spot, usually the *median basilic vein* (look out for brachial artery); pass the lancet gently and obliquely into the vein, and enlarge the opening without deepening the incision. If necessary, make the patient work his hand, opening and shutting it; or grasp some small object. When sufficient blood has been withdrawn, remove the bandage from the arm, apply a pad to the wound, and bandage it by figure-of-eight. Wear the arm in a sling for several days. Observe strict asepsis.

Instruments.—Bleeding-tape or bandage; bowl; lancet; pad; sponge and water.

IN-GROWING TOE NAILS.

Treatment.—With the point of a pen-knife insinuate a little roll of cotton beneath the in-growing corner and side of the nail. If there is much inflammation, treat by the measures described for *Surgical Inflammations*. Instruct the patient not to cut the corners of the nails shorter than the middle. Scrape the nail down in the middle to

relieve pressure. If these measures fail, remove the entire nail by avulsion and cauterize the matrix under anesthesia.

BUNIONS.

Treatment.—Restore the toe to its natural position (an osteo plastic operation is sometimes necessary), and hold it there by mechanical means, as by a splint or pads between the toes. Direct the patient to wear wide-toed shoes and a U- or ring-shaped bunion-plaster to take off the pressure. If inflamed, treat as described in *Surgical Inflammations*—moist heat, evacuation of pus, etc.

EXTRACTION OF TEETH.

Method.—Seize the fang, with suitable forceps, well beyond the crown, pushing back the gum with the forceps. Rock the tooth outward, then inward, then direct pull.

Caution.—If a healthy tooth should be drawn with the diseased, cleanse the socket; wash the tooth in warm water; replace it; retain by binding the jaws together.

GENITO-URINARY SURGERY.

INJURIES OF THE KIDNEY.

Operation.—If escape of urine or of much blood is suspected, make an exploratory incision as for nephrorrhaphy. Stop hemorrhage by hot water and packing, or the actual cautery. Close renal wounds by a purse-string suture. Provide for drainage.

MOVABLE KIDNEY.

Treatment.—A truss, or pad-and-bandage should be tried, and will sometimes cure. This failing, perform—

Nephrorrhaphy.—Place the patient on the sound side with a pillow under the loin. Incise at the edge of the erector spinæ muscle from one-half inch below the last rib to one-half inch above the iliac crest, and then curve forward along the iliac crest as far as may be necessary to obtain a 3 or 4 inch incision. Expose the organ. Have an assistant hold it in its normal position by grasping it through the abdominal wall. With a round, smooth, curved needle and kangaroo-tendon or silk-worm gut take 2 or 3 stitches one-half inch into the kidney substance and catching the fascia in both sides of the wound. Tie snugly enough to hold the organ in place after scarring its surface about the stitches. Close the wound without drainage.

Senn's Operation.—After exposing the kidney, pass a strip of Iodoform gauze around it through the perinephritic fat. Draw the organ well into place, leaving the ends of the gauze protruding. Remove the gauze after 3 or 4 days and allow the sinus to granulate up.

After-Care.—Keep the patient in bed for 3 weeks and have a truss, or pad and bandage worn for 3-6 months.

Other steps, as in *Wound Treatment* and *Anesthesia*.

RENAL CALCULUS.

Diagnosis.—*Pain* in the loin or in the iliac region, on percussion, pressure or exercise. Attacks of nephritic colic. *Urine.*—Frequent urination during the day. At times blood and pus, shown to come from above the bladder, by cystoscopic examination or ureteral catheterization. Sediment of urates, uric acid, phosphates or oxalates; sometimes passage of small calculi. *Exploration* of the pelvis of the kidney by a ureteral bougie, tipped with dental wax to show scratches, is possible, especially in women. *The X-Ray.*

Indications for Operation.—When medical treatment fails to relieve, and there is no organic disease of the other kidney and not less than 1% of urea.

Operation.—Incise down to the kidney as described under *Nephrorrhaphy*. If desired, locate the stone by percussion with a needle or pin. In any case open the pelvis of the kidney and explore it with the finger-tip. If necessary, examine the ureter with an elastic bougie (9-12 F.) or a uterine sound. Loosen calculi with the fingernail and remove them by the fingers, scoop, forceps, etc. Stop capillary hemorrhage by hot saline irrigation or by packing. If practicable, suture the pelvis with catgut. Suture the wound, providing for free drainage.

After-Care.—Remove the drainage-tube in 3 to 4 days, and allow the wound to close. Medical, dietetic and hygienic treatment to prevent recurrence.

PERINEPHRITIC ABSCESS.

Treatment.—Incise into the abscess by a short incision at the site described for *Nephrorrhaphy*. Flush it out and drain. See *Abscess*.

PYONEPHROSIS AND HYDRONEPHROSIS.

Treatment.—If possible, *remove the cause* of the obstruction, as a kink or twist in the ureter; abdominal tumors; obstruction in the urethra or bladder, etc.

Catheterization.—Through the ureter is often possible, especially in women.

Aspiration.—Relieves temporarily, and generally needs to be repeated; it may cure. Introduce the needle, aseptically, on the right side, midway between the 12th rib and iliac crest at the edge of the erector spinæ; on the left side, just below the 12th rib.

Nephrotomy.—Is generally necessary. Incise as for *Nephrorrhaphy*, and stitch the kidney to the fascia on each side of the wound. Then incise the kidney and after draining, carefully examine the ureter with an elastic bougie (9-12 F.) or a uterine sound.

WOUNDS OF THE URETER.

Operation.—The upper three-fourths can be reached by the extra-peritoneal method—through an incision made from a point one-half inch below the 12th rib, at the edge of the erector spinæ, downward and forward one-half

inch above the crest of the ilium and Poupart's ligament to its middle. The lower quarter is reached through the abdomen.

A Longitudinal Wound may be sutured. If it cannot be reached, drain it through an incision posteriorly and it will granulate together.

Uretero-cystostomy.—If a ureter is divided near the bladder, introduce the proximal end obliquely into a slit in the bladder and secure it in place by very fine catgut sutures, approximating serous surfaces.

Uretero-ureterostomy.—If divided at a distance from the bladder, ligate the end of the lower portion with catgut. One-fourth inch below this make a one-half inch longitudinal incision. With a fine strand of catgut threaded at both ends, catch through one side of the upper portion of the ureter near the divided end; pass the needles through the slit and out through the ureteral wall one-half inch below it and, by drawing the threads, invaginate the end of the upper portion into the lower through the slit. If intra-peritoneal, catch folds of the peritoneum about the ureter.

URETERAL CALCULUS.

Operation.—Remove the stone through a longitudinal incision, reaching the ureter and treating the wound as described above.

INJURIES OF THE BLADDER.

Diagnosis of Perforation.—The catheter brings away blood or only a little bloody urine, and injected fluids or filtered air fail to distend the bladder or to return from the open catheter.

Treatment.—If the wound is intra-peritoneal, open the abdomen, catch the edges of the wound together by a continuous catgut suture, and then infold this by approximating serous surfaces, as in enterorrhaphy. Thoroughly flush out the peritoneal cavity. Drain the bladder by a retained catheter, for 2 to 5 days, or by a perineal or supra-pubic cystotomy.

If the wound is extra-peritoneal, stitch it up, if possible, or drain it by a tube, and drain the bladder as just mentioned. Other steps as described under *Cæliotomy*.

ACUTE CYSTITIS.

Local Treatment.—Remove the cause if it is still in action. Rest in bed; dry heat to the perineum; hot fomentations to the hypogastrium; prolonged, hot, rectal or vaginal injections; rectal or vaginal suppositories containing Ichthyol (1 to 2 grs).

General Treatment.—Keep the bowels free; forbid alcohol, tobacco, highly seasoned foods and acids; milk diet is best. Dilute and render the urine mildly alkaline or neutral by Lithium or Potassium-citrate (5 gr. doses) or by alkaline mineral waters. For pain, give suppositories containing Opium, 1 gr.; Belladonna Ext., ½ gr.

or, give Codeine or Morphine by mouth or hypodermatically.

Medicinal.—Aconite^{1x}; Belladonna^{1x}; Cannabis sat. Tr.^{1x}; Cantharis^{2x}; Chimaphila^{2x}; Hyoscyamus^{2x}; Mercurius cor.^{3x}; Sandalwood Oil (pure, 5m.); Sanmetto (5m.), Terebinth^{2x}; Uva ursi, fl. ext., (5m.).

CHRONIC CYSTITIS.

Local Treatment.—If possible, remove the cause, as stone, enlarged prostrate, tumor, urethral stricture, etc. Have the bladder completely emptied 4 times in 24 hours, with a catheter if necessary. Wash it out daily with one of the following solutions: Boracic acid (sat. sol.); Ichthyol ($\frac{1}{2}$ -2% sol.); Protargol ($\frac{1}{4}$ -2% sol.); Carbolic acid ($\frac{1}{8}$ % sol.); Silver-nitrate (1:5000 or 1:10,000). To do this, introduce a catheter into the bladder or, if possible, force the solution into the bladder by a six-foot column of solution, while the patient tries to relax the sphincter. Use an irrigator with a bulbous tip which fits the meatus.

General Treatment.—Keep the bowels free. Give nutritious diet without spices; forbid alcohol and tobacco. Enforce general hygiene.

Medicinal.—Benzoic acid (3-5 grs.); Boracic acid (5 grs.); Cannabis Tr. sat.^{1x}; Cantharis^{2-3x}; Copaiba (5m. capsules); Cubebs (5m. or pulv., 5-10 grs.); Eucalyptol (5m.); Mercurius cor.^{3x}; Pulsatilla^{1x}; Salol, or Soda Salicylate (5 grs.); Pinus Canadensis (fl. ext.); Sandalwood Oil (puriss. 5m. capsules); Sanmetto; Saw Palmetto Tr. (5-30m.); Triticum repens, fl. ext., (15m.); Uva ursi, fl. ext., (5m.); Zea mays, fl. ext., (15m.). See *Urethritis*.

Urotropin—Use it in cystitis when the urine is alkaline, or decomposed; it is a urinary antiseptic, being converted into formaldehyde in the system. Give internally.

CYSTIC CALCULUS.

(STONE IN THE BLADDER.)

Diagnosis.—It is made by feeling and hearing contact of the stone with a sound, a Thompson's searcher. Have the patient on his back, knees drawn up and the bladder well filled with water. Make a careful and systematic search in all parts of the bladder. A stone may also be shown by the X-rays, or by the cystoscope.

Preventive Treatment.—Institute measures to prevent excess of the urinary solids that produce sediments. See that the bladder is completely emptied at least once a day.

Operative Treatment.—It is indicated when stone is present. The safest and most satisfactory methods of removal are *Litholapaxy* or *Suprapubic Cystotomy*.

Litholapaxy.—It is indicated, except when there is stricture, enlarged prostrate, atony of the bladder, renal complications, or a large or hard stone.

Operation.—Prepare the patient.* With the patient on his back, thighs slightly apart and flexed, and the bladder partially filled with water, carefully introduce

*As under *Asepsis and Antisepsis*, and *Anesthesia*.

Thompson's or Bigelow's lithotrite through the urethra, and when the blades rest in the lowest part of the bladder, gently slide them together. If they catch the stone, screw them together and crush it. The blades may be rotated from side to side to catch the stone, but, when crushing it, should point forward. When the stone is reduced to small fragments, close the blades, remove the instrument and, with a Bigelow's evacuator, wash out the fragments. Repeat these processes until all fragments are removed.

SUPRAPUBIC CYSTOTOMY.

Preparation.—Prepare the patient.* Wrap the penis in antiseptic gauze. Have an assistant introduce into the rectum, above the sphincters, an oiled rubber bag, and distend moderately with air or water. Draw the urine with a soft catheter and inject 4 to 6 ozs. of warm Boric solution.

Incision.—Incise the skin for 2 or 3 inches just above the pubes, and carefully separate the tissues down to the bladder. If the peritoneum appears in the wound, retract it upward. With a round, smooth, curved needle, catch a guy-rope into the bladder on each side of its proposed incision. Make a one-half to three-quarters inch incision into the bladder, and quickly introduce the finger to hook under the stone, or to explore before the fluid is expelled. An electric light may be introduced for exploration. Growths may be removed by Thompson's vesical forceps.

Closure.—Introduce a three-eighths inch non-fenestrated rubber tube just into the bladder, and suture the wound snugly about it, layer by layer. Hold the tube in place by a strand of silk-worm gut passed through it and the skin on each side. To this tube attach a long one to drain into a bottle, containing a little antiseptic solution, beside the bed. Dust the wound with Aristol or Iodoform and apply a dry, gauze dressing around the tube. If the bladder has not been lacerated, close the incision without a tube and drain the bladder for 2-5 days by a retained catheter.

MEDIAN PERINEAL CYSTOTOMY.

Operation.—Prepare the patient.* *Incision.*—Place the patient on his back with the thighs and knees flexed symmetrically. Introduce a grooved lithotomy staff into the bladder, and have an assistant hold it vertically in the median line and hooked close up under the pubes. Make a 1-1½ inch skin incision midway between the anus and scrotum. Then, with the knife edge forward, and the left forefinger in the rectum as a guide, incise deeply until the knife reaches the groove in the staff. Incise the urethra backward for ¾ inch, introduce the clean forefinger and push it into the bladder.

Closure.—Pass a ⅜-½ inch, thick-walled, nonfenestrated rubber tube into the bladder, suture the wound

*As under Asepsis and Antisepsis, and Anesthesia.

snugly about it, and leave in place for 3-5 days, or more if it is desired, to continue the perineal drainage for more than 2 weeks.

OPERATIONS ON THE FEMALE BLADDER.

Operation.—Exploration, and the removal of small stones may be performed through the dilated urethra. Other operations are made by suprapubic cystotomy.

URINARY RETENTION.

Reference.—See under *Surgical Emergencies; Enlarged Prostate; Urethral Injuries; Stricture.*

INJURIES OF THE URETHRA.

Early Diagnosis.—Bleeding from the meatus, retention of urine, perineal or penile swelling, increased by attempts at urination; often a catheter cannot be passed.

Treatment.—In severe perineal bruises and urethral lacerations, pass a metal catheter (about 18 F.) and leave it in place for 1 to 3 days. Apply pressure and cold or Lead-water-and-laudanum to the perineum. If a catheter cannot be passed, make a median perineal incision down to the point of obstruction and carefully search for the proximal end of the urethra. If the end cannot be found, perform *Suprapubic Cystotomy* and retrogradecatheterization, thus having a guide into the bladder for the first catheter. With catgut, suture the ends together over a soft catheter, leaving it in place for 3 to 5 days. Drain the perineal wound with gauze for 4 to 8 days, and after 2 weeks pass large bougies frequently.

FOREIGN BODIES IN THE URETHRA.

Reference.—See under *Surgical Emergencies.*

URETHRITIS.

General.—All forms are to be treated along lines similar to the treatment of gonorrhœal urethritis. See under *Venereal Diseases.*

URETHRAL STRICTURE.

Diagnosis.—Determine the size, location and consistency by Otis' bougies, beginning with 15 F., having previously slit the meatus if necessary.

TREATMENT.

Gradual Dilatation.—It is indicated for large- and some small-calibre strictures of the deep urethra, and soft strictures in the pendulous urethra. Have the patient urinate; wash out the urethra with sterile water and cleanse the meatus. Patient supine, thighs slightly flexed. Sterilize the curved steel sounds and lubricate each one with Glycerine or Carbolyzed olive oil. Begin with a sound whose point easily enters the stricture. Dilate slowly and do not use force enough to drive the blood from under your thumb-nail. Follow first the floor

and then the roof of the urethra in passing a sound. Have a number of sittings 4 to 5 days apart, and gain only about 3 sizes F. at each one, up to size 32 F. If a very sharp reaction follows a dilatation, wait 8-10 days before repeating.

Electrolysis.—In expert hands, the use of a dilating electrode with the galvanic current, often cures.

Internal Urethrotomy.—It is indicated for small or fibrous strictures in the anterior urethra. Prepare the patient.* Under strict asepsis, introduce the guide-and-staff of a urethrotome. Hold the staff exactly in the median line, introduce the blade and push it down through the stricture, cutting strictly in the median line. Pass a bulbous bougie to see that the stricture is completely divided. After 4 days begin the regular passage of a full-sized sound, gradually increasing the interval from 2 to 7 days.

Fort's Electrolytic Urethrotome.—It may be used without confining the patient to bed afterward. Connect the negative pole to the blade, and the positive pole to a pad over the pubes, and pass the guide and blade into the urethra. When the blade strikes the strictures, turn on 10-15 Ma. and continue up the urethra until all strictures are divided. This takes about one-half minute, and causes little pain. Then pass a 22 F. sound.

Divulsion.—It is performed in the same class of cases, using a Gross', Gouley's or Thompson's divulsor, and carefully observing asepsis. A large bougie is then passed and a catheter tied in the bladder for 3 or 4 days.

External Urethrotomy.—It is indicated for strictures in the deep urethra that are tight, or not amenable to gradual dilatation. Prepare the patient.* Pass a grooved staff up to, or if possible, through the stricture over a filiform bougie. Incise as in *Perineal Cystotomy*. If the staff passes into the bladder, slit the stricture along the groove up to the bladder. If the staff does not pass the stricture, open the urethra $\frac{1}{2}$ inch in front of the stricture, hold the sides of the urethra apart with forceps, if possible, and pass a fine, probe-pointed knife or grooved director through the stricture into the bladder and slit the urethra up to the bladder. Pass a gorget into the bladder and along it pass a catheter. Pass a metal catheter from meatus to bladder, with the aid of a gorget if necessary, and leave it in place for 3 or 4 days.

Tight Strictures.—Introduce a filiform bougie by careful and patient manipulation, if necessary introducing several at once to fill up pockets. When one passes, try to introduce another beside it, or, if this fails, tie the bougie in place for 24 hours, and try again. Or pass over it a railroad catheter, urethrotome or grooved staff, and open the stricture internally or by *External Urethrotomy*.

Stricture of the Meatus.—Incise from within outward posteriorly, with a curved bistoury. Introduce a bit of

*As under *Asepsis and Antiseptics*, and *Anesthesia*.

otton or, at intervals, a meatus-bougie until healing is complete.

PROSTATITIS.

Acute.—Treatment the same as for acute cystitis. If abscess occurs, open at once, through a median perineal incision.

Chronic.—Treat any accompanying posterior urethritis; remove stricture, phimosis, cystic calculus, etc. Give cold or hot hip-baths and cold or hot enemata. Forbid highly seasoned foods, alcoholics and over-exertion. Milk the prostate and seminal vesicles as described under *Seminal Vesiculitis*. Passing a large steel sound (18-29 F.), so that the straight part enters the bladder, once a week, sometimes benefits.

Medicinal.—See *Cystitis*, and *Enlarged Prostate*.

ENLARGED PROSTATE.

(HYPERTROPHY OF THE PROSTATE.)

TREATMENT.

Regular Catheterization.—It is indicated if catheterization is easy and painless, the patient intelligent and dextrous, cystitis only mild, and the muscular tone of the bladder fair. Teach the patient how to use the instrument and to observe asepsis.

Care of Catheters.—After using, wash them with cold water and soap, and dry. Before using, sterilize metal or rubber ones by boiling; soak woven elastic ones 15 to 30 minutes in Carbolic acid 5%, Lysol 2%, or Mercuric bichloride (1:1000), and rinse in sterile water.

Frequency.—If there are 3 ozs. of residual urine, catheterize at night only; if 6 ozs., night and morning; if over 6 ozs., once more in the 24 hours for every 2 ozs. up to 6 times.

Drainage of the Bladder may be instituted by a permanent, silver, siphon-tube introduced by a *Suprapubic Cystotomy*, by a self-retaining catheter, introduced through a canula, or by a self-retaining tube, introduced by a *Median Perineal Cystotomy*.

Prostatectomy.—The hard, fibrous nodules may be removed by enucleation through a slit in the bladder membrane after suprapubic cystotomy, an assistant making counter-pressure in the rectum. Or the gland may be removed through a curved incision across the perineum, and the bladder may, or need not, be opened from below, as seems best. Some make counter-pressure by a finger passed into the bladder by a suprapubic opening. After either operation, free drainage of the bladder should be provided for 4-5 days. It is well to leave a catheter in the urethra for 3 days. A sound is passed after a week.

Bilateral Castration.—It is generally followed by prostatic atrophy. Division of ligature of the vas deferens on both sides is less dangerous, and produces the same results.

Bottini's Operation.—It has given the best results in any operation, in the cases reported. The prostate is

cised posteriorly on each side, latero-posteriorly, with a special electrolytic instrument passed through the urethra.

Dilatation with a galvanic electrode, in the hands of an expert, often gives prolonged relief from symptoms.

Gradual Dilatation.—With steel sounds, is of benefit.

General Measures.—Prevent indigestion and constipation. Have the patient avoid cold, wet, alcoholics and sexual excitement. Advise warm clothing, fresh air, moderate exercise and the drinking of 3 pints or more of pure water a day.

Medicinal.—Aconite^{1x}, and Gelsemium^{1x}; alternation, when retention occurs. At other times, Gelsemium^{2x}; Cimicifuga^{2x}; Sulphur^{3x}; Saw Palmetto^{Tr.} (5–30 gtt. 4 times a day).

SEMINAL VESICULITIS.

Acute.—Same treatment as for *Acute Prostatitis*. Stop urethral treatment.

Chronic.—Treat any accompanying posterior urethritis as described under *Gonorrhoea*. Use hot rectal enemata. Milk the organs once a week by a finger in the rectum, stroking downward against the prostate, while the patient stands with the trunk bent forward at a right-angle and leaning on something; and you make counter-pressure above the pubes with the other fist.

Abscess.—If milking does not evacuate the pus, drain by a rectal incision and wash out the cavity.

ORCHITIS AND EPIDIDYMITIS.

ACUTE.

Support.—Throughout the disease, hold the whole scrotum up against the pubes by a square cloth folded diagonally, and the corners fastened to a waist-band.

Early.—Paint the skin over the cord with Guaiacol (15m.) and over the testicle with the same quantity dissolved in Glycerine (30 m.). Repeat this every 8 hours at first, gradually lengthening the interval to 24 hours on the third or fourth day. Then apply Vaseline if necessary. Keep the scrotum covered with a thick layer of cotton and a water-proof protective, changing the cotton daily.

Pain.—If this treatment does not relieve pain, perform aseptic puncture of the visceral layer of the tunica in 2 or 3 places with an edged needle or tenotome. Hot fomentations of Hamamelis, or a Tobacco-and-flaxseed poultice, will relieve pain and reduce swelling.

Later.—As the swelling partially subsides, strap the testicle with adhesive-plaster, or apply an ointment of Ext. Belladonna and Mercurial-salve, equal parts; or, Ichthyol (10%) in Vaseline.

General Measures.—Avoid constipation, highly seasoned foods, alcoholics, tobacco and sexual excitement. Advise light diet, and rest in bed when possible.

Medicinal.—Aconite^{1x}; Belladonna^{1x}; Clematis^{2x}; Hamamelis^{1x}; Mercurius^{3x}; Pulsatilla^{1x}; Sulphur^{3x}

CHRONIC.

Treatment.—Support the testicle. Treat the cause—chronic urethritis, prostatitis, vesiculitis, etc. Apply Ichthyol (10-20%) in Vaseline; Lanolin or Vasogen. Strapping sometimes benefits. Relieve pain as in the acute variety.

Tuberculous.—Before softening occurs, apply Guaiacol and Olive oil (each 20 m.) daily. If the skin becomes sore, apply it to the cord and groin. After softening, remove the focus by incision and the curette. Castration is sometimes indicated. General measures for tuberculosis.

Medicinal.—Conium^{3x}; Clematis^{3x}; Calcarea iod.^{3x}; Iodine^{2x}; Iodide-of-lime ($\frac{1}{3}$ - $\frac{1}{2}$ gr.)^{1x}; Kali iod.; Hepar sulph.^{3x}; Pulsatilla.^{2x}

SYPHILITIC ORCHITIS.

Treatment.—Support the testicle and give general treatment for syphilis—Mercury, Kali iod., etc. Operation is seldom necessary.

HYDROCELE.

Congenital.—The fluid can be returned into the abdomen. Apply a truss as for hernia.

Acquired.—Under strict asepsis, introduce an aspirating-needle, draw off the fluid and, after washing out the cavity with sterile water, inject, for adults, 10-60 m. of Carbolic acid (95%), according to the size of the sac. Distribute the acid throughout the sac by manipulation. Support the scrotum and forbid active exercise for a few days. A permanent cure generally results in 2 weeks. This method *seldom* fails, but if it should, anesthetize, incise the sac, pack it with gauze for a few days and allow it to granulate together.

VARICOCELE.

General Treatment.—Reassure the patient; correct indigestion and constipation; advise outdoor exercise; cold shower-baths; the use of a scrotal suspensory.

Operation.—It is indicated if there is much pain, atrophy of the testicle, or hypochondriasis. Prepare the patient carefully. Incise down to the enlarged cord for $1\frac{1}{2}$ -2 inches. Separate the bunch of veins from the artery and vas. Ligate the veins at two places 1 to 2 inches apart, with catgut, leaving one end of each ligature long. Cut away the veins between the ligatures and draw the ends together by tying together the long ends of the ligatures. Other steps as in *Wound Treatment*.

CIRCUMCISION.

Preparation.—Prepare the patient. Local anesthesia may be employed by constricting the penis and injecting $\frac{1}{4}$ m. of a 4% Cocaine or Eucaine solution at each of different points—dorsum, sides and frenum, and waiting 5 minutes.

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sum and frenum first.

Dressing.—Dust the line of suture with an an powder (Aristol is best here) and over it wrap a strip of antiseptic gauze, not covering the meatus.

SECTION XXI.

VENEREAL DISEASES.

SYPHILIS.

STAGES, PERIODS AND MANIFESTATIONS.

Incubation.—The period before a chancre appears.
Duration:—10 to 90 days; average, three weeks.

Primary Stage.—Chancre, and bubo of adjacent glands.

DIFFERENTIAL DIAGNOSIS.

CHANCRE.

Appears.—10 to 90 days; average, 3 weeks after exposure.

Generally single; if multiple, all appear at once; *not auto-inoculable*.

Begins as an erosion or a papule; remains an erosion; may ulcerate if irritable or inflamed.

Edges, adherent and sloping toward the center.

Base, smooth, shiny and red; sometimes gray, black or livid; covered with granulations.

Discharge, scanty; serous or sero-sanguineous; not auto-inoculable; sometimes absent.

Induration marked; sharply defined; does not shade off into the surrounding tissues; may greatly outlast the erosion.

No tendency to invade surrounding tissues; soon becomes circumscribed; phagedena seldom occurs.

Bubo.—Glands always enlarge; 1st or 2d week; multiple, small, slow growth; *painless*; the skin above is normal; *rarely suppurate*.

Progresses slowly.

Prognosis.—Local lesion, good; circumscribed. Constitutional symptoms follow.

CHANCROID.

Appears.—2 to 5 days after exposure.

Single or multiple; *auto-inoculable*; others may appear later.

Begins as a pustule or an ulcer; remains an *ulcer*.

Edges, sharp-cut, as if punched out, everted or undermined.

Base, uneven, sloughy, yellow, tawny; sometimes as if covered with a false membrane; no granulations.

Discharge. profuse; purulent; offensive; auto-inoculable.

Induration, purely inflammatory if present; shades off into the surrounding tissues; disappears with the ulcer.

Tendency to invade the surrounding healthy tissues. Phagedena not uncommon.

Bubo.—Glandular enlargement in one-third of cases; generally after 3 weeks; single; large; rapid growth; *painful*; skin red and adherent; *often suppurate*.

Progresses rapidly.

Prognosis.—Local lesions more serious; tend to spread; no constitutional symptoms follow.

Secondary Incubation.—It comprises the period after the chancre, and before secondary eruptions appear. Characterized by anemia; chlor-anemia; icterus; bone-pains; general glandular involvement, and fever. *Duration:*—12 to 200 days; average, 6 weeks.

Secondary Stage.—Characterized by cutaneous and membranous lesions (eruptions and ulcerations) and general lymphatic enlargement. *Duration:*—1-3 years.

Intermediate Period.—After secondary symptoms disappear; ending in recovery or tertiary symptoms. *Duration:*—2 to 55 years; average, 2 to 4 years.

Tertiary Stage.—Characterized by infiltration of the tissues, by new cell-growth (gummata) causing *dee* (357)

ulcerations of the skin and mucous membranes, which tend to spread; and lesions of all other tissues, especially the bones and nervous system. *Duration*.—Indefinite. Occurs in about 12% of all persons infected.

Mixed Infections.—These may occur, giving the appearance of chancroid, but with the well-defined and persistent induration of chancre.

Other Conditions.—Herpes, Cancer and Lupus, must also be differentiated from chancre.

DIAGNOSIS OF SECONDARY SYPHILIS.

1. **History** of a chancre.

2. **Eruptions.**—(a) Seldom itch, except on the scalp; (b) Arranged symmetrically (on the two sides); (c) Color—red; brown; purple; black; coppery (“raw ham”); (d) Polymorphous (several varieties at once); (e) Respond to Mercury.

PROPHYLACTIC TREATMENT.

Local.—Wash thoroughly, with soap and water, any part which may have come in contact with the infection. If there is a break in the surface, first anesthetize locally, then cauterize with Nitric acid. Otherwise, bathe the surface for 3 to 5 minutes with a mild antiseptic solution.

TREATMENT OF THE PRIMARY STAGE.

General Measures.—Explain to the patient that the disease is curable, and take the case with the understanding that it will remain under treatment for 3 years (if a male), 4 years (if a female). Insist upon the discontinuance of alcohol as much as possible, and of tobacco entirely, and upon good hygiene in general. Have the teeth put in good condition.

The Chancre.—Soak the part twice a day in warm salt water (about 1:32); wash it with a mild antiseptic, as Bichloride (1:2000 or 1:3000); or, spray it with Hydrogen-peroxide (diluted one-half). Dry, and dust with Calomel, Calomel and Bismuth-subnit. (equal parts); or, Aristol. If phagedena or gangrene arises—Anesthetize, apply Nitric acid; dust with Iodoform or Aristol; apply warm, moist, antiseptic dressings; give nutritious diet, with stimulants or tonics if necessary, and secure sleep for the patient. After the ulcer has healed—Ointments, containing Ichthyol, or a Mercurial, hasten absorption of the induration.

Buboes.—If they tend to become large, or to suppurate, paint with Iodine Tr.; or, apply Ichthyol-and-lanoline; or, Vasogen (1:4); or, Mercurial ointment; and a bandage. If they suppurate, treat as described under *Chancroidal Bubo*.

Internal Medication.—If the diagnosis is indubitable, and the chancre is so located as to be disfiguring or painful, give Mercurius sol.2x; or, Mercurius prot.2x. Otherwise do not give Mercury until constitutional symptoms appear.

Medicinal.—Arsenicum^{3x}; Asafetida^{3x}; Corallium rub.^{3x}; Hepar^{3x}; Kali bi.^{2x}; Lycopodium^{6x}; Phosphorus^{3x}; Phosphoric acid^{1x}; Silicea^{6x}; Sulphur.^{3x} These are sometimes indicated for complications, by the totality of the symptoms.

TREATMENT OF THE SECONDARY STAGE.

General Measures.—*Diet.*—Plenty of meat and milk. Cod-liver oil, and other nourishing preparations are of value.

Narcotics.—Tobacco should be stopped; alcohol used only as a medicine, in prescribed quantities.

Clothing.—Warm enough to protect from damp and cold; flannels in winter.

Hygiene.—Fresh air, exercise and sleep are invaluable.

Cleanliness.—Sponge the chest and shoulders every morning with cold or tepid water, then with alcohol, and rub dry with a coarse towel. Dust the folds of the skin (axillæ, etc.) with borated talcum. Take a hot bath twice, or a Turkish bath once, a week. Keep the mouth and teeth clean.

Medication.—*Mercury* in some form almost continuously.

Mercurius sol. or vivus.^{2-3x}—For mild cases without much glandular enlargement; syphilitic fever; nocturnal pains. *Dose:*—(grs. v., 4 to 6 times a day.)

Mercurius prot.^{1x}—Where the glands are much involved; alopecia, in intractable cases. *Dose:*—(2x grs. v., 4-6 times a day), (grs. ii., 3-5 times a day.)

Mercurius bin.^{2x}—Much glandular involvement with tonsillar affections; Hunterian chancre. *Dose:*—(grs. v., 4-6 times a day.)

Mercurius corr.^{3x}—Rapidly-spreading, serpiginous ulcerations; iritis; swelling, redness and burning of the mouth, uvula or pharynx; syphilis of internal organs. *Dose:*—(grs. v., 4-6 times a day.)

Cinnabar.^{2x}—Secondary syphilis of the mucous membranes, especially nose and throat. *Dose:*—(grs. v., 4-6 times a day.)

Inunctions.—Give for rapid effect, or when Mercury, internally, does not agree, or does not seem to take effect. Rub 20 to 60 grs. of Mercurial ("blue") Ointment, Oleate of Mercury (20%), or Mercurial Vasogen (33%), into the inside of the thigh, after washing it thoroughly with soap and water. Next time apply it to the other thigh, then to the inside of one arm, then the other arm, then the groin, the popliteal space, etc.

Fumigations.—Sometimes useful in emergencies. Place 20-30 grs. of Calomel, or 15 grs. Calomel and 20 grs. Cinnabar, in the fumigator under a cane-seat chair. Throw a mackintosh or blanket about the patient and chair, reaching to the floor, and light the lamp. When the vaporization is complete, the patient puts on flannel drawers and shirt and cools off slowly in bed. Do not repeat oftener than every 2-3 days, and reduce the quantity of Mercury if the patient feels debilitated afterward.

Injections.—Of mercurial solutions are not advisable

Mercurial Baths.—Of value where the skin is delicate, and Mercury is not well borne internally; or, by fumigation. Dissolve 240 grs. Bichloride and 80 grs. of Ammon. chloride in 4 oz. of water, and add it to the bath. Cover the tub with a blanket and remain in the bath for about an hour with only the head exposed. Beware of salivation.

Intercurrent Remedies.—See *Special Therapy*.

LOCAL TREATMENT.

Cutaneous Lesions.—In general, Alkaline and Sulphur baths, with the application of a Mercurial ointment (Ammon. Merc., or Calomel). Circumscribed lesions may be painted with Collodion containing Bichloride (1 to 4 grs. to the oz.).

Crusts.—Remove; cleanse the surface antiseptically, and dust with Calomel, Calomel and Bismuth subnit., Aristol, or Iodoform.

Psoriasis.—In the palms or soles. Apply Diachylon Ointment; Mercurial Plaster, or Iodine (Tr).

• **Alopecia.**—Keep the hair short, and brush it for three minutes daily. Wash the scalp daily with Bichloride solution (1:2000), and once a week with green soap and water, or with an egg and Borax wash (1 egg, 1 oz. Borax, 16 oz. water); then wash in warm water and dry. Apply every night a little of the following hair-tonic, or, if the hair is dry and brittle, rub in a little Sulphur and Vaseline ointment.

Hair Tonic.—℞. Tr. Canthardis, ʒss.; Quin. Bisulph. Ac. Salic., aa grs., 1x.; Ess. Cognac., ʒj.; Alcohol, ad ʒiv. M.

Internally.—See indications of Cinnabar; Graphites; Fluoric acid; Hepar; Nitric acid; Phosphorus; Sulphur.

Onychia.—If acute, apply a hot, moist, antiseptic compress; and open if pus forms. Sometimes the nail and matrix must be removed. If chronic, apply Ammoniated Mercury ointment and a finger-tip.

Membranous Lesion.—To mucous patches and ulcers apply Silver-nitrate, and prescribe a mild, antiseptic astringent wash, to be used often. See *Salivation*.

Internally.—Asafetida; Hepar; Mercury.

Complications.—*Syphilitic Fever:*—Give internally, Baptisia^{1x}; Bryonia^{1x}; China^{2x}; Gelsemium^{1x}; Mercurius sol.^{3x}; Phytolacca^{1x}; as symptoms indicate.

Salivation.—Stop the use of Mercury for a time. Prescribe the use of a soft tooth-brush, a mouth-wash of Alum, Alcohol or Potass. chlorate, and water, or a mild antiseptic solution; sometimes a spray of Hydrogen-peroxide; Turkish or hot baths; nourishing, liquid food. Apply Silver-nitrate to ulcerated surfaces. Internally, Hepar sulphur.

Organs of Special Sense and Nervous System.—See the articles on diseases of those parts.

TREATMENT OF THE INTERMEDIATE PERIOD.

General Measures.—As for *Secondary Syphilis*.

Medication.—Mercurius cor.^{3x}; or Protoiod.^{2x}; gra. v., 3 times, and Kali iod. and Soapwort (equal parts.

triturerated together) grs. v., 3 times a day. Intercurrent Remedies as seen indicated.

Duration.—Continue treatment for 6 months after the last manifestation.

TREATMENT OF TERTIARY SYPHILIS.

General Measures.—As for *Secondary Syphilis*.

Medication.—Kali iod. and Soapwort (equal parts triturated together) 5-10 grs. 4 to 6 times daily, as seems necessary, gives better results than Kali iod. alone.

Kali iod.—Give, when used alone, in doses of grs. v. to 1x., 4 times a day, according to the severity of the case.

Intercurrent Remedies.—Mercury; Asarum; Arsenicum; Aurum; Calcarea; Fluoric acid; Hepar; Kali bi.; Nitric acid; Protonuclein; Staphysagria; Sulphur; Thuja; etc. (See *Special Therapy*.)

Locally.—Cleanse the ulcer with an antiseptic solution and dust with Mercurius sol.^{3x}; Calomel^{1x}; Aristol, or Iodoform. Sometimes Protonuclein Special, locally, is of great value.

MARRIAGE OF SYPHILITICS.

Time.—A man should not marry earlier than 3 years after the initial leison, nor before he has gone 1 year without symptoms or medicinal treatment.

Women should wait 1 or 2 years longer.

HEREDITARY SYPHILIS.

Reference.—See *Diseases of Children*.

SPECIAL THERAPY IN SYPHILIS.

Acid Fluoricum.^{3x}—Tertiary affections of bones and skin; all discharges thin and acrid; cold relieves pain.

Acid Nitricum.^{2x}—Secondary affections of the mucocutaneous outlets of the body; cases overdosed with Mercury, or with Kali iod.; cracks; fissures; easily-bleeding ulcers.

Arsenicum.^{3x}—Syphilitic cachexia; anemia; emaciation; debility. Dry and scaly eruptions.

Ars. iod.^{2x}—Syphilitic consumption; specific psoriasis.

Asafetida.^{3x}—Tertiary lesions of the long bones and skin; nervous symptoms.

Aurum.^{6x}—Lesions of facial and cranial bones; ozena; orchitis; cachexia; melancholia.

Ferrum lactate.^{1x}—Erethistic anemia.

Graphites.^{6x}—Syphilitic eczema; indolent skin affections; ulcerations and glandular swellings.

Hepar Sulphur.^{3x}—Abuse of Mercury and Kali iod.; salivation; glandular enlargements; alopecia.

Iodine.^{2x}—Syphilitic cachexia; secondary lesions; pustular eruptions.

Kali bich.^{2x}—Ozena; pharyngitis and laryngitis; punched-out ulcers.

Kali iod. Tr.^{1x}—All tertiary lesions—syphilides, gummata, bone affections, etc. Secondary lesions; hereditary or after the abuse of Mercury. Intermediate period.

Mercurius.—All stages, especially the secondary. See *Treatment of the Secondary Stage*.

Mezereum.^{3x}—Thick, moist, scabby eruptions; neuralgias, etc., from Mercury. Nocturnal pains; exostoses.

Phosphorus.^{3x}—Plantar and palmar psoriasis; alopecia; exostoses of the skull and long bones; nervous affections.

Protonuclein.—Syphilitic cachexia and anemia. Glandular enlargements. *Dose:*—Grs. ij.-iv., 4-6 times a day.

Phytolacca.^{1x}—Secondary syphilis; rupia; mucous patches; enlarged glands; tonsillitis; rheumatism; nightly bone-pains.

Stillingia.^{2x}—Ostitis and periostitis of the long bones; Ozena; Syphilitic rheumatism and neuralgia.

Sulphur.^{3x}—Tertiary syphilides; abuse of Mercury.

Thuja.^{2x}—Syphilitic herpes, warts and condylomata; secretions acid and corroding.

CHANCROID.

Diagnosis.—See under *Syphilis*.

Prophylaxis.—See under *Syphilis* and *Gonorrhœa*.

TREATMENT.

Simple Chancroids.—Cleanse the ulcer, dry it and apply a drop of Carbolic acid (95%) for anesthesia. Then cauterize it thoroughly with pure Nitric acid, reaching all parts. Afterward, wash it every few hours with a warm, mild, antiseptic solution, dry it and dust it with Aristol, Iodoform or Calomel. If a tight prepuce prevents reaching the ulcer, slit the prepuce on the dorsum. If a circumcision will wholly remove the ulcer, cleanse it carefully and circumcise.

Phagedenic Chancroids.—These require continuously hot, moist, antiseptic dressings, after thorough cauterization. See under *Ulcers*.

Medication.—**Nitric Acid.**^{2x}—Superficial ulcers on the glans or prepuce, looking clean, but exuding an offensive discharge. Or, deep, irregular ulcers with exuberant granulations.

Mercurius.^{3x}—Superficial, rapidly-spreading ulcers, with enlarged inguinal glands.

Kali bi.^{2x}—Deep, regular ulcers, as if punched out.

Thuja.^{2x}—Dirty, flat, eroded ulcers, surrounded by redness; sticky, foul discharge; burning pain. Condylomata often present.

Chancroidal Bubo.—*Early*, apply IodineTr. or Ichthyol (20-33 $\frac{1}{3}$ %) in Lanolin or Vasogen. Apply a spica-bandage, and order rest. *Internally*, Mercurius^{3x}, or Belladonna^{1x}, as seems indicated. *Later*, apply a thin, moist, antiseptic compress, and over it a hot shot or water-bag. *Internally*, Mercurius.^{3x} Some inject 15-30 m. of saline-solution. If suppuration is inevitable, give Hepar sulphur.^{3x} *After Pus Forms:*—Incise, curette (under anesthesia) and wash out the cavity with sterile water and an antiseptic solution. Introduce a little gauze for 24-48 hours, to hold the wound open. Then allow the cavity

to granulate up, stimulating if necessary. *Internally*, Silicea.^{6x}

GONORRHEA.

Incubation.—One to twenty days; usually about four days.

Anterior Urethritis.—Is confined to the penile urethra, *i. e.*, the urethra contained in the corpus spongiosum.

Posterior Urethritis.—In the membranous and prostatic portions, is marked by increased frequency in the desire to urinate, difficulty in expelling the urine, dull pain and a sense of heat and weight in the perineum and rectum, sharp pain, referred to the glans penis, with blood, at the end of urination; prolonged erections and frequent emissions.

TREATMENT.

Prophylaxis.—Wash the penis thoroughly after intercourse, and urinate, checking the stream suddenly a few times to flush out the fossa navicularis. As soon as possible bathe the glans and prepuce with Ichthyol (20%) or Protargol (1%), watery solutions, and inject the anterior urethra with the same, retaining it for 3 to 5 minutes. No method is unfailing.

GENERAL MEASURES.

Diet.—Plain and light; milk is very good. Avoid highly spiced foods, acids, asparagus, effervescing drinks; take coffee or tea only once a day.

Narcotics.—Forbid alcoholics altogether, and tobacco as far as possible.

Rest.—Recumbent position as far as possible. Forbid over-exertion, all violent exercise, sexual excitement and the companionship of women. Support the testicles by a suspensory.

Excretions.—Avoid constipation. Advise the free drinking of water between meals. Keep the urine mildly alkaline by Vichy-water or Soda-bicarb. 5 to 10 grs.; or, Lithium-citrate, 3 to 5 grs., 4 times a day. Keep the intervals between urination as long as possible.

Cleanliness.—Exercise the greatest care that the eyes do not become infected. Prescribe a "gonorrhoea-bag," to be worn with a little cotton in the bottom, which is changed when soiled. Advise frequent sponge-baths.

LOCAL TREATMENT.

Caution.—When the deep or posterior urethra is not involved, use only anterior injections or irrigations.

Injections.—Anterior injections and irrigations may be intrusted to an intelligent patient. Just before the procedure the patient urinates, having held the urine as long as possible beforehand. He sits on the edge of a chair with a roll of toweling behind the scrotum. The left hand holds the glans and opens the meatus, the right hand manipulates the syringe or irrigator-tip. Injections are made with a 2 to 3 fl. dr. urethral syringe, with a soft-rubber point. The fluid is injected slowly, and held, by compressing the meatus for 2 to 10 minutes. 1

is best to inject 2 to 3 syringefuls of warm water before using the medicated fluid.

Syringe.—Irrigations are made with the Valentine's syringe-tip, or Kiefer's two-way tube, attached to an irrigator or fountain-syringe. About 2 quarts of solution are used each time.

Deep Injections.—Posterior injections and irrigations should be made only by the physician. After urinating, the patient sits on the extreme edge of a chair without a perineal pad. The irrigator or syringe-tip is introduced into the meatus and, after injecting or irrigating the anterior urethra, the patient is instructed to relax the sphincter muscle and the force of the stream is gradually increased up to a six-foot column. If the fluid does not enter the bladder after a few minutes, a soft-rubber catheter (12-16 F.), with the eye near the point, is attached, and inserted just far enough to cause the fluid to enter the bladder. When the desired amount of fluid has entered, the catheter is withdrawn and the patient urinates the fluid out. For posterior injections, 2-5 fl. oz. are used; for irrigations, 2-3 bladderfuls.

Aggravation.—Aggravation of symptoms often follows urethral injections, instillations, local applications or instrumentation. Forewarn the patient.

ACUTE URETHRITIS.

Hot-water.—Immerse the penis as often and as long as circumstances will permit, in water as hot as can be borne. Injections or irrigations of the anterior urethra 4 to 6 times a day with water at 100°-115° F. are of great value. Boric-acid solution (1:100) may be substituted.

Protargol.—A silver proteid compound has been used with the greatest success. In anterior injections a solution ($\frac{1}{4}$ -1%) is used 3 to 4 times a day, or a 2% solution once a day, and less frequently as the case improves. For posterior injections, a $\frac{1}{4}$ -2% solution is used once a day. The injections should be continued for 7-10 days after the gonococci and discharge have disappeared, or should be displaced by astringent injections at this time.

Potassium Permanganate.—Solutions, used according to Valentine's method, are very successful, but should be followed up for a week or two by astringent injections. It is used hot as follows: First day, 2 anterior irrigations (1:2000-1:4000); second day, 2 anterior irrigations (1:3000-1:4000); third day, 1 intra-vesical and 1 anterior (1:6000); fourth and fifth days, 1 intra-vesical (1:3000); sixth and seventh days, 1 intra-vesical (1:3000-1:1:2000); eighth and ninth days, 1 intra-vesical (1:2000-1:1000); tenth day, 1 intra-vesical (1:1000) and 1 anterior (1:5000). Hot irrigations of Permanganate (1:13000-1:12000) are often used before injections of other agents, especially where edema exists.

Ichthyol.—It is used with success, rivaling that of Protargol, and is less expensive. A few injections of a watery solution (5-10%) is said sometimes to abort without irritating, if used at the earliest symptoms. *Later.*

anterior injections of—Ichthyol, 45 grs.; Glycerine, 1 oz.; Water, 16 oz. Posterior injections of a watery solution of Ichthyol (2%) are also used.

Hydrogen-Peroxide.—Dilute to a 2-4 volume solution; use as an anterior injection, 3 to 4 times a day.

Astringent and Stimulating Injections are especially useful after the gonococci have disappeared and only a slight discharge remains. The following watery solutions are good:—Hydrastis, fl. ext. (1:3); Zinc-sulphate, or chloride (2-8 grs. to 1 oz.); Silver-nitrate (1-4 grs. to 1 oz.); Zinc-permanganate (1 gr. to 8 oz.); Acetic acid (3-6%); Pinus Canadensis fl. ext. (1:3).

CHRONIC URETHRITIS.

Strictures are often the cause; remove them as described under *Urethral Stricture*.

Patches.—Granulated or ulcerated patches are treated by instillations to the affected spot, of 15-20 m. of one of the following solutions (using the Keyes-Ultzmann deep urethral syringe): Silver-nitrate (1-40, usually 5-10 grs. to the oz.); Protargol (5-10%); Ichthyol (510%). Or the same, or somewhat stronger solutions, are applied to the diseased patches, through an endoscope, by cotton on an applicator. These treatments are given every 2-7 days and, if convenient, are preceded by a Permanganate irrigation.

Irrigations.—Irrigations of the whole urethra with Permanganate (1:12000, increased to 1:2000), Bichloride (1:20000) or Ichthyol (2-3%) are of value.

Injections.—Injections of astringent or stimulating solutions are to be used, when no definitely localized lesion is found. See *Acute Urethritis*.

Sounds.—Cold steel sounds, passed every 2-3 days, stimulate the atonic membrane after the discharge has ceased, and prevent recurrence.

URETHRITIS.

Medicinal.—**Agnus Castus.**^{1x}—Gleet; yellow discharge; loss of sexual power and coldness of the parts.

Argentum Nitrate.^{3x}—Subacute and chronic; burning on urination, with frequent desire; blood-streaked discharge.

Cannabis Sativa. Tr.—Smarting, burning, stinging during urination; constant urging; copious, thin discharge; prepuce swollen and painful; strangury, pains extending into the scrotum, with dragging in the testicles.

Cantharis.^{2x}—Extension toward the bladder; blood free, or in the discharge or urine; cystitis.

Copaiva.—Constant desire to urinate; painful, bloody urination; profuse, yellow, purulent discharge; chordee. *Dose:*—5m. capsules, *t. i. d.*

Cubeb. Tr.—Gonorrhoea, especially in the stage of decline. *Dose:*—10m., or pulv. 5-10 grs., *t. i. d.*

Gelsemium. Tr.—Acute stage, early; moderate discharge; smarting and burning at the meatus; little pain; frequent urination. *Dose:*—1-2m. every 3 hours.

Hepar-sulph.^{3x}—Muco-purulent discharge in those who have had several attacks.

Ichthyol.—Has given good results. *Dose*:—5 grs. capsules, *t. i. d.*

Mercurius.^{2x}—When the inflammatory process is accompanied by free exudation into submucous tissue, and thickening of the urethral walls, producing *great diminution in the size of the stream of urine, and chordee.*

Mercurius cor.^{3x}—Violent tenesmus, burning and scalding.

Mercurius iod.^{3x}—Subacute and chronic; enlarged inguinal glands; indurated patches along the urethra.

Methylene Blue has been used with success in some cases. *Dose*:—2 grs. capsules, *t. i. d.*

Pinus Canadensis.—Is useful, especially in sub-acute and chronic urethritis. *Dose*:—Fl. ext., 10m., *t. i. d.*

Santal Oil.—Is of the greatest value in all stages. *Dose*:—*Absolutely* pure, 5m. capsules, *t. i. d.*

Sulphur.—Gleet; thickening of the urethral walls.

Thuja.—Painless gleet; thin discharge; prostatic inflammation.

Consult.—Aconite; Belladonna; Capsicum; Camphor; Digitalis; Erigeron; Pulsatilla; Sepia; Terebinth.

TREATMENT OF COMPLICATIONS.

Ardor Urinæ.—Urinate with the penis in hot water. Keep the urine alkaline.

Balanitis.—Bathe the glans often with warm Boracic-acid solution; dry, and dust it with Boracic-acid powder.

Balanoposthitis.—Reduce the edema by soaking in hot Boracic solution, and treat as for *Balanitis.*

Bubo.—Treat the same as *Chancroidal Bubo.*

Chordee.—Empty the rectum; cool room; light covers; hard mattress; cold applications; Camphor-bromide, 2 grs. every 3 hours during the evening and night, if necessary. Suppositories of (Opium, 1 gr., Camphor, 2 grs.).

Phimosis.—Soak the penis in hot Boracic-acid solution. Inject a mild antiseptic solution under the foreskin. If this fails, slit up the prepuce on the dorsum, or circumcize.

Paraphimosis.—Soak in hot water, or bind with an elastic bandage to reduce edema. Then compress the head of the penis with one hand and produce traction at the constricting band with the other. If this fails, cut the constricting band with a probe-pointed bistoury.

Other Conditions.—For Cystitis, Prostatitis, Seminal Vesiculitis, Orchitis, etc., see *Genito-Urinary Surgery.*

Marriage.—The patient should not marry until the urine shows permanent absence of pus, threads and gonococci.

SECTION XXII.
APPENDIX.
BACTERIOLOGY.

PATHOGENIC MICRO-ORGANISMS.

BACILLUS TUBERCULOSIS.

The Sputum.—Have the patient (preferably on first waking in the morning) wash the mouth thoroughly with pure water. After the first spell of cough and expectoration (to clear away bronchial mucus), have the patient make a second *effort* at cough, and what is raised is to be expectorated into a clean, wide-mouthed bottle.
Caution.—Avoid obtaining “mouth sputum.”

Time of Examination.—Results are best if the examination is made inside of 24 hours.

The Specimen.—Deposit a quantity of the sputum on a clean glass slide, and spread it slightly. Hold it over a black surface; there will usually be found a number of grayish-yellow, irregular, translucent granules (caseous matter), smaller than the head of a pin. Pick up a granule with a clean pointed instrument; spread it over the surface of a clean cover-glass. If the granules of caseous matter cannot be found, a particle of *pus* is next best; the mucus rarely contains bacilli.

Exact Method.—If specimens obtained in this way fail to reveal bacilli, take the mass of sputum and partially digest it with Caustic-potash; collect the solid portion by the centrifuge. If a few bacilli are present this will usually secure them.

Incipient Phthisis.—If there is no expectoration, secure spray by forcible cough against a clean glass plate (see p. 51).

Staining.—1. Spread the cover-glass with a thin (not *too* thin, nor yet too thick) layer of the sputum to be examined.

2. Dry it in the air.
3. Fix it by passing through the flame 3 times.
4. Stain in Para-fuchsin.
5. Pass it through the flame 10 times, keeping it steaming.
6. Wash with water.
7. Wash with solution of Sulphuric acid (10%).
8. Again wash with water, washing out thoroughly.
9. Counter-stain (30 seconds) with Methylene-blue (don't *overstain*).
10. Wash with water until very faint blue remains.
11. Mount in Canada-balsam (if mounted in water the bacilli appear larger).
12. Examine with oil-immersion lens ($\frac{1}{18}$ in.).

Identification.—*Shape*:—It is rod-shaped, with rounded ends, and a slight curve; often occurs in pairs, placed
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end-to-end, or overlapping; many have a "beaded" appearance; the bacillus tuberculosis has no spores. Size.—Length, 1.5–3.5 μ ; breadth, 0.2–0.5 μ (*micromillimeter*).

Diagnosis.—Its presence is absolutely pathognomonic of tuberculosis. At times a number of specimens will be examined before its presence is detected. *Differentiation*:—It must be distinguished from the *smegma bacillus* (placed in 60% alcohol the *s. b.* parts with its stain), and from the *bacillus lepræ* (exclude it clinically).

KLEBS-LÖFFLER BACILLUS.

(BACILLUS DIPHThERIE.)

The Specimen.—*To obtain*:—Use a cotton swab, on the loop-end of a sterile wire; scrape it over the surface of the pseudo-membrane, and on the mucous membrane at the margin of the pseudo-membrane; place in a sterile test-tube; close with a pledget of cotton.

To Prepare.—Place a particle of the membrane on a clean cover-glass, spreading it in a thin and uniform layer, using a sterile platinum loop. When dry, fix by passing through the flame 3 or 4 times.

Staining.—Stain with Löffler's alkaline solution of Methylene-blue; *time*—5 to 10 minutes; rinse; place on a slide; examine with oil-immersion lens ($\frac{1}{8}$ in.).

Identification.—The bacillus is *non-motile*; *size*: (variable) average length, 2.5 μ to 3 μ ; breadth, 0.5 μ to 0.8 μ . *Shape*:—(variable) sometimes straight, or slightly curved rod; irregular forms are characteristic—rods with one of both ends terminating in a little knob; rods, broken at intervals into round, oval or straight segments.

Diagnostic Value.—It is only diagnostic as confirmatory of clinical signs and symptoms. The virulent form is found in the throats of healthy persons who have been in contact with diphtheria-patients. It persists in the throats of convalescents sometimes 5 weeks (occasionally longer).

Culture-test.—Make a smear-culture on blood-serum; keep the test-tube at blood-heat (98° F.) for 24 or 36 hours (carrying in the pocket will do it). If the specific *bacillus diphtherie* is present there will be colonies of grayish-white, moist drops; in this length of time other bacteria will not have developed sufficiently to interfere. This test is absolutely decisive.

GONOCOCCUS.

(MICROCOCCUS GONORRHOÆ.)

The Specimen.—Obtain some of the discharge from the urethra (or, in the female, the vagina). Spread a thin layer on a cover-glass. Dry in the air, and fix in the flame.

Staining.—Stain (without the aid of heat) with saturated alcoholic solution of Methylene-blue; *time*—5 to 15 minutes. Wash with water. Stain with saturated alcoholic solution of Eosin, 5 to 15 minutes. Wash in water; dry; mount. The gonococci will be stained blue (the nuclei of pus-corpuses will also be blue), other elements red. Examine with oil-immersion lens.

Identification.—*Size*:—Diameter, 0.8 to 1.6 μ . *Shape*:—Roll-shaped diplococcus; non-motile; no flagellæ; no spores; occur in pairs (sometimes *four*); each one is not a perfect hemisphere—the approximated surfaces are slightly concave. They are found in the gonorrhœal pus-cells.

Diagnosis.—It is the specific cause of gonorrhœa. In the early stage of the disease the gonococci grow in the superficial epithelial cells; later, they penetrate to the deeper layers. It is constantly present in gonorrhœa; also found in the sequelæ—endometritis; salpingitis; oöphoritis; cystitis; peritonitis; arthritis; conjunctivitis; endocarditis.

Precaution.—In diagnosis account should be taken only of cocci enclosed in *cellular elements* (these alone are characteristic). *Note*:—A coccus similar in appearance to the *gonococcus* is sometimes found in urethral discharges, but it can be distinguished by the fact that *it will stain by Gram's method (the gonococcus will not)*.

THE BLOOD.

PLASMODIUM MALARIE.

(ORGANISM OF LAVERAN.)

METHOD OF EXAMINATION.

Time.—Eight hours before or after a chill is best.

Obtaining the Blood.—*Location*—the lobe of the ear. Wash it with soap-and-water, and dry with a cloth; sterilize. Make a puncture at the bottom of the lobe, steadying it with the fingers of the left hand. Use the point of a sharp lancet, or a bayonet-pointed surgical needle (a sewing needle is not satisfactory). Make a *quick, sharp stab*, about one-quarter inch deep. Do not *squeeze* the blood out; let it flow spontaneously. Gently wipe away the first 4 or 5 drops.

The Specimen.—When another drop has formed, as it hangs pendent, touch it (*without touching the skin*) with the center of a clean cover-glass, warmed before using. Hold the cover-glass with forceps, or, if in the fingers, by the edge in such manner that the finger will not come in contact with the surface. Drop a second cover-glass on the first, spreading the drop between them. At once, holding the two parallel and horizontal, draw them apart, by sliding motion, in such manner as to leave an evenly-distributed film of blood on each glass. Let them dry; or, if for immediate use, place a cover-glass, blood-side down, on a slide.

Examination.—Use an oil-immersion lens ($\frac{1}{8}$ inch). Select a portion of the slide where the corpuscles do not overlie each other. The *number* of organisms varies greatly. Sometimes their discovery requires long and patient search. If Quinine has been recently taken, they may be absent. During the chill they retreat to internal organs (spleen, liver).

Identification.—In examining the slide watch carefully in order to detect, (a) any especially large corpuscle; (

any especially *pale* corpuscle; (c) anything *black* or *dark brown*; (d) any *movements*.

The Malarial Organism.—(a) The "*hyaline form*:"—It appears in the corpuscle as a light spot in the pale greenish-yellow of the cell (they must be distinguished from white circles to be found in the center of many normal corpuscles under certain conditions of light and partial drying). (b) The *pigmented form*:—The pigment appears (*in the corpuscles*) as a group of *small black dots*, having *active rapid motion* (after *motion ceases*, with the death of the pigment-granules, they look like small masses of dirt, which may have accidentally invaded the field owing to want of care in preparing the slide). If in doubt, get a fresh slide, with the pigment-granules still in motion; identification is then not difficult. (c) *Segmented form*:—At this stage a body forms having radiating lines, with the pigment-granules in the center; it finally splits up into another generation of young organisms. (d) *Flagellate form*:—Late in the life-history, some of the organisms show arms, or *flagella*, which sweep the field with a wavy motion.

Diagnosis.—The presence of the Plasmodium in the blood is absolutely diagnostic of malaria. The various forms of the disease are readily differentiated clinically.

DIET IN DISEASE.

ARTIFICIAL METHODS OF FEEDING.

NASAL FEEDING.

Indications.—In the refractory (prisoners) who attempt voluntary starvation; the delirious; the maniacal and the insane, who refuse food; in some cases of diphtheria, and other throat affections; when taking food by the mouth is impossible.

Tube.—Use a soft-rubber catheter, size about No. 8 E. Attach it to the rubber-tube of a fountain syringe.

Food.—Milk, broths, or any liquid food can be used.

Quantity.—From a pint to a quart.

Method.—If there is resistance (as in mania) have the patient held by a sufficient number of able assistants; the patient sitting, either in bed or in a chair. The hands and arms must be well secured, to prevent interference. The head must be firmly held.

Passing the Tube.—Anoint the catheter with vaseline or a bland oil. Have the catheter detached from the tube. Enter the point in one nostril and pass it back along the floor of the nasal cavity; keep passing it, with gentle force, and it will without difficulty find its way to the pharynx and into the esophagus.

Accidents.—The end of the catheter may pass over the patient's tongue, and, if refractory, be caught between the teeth. Pinch the nostrils, to stop breathing, make pressure on the supra-orbital nerve, and the patient will quickly open the mouth and release it. Withdraw the catheter and begin again. I have known the point of the catheter

to enter the larynx. But in most cases the instrument passes without difficulty into the esophagus, especially in non-refractory patients, who must be told to "swallow" when feeling the end of the catheter in the pharynx.

Administration.—As soon as the catheter is in the esophagus (which will be when about 2 inches still remain outside the nostril) attach the tube of the fountain syringe, raise the bag, and in a few moments the liquid food will all be in the patient's stomach.

Advantage.—This is an efficient mode of feeding, and should be more widely used by the general practitioner having cases to which it is applicable.

RECTAL ALIMENTATION.

Indications.—(a) Prolonged reflex vomiting (pregnancy; seasickness); (b) gastric ulcer; (c) gastric cancer; (d) inability to swallow food (as in coma; delirium, paralysis); (e) stricture in the alimentary tract; (f) in low conditions, when absorption by the stomach is suspended; (g) in fevers; (h) gastric hemorrhage; (i) extreme irritability of the stomach from any cause.

Preparation.—(a) Cleanse the rectal surface of all mucus and feces; (b) allay irritability of the rectum, if it exists.

Tube.—*Size*—diameter, for adults, about $\frac{3}{8}$ inch; children, No. 12 or 14 velvet-eyed flexible catheter. *Length*—for adults, about 12 inches (or more). *Quality*—soft and flexible, but not so much so as to "double up" in the bowel, or so stiff as to give pain, or damage the mucous membrane.

Syringe.—A hard-rubber piston-syringe, capacity, 2 oz. Fill the syringe, hold it point upward and expel air, then attach the tube to the nozzle.

Position of the Patient.—Place the patient on the left side, with the hips raised high on pillows. The Sims gynecological position is best.

Method.—Anoint the tube with oil, vaseline, butter or lard (never with glycerine). Insert it slowly, with a gently twisting, insinuating motion, up into the sigmoid flexure.

Distance.—In the adult pass the tube in from 10 to 12 inches, or as high up as possible (the sigmoid veins communicate with the *inferior mesenteric*; the veins of the lower rectum with the *inferior vena cava*).

Retention.—If the patient is conscious, caution against straining. Withdraw the tube not too slowly. If there is danger of non-retention, have the hips raised high, and with a soft compress, press firmly against the anus for 20 or 30 minutes.

Quantity.—Two ounces should not be much exceeded.

Temperature.—A little less than blood-heat— 90° – 96° F.

Number of Injections.—This depends upon the irritability of the rectum. Begin by six-hour intervals; it may be possible to increase to four, or three hours.

Care of the Rectum.—If injections are given for a long time, flush the rectum (with a double catheter) once daily.

with soap-and-water; give a nutrient enema immediately after the cleansing. If diarrhea is produced, suspend for a time, and resume later.

Irritability of the Rectum.—To allay irritability, 5-6 drops of McMunn's elixir may be combined with the enema. *Caution!*—The Opium interferes with the power of absorption of the mucous membrane, and its use must be limited.

NUTRIENT ENEMATA.

Absorbable.—Properly prepared meat, milk, eggs, and other albuminous substances are readily absorbed.

Non-Absorbable.—Fats and oils (including *yolk* of egg) and starches, are not readily absorbed.

Milk.—This is a useful and available rectal aliment. Remove the cream; heat to the proper temperature; add a little salt (never add the salt *before* heating). *Peptonized milk* is readily absorbed.

Egg.—Use the *whites* only. Add the whites of two eggs to the proper quantity of peptonized milk. The white of egg may also be added to other nutrient materials.

Meat.—If given in fluid form, or partly predigested, the proteids are readily absorbed.

Beef.—Raw beef, scraped into a paste; mix with warm milk; add Extract-of-pancreas.

Beef and Pancreas.—Take one part of fresh pancreas and three parts of fresh beef; remove all fat; scrape or mince fine; rub into a soft paste with warm water. Inject with a wide-nozzled syringe.

Beef-Powder.—Take of Beef-powder (p. 373), 1 oz.; skimmed milk, 2 oz.; liquor pancreaticus, 2 drams; mix. This is very nutritious.

Feeding the Unconscious.—Use only liquid food. Give it with a spoon, or, in some cases, a medicine-dropper. It requires the presence of at least half-a-dram in the pharynx to excite reflex deglutition. In comatose infants and young children, with the child on the back, bland liquid food can be poured into a nostril.

LAVAGE OF THE STOMACH.

Indications.—See SECTION X., *Diseases of the Stomach.*

Instrument.—A long soft-rubber tube, which is made for the purpose. It has a bulb midway between the ends; one end is funnel-shaped, or a glass funnel can be attached.

The Patient.—The patient should be seated in a chair. Explain to him the process, and reassure him so that he may not become "panicky" if he feels "as if he would choke" as the tube passes the larynx. Have him keep the head straight (not to either side at all) and thrown backward.

Introduction.—Anoint the end of the tube with olive-oil or butter (white-of-egg is less apt to nauseate). With the patient's head thrown back and the mouth wide open, push the tube over the dorsum of the tongue, to the posterior wall of the pharynx, and down into the esophagus.

the tube passes the pharynx, if the patient is inclined to resist, or become "panicky," reassure him by telling him that all is right, and order him again and again to "swallow." The tube can then be pushed on. At the cardiac orifice, raise the funnel-end and introduce a small quantity of warm water, and it can then be pushed into the stomach.

Technique.—Raise the funnel-end; slowly pour in the fluid until it reaches the case under treatment (pages 127-131). Then empty the stomach, lower the tube over a foot-tub or set on the floor or a stool, and the contents of the stomach will flow out. Measure the quantity introduced, so as to leave none.

Precautions.—In early attempts the patient will be inclined to vomit; usually it is not necessary to remove the tube; still encourage him to swallow. If there is dysphagia of the pharynx, paint it with solution of cocaine (4%).

Alimentation.—Take $\frac{3}{4}$ pound of beef-powder; add three times as much milk; salt. Introduce it into the stomach by the tube. Twice a day at first, with gradual increase.

GAVAGE.

Parenteral Feeding.—Liquid foods may be introduced into the stomach by means of the tube.

Parenteral Method.—This consists in administering beef-powder and milk in phthisis. Its use should be confined to cases of laryngeal phthisis, in which there is almost insupportable pain on swallowing.

Beef-Powder.—Take raw beef; remove all fat and connective tissue; chop it fine; make it absolutely dry in an oven (at 100° C.); when dry, grind in a mortar and pass through a fine sieve. Six pounds of beef make one pound of powder.

PREPARATIONS OF MILK.

STERILIZED MILK.

Preparation.—The milk is heated to 212° F., and this temperature maintained for 1½ hours. The milk is placed in bottles, stopped with cotton plugs, the bottles placed in a closed container (Arnold Sterilizer), and exposed to steam.

Properties.—All pathogenic germs are destroyed. But changes take place in the constituents of the milk which impair its nutritive value and its digestibility. It must be kept for several days.

—Its use is objectionable; it should be limited to emergencies of travel, or in hot weather in places where ice is not obtainable.

PASTEURIZED MILK.

Preparation.—The milk, in bottles, is heated to 167° F., and this temperature maintained for 20 minutes.

Properties.—It destroys most pathogenic germs (typhoid, cholera, diphtheria, cholera, and the pyogenic; staphylococci, etc.).

To arrest the process of artificial digestion, bottle on ice; or, bring to the boiling-point. If is to be fed at once, this not necessary. In ord tonize the milk *completely*, continue the process fo

Use.—In infants, when there is acute indig should be diluted, as in the case of ordinary m

KUMYSS.

Method.—Take of fresh milk, 1 quart; water, sugar, $\frac{1}{2}$ ounce; yeast cake, a piece $\frac{1}{2}$ inch put it in a *stout* bottle, and wire down the cork a temperature of 60° or 70° F. for one week (bottle 5 or 6 times each day); place on ice.

Use.—In acute and chronic indigestion; in in irritable stomach.

MATZOON.

Method.—This is similar to Kumyss, but is p in some respects. It is very useful in chronic in in adults. It contains double the amount of not found in Kumyss.

JUNKET.

Method.—Take of fresh cow's-milk, lukewarm add 2 teaspoonsful of liquid rennet (it can b grocers'); stir for a moment; let it stand until co takes place. Serve cold; season with sugar and This is a favorite dish for the sick.

FOOD FOR THE SICK.

BEVERAGES.

or porcelain vessel; let this stand for two weeks, then strain *without pressure*. Put into bottles well-corked.

Apple-Water.—One large, juicy apple; three cups cold water. Let the apple be a juicy, finely flavored one. Pare and quarter it. Put on the fire in a closely-covered sauce pan, with the water, and boil until the apples stew to pieces. Strain the liquor as soon as it is taken from the fire, pressing the apple hard in the cloth. Set away to cool. Sweeten to taste with white sugar. Drink ice-cold. Good when there is constipation.

Lemon Whey.—Put a quart of new milk into a sauce-pan and stir it over the fire until it is *nearly boiling*; then add the juice of one lemon and let it simmer for fifteen minutes, skimming off the curd as it rises. Add the juice of another lemon, skim for a few minutes, strain, and it is ready for use.

Wine-Whey.—*Recipe.*—Fresh milk, 1 pint; sour wine, 1 wine glass; sugar, 1 teaspoonful. Put the milk into a shallow sauce-pan; bring it to the boiling point; pour in $\frac{1}{2}$ the wine; stir gently and let it simmer; skim off the curd that rises. In a few minutes pour in the rest of the wine; skim the remaining curd; sweeten; when cold it is ready for use. *Use:*—In fevers, and in the gastro-enteric affections of children and adults.

Mint-Water.—Boiling water, $\frac{1}{2}$ pint; green spearmint leaves, a handful. Bruise the leaves, put into a dish, cover with boiling water; steep fifteen minutes. Drink hot or cold. Good in nausea.

Tamarind-Water.—Tamarinds, one tablespoonful; Ice-water, one gobletful; Sugar, one teaspoonful. Stir the tamarinds in the water until dissolved; strain and sweeten. Good in constipation.

Flax-seed Lemonade.—Four tablespoonfuls whole flax-seed; one quart boiling water; juice of two lemons; sugar to sweeten. Put the flaxseed in a pitcher, pour on the boiling water, cover it and let it steep for three hours. When cold add the lemon-juice and sweeten to taste. If too thick, thin with cold water. Let the patient have it ice-cold. The last two recipes make soothing drinks in throat and lung troubles.

Barley-Water.—Take of pearl barley, 2 oz.; wash it well with cold water; drain off and reject the wash-water. To the barley add $1\frac{1}{2}$ pints of water; boil for 6 hours in a covered vessel; add water as it evaporates; strain into a pitcher, and keep it in a cool place (in the refrigerator). Take out as needed and warm it for use.

Thick Barley-Water.—Wash the barley as above. Put it in a sauce-pan, pour over it two quarts of *cold* water, bring to a boil, and let it boil for *two* hours. Pour into a pitcher with the *thin* peel of half a lemon; set it on ice to become perfectly cold. When cold, take out the lemon-peel and sweeten to taste.

Barley-Water.—Boiling water, two cups; barley, two tablespoonfuls. Wash the barley and soak it half an

mer one hour, stirring often. Sweeten to taste and strain before using. This may be used temporarily as a substitute for milk when the latter disagrees.

Egg-Lemonade.—Beat up one egg to a froth; make one goblet of lemonade, using the juice of an *entire* lemon; sweeten to taste, stir in the egg and add pounded ice. This is a delicious and refreshing drink for the sick, and has, moreover, some nutritive value.

Hot Lemonade.—Lemon-juice, two tablespoonfuls; boiling water, one gobletful; sugar, one tablespoonful. Put all into a hot bowl and stir for a few minutes. Drink hot. Good when it is desired to induce perspiration.

Oatmeal-Water.—Oatmeal, two tablespoonfuls; cold water, one pint. Stir the meal into the water, and let it stand one hour; strain and drink cold. A refreshing drink in hot weather. Good in constipation.

Sago Milk.—Sago, one tablespoonful; cold water, one teacupful; fresh milk, one quart. Wash the sago and soak it over night; put it into a farina kettle; boil till clear; sweeten. Drink hot or cold.

Elm Tea.—Take nice slippery-elm bark, break it into bits, pour boiling water over it, cover and let it stand until cold. Take with ice, and sweeten if desired.

Gum-Arabic Water.—Gum Arabic, two teaspoonfuls; hot water, one pint; sugar, one teaspoonful; lemon-juice of one lemon. Put all into a pitcher; keep it on a hot stove till the gum is dissolved. Use when cold. The last two may be used as demulcent drinks in throat troubles and coughs.

Café-au-Lait.—Fresh, *strong* coffee, and boiling milk, equal parts. Strain the hot coffee through some muslin into the pot from which it is to be served. Add the hot milk immediately, set the pot on the hot stove for five minutes, and it is ready to serve.

Coffee and Egg.—Make a cup of strong coffee, adding boiling milk as usual, only sweetening rather more; take an egg, beat yolk and white together thoroughly; boil the coffee, milk and sugar together, and pour it over the beaten egg in the cup in which you are going to serve it. This simple recipe is used frequently in hospital practice. A sick person, needing nourishment and having lost appetite, can often be sustained by this when nothing else can be taken.

Egg-water.—Cold water; one gobletful; whites of two eggs; sugar to sweeten. Stir the eggs gently into the water, but do not beat them; add the sugar, or a little salt. This is a bland, and yet nourishing, drink, which can be taken by a delicate stomach, when everything else is rejected.

Toast-water.—Cut thin slices of bread, and toast till nicely brown, with no suspicion of burning. Put several such slices into a bowl and pour over enough *boiling* water to cover. Cover the bowl closely, and let it steep *until cold*. When cold, strain, sweeten to taste and put a piece of ice into each glass. It may be flavored with *lemon-juice*.

DIET FOR CONVALESCENTS.

Mutton Chops.—They should be *broiled* over a *clear* fire for six or seven minutes; *turn frequently*, and do not prick with a fork. Serve hot; season with salt and pepper *after* they come from the fire.

Game.—Pigeon, quail and snipe are especially acceptable to the convalescent, and will tempt the returning appetite. Broiling is the best mode of cooking.

Chicken.—Tender spring chicken may take the place of the game when the latter is not to be had.

Omelette.—Two eggs; one cupful buttermilk; one-third teaspoonful soda; three tablespoonfuls flour. Beat up the eggs, stir them into the buttermilk with the flour, add the soda, some salt, and stir all to a creamy consistence. Put three tablespoonfuls of this batter onto a hot, buttered griddle. When one side is brown, *fold it on itself*, turning one-half on the other. Serve hot and eat with butter.

Potato Surprise.—Scoop out the inside of a sound potato, leaving the skin attached on one side of the hole, as a lid. Mince up finely the lean of a juicy mutton-chop, with a little salt and pepper, put it in the potato, pin down the lid, and bake or roast. Before serving—in the skin—add a little hot gravy if the mince seems to be too dry.

Tomato Soup.—Peel six good-sized tomatoes and cut them into small pieces; put them into a sauce-pan, with a quart of water, and boil until tender; season with salt and pepper. Now stir into the water half a teaspoonful of baking-soda. Lift the kettle from the stove when stirring in the soda, or the soup will run over as it foams. Boil again, and add a pint of sweet milk. Bring to the boiling point once more. Put broken crackers into a dish, pour the soup over them and serve immediately.

This is an excellent dish for convalescents, being often taken with relish when nothing else tempts the appetite. It may be used in all cases except where there is a tendency to looseness of the bowels.

Spanish Cream.—One quart milk; yolk of three eggs; one-half box gelatine; two tablespoonfuls sugar. Soak the gelatine for an hour in the milk, put on the fire and stir well as it warms. Beat the yolks very light with the sugar, add to the scalding milk, and heat to boiling point, stirring all the while. Flavor with vanilla or lemon. When almost cold, put into a mould wet with cold water.

Cottage Cheese.—Heat sour milk until the whey rises to the top. Pour off the whey, put the curd in a bag and let it drip for six hours, without squeezing it. Put it in a wooden bowl, chop fine with a wooden spoon, salt to taste, and work to the consistence of soft butter, adding a little cream and butter as you proceed. Mould in balls and keep in a cool place. It must be eaten *fresh*.

BATHS.

TEMPERATURE OF BATHS.

Bath.	Water.	Vapor.	Air.
Cold.....	33° to 65° F.
Cool.....	65° to 75°
Temperate...	75° to 85°
Tepid.....	85° to 92°	90° to 100°	96° to 106°
Warm.....	92° to 98°	100° to 115°	106° to 120°
Hot.....	98° to 112°	115° to 140°	120° to 180°

Bran-Bath.—Boil four pounds of bran in one gallon of water, strain, and add the liquor to sufficient water for a bath. Use to allay irritability of the skin, and to soften it in squamous diseases.

Salt-Bath.—Add rock-salt in the proportion of one pound to four gallons of water. Use as an invigorating bath, and to lessen susceptibility to cold.

Alcohol-Bath.—An ounce of *Alcohol* to the quart of water. Use for the same purpose as salt-bath.

Sulphur-Bath.—Twenty grains of *Sulphuret of potassium* to a gallon of water. For skin-diseases and rheumatism.

Mustard-Bath.—Add a handful of mustard of the ordinary hot bath, or a smaller quantity to a foot-bath. Use when stimulating action is required.

Cold Douche.—Lower the patient's head, place rubber-cloth beneath, and pour cold water from a pitcher over the crown of the head, the pitcher being slowly and gradually raised higher and higher, so that the water may fall with more force. Use in sunstroke, and intense cerebral congestion.

Wet-Pack.—Spread a comfort and several blankets on the bed, and over these a sheet wrung out of cold water. Remove all the patient's clothing; lay him in the middle of the sheet, draw the edges of the sheet over, and wrap the patient in it snugly, then draw over one side after another of the blankets and comfort, and make all snug. Put cold wet compress on the forehead. Use to reduce temperature in typhoid, and to develop delayed eruption in scarlet, and other specific fevers.

Blanket-Bath.—A blanket is wrung out of hot water, and wrapped around the patient. He is to be packed in three or four dry blankets, and allowed to rest quietly for thirty minutes. The surface of the body should then be well rubbed with warm towels, and the patient made comfortable in bed. This is a ready means of inducing perspiration.

Mercurial Bath.—Seat the patient in a chair; surround all, from his neck to the floor, with blankets; underneath the chair place a spirit-lamp, having above it a metal plate; on the plate put 60 to 180 grains *Bisulphuret of mercury*. Use in the treatment of secondary syphilis.

HYPODERMIC MEDICATION.

Method.—Select for injection the flexor side of the arm, over the biceps muscle, or abdomen, near the umbilicus. Pinch up a fold of integument between the thumb and forefinger, insert the point of the needle well beneath the integument, inject slowly, withdraw carefully. As a rule, not more than *one-half the usual dose*, as given by the mouth, should be injected.

TABLE OF DOSES.

Muriate of Morphine.....	gr.	$\frac{1}{8}$	to	$\frac{1}{2}$
Sulphate of Morphine.....	gr.	$\frac{1}{8}$	to	$\frac{1}{2}$
Sulphate of Atropine.....	gr.	$\frac{1}{10}$	to	$\frac{1}{30}$
Strychnine.....	gr.	$\frac{1}{20}$	to	$\frac{1}{30}$
Sulphate of Soda.....	grs.	2		
Sulphate of Quinine.....	grs.	2	to	4
Squibb's liquor of Opium.....	gtt.	5	to	40
Magendie's solution.....	gtt.	3	to	20
Tincture of Hyoscyamus.....	gtt.	10	to	20
Tincture Cannabis.....	gtt.	10	to	20
Ergot, Fl. Ext.....	gtt.	15	to	30

DISINFECTANTS.

Formalin.—Use a 2% solution (Formalin, 3 drams, to water, 1 quart). With a cloth wet in this solution, wipe off all articles in the room—floor, walls, furniture, etc. To be used for purposes of disinfection after contagious diseases.

Copperas.—Take of copperas (*Sulphate-of-iron*), 2 lbs.; water, 1 bucketful. Use freely for privy-vaults, water-closets, catch-basins, cess-pools, and the like.

Zinc-Chloride.—Take of Zinc-chloride, 1 lb.; water, 2 gals. Use in the chamber-vessel or bed-pan into which typhoid or dysenteric discharges are received. Also for general purposes of disinfection.

Zinc-Sulphate.—Take of Zinc-sulphate, 1 lb.; Carbolic acid, 2 oz.; water, 4 gals. Keep a tub of this solution, and in it place all soiled clothing and bed-clothes from patients with infectious diseases.

Mercuric-Bichloride.—Take of Mercuric-bichloride (*Corrosive sublimate*), 1 part; water, 1,000 parts. For water-closets, and the like. This is a most efficient disinfectant, but dangerous because of its highly poisonous character. Add some coloring-matter, so as to be able to distinguish it from clear water.

Carbolic Acid.—A weak solution does little good; a strong solution is corrosive. There are better disinfectants.

Ozone.—Take of Permanganate-of-potash, $\frac{1}{2}$ oz.; Oxalic acid, $\frac{1}{2}$ oz.; water, 1 oz. Mix well. In two hours add a small quantity more of water. This will generate a large quantity of ozone for the atmosphere of a sick-room.

Fire.—Fire is the best disinfectant. When possible burn everything that has been in contact with the *suffering from contagious diseases*.

VITAL CAPACITY.

Definition.—The capacity of the lungs, in cubic inches of air, as measured by the spirometer.

The *vital capacity* varies according to *sex, height, weight, age and disease.*

Sex.—The vital capacity of man exceeds that of woman, of the same height, by about thirty-eight inches.

Height.—There is an increase of eight cubic inches in vital capacity for every inch in height between five feet and six feet.

Weight.—Excess in body-weight is associated with diminished capacity in the proportion of about one cubic inch per pound excess.

Age.—From thirty to sixty years the vital capacity decreases nearly one and one-half cubic inches per year.

Disease.—In lung diseases the vital capacity is always diminished, and bears a certain relation to the extent of the lesion.

TABLE.

VITAL CAPACITY OF MALES AND FEMALES, AT DIFFERENT HEIGHTS.

Feet.	Inches.	M.	F.	Feet.	Inches.	M.	F.
4	7	126	88	5	4	198	160
4	8	134	96	5	5	206	168
4	9	142	104	5	6	214	176
4	10	150	112	5	7	222	184
4	11	158	120	5	8	230	192
5	0	166	128	5	9	238	200
5	1	174	136	5	10	246	208
5	2	182	144	5	11	254	216
5	3	190	152	6	0	262	224

WEIGHTS AND MEASURES.

To learn to write prescriptions, in terms of *Grammes*, is really a very easy matter indeed, it being only necessary to bear in mind the following *approximate*

EQUIVALENTS:

1 Grain (gr.) equals .06 Gramme (Gm.);

1 Drachm ($\frac{3}{4}$) equals 4. Grammes (Gm.);

1 Ounce ($\frac{3}{4}$) equals 30. Grammes (Gm.); hence,

To convert Grains (or M.) into Grammes, *multiply by .06*;

To “ Drachms (or fl $\frac{3}{4}$) into Grammes, *multiply by 4*;

To “ Ounces (or fl $\frac{3}{4}$) into Grammes, *multiply by 30*.*

*More accurately, .065 (.06); 3.9 (4) 31.1 (30).

BODILY TEMPERATURE.

Temperature.—Average, in health, 98.6° F. (37° C.). In the rectum and vagina it is 0.9° to 1.3° F. higher. The daily range rarely exceeds 1.8° F. (1° C.) above or below the average. The axillary temperature may fall 97° F. without collapse, or rise to 100° F. without

POISONING.

EMETICS.

Apomorphia.—Solution in water 1:50; inject five to ten drops hypodermically. This is the most *prompt* and *effective* emetic known.

Ipecacuanha.—Powdered, thirty grains in water.

Sulphate of Zinc.—Thirty grains in water; repeat if necessary. Prompt and safe.

Sulphate of Copper.—Five to ten grains dissolved in water.

Mustard.—A tablespoonful in a half pint of warm water.

Common Salt.—Two tablespoonfuls in a half pint of tepid water.

ANTIDOTES.

Multiple Antidote.—R. Saturated solution *Sulphate of iron*, ℥ijss.; Water, ℥xx.; *Calcined magnesia*, ℥ij.; *Animal charcoal*, ℥j.

Keep *Iron* solution separately, and the *Magnesia* and *Charcoal* mixed in a bottle of water. When required for use, pour all into bottle together, and *shake*. Give *ad lib.*, a wineglassful at a time.

This is a perfect antidote to *Arsenic*, *Zinc* and *Digitalis*; it delays the action of *Salts of copper*, *Morphine* and *Strychnine*, and slightly influences *Salts of mercury*.

For Opium.—*Atropia sulph.*, one-fortieth grain, or *Tr. Belladonna*, fifteen drops, repeated if necessary. Strong coffee, *ad lib.* *Permanganate-of-potash*, solution, freely.

For Arsenic.—*Dialyzed iron*, ounce-doses, frequently repeated. *Hydrated peroxide of iron*, give *ad lib.* Iron rust.

For Strychnine.—*Chloral*, thirty grains, repeated if necessary; *Bromide of potassium*, ℥ss.; *Animal charcoal*, *ad lib.*; *Tannic acid*, *ad lib.*; *Chloroform*; *Ether*; *Nitrate of amyl*, by inhalation.

For Acids.—Lime water, *ad lib.*; Chalk-and-water; *Magnesia*, mixed in water; *Ammonia* and water, ℥j. to ℥viiij.; Ashes; Plaster from the wall; Tooth powder, in water; Soap and water.

For Alkalies.—Vinegar, freely; *Acetic acid* and water; Lemon juice; *Muriatic acid*, freely diluted with water; Any dilute acid.

For Narcotics.—Coffee, *strong*, given freely; *Nitrate of amyl*, by inhalation; *Ammonia*; Galvanism; Stimulants.

Stimulants.—Wine; Whisky; Brandy; *Ammonia*; Tea; Coffee; Ether.

Instruments.—Stomach-pump; Hypodermic syringe; Soft-rubber catheter; Enema syringe.

GENERAL DIRECTIONS.

Emetic.—Give the emetic that can be *most speedily* obtained. If it is a *corrosive* poison, give *copious* draughts of *demulcent drinks*, followed by an emetic, and the appropriate antidote. If the emergency is great, and an emetic at hand, give *copious* draughts of tepid water, even though it be dirty or greasy; then run the finger down the throat, to excite vomiting. The action of an emetic is facilitated if *large* quantities of fluid be swallowed.

Depression.—If present, must be combatted by *stimulants*, warm applications to the extremities, friction, galvanism, and, if the respirations fall below *ten per minute*, *artificial respiration* must be employed. *Catheterize the bladder* in prolonged cases.

Battery.—One pole to the side of the neck, the other over pit of the stomach, or muscles of the chest. On touch the two poles to different attachments of the muscles of the chest, using a *strong* current, sufficient to excite pain, and produce efforts at crying.

Flagellation.—In poisoning with *narcotics*, to combat the *depression*, and keep patient from sinking into fatal *stupor*, slap the skin with wet towels, spat the skin sharply, rub the soles of the feet with a stiff hair-brush, make every effort to *rouse* him. *Walking* the patient only adds *exhaustion* to stupor—better lay him on a lounge and use *flagellation*.

Douches.—To aid in *rousing* when there is *stupor* and *depression*, dash *cold* and *warm* water alternately, upon the head and chest. In apparently hopeless cases, two or three *sharp* blows on the chest, delivered in quick succession, will sometimes restore the heart's action.

Stimulation.—Alcoholic stimulants may be used if the poison is *not a narcotic*. *Coffee* may be employed as a stimulant in *Belladonna*, *Opium*, and other narcotic poisoning; give an *enema* of a pint of hot, *strong* coffee. *Ammonia* may be given by inhalation, or by injection into veins. *Strong tea* is an excellent stimulant, and it also antidotes many poisons; Give by the stomach, if possible. Whiffs of *Ether*, by inhalation, will stimulate the heart's action.

Demulcents.—In cases of poisoning by *corrosive* substances, give, after the administration of the antidote and emetic, *large quantities* of *mucilaginous* drinks; preferably white of egg and water.

Demulcent Drinks.—Milk; White-of-egg and water; Oil; Linseed tea; Gruel; Flour-and-water; Boiled starch. Give in *large quantities*.

POISON AND TREATMENT.

POISON.—Unknown.

Treatment.—Provoke *repeated* vomiting. Give *demulcent* drinks; Multiple *antidote*; *Stimulate*, if necessary; Artificial respiration, if necessary.

POISON.—Cocaine.

Treatment.—Place the patient recumbent; Cold water to drink; Cold water to the face, neck and chest; Hypodermic, *Strychnia* ($\frac{3}{80}$ gr.); Amyl nitrite (*inhalation*); Nitro-glycerin ($\frac{1}{100}$ gr.) Chloral (grs. xx) by enema, for tetanic rigidity; Artificial respiration for respiratory failure; Stimulants; Diuretics and the catheter, if necessary. *To prevent*:—During Cocaine anesthesia, give (once or twice) a hypodermic of *Trinitrine* (1 m. of a 1% sol.)

POISON.—Opium—Morphine—Laudanum—Chloral.

Treatment.—Provoke *repeated* vomiting; Give *Kali permang.* Inject *Belladonna*; *Rouse* by *flagellation* (do not walk the patient); Artificial *respiration*.

POISON.—Arsenic—(Paris-Green; Scheele's-Green).

Treatment.—Provoke *repeated* vomiting; Give dialyzed *Iron*, etc.; Give dose *Castor oil*; Secure *rest*; *Stimulate*, if necessary.

POISON.—Strychnine—Pterotoxine.

Treatment.—Provoke *vomiting* once or twice; Give *pur-gative*; Give *Chloral*, etc.; Secure *absolute quiet*.

POISON.—Acids—(Sulphuric, Nitric, Muriatic, Oxalic, Carbolic).

Treatment.—Give an *alkali*; Provoke *vomiting*; *Demul-cent* drinks; *Stimulate*, if necessary. (Alcohol antidotes Carbolic acid.)

POISON.—Alkalies—(Ammonia, Soda, Potash, Lye).

Treatment.—Give an *acid* (vinegar); Provoke *vomiting*; *Demulcent* drinks; *Stimulate*, if necessary.

POISON.—Corrosive Sublimate—Tartar Emetic.

Treatment.—Provoke *repeated* vomiting; Give *strong tea*, freely; Give *raw eggs* and *milk*; Give dose *Castor oil*; *Stimulate*, if necessary.

POISON.—Phosphorus.

Treatment.—Provoke *vomiting*; *Sulphate of copper*, sol. grs. iij, every 5 ms., till emesis; *Epsom salts*, $\frac{3}{4}$ ss.; *No oils or fats*.

POISON.—Nitrate-of-Silver—(Lunar Caustic).

Treatment.—*Strong* solution salt and water, very *freely*; Provoke *repeated* vomiting.

POISON. — Belladonna — Stramonium — Hemlock —
stools — Tobacco.

Treatment. — Promote *vomiting*; *Stimulants*,
Hot, strong *coffee*; *Opium*, tinct., gtt. iij-v, or
Cold to head, galvanism, flagellation; *Artificial
piration*.

POISON. — Chloroform — Carbonic-Acid Gas.

Treatment. — Abundance of *fresh air*; Pull the
forward, *clear* the mouth; Loosen clothing—he
Alternate *cold* and *warm* douche; Inhalations
nitrite—*Ammonia*; ARTIFICIAL RESPIRATION!—

POISON. — Alcohol.

Treatment. — Stomach-pump, or emetic; *Ammonia*
water; Battery and *flagellations*; *Cold douche* to the
Artificial respiration.

POISON. — Decayed Meats and Vegetables.

Treatment. — Provoke *vomiting*; Give a *purgative*
solution of Permanganate-of-potash.

ARTICLE. — Glass.

Treatment. — If particles of glass have been swallowed
let the patient eat *large quantities* of bread-crumbs
potato, to envelop it—then give an *emetic*. *Do not
pass into the bowels.*

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POISON.—Sugar-of-Lead.

Treatment.—Give *Epsom salts* repeatedly; Provoke repeated vomiting; Give *demulcent* drinks; Give dose *Castor oil*.

POISON.—Aconite.

Treatment.—Provoke *vomiting*; *Stimulants*, freely; *Digitalis* tinct. gtt. xx, hypoderm.; Mustard over heart; Artificial *respiration*.

POISON.—Digitalis.

Treatment.—Provoke *vomiting*; Give strong *tea*; Give *stimulants*; *Récurrent* posture.

POISON.—Belladonna — Stramonium — Hemlock — Toad-stools — Tobacco.

Treatment.—Promote *vomiting*; *Stimulants*, freely; Hot, strong *coffee*; *Opium*, tinct., gtt. iij-v, or more; Cold to head, galvanism, flagellation; Artificial *respiration*.

POISON.—Chloroform — Carbonic-Acid Gas.

Treatment.—Abundance of *fresh air*; Pull the *tongue* forward, *clear* the mouth; Loosen clothing—head *low*. Alternate *cold* and *warm* *douche*; Inhalations *Amyl nitrite*—*Ammonia*; ARTIFICIAL RESPIRATION!—*Battery*.

POISON.—Alcohol.

Treatment.—Stomach-pump, or emetic; *Ammonia* and water; *Battery* and *flagellations*; *Cold douche* to the head; Artificial *respiration*.

POISON.—Decayed Meats and Vegetables.

Treatment.—Provoke *vomiting*; Give a *purgative*; Give solution of Permanganate-of-potash.

ARTICLE.—Glass.

Treatment.—If particles of glass have been swallowed, let the patient eat *large quantities* of bread-crumbs and potato, to envelop it—then give an *emetic*. *Do not let it pass into the bowels*.

FINAL NOTE.—Should those who use this book seek in its pages for that which they fail to find, if they will communicate the fact to the author the subject will be included in some future edition if it rightfully belongs in a work of this character.—CH. G.

N. B.—The degree of attenuation of medicines is given according to the old pharmacopœias.

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