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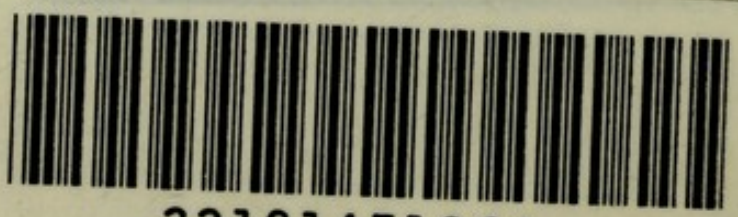

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TEST SERIES. No. 2.

A

COMPEND

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PRACTICE OF MEDICINE.

Especially adapted for the use of Medical Students.

BY

DANL. E. HUGHES, M.D.,

DEMONSTRATOR OF CLINICAL MEDICINE IN THE JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA; FELLOW OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA, ETC.

IN TWO PARTS.

PART I.

CONTINUED FEVERS; ERUPTIVE FEVERS; PERIODICAL FEVERS; DISEASES OF THE STOMACH; DISEASES OF THE INTESTINES; DISEASES OF THE PERITONIUM; DISEASES OF THE BILIARY PASSAGES; DISEASES OF THE LIVER; DISEASES OF THE KIDNEYS; GENERAL DISEASES.

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PART I.

PRACTICE OF MEDICINE.

PART I.

INTRODUCTION.

The Practice of Medicine embraces all that pertains to the knowledge and cure of the diseases which the physician is called upon to treat.

Disease may be defined as the perversion of the normal processes of the economy; *Organic* when located in some particular structure; *Functional* when the perverted process cannot be located. The study of disease, whether organic or functional in character, is called *Pathology*.

Pathology explains the *origin*, *causes*, *clinical history* and *nature* of the morbid conditions to which the economy is liable.

Ætiology, or the causes of disease, are twofold, viz: *Predisposing* and *Exciting*.

Predisposition to disease signifies a special liability or susceptibility to its occurrence, and may be *hereditary* or *acquired*.

Hereditary predisposition to certain diseases is called *Diathesis*, viz: offspring of phthisical parents said to be of Phthisical Diathesis, etc.

Acquired predisposition is such as arises from

I. *Habits*, viz: Strain on nervous system results in nervous disease.

II. *Age*, viz: Children, very liable to catarrhal disorders.
Young adults, fevers, perverted sexual disorders, etc.
Middle age, heart and digestive disorders, cancer, etc.
Old age, degeneration of vessels, etc.

III. *Occupation*, viz: Miners, weavers and cutlers, lung diseases.

IV. *Sex*, viz: Women, emotional nervous diseases.
Men, as more exposed, rheumatism, pneumonia, etc.

V. *Race*, viz: Negro, phthisis and scrofula; exempt from malaria.

Exciting causes of disease are divided into those acting from *within* and those acting from *without*.

Causes from *within* are the *emotions*, *passions*, etc., viz: fear *may* produce chorea; anger has caused jaundice; worry, heart troubles.

Causes from *without* are *food*, *air* and *light*.

The Clinical History of disease includes all the symptoms and signs which may occur from the *period of incubation* until its final *termination*

Symptoms are such alterations of the healthy functions that give evidence of the existence of a diseased condition, and may be either *objective* or *subjective*. *Objective*, when evident to the senses of the observer, as redness or swelling. *Subjective*, when felt by the patient, as pain or numbness.

The Period of Incubation is the interval between the entrance of the poison into the system and its manifestation, and seldom presents recognizable symptoms.

The Prodromes are the earliest recognizable symptoms; when sudden in their onset the disease is said to be *acute;* when less sudden, *sub-acute;* when gradual or slow, *chronic*.

Pathognomonic is the term applied to such symptoms as belong to one particular disease and are therefore characteristic of it, viz: rusty sputum of pneumonia.

Physical signs are, strictly speaking, *objective* symptoms.

The Termination of a diseased action may occur in one of three ways, viz: *Cure*, *Secondary Processes*, or in *Death*.

Cure may occur by

I. *Lysis*, or slow return to health.

II. *Crisis*, abruptly, with a critical discharge.

III. *Metastasis*, or changing from one location to another.

Secondary processes is when the diseased action is substituted by a new morbid process, viz: Rheumatism followed by endocarditis; apoplexy by cerebral softening.

By *Death* is meant a complete cessation of tissue change occurring by

I. *Asthenia* or an ever increasing debility, viz: phthisis, cancer, etc.

II. *Anæmia* or insufficient quantity or quality of blood.

III. *Apnœa* or non-aeration of blood, viz: acute lung diseases, croup, etc.

IV. *Coma*, death beginning at the brain, viz: uræmia, narcotic poisoning, etc.

Morbid or Pathological Anatomy is the knowledge of structure or tissue changes after death.

Diagnosis of disease implies a complete, exact and comprehensive knowledge of the case under consideration, as regards the origin, seat, extent and nature of all the morbid conditions.

A direct diagnosis is made when the morbid condition is revealed by a combination of clinical phenomena, or some one or more pathognomonic symptom.

A differential diagnosis is the result when the diseases resembling each other are called to mind and eliminated from each other.

A diagnosis by exclusion is by proving the absence of all diseases which might give rise to the symptoms observed, except one, the presence of which is not actually indicated by any positive symptoms.

Prognosis of disease is the ability or knowledge to foretell the most probable result of the condition present, and involves an amount of tact or knowledge only acquired by prolonged experience.

Treatment. The ultimate and most important object of the study of medicine, in a practical point of view, is to learn how to *cure*, *relieve* or *prevent* disease, and it must be borne in mind that this *does not consist solely in the administration of medicines*, but requires strict and faithful attention to *diet* and *hygiene*.

When the object is to prevent disease, viz: smallpox by vaccination, it is called *Prophylactic or Preventive* treatment.

When disease is to be broken up although already begun, viz: preventing the chill of malaria, it is called *Abortive* treatment.

When the disease is allowed to run its natural course without attempting its removal, but being constantly on the alert for obstacles to its successful issue, viz: the generally adopted plan of treating continued fevers, it is called *Expectant* treatment.

When the disease is incurable and removal of marked suffering is the indication, it is called *Palliative* treatment.

When marked weakness and prostration, it is called *Restorative* treatment.

FEVERS.

Fever is a condition in which there are present phenomena of *rise of temperature*, *quickened circulation*, *marked tissue change* and *disordered secretions*.

The *primary cause* of the fever phenomena is a disorder of the sympathetic nervous system giving rise to disturbances of the vaso-motor filaments.

Rise of temperature is the pre-eminent feature of all fevers, and can only be positively determined by the use of the thermometer. The term *feverishness* is used when the temperature is 99° to 100° Fahr.; *slight fever* if 100° or 101°; *moderate* 102° or 103°; *high* if 104° or 105°; and *intense* if it exceed the latter.

An **Idiopathic** or **Essential** fever is one in which no local affection gives rise to the fever phenomena; although lesions may arise during its course.

A **Symptomatic** or **Secondary** fever is one dependent on an acute inflammation.

CONTINUED FEVERS.

All continued fevers are characterized by a steady progress of the febrile movement, without either a too decided rise or fall, to modify the impression of a continuous action.

SIMPLE CONTINUED FEVER.

Synonyms. Irritative; Febricula; Ephemeral; Sun; Synocha.

Definition. A continued fever, of short duration, mild in character, not due to specific cause, rarely fatal, but when death does occur, presenting no characteristic lesion.

Causes. Fatigue, mental and physical; exposure to heat; excesses in eating and drinking; excitement and violent emotion; most common in childhood.

Symptoms. An abrupt feeling of *lassitude*, followed by a decided *chill* or *chilliness*, a sudden and rapid *rise of temperature*, quick, *tense pulse*, *headache*, *dry skin*, *intense thirst*, *coated tongue*, and *scanty*, *high-colored urine*. Cases due to errors in diet are accompanied by *nausea* and *vomiting*; those, in childhood, due to excitement, fright or emotions, may have *slight convulsions*. The *temperature* may, within an hour or two, reach *103° F.* or more, when slight *delirium* often occurs.

Duration. From 24 hours to 6 or 7 days. Never exceeds ten days.

Termination. Within a few hours, to a day, the temperature rapidly falls to the norm—(*crisis*); or it may continue for several days gradually falling—(*lysis*). *Herpes* about the lips and nostrils often observed at close of attack. *Convalescence* rapid.

Prognosis. Recovery, without sequelæ, the rule.

Diagnosis. Unless the fever can be attributed to some one of the causes that give rise to it a doubt may exist for the first twenty-four hours, after which time it can hardly be mistaken for any other disease.

Treatment. Very little medicine. A *calomel purge* or *an enema*, *sponging* the surface with cold water, and the administration of *saline diaphoretics* and *diuretics*. If great arterial excitement, *aconite* may be added. Light diet is most agreeable. Cases in which the nervous symptoms are prominent do well on Fothergill's "fever mixture of the future," viz:—

℞. Acid. hydrobrom..... f℥ ss–j
Syr. simplicis..... f℥ ss–j
Aquæ..... f℥ ij–iij. M.

SIG.—Every four hours.

Quinia in tonic doses during convalescence.

CATARRHAL FEVER.

Syonyms. Influenza. Epidemic Catarrhal Fever. Contagious Catarrh.

Definition. A continued fever, occurring generally as an *epidemic;* due to specific cause; characterized by a catarrhal inflammation of the respiratory organs and sometimes of the digestive; always accompanied by nervous symptoms and marked *debility*.

Causes. A specific *Vegetable germ*, uninfluenced by soil, climate or atmospheric changes.

Symptoms. The onset is sudden, *chill*, followed by *fever*, temperature reaching 101° to 103°, *quick, compressible pulse* and decided *shooting pains* in the eyes, frontal sinuses, joints and muscles. The chill and fever are rapidly followed by *chilliness along the spine, pain* in the *throat, coryza, sneezing, injected, watery eye*, and a dry, irritative *cough, laryngeal* and sometimes *bronchial.* Also *disgust for food, pasty tongue* and *diarrhœa.* In some epidemics the digestive symptoms are the most prominent, when *dysentery* occurs.

The above symptoms are always associated with decided *weakness* and *debility.* Delirium is rare, but marked *hebetude* and *cutaneous hyperæsthesia* are common.

Duration. Four to seven days. Relapses frequently occur.

Complications. Lobar or Catarrhal Pneumonia frequently occur, which adds to the gravity of the attack. The *cough* may outlast the disease one or more weeks.

Prognosis. Recovery is the rule when it attacks the healthy and vigorous. *Grave*, when the very young, very old or those suffering from organic diseases, such as Bright's disease, fatty heart, etc., are attacked.

Diagnosis. Isolated cases may be mistaken for a "bad cold." But when epidemic, the *sudden onset, marked general catarrh* and *decided depression* should prevent error.

Treatment. No specific. *Support* the system and treat indications. The *catarrh, pains* and *cough* are at least ameliorated by the following:—

℞. Quiniæ sulph..... grs. ij–iv
Morphiæ sulph..... gr. $\frac{1}{24}$
Aquæ lauro-cerasi..... ℥ j. M.

SIG.—Every four hours,

and the frequent inhalation of tinct. benzoin. comp. ℥ ss–j., aquæ *bull.* O j.

If the *bronchial* symptoms become troublesome use

℞. Ammonii muriat..... grs. x
Mist. glycyrrh. comp..... ℥ij. M.
p. r. n.

Should *Pneumonia* occur treat as ordinary case, but *never* depress.

TYPHOID FEVER.

Synonyms. Enteric; Gastric; Nervous fever; Entero-mesenteric; Abdominal typhus.

Definition. An acute, self-limited, *febrile* affection due to a special poison; characterized by insidious prodromes; epistaxis; dull headache followed by stupor and delirium; red tongue, becoming dry and brown; tympany, abdominal tenderness, and early diarrhœa; a peculiar eruption upon the abdomen; rapid prostration and slow convalesence; a *constant lesion* of Peyer's patches, mesenteric glands and spleen.

Causes. Predisposing and Exciting. *Predisposing* are *Age*, young adults, and *Season*, hot and dry autumn. The *Exciting* cause is a *special typhoid germ.* It does not originate *de novo*, but results from the *decomposition* of *typhoid excreta.*

Pathological Anatomy. The characteristic lesions of typhoid fever consist in certain changes in the *Peyerian patches* and *solitary glands*, which may be divided into well defined stages, to wit: I. *Infiltration.* II. *Sloughing and Ulceration.* III. *Cicatrization*, or in rare cases *Perforation.*

The *Mesenteric glands* become enlarged and softened, but seldom ulcerate.

The *spleen* also enlarges and softens. There are besides, *parenchymatous degenerations* of all the tissues of the body.

Symptoms.—*Stage of prodromes*—The onset insidious with *malaise*, vertigo, headache, disordered digestion and disturbed sleep, followed by a *chill* or *chilliness.*

First Week dates from onset of fever, when are present *hot skin, frequent pulse, coated tongue, nausea, diarrhœa, epistaxis, headache*, and the *seventh day a few reddish spots, resembling* flea bites, on abdomen.

Second Week, foregoing symptoms exaggerated; *fever* continuous, frequent and *compressible pulse, tympanic, tender abdomen, gurgling in iliac fossæ, nocturnal delirium*, severe and constant *headache* and *stupor*, the *diarrhœa* continuing.

Third Week.—Fever changes from continuous to remittent; the evening exacerbations continue as high as preceding week, and all the symptoms remain about same until near end of week, when they ameliorate.

Fourth Week.—The fever decidedly remits; almost normal in morning, the symptoms all change for the better, the stupor disappears and patient passes into a slow convalescence, greatly emaciated, which may last for some weeks.

Analysis of Symptoms. *The temperature of typhoid fever is characteristic.* The fever in the morning of the first day may be stated at 98.5° F., evening 100.5°; second morning 99.5°, evening 101.5°; third morning 100.5, evening 102·5°; fourth morning 101.5°, evening 103.5°; fifth evening 104.5°. From that time until end of second week, evening temperature ranges between 103° and 105°, the morning's being a degree lower.

Diarrhœa, principal intestinal symptom; if absent, the lesion is slight. The stools first dark, but early in second week become fluid, offensive, *ochre-yellow*, and may be streaked with *blood.* They number from *three* to *fifteen* in twenty-four hours.

Eruption is almost constant. Consists of from *five* to *twenty* small *rose-colored spots*, on *abdomen*, *chest* or back, sometimes on limbs, appearing in crops, lasting about *five days*, *disappearing on pressure* and at *death. Return with relapses. Eruption* day from *seventh* to *ninth.*

Nervous symptoms are pronounced *headache*, early and severe. *Dullness* soon comes, passing into *drowsiness* and *stupor. Deafness* pronounced. *Sight* impaired; grave cases double vision. *Delirium* low and muttering, generally pleasant in character; late symptom.

Convalescence protracted. Great debility and anæmia, causing pronounced *sweating.*

Complications. *Intestinal hemorrhage* may occur from fourteenth to twentieth day; decline of temperature to norm or below precedes passage of blood.

Perforation makes case hopeless. *Peritonitis* without perforation adds to gravity, not necessarily fatal. *Lobar pneumonia*, *hypostatic congestion* and *bronchitis* are frequent occurrences.

Relapses not uncommon. The symptoms all return *suddenly;* duration half the time of original attack; occur end of fourth or beginning of fifth week.

Prognosis. A positive one cannot be made. Favorable indications are constipation, slight diarrhœa, low temperature and moderate delirium.

Diagnosis. *The typhoid conditions* differ from typhoid fever in having *no diarrhœa, eruption* or *the characteristic temperature.*

Enteritis has intestinal disorders alone.

Peritonitis; abdominal symptoms only, with constipation.

Acute miliary tuberculosis often confounded; see that disease.

Meningitis; lacks the intestinal symptoms and fever record.

Treatment.—*No specific.* Intelligent nursing; pure air; quiet; disinfecting urine and stools; liquid diet at intervals of every *two* or *three hours.* The following remedies have advocates claiming that they modify course of disease: *Mercurials, iodine, carbolic acid, mineral acids* and *nitrate of silver.*

To reduce temperature, cold bath, cold pack, and cold sponging, or *quinia,* gr. x–xx, repeated within an hour.

Diarrhœa should not be checked unless it exceeds *three stools* in twenty-four hours, when may use—

℞. Bismuth, subnit..... gr. xx
Acid carbol..... gtt. j
Tinct. opii deodorat..... gtt. x–xv
Mucil. acaciæ..... ℥ j
Aquæ..... ℥ iij. M.

SIG.—Every three or four hours;

Or

℞. Cupri sulph..... gr. ⅛
Opii ext..... gr. ¼. M.

SIG.—In pill, every four hours.

Tympanites; cold compresses or turpentine stupes to abdomen; or *ol. terebinthinæ,* gtt. x, *morphiæ sulph.,* gr. $\frac{1}{20}$, every third hour, or *tinct. nucis vomicis,* gtt. x, *p. r. n.*

Headache; cold to head, mustard to neck, and foot baths; if these fail, *morphia* or *atropia* hypodermatically.

Delirium; if from debility, increase stimulants; other causes, *morphia.*

Restlessness and *coma vigil; chloral* alone or with *potassic bromide* or *morphia.*

Debility; nourish every *three* hours; don't permit sleep to interfere with nourishment. *Stimulants* are indicated early; best guide is heart's action; an average amount would be ℥ vj *spts. vini gallici,* per diem.

Bladder should be attended to daily.

Intestinal hemorrhage; at once *morphia,* gr. ¼, hypodermatically, and *fluid extract ergot,* gtt. xx–xl, repeated; or *Monsell's solution,* gtt. ij–iv, every two hours.

Perforation and *peritonitis;* at once gr. ¼ *morphia* hypodermatically, and gr. j *extract opii,* every hour, and bold stimulation.

TYPHUS FEVER.

Synonyms. Contagious fever; ship fever; jail fever.

Definition. An acute febrile, *epidemic* disease; *contagious* and characterized by sudden invasion, profound depression of the vital powers and

a peculiar petechial eruption; favorable cases terminating by *crisis* in fourteen days. No lesion.

Cause. A special infecting germ, the character of which is unknown, but is influenced by filth, overcrowding, etc.

Pathology. Blood dark and thin, lessened fibrin; tissues soft and flabby.

Symptoms. Begins abruptly; *chill* followed by violent *fever;* temperature within few days reaches 104° to 105°; frequent, bounding *pulse*, soon becoming compressible; severe *headache* followed by violent *delirium;* from *fifth* to *seventh* day, coarse, red measly *eruption*, with a mottling of the skin all over the body, except face, not disappearing on pressure; *constipation* the rule. End of second week, temperature suddenly declines and passes into *rapid convalescence.*

Complications. Pneumonia and swollen parotid glands are common.

Prognosis. *Unfavorable indications;* high temperature, frequent pulse, early stupor, presentiment of death. *Favorable;* youth, moderate temperature and pulse, and mild nervous symptoms.

Diagnosis. *From typhoid fever*, age, season, onset of disease, character of eruption, and intestinal symptoms.

Measles begins milder, with coryza and cough, and seldom such pronounced nervous phenomena, but an early eruption appearing on face.

Treatment. Much the same as typhoid. As *typhus* is distinctly contagious, *isolation* is imperative, with immediate removal and *disinfection* of patient's excreta.

For high temperature, cold pack, cold bath, cold sponging, or full doses of *quinia.*

For headache, delirium, etc., cold to head; in young and strong, a few leeches to the temple, early in case; *chloral*, with or without *bromides.*

For constipation, mild laxatives.

Debility; alcohol early and in full doses; *spirits chloroform* in drachm doses, where danger of collapse.

CEREBRO-SPINAL FEVER.

Synonyms. Epidemic cerebro-spinal meningitis; epidemic cerebro-spinal fever; spotted fever; cerebro-spinal typhus.

Definition. A malignant *epidemic* fever, characterized by painful contraction of the muscles of the neck, retraction of the head, hyperæsthesia, disorders of the special senses, and frequently an eruption of petechia or purpuric spots. Lesions of cerebral and spinal membranes are found at *post-mortem.*

Cause. Special poison, nature unknown; attacks young by preference; most common in winter; not contagious.

Pathological Anatomy. *Hyperæmia*, followed by an *exudation* of *lymph* and an *effusion* of *serum* upon the *membranes* of the brain and spinal cord, causing pressure.

Symptoms. Divided, according to the severity of the lesion, into three groups; to wit, the *common* form, the *fulminant*, and the *abortive*.

The Common Form begins with a *chill*, excruciating *headache*, persistent *nausea*, *vomiting*, *vertigo* and an overwhelming sense of *weakness*. Within a few hours the muscles of the neck become *rigid* and *retracted* with decided *pain* upon moving the head; this rigidity and retraction soon extends to back, when *opisthotonus* obtains. The surface of the body becomes highly sensitive (*hyperæsthesia*) and *convulsions* or *delirium* occur. Intolerance of light, and in some cases *amaurosis*, more or less *deafness*, loss of *smell* and *taste* soon follow. The *temperature* and *pulse* record are irregular. From the *first* day to the *fifth* an *eruption* of petechiæ or purpura occurs in a majority of cases. The disease reaches its height in from three to eight days, and passes into *stupor* and *coma* or ameliorates and passes into a protracted convalescence.

The Fulminant Form. Severe *chill*, *depression*, and in a few hours *collapse*. Patient is overcome by the poison and never reacts.

The Abortive Form consists of one or more pronounced characteristic symptoms during the course of an epidemic.

Sequelæ. Result from thickening of either cerebral or spinal membranes: Persistent *headache*, *blindness* or *deafness*, partial or complete; *epilepsy* or different forms of *spinal palsies*.

Prognosis. Varies according to epidemic, from twenty to fifty, and even seventy-five per cent.

Diagnosis. *Typhoid fever* begins slowly, *without* intense headache, muscular rigidity, vomiting, active delirium, ending in coma and constipation, and has typical temperature record.

Typhus fever has higher fever, is of longer duration, and has peculiar measly eruption, *not* attended with muscular rigidity and retraction, hyperæsthesia, nor disorders of the special senses.

Tubercular meningitis is *not* epidemic, and has no eruption; is preceded by long prodromes, and runs a tedious course.

A congestive chill resembles the *fulminant* cases in suddenness of depression, but the latter has not the history of the former.

Inflammation of the meninges of the cord are due to exposure to cold, or syphilis, and is not attended with cerebral symptoms or an eruption.

Treatment. Full doses of *opium* Hypodermatic use of *morphia*, gr. ¼ to ½ every two or three hours; or *extract opii*, gr. 1 every hour, until stage of effusion, when *quinia*, in tonic doses, and *potassic iodide* are indicated. Prof. DaCosta alternates *potassic bromide* with *opium*, especially in children. *Locally*, cold to head and spine. A generous diet from onset. For *sequelæ*, *potassic iodide*, course of *mercury*, and flying blisters along the spine.

RELAPSING FEVER.

Synonyms. Famine fever; bilious typhoid.

Definition. An acute, *contagious*, febrile disease, self limited; characterized by a febrile paroxysm, succeeded by an entire intermission, which is in turn followed by a *relapse* similar to the first seizure. No specific lesion.

Cause. A specific poison; *contagious*; acquiring the greater activity the more filthy, crowded, and unhealthy the population amid which it prevails.

Pathological Anatomy. During febrile paroxysm *only*, blood contains minute *spiral* filaments, *spirilli*, constantly twisting and rotating. Liver and spleen greatly swollen.

Symptoms. No *prodromes*. Onset abrupt, with fever, 102°–104°; frequent, rather *weak pulse*, *headache*, nausea, *vomiting*, and lancinating *pains* in limbs and muscles, marked in the calf of leg; *second day*, feeling of *fullness* and *pressure* in right and left hypochondrium, due to swollen liver and spleen; *jaundice* is frequent; *seventh day* ends by *crisis; fourteenth day* symptoms return in milder form, continuing about four days, when enters slow convalescence; much emaciated. Several *relapses* may occur.

Prognosis. Recovery the rule, but protracted, as decided *emaciation* results.

Diagnosis. *Yellow fever* has many points of resemblance, but has shorter febrile stage, remission not so complete, vomiting late and characteristic, normal spleen, and late appearance of yellow color.

Remittent fever begins with decided chill, followed by fever and sweats, and not the progressive rise of temperature till fifth or seventh day.

Treatment. *Expectant.* Act on secretions; nourish patient and meet urgent symptoms. For fever, *salicylate of soda;* for pain, hypodermatic of *morphia;* nausea and vomiting, *carbolic acid* or *cerium oxalat;* during remission, *iron* and *quinia*.

PERIODICAL FEVERS.

These affections are characterized by the distinct periodicity of the phenomena, having intervals during which the patient is wholly or nearly *free from fever*.

INTERMITTENT FEVER.

Synonyms. Ague; chills and fever; malarial fever.

Definition. A *paroxysmal* fever, the phenomena observing a regular succession; characterized by a cold, a hot and a sweating stage, followed by an interval of complete *intermission* or apyrexia, varying in length according to the variety of the attack.

Cause. Malaria.

Pathological Anatomy. Blood dark, from formation of pigment (*Melanæmia*). Spleen swollen (*Ague cake*). Liver engorged and swollen.

Varieties. *Quotidian* when a daily paroxysm; *tertian* when every other day; *quartan* when it occurs first and fourth days; *octan* when weekly; *duplicated quotidian* when *two* paroxysms daily; *duplicated tertian*, two every second day; *double tertian*, daily paroxysm, but more severe every second day. *Dumb ague*, or masked ague, is irregularity of characteristic phenomena.

Symptoms. Each paroxysm has three stages, *cold*, *hot* and *sweating*.

Cold stage begins with *prodromes*, to wit: lassitude, yawning, etc., followed by *chill;* teeth chatter, skin pale, nails and lips blue, nausea and great thirst, while thermometer shows decided *rise of temperature*, 102°, F.,– 104°; these phenomena continue from one-half to an hour.

Hot stage begins gradually, by shivering ceasing, surface becoming *hot*, temperature rising to 106°, F., or more, *pulse full*, *headache*, *nausea*, *excessive thirst*, *scanty urine*, and other phenomena of *pyrexia*, continuing from one to eight or ten hours.

Sweating stage begins gradually on *forehead*, spreading over entire surface; *fever lessens*, temperature rapidly falls to 99° or 98°, pulse less full, headache lessens, and feeling of comfort, sleep often following; duration from one to four hours, when *intermission* occurs, the patient apparently well, except feeling of general debility. The occurrence of next paroxysm depending upon the variety of the attack.

The paroxysm may be ushered in by decided pain in one or more nerves, instead of the cold stage, to wit: "*brow ague.*"

Prognosis. Recovery the rule. Without treatment many cases end favorably after several paroxysms; others passing into the *chronic* form or *malarial cachexiæ*.

Diagnosis. No difficulty when characteristic *chill*, *fever* and *sweats*.

Hectic fever. Known by its irregularity, and occurring secondary to organic disease.

Pyæmia, produced by other causes than malaria.

Nervous chills show *absence* of temperature rise.

Treatment. *Cold stage* can be averted and the other stages greatly modified by hypodermatic injection of either *morphia sulph.*, gr. ⅛–¼, or *pilocarpin muriat.*, gr. ⅛, or a drachm of *chloroform* by stomach. *Hot stage*, cool drinks and cold sponging. *Sweating stage*, when excessive, sponging with alum and hot water.

Intermission; at once, brisk purgative, followed by *cinchona* in some form, the most efficient being *quinia sulph.*, gr. xx–xxiv, in solution or freshly-made pills, in one or two doses, *three* to *five hours before* expected paroxysm.

After *paroxysms* are broken up use *liq. potassii arsenit.* gtt. v–x, *t. d.* for long time; or *tinct. ferri chloridi*, gtt. xx, every four hours.

Relapses being common, *quinia* should be given on *second* or *third* day, *fourth* to *sixth*, *twelfth* to *fourteenth*, and *nineteenth* to *twenty-first* days.

REMITTENT FEVER.

Synonyms. Bilious fever; bilious remittent fever; marsh fever; typho-malarial fever.

Definition. A *paroxysmal* fever, with exacerbations and *remissions*; characterized by a moderate cold stage (which does not recur at every paroxysm); an intense hot stage, with violent headache and gastric irritation; and an almost imperceptible sweating stage, which is frequently wanting.

Cause. Malaria, aided by high temperature.

Pathological Anatomy. Blood dark (*Melanæmia*); spleen enlarged, soft, filled with blood, and of an *olive* color; liver same condition as spleen; brain hyperæmic and olive-colored; gastro-intestinal canal markedly hyperæmic.

Symptoms. *Cold stage*; moderate *chill*, temperature rises 1° to 2°, *oppression at epigastrium*, slight *headache*.

Hot stage; persistent *vomiting*, furred tongue, *full pulse*, rising to 100 or 120, flushed face, *injected eye*, violent *headache*, *pains* in limbs and loins, hurried *respiration*, the *temperature* rising 104°, F., to 106°. The bowels costive, *stools tarry* and offensive, and the *surface* becoming *yellow*. *Delirium* occurs when temperature is very high.

Sweating stage; after six to twenty-four hours the symptoms abate and *slight sweating* occurs; the *pulse*, *headache*, *vomiting*, etc., subside, and the *temperature* falls to 99°, F., or 100°.

This is the *remission*.

After some *two* to *eight* or *twelve* hours the symptoms return, generally *minus* the *chill*, and this is termed the *exacerbation*, which is in turn followed by the *remission*.

Duration. From seven to fourteen days, the average. Frequently the fever *ceases to remit*, but instead becomes *continuous*, when symptoms resembling, if not identical with, the *typhoid state* arise, whence the term *typho-malarial fever*.

Sequelæ. *Malarial cachexia* follows when the poison has not been eliminated.

Persistent headache and vertigo are the results of the intense meningeal hyperæmia that sometimes obtains.

Prognosis. Uncomplicated cases most favorable.

Diagnosis. In *intermittent fever* each paroxysm begins with a chill, while the chill seldom recurs in remittent fever; a distinct *intermission* follows each paroxysm, while a *remission* occurs in remittent, the thermometer showing that the fever does not wholly leave; during the *intermission* the patient is apparently well; such is not the case in remittent fever.

Acute congestion of the liver resembles remittent fever, on account of the *yellow skin*. The exacerbation and remissions distinguish between the two.

Typhoid fever is mistaken for remittent fever, but the absence of diarrhœa, eruption, tympanitis, deafness and severe prostration should prevent the error.

Treatment. *Quiniæ sulph.*, gr. xvj–xx per diem, is the remedy. Best given during the *remission*, if possible. If irritable stomach prevents its administration by mouth, use by *hypodermatic injection* or *suppository*. During *hot stage*, cool sponging, cold to head, and if tendency to cerebral congestion, dry or wet cups to nape of neck and

℞. Tinct. aconite rad..... ..... gtt. j–ij
Liq. potas. citrat..... ℥ ij
Liq. ammon. acetat..... ℥ ij. M.

Every two hours.

Purgation during remission, with

℞. Hydrarg. chlor. mite..... .... gr. v
Sodii bicarb..... gr. x
Pulv. aromat..... gr. v. M.

In pulv., p. r. n.

PERNICIOUS FEVER.

Synonyms. Congestive fever; malignant intermittent; malignant remittent.

Definition. A malignant, destructive, malarial fever, which may be of the intermittent or remittent form; characterized by *intense congestion* of one or more internal organs, *together* with dangerous perversion of the function of innervation.

Cause. A high degree of malarial poison.

Varieties. *Gastro-enteric; Thoracic; Cerebral;* and *Hemorrhagic.*

Symptoms. Any of these varieties may begin either as an *intermittent* or *remittent* form; again, the *first paroxysm* is rarely pernicious, but appears as the ordinary malarial attacks.

The *gastro-enteric* variety has as distinctive features, *intense nausea* and *vomiting, purging* of thin discharges, mixed with blood, *tenesmus, burning heat* in *stomach*, intense *thirst*, frequent, weak *pulse*, face, hands and feet *cold*, and *shrunken features.* This condition continues for half an hour to several hours, when either an inter- or remission occurs.

Thoracic variety often combined with the one just described. Characteristic features due to overwhelming congestion of lungs, are, *violent dyspnœa, gasping* for air, 50 to 60 respirations per minute, *oppressed cough* with slight amount of blood-streaked sputa, *frequent, weak pulse, cold surface*, and terror-stricken features; duration same as above.

Cerebral variety, due to intense congestion of brain; sometimes effusion of serum into ventricles, or even rupture of small blood vessels. Characterized by *violent delirium*, followed by *stupor* and *coma, slow, full pulse*, the surface either *flushed* or *livid.* Cases may either resemble *apoplexy* or *acute meningitis.* Duration same as other forms.

Hemorrhagic variety or the yellow disease, as it has been termed, begins as an ordinary inter or remittent fever, soon followed by signs of *internal congestion*, to wit; *nausea, vomiting, dyspnœa*, severe *pains* over *liver* and *kidney*, continuing for a few hours, when *surface* suddenly turns *yellow* and *bloody urine* is voided, after which an inter or remission and marked abatement occurs, to be sooner or later followed by a second paroxysm, which is more severe, with additional signs of *cerebral congestion.* Blood may also escape from other parts than the kidneys.

Duration. Pernicious fever, in any of its forms, may last from a few hours to a few days. Recovery is rare after a *third paroxysm.*

Prognosis. With early treatment, one in eight die.

Diagnosis. *Yellow fever* is most apt to be confounded with the *hemorrhagic* variety, and as they both occur in the same localities, the diagnosis is difficult; the early *yellowness* of surface, with *hæmaturia*, and the absence of the *black vomit*, are the chief points of distinction.

Treatment. The first indication in all varieties is to bring about *reaction.* If *cold stage*, heat to surface, with stimulating lotions; *hot stage*, cold to surface and hypodermatic injection of *morphia*, gr. ¼, at once. After *reaction, quiniæ sulph.*, not less than gr. xl, repeated p. r. n.; administer by stomach, rectum, or better still, by hypodermatic injection.

Prof. Bartholow pronounces the following as one of the best formulæ for hypodermatic use of quinia :—

℞. Quiniæ di-sulph..... gr. l
Acid sulph. dil. ..... ♏c
Aquæ font..... ℥j
Acid carbol. liq..... ..... ♏v. M.

For *thoracic* variety, dry or wet cup and *ammon. carb.*

Gastro-enteric variety, Prof. DaCosta suggests—

℞. Morph. sulph..... gr. ⅕
Pulv. camph..... gr. j
Pil. hydrarg..... gr. ij
Pulv. capsici..... gr. ss. M.

In pills every half hour until stools change.

Cerebral variety, venesection, or cups or leeches to neck, cold to head, active purgation, and act on kidneys and skin.

Hemorrhagic variety, purgatives, *morphia* hypodermatically, and either *acid sulph. dil.*, *acid gallic.*, or *Monsell's solution* for hemorrhages. After paroxysms broken up, long course of *ferrum*, with *quinia* on septenary days.

YELLOW FEVER.

Synonyms. Bilious malignant fever; typhus icterode; Mediterranean fever; sailors' fever.

Definition. An acute, infectious, paroxysmal disease, of *three stages*, to wit: the *febrile*, the *remission*, and the *collapse;* characterized by violent fever, yellowness of the surface, and "black or coffee-ground vomit." Tendency fatal; one attack confers immunity from a second.

Cause. A specific poison, existing only with a high temperature, and destroyed by frost. *Not malaria.*

Pathological Anatomy. *Skin*, lemon or greenish yellow color, due to dissolution of red blood corpuscles; *heart* softened by granular degeneration; *stomach*, veins deeply engorged and mucous membrane softened; it contains more or less "coffee-ground" matter, consisting of blood corpuscles deprived of their hæmoglobin, white corpuscles, epithelial cells and *debris*. *Intestines* much same as stomach; *liver* yellow color and a fatty degeneration of hepatic cells; *kidneys*, granular degeneration of epithelium of tubules.

Symptoms. Ushered in during the night with a *chill* and *pains* in head, temples, limbs and large joints; with high *fever*, in a few hours reaching 104°; *high pulse, brilliant eyes, flushed countenance*, and decided *irritability* of *stomach*. This continues for thirty-six hours to three or four days, when a *remission* occurs, all the symptoms abating, and

convalescence obtains, or after a day the *yellowness* of the skin appears, followed by the stage of *collapse*, in which the symptoms of the first stage return for a few hours, to be followed by the *black vomit* and *hemorrhages* from other parts, *feeble pulse*, *cold surface*, *irregular respiration*, and *death* from *exhaustion*, the mind clear. Albumen appears in urine during first stage. These symptoms represent a *sthenic* case; other varieties are the *algid*, *hemorrhagic* and *typhus*.

Duration. Depends on variety, from few hours to few days. Rarely lasts a week.

Prognosis. One in four cases die. Short cases unfavorable, as are hemorrhagic.

Diagnosis. *Pernicious fever*, hemorrhagic variety, apt to be mistaken for yellow fever; yellow fever; disease of *one* paroxysm, *one* remission, epidemic, albuminuria and black vomit. Pernicious fever more than one paroxysm, not epidemic, rarely black vomit and albumen in urine.

Treatment. *No specific.* The indications are to treat symptoms and nourish patient. Good nursing, ventilation, *early emesis* and *purgation*, with *diaphoretics* and *diuretics*, are apparently beneficial. Large doses of *quinia*, early in attack, for high temperature; *carbolic acid*, with or without *morphia*, for irritable stomach; and *Monsell's solution* or *plumbi acetat.* for black vomit and hemorrhages, and free stimulation from onset are useful.

ERUPTIVE FEVERS.

As a group, the eruptive or exanthematous fevers have many features in common. All have a period of incubation, are characterized by a fever of more or less intensity preceding the eruption, by an eruption which is peculiar to each, occur most commonly in childhood, rarely attack the same person twice, very prone to occasion serious sequelæ, and are contagious. Their origin is as yet unknown.

SCARLET FEVER.

Synonym. Scarlatina.

Definition. An acute, self limited, *infectious* disease; characterized by high temperature, rapid pulse, a diffused scarlet eruption, terminating in desquamation, inflammation of the throat, and frequently more or less grave nervous phenomena. Serious sequelæ usually follow an attack.

Cause. A specific poison, maintaining its vitality for a long time. Eminently *contagious*, the contagion residing chiefly in the desquamated epidermis. *Incubation* short, one to seven days.

Symptoms. Onset sudden, decided *chill* and *vomiting*, followed by *high fever*, soon reaching 105°; *rapid pulse*, 110 to 140 being common. At

the end of twenty-four hours a *bright scarlet rash* appears on the neck and chest, spreading over the entire body within a few hours; the eruption is not raised, there is no intervening healthy skin, and scattered irregularly are points of a darker hue. With the appearance of the eruption *burning in the throat* and *difficulty in deglutition* are complained of, the throat on inspection presenting the appearance of a *catarrhal* inflammation. *Tongue* at first furred; later, red, with prominent papillæ, called the "strawberry tongue."

On the fourth or fifth day the fever declines by *lysis*, the eruption fading, and on the sixth or eighth day *desquamation* begins, continuing for a week or more, the *convalescence* being slow, the patient *emaciated* and *pale*.

Scarlatina anginosa are cases with great inflammation and swelling of the *throat* and neighboring *glands*, the swollen glands pressing upon the surrounding parts, causing *difficulty of breathing and deglutition*.

Scarlatina maligna are cases with decided *nervous* phenomena, to wit: *convulsions*, *delirium* and *muscular twitching*, the *temperature* reaching 107° to 110°, the *eruption* delayed, *purple* and in *patches*.

Sequelæ. Chronic sore throat; conjunctivitis; otorrhœa; chronic diarrhœa; subacute rheumatism; endocarditis; acute Bright's disease.

Prognosis.—Depends upon the character of the attack. Never can be positive of the issue. Mortality ranges from ten to twenty-five per cent.

Diagnosis. A typical case should cause no difficulty; the high fever, rapid pulse, sore throat, and early scarlet eruption followed by desquamation, should leave no doubt.

In *measles* above symptoms absent, and *catarrhal* symptoms present.

Smallpox; eruption on third day, in spots; changing to pustules with secondary fever.

Dengue or break-bone fever; absence of above typical symptoms, and presence of severe *pains in bones*.

Diphtheria; gradual invasion and absent eruption.

Meningitis may be suspected from the symptoms of *scarlatina maligna;* the epidemic influence, eruption, and rapid pulse, are points of difference.

Treatment. *No specific.* Treatment must be *symptomatic*.

For *fever* and *rapid pulse*, either *tincture aconit. rad.* or *digitalis*. If temperature reaches over 106°, cold bath or pack, in addition.

For *itching* of *eruption*, local use of *oils* or *fats*, in some form, cause great relief.

For *throat*, ice internally, and, if does not cause chilliness, externally; if so, apply heat externally; also *gargles* in those old enough, and in those too

young, swabbing the throat does good. The following formula is satisfactory for either purpose :—

℞. Potass. chlor..... ℥ iij–vj
Tinct. myrrh..... f℥ ij
Mel. desp..... ℥ iij
Infus. cinchonæ..... f℥ iv. M.

From the onset, in all cases, either *ammon. carb.* or *tinct. ferri chlor.* and *quinia* should be used, proportioning the dose according to the severity of the attack. For *malignant* cases bold stimulation from the onset.

For the various *sequelæ*, the treatment is the same as if occurred primarily, *plus* tonics.

The disease being *infectious*, every means should be taken to prevent its spread, to wit : isolation, cleanliness, disinfection, fumigation, etc.

Small doses of *quinia*, in those exposed, said to prevent or modify the severity of an attack.

MEASLES.

Synonym. Morbilli rubeola.

Definition. An acute *epidemic* and *contagious* disease ; characterized by catarrhal symptoms, referable to naso-broncho- pulmonary mucous membrane, fever, and a crimson eruption which terminates by desquamation.

Cause. A specific poison, with a special susceptibility for childhood. Contagious by contact, and has been communicated by inoculation. One attack, as a rule, protects from a second. *Incubation*, ten days.

Symptoms. Onset gradual, irregular *chills*, *fever*, the temperature rising to 101° or 102°, *muscular soreness*, *headache*, and intense *nasal*, *pharyngeal* and *laryngeal catarrh ;* on the evening of the second day a *decided remission* takes place in the *fever*, the catarrh continuing ; on the *fourth day* occurs an eruption of a *crimson* rash on the face, soon spreading over the body, in the form of dots, slightly elevated, which coalesce into irregular circles or crescents, and with the appearance of the eruption the *fever returns*, higher than before, 104° or 105° being common, the catarrh aggravated and extending to *bronchial* mucous membrane. About the *ninth day* eruption fades, symptoms abate, and slight desquamation occurs. Some cough and catarrh may remain for a long period.

Black measles or camp measles are a variety occurring in camps, jails, etc., in which occur dangerous chest symptoms, and black spots or petechiæ, from deteriorated blood.

Sequelæ. In those of *strumous diathesis*, scrofula or phthisis may develop.

Prognosis. As a rule, perfect recovery. If phthisis develop, prognosis bad. Black measles, majority die.

Diagnosis. A typical case begins gradually, chilliness, nasal catarrh and watery eye, and fever, which declines before eruption, rising afterwards, eruption crescentic in shape, crimson color.

Scarlet fever has absence of catarrh, and earlier appearance and different character of eruption.

Typhus fever; absence of catarrh, febrile remission and eruption on face, and with decided cerebral phenomena.

Treatment. *No specific.* Mild cases generally require no medicine, simply regulate diet and bowels, and cool sponging.

If *fever high*,—

℞. Liq. potass. citrat..... ʒj
Spts. æther nitrosi..... gtt. v–x
Tinct. aconit. rad..... gtt. ss. M.

Every two hours, soon controls it.

For *itching* of *eruption*, local use of *oils* and *fats*. For *catarrhal symptoms*, inunction of nose, neck and chest with *camphorated oil* and *pulv. ipecac comp.*, at bedtime; if extends to *bronchial* mucous membrane, *expectorants*.

During convalescence, for the strumous, protect from exposure, and *ol. morrhuæ* with *syr. ferri iodidi*. For *black measles*, bold stimulation, with *ferrum* and *quinia*.

ROSEOLA.

Synonyms. Rœtheln; German measles; French measles; scarlet rash.

Definition. An acute, self-limited disease; characterized by mild fever, moderate coryza, cough and sore throat, and a rose-colored eruption, in patches of irregular size and shape.

Cause. Propagated by infection. That a peculiar germ exists is probable, but thus far it has not been isolated. *Incubation* about ten days.

Symptoms. Onset sudden, with *mild fever*, some *coryza*, and *sore throat*. Any time from the *first* to *fourth* day appear *rose-colored spots*, size of pin head, slightly elevated, which coalesce, forming irregular shaped and sized patches, with intervening healthy skin. Symptoms all terminate within a week by *lysis*, the patient being none the worse for the attack.

Prognosis. Most favorable.

Diagnosis. From *scarlet fever*, by absence of high fever, rapid pulse, color and character of eruption and sequelæ.

From *measles*, by absence of intense catarrhal symptoms, late appearance of eruption and crescentic shape.

Treatment. Mild laxative and restricted diet. If *fever* high, saline mixture. *Itching* of skin, sponging with vinegar and water.

SMALLPOX.

Synonym. Variola.

Definition. An acute, epidemic and contagious disease; characterized by severe lumbar pains and vomiting, and an initial fever, lasting from three to four days, followed by an eruption, at first *papular*, then *vesicular* and afterwards *pustular;* the development of the pustule being accompanied by a *secondary fever*, during which grave complications are prone to occur.

Causes. A specific poison whose nature is unknown, maintaining its contagious vitality for long period. There is no period, from the initial fever to the final desquamation, at which the disease is not contagious, but the stage of suppuration is the most virulent. One attack, as a rule, protects from second. *Vaccination* has positive protective influence from the disease. *Incubation*, fourteen to sixteen days.

Pathological Anatomy. A granular and fatty degeneration occurs in the liver, spleen, kidneys and heart. The *pustules* are found in larynx, trachea, bronchial tubes, and on pleura; do not occur in stomach or intestines.

Symptoms. *Discrete form.* Onset sudden, with *violent chill, vomiting* and severe *pains in back*, shooting down limbs; *fever*, in short time rising 103° or 104°, F.; *pulse full, strong* and *rapid*, ranging from 100 to 130; the *face red, eyes injected, intense headache* and *sleeplessness;* delirium and convulsions occur at times. During the *third day* the characteristic eruption makes its appearance, first on forehead and lips, consisting of *coarse red spots;* with the appearance of the eruption all the marked symptoms of the fever abate, patient feeling quite comfortable. On the *fifth* day of disease, the spots become *papules;* on the *sixth day*, transformed to *vesicles*, which are soon *umbilicated;* on the *eighth day* the *vesicles* change to *pustules;* on *ninth day* the pustules are entirely purulent, and each surrounded with a broad red band, the *halo* or *areola*, the face swollen, the features distorted; on *eleventh day* pus oozes from the pustules, and drying, forms the *scab* or *crust*, which on *seventeenth* to *twenty-first day* drops off, leaving red, glistening depression or *pit*, soon changing into white cicatrix. With the formation of the pustules, *eighth day*, severe *rigors* and *fever* set in, all the original symptoms returning; this *secondary fever* is the most critical period of the disease, generally attended with *violent delirium*. In favorable cases the secondary fever subsides after three or four days, and *convalescence* is established.

Confluent smallpox differs from the *discrete* in being more severe, and the *pustules* coalescing into large patches.

Malignant smallpox is characterized by the intensity and irregularity of the symptoms, death resulting before the characteristic eruption, by convulsions or coma. In these cases *hemorrhages* are frequent and petechiæ are observed.

Varioloid, or modified smallpox, is the form modified by previous vaccination or by a former attack of smallpox. Its course is shorter and milder than the other, and is *not attended with secondary fever.*

Complications. During the course of the *secondary fever* there is great tendency to grave inflammations, to wit: *pleuritis*, *pneumonitis* and *dysentery*. During *convalescence boils* and *abscesses* on the skin are frequent.

Prognosis. Depends upon the *variety* of the attack, the *age* of patient, and whether *vaccinated* or not. *Discrete* mortality, four per cent.; *confluent*, fifty per cent.; under *five years* and over *forty years*, fifty per cent.

Diagnosis. Cannot be confounded with any other disease if have typical symptoms, to wit: chill, vomiting, pains in back and legs, high fever and pulse, all declining on *third day*, when eruption appears, first spots, then papules, then vesicles, finally pustules, drying and forming crusts, and the marked secondary fever.

Treatment. *No specific.* The treatment is symptomatic.

For *initial fever* and *full pulse*—

℞. Tinct. aconit. rad..... gtt. j–ij
Spts. æther nitrosi..... ʒ ss
Liq. ammonii acetat..... f ʒ ij
Aquæ..... f ʒ iss. M.

Every hour or two.

Or

℞. Acid. salicyl..... gr. v
Spts. vini rect..... gtt. xx
Elix. simp..... ʒ ss. M.

Every three hours.

If *headache* and *backache* are intense, hypodermatic of *morphia*, or *ice bag* to head and back.

For *sleeplessness* and *restlessness* or *early delirium*, full doses of *potassic bromide.*

For *secondary fever* the best remedy is *quinia*, gr. v, every three hours, and for *cerebral excitement* of this period, either full doses of potassic bromide by stomach, or the following by rectum:—

℞. Chlor. hydrat..... gr. xv–xx
Mucil. acacia..... f ʒ ij
Aquæ..... f ʒ ij. M.

p. r. n.

The symptomatic fever being pyæmic in character, the depression should be anticipated by large dose *tinct. ferri chloridi* and judicious *stimulation*, brandy in tablespoonful doses being the best.

From the beginning, milk, eggs, animal broth, oysters and beef juice should be given every *three hours*. *Ice* is always grateful and should be given freely, and if pustules in mouth, ice should be held in mouth as long as possible, and washes of *potass. chlor.* or *acid carbol.* used.

The disease being contagious, *isolation*, *ventilation*, *cleanliness* and *disinfection* are imperative.

To prevent pitting keep patient in *dark room*, well ventilated. *Masks* of some unctuous material, thoroughly applied, to exclude air, have beneficial effect, a good formula being ℞. *Ung. hydrarg.*, *pulv. marantæ*, *equal parts*, *or glycerit. amylii*, painted over eruption, changing to *tinct. iodidi* as vesicles are about to develop. *Cold water* dressings constantly to face and hands are beneficial, besides allaying heat, pain and swelling. *Warm water* can be used if more grateful.

Vaccination. *Bovine virus* should, as a rule, be used. In practicing vaccination the skin should be rapidly scraped until the true skin is reached and it is ready to bleed, the lymph being then brushed over; or make three or four horizontal and transverse cuts, about four lines long, and rub the virus over them; a little blood, but not much bleeding should be caused. If the vaccination "takes," on the *third day* a *papule* appears; on *sixth day* a *vesicle* has formed, with a central depression; on *eighth* day, fully formed and distended with lymph, with a reddish areola, which becomes very wide. The areola begins to fade on the *tenth day;* the vesicle begins to dry, and by *fourteenth day* a *brown*, *mahogany scab* or *crust* has formed, which is detached about the *twenty-third day*. The *cicatrix* is circular, depressed, radiated and foveated, becoming, after a time, paler than the surrounding integument.

During the course of a vaccination, more or less constitutional disturbance occurs, especially in children.

Eczematous and papular eruptions often develop in strumous children, for which the virus is unjustly held responsible.

Vaccination should at least be performed *twice* in every individual, to wit: *infancy* and at *puberty;* and it is safer to have it again performed if special exposure is liable or occurs.

VARICELLA.

Synonym. Chicken-pox.

Definition. A mild, slightly contagious, febrile affection; characterized by a moderate fever, and the appearance of a *vesicular* eruption, drying up and falling off in from three to five days.

Cause. A peculiar poison; attacking only children; occurring sporadically and as an epidemic.

Symptoms. Moderate *fever*, thirst, anorexia and constipation, followed by eruption of *vesicles*, which rapidly dry up, and within the week drop off, leaving slight *pit*. *Pustules* never occur. Symptoms so slight that were it not for the vesicles, would be overlooked. The eruption appears on *trunk* and *extremities*; very rarely on forehead, and in mouth.

Prognosis. Most favorable.

Treatment. Best left alone. If vesicles on face, means may be used to prevent pitting.

ERYSIPELAS.

Synonyms. Erysipelatous dermatitis; the Rose; St. Anthony's fire.

Definition. An acute specific affection; characterized by fever of low type, and peculiar inflammation of the skin, generally of the neck and face. This inflammation exhibits a marked tendency to spread, to induce serous infiltration and suppuration of the areolar tissue, and to affect the lymphatic vessels and glands.

Cause. A poison, the nature of which is not known. *Feebly contagious.*

Symptoms. Onset sudden, *chill*, followed by *fever*, which soon reaches 104° or 105°, *frequent pulse*, 100 to 130, coated tongue, *nausea* and *vomiting*, and often *diarrhœa*.

Delirium is frequent, and in those of alcoholic habits it resembles delirium tremens. The *eruption* soon follows the fever, beginning in *red spots*, which rapidly coalesce, and spread; a sense of *heat*, *tension* and *tingling* is caused by the *great œdema*, which presents a *tense*, *shiny* appearance, the swelling being so great at times as to close the eyes and distort the features. After five or six days, eruption begins to subside, symptoms abate, the part affected tender, and moderate desquamation. During the height of the attack *albumen* appears in the urine, so that the possibility of *uræmic* symptoms must be remembered. When extensive *infiltration into the areolar tissue* occurs, the swelling and tension become great, and it is termed *phlegmonous erysipelas.*

When the *eruption spreads* to different parts of the body, it is termed *erysipelas ambulans.*

Complications. *Thrombosis* of cerebral capillaries or sinuses, or, as it is sometimes called, "erysipelas of the brain," is explained by the intimate anatomical connection of the facial vein with the pterygoid plexus and cavernous sinus.

Œdematous laryngitis, from extension to the larynx.

Prognosis. Favorable. Unfavorable if it attacks drunkards; if becomes gangrenous; if thrombosis of sinuses occur, or if extends to larynx.

Diagnosis. Not difficult. The fever, early spreading eruption, with burning, swelling, tension and tingling, with albumen, separate it from other *eruptive fevers* or *erythema.*

Treatment. Mildest cases only require a *laxative*, nourishing diet, and locally *vaseline*, to modify the heat and burning.

In severe cases, *tinct. ferri chlor.*, gtt. xx–xxx, every third hour, well diluted. Also *quinia* in gr. ij, every third hour. *Ext. belladonna*, gr. ¼, added, with benefit. From the onset regular feeding should be carried on.

Cerebral symptoms, stimulants, opium and chloral.

Extension to *throat, argenti nitrat.*, brushed over parts.

Locally, soothing applications are indicated, to wit: *Vaseline, ung. zinci oxidi, ol. olivae cum glycerine* or *bismuth.*

In *phlegmonous* variety *argenti nitrat.*, ℈ j, *spts. ætheris nitrosi*, ʒ ij, brushed over and beyond the affected part, gives good results.

DENGUE.

Synonyms. Break-bone fever; neuralgic fever; dandy fever. The word *dengue* is pronounced *dangay.*

Definition. An acute, epidemic, febrile disease, consisting of two paroxysms of fever with an intermission. The first paroxysm is characterized by high fever, distressing pains in the joints and muscles, and a peculiar eruption; the second paroxysm is characterized by a milder fever, an eruption of different character, attended with intense itching, by some recurrence of the joint pains, and by debility.

Cause. Unknown; but it is evident that a peculiar condition of the atmosphere has some influence in its development.

Symptoms. Onset sudden, *fever*, 103° to 105°, intense *headache, burning pains in temples, backache*, severe *aching* and *swelling of the joints* and *stiffness of muscles*, nausea, vomiting, constipation, and appearance of a *rash*, resembling scarlatina, from which the disease has been mistaken for scarlatinal rheumatism. After some hours to two or three days, a distinct *intermission* obtains of one or two days' duration.

The onset of second paroxysm is also sudden, but the severity of the symptoms much less, the patient at same time being greatly debilitated; it is at this time the characteristic eruption appears, being either *erythematous* or *rubeolous*, and attended with *intense itching*, remaining about two days when desquamation occurs and convalescence is established, but prolonged by the great debility of patient. Average duration of disease eight days. Relapses are common.

Prognosis. Favorable.

Diagnosis. Most apt to be mistaken for *acute articular rheumatism*, especially during *first paroxysm*, but the course of the disease and the epidemic influence prevents error.

The eruption might mislead for *scarlet fever* or *measles*, were it not for severe joint and muscle pains.

Treatment. *No specific.* Entirely symptomatic.

At onset, free *purgation* and *diaphoresis*.

For *fever*, *quiniæ*, gr. v, every five hours.

For *pains*, *opium*, or *acidum salicylicum*.

For *itching*, lotion, *acidum carbolicum*.

DISEASES OF THE STOMACH.

ACUTE GASTRIC CATARRH.

Synonyms. Acute mild gastritis; gastric fever; bilious fever; acute indigestion.

Definition. An acute catarrhal inflammation of the mucous membrane of the stomach; characterized by feverishness, loss of appetite, nausea, with occasional vomiting, painful digestion, irregularity of the bowels, and in severe attacks, vertigo (*stomachic vertigo*).

Causes. Errors of diet, insufficient mastication of food, swallowing too hot or too cold liquids, and especially, the abuse of alcoholic drinks. Also sudden changes of temperature.

Pathological Anatomy. The mucous membrane is irregularly congested and engorged, and covered with a grayish, semi-transparent and tenacious mucus, having an *alkaline* reaction. The *true gastric juice* is secreted in *lessened amount* or *entirely suspended*.

Symptoms. At first, *loss of appetite;* at times, *disgust for food;* heavily coated tongue, persistent *nausea*, and at times, *vomiting;* first of undigested food, then viscid mucus, acid and bitter, and finally, bilious matter; slight *irritative fever* is present, with considerable *thirst; acid drinks* eagerly sought after; *digestion imperfect*, giving rise to *pain*, *feeling of weight* and *eructations*; bowels often loose, sometimes, however, constipated. *Vertigo* is a prominent symptom in many cases, causing great anxiety.

The symptoms are aggravated by errors in diet, and if saccharine or fatty articles are taken, *heartburn* occurs.

Prognosis. Favorable. Duration about a week; recovery slow, even under treatment, as far as perfect digestion is concerned.

Diagnosis. Acute gastric catarrh, with fever, may be confounded with *remittent* and *typhoid fever* of the first week, but all doubts will disappear as these maladies develop.

The *vertigo* may be mistaken for *cerebral disease*, but the disappearance of this symptom when stomachic treatment is inaugurated dispels all doubt.

Treatment. Give the stomach as complete *rest* as possible. If the stomach is overloaded, and *ipecac emetic* is indicated, or if vomiting has begun, it may be encouraged by swallowing large draughts of warm water, which acts as a sedative if the stomach is empty. *Irritability of the stomach* is readily controlled by—

℞. Hydrarg. chlor. mite..... gr. $\frac{1}{20}$–$\frac{1}{10}$
Sodii bicarb..... gr. ij
Pulv. aromat..... gr. v. M.

Every two hours,

which has the further advantage of relieving the bowels.

Weak *alkaline mineral waters* or *liquor calcis*, should be freely used.

After the acute symptoms have subsided—

℞. Tinct. nucis. vom..... gtt. iv–x
Acid. muriat. dil..... gtt. x
Glycerinæ..... ℥ ss
Aquæ lauro-cerasi..... f℥ iss. M.

Before meals

will improve appetite and digestion.

ACUTE GASTRITIS.

Synonym. Toxic gastritis.

Definition. An acute and violent inflammation of the mucous, sub-mucous and muscular coats of the stomach, with loss of tissue; characterized by great pain, constant vomiting of blood-streaked or bloody mucus and symptoms of collapse.

Causes. Ingestion of irritant and corrosive poisons, to wit: mineral acids, arsenic, corrosive sublimate, etc.

Pathological Anatomy. The mucous membrane is vividly red and injected, more marked at some portions than others; it is soft and friable; erosions are irregularly scattered, and the sub-mucous, muscular, and at times serous coats show decided destructive changes. The gastric tubules are destroyed in large numbers. In many cases the *oral* mucous membrane presents signs of severe inflammation.

Symptoms. Immediately or soon after swallowing there ensues a deadly *nausea*, rapid and *persistent vomiting;* first, contents of the stomach acted on by the poison; afterwards, shreds of mucous membrane, blood

clots, etc.; great *anxiety* and *depression*, a *weak*, *rapid pulse*, *slow* and *shallow respiration*, *cold skin*, covered with a *cold sweat*, *intense burning heat* at the epigastrium, and *thirst*, with *burning* in the *fauces* and *gullet*, and *exhausting purging;* the *features* are *more* or *less retracted* or *sunken;* these symptoms terminating in collapse and death, or slow convalescence and recovery with a crippled stomach.

A *diagnosis* of the character of the poison swallowed is often afforded by the *stain* of the lips, face and mucous membrane; *sulphuric acid*, blackish eschar; *nitric acid*, yellowish eschar; *caustic potash*, spreading widely and softening the tissues; *corrosive sublimate*, whitish or glazed.

Prognosis. Very grave. Majority perish. Early treatment when no perforation of the walls of the stomach, and recovery is possible, the organ being ever after much weakened.

Treatment. *At once*, hypodermatic injection of *morphia*, repeated at regular intervals.

Vomiting should be encouraged by the free use of *demulcents.*

If the case is seen within a short period of the swallowing of the poison, the proper antidote should be used; but if some hours have elapsed, it is useless. *Ice*, internally and externally, gives great relief. The stomach should be washed out with the stomach pump, thereby removing any remaining poison, besides acting as a sedative to the inflamed membrane.

Milk and *lime water* is the only food that should be given by stomach, *enemata* being used to support the system.

CHRONIC GASTRIC CATARRH.

Synonyms. Chronic gastritis; chronic dyspepsia; drunkards' dyspepsia.

Definition. A chronic catarrhal inflammation of the stomach, with thickening of the coats and atrophy of the gastric glands; characterized by tenderness over the epigastrium, impaired appetite, painful and imperfect digestion, thirst, and great depression of the mental powers.

Causes. Repeated attacks of acute gastric catarrh; habitual use of spirituous liquors; disease of the heart, lungs, pleura or liver, producing chronic congestion of the stomachic vessels; cancerous or other degenerative diseases of the stomach.

Pathological Anatomy. The mucous membrane is of a brownish or slate color, elevated into ridges from hypertrophy, the result of constant congestion; the glands first increase in size, then undergo granular change, and atrophy of their cells results. The mucous membrane is covered with a thick, tenacious mucus. These changes may affect the entire organ or be limited in extent.

Symptoms. *Loss of appetite*, disagreeable feeling of *fullness* in the stomach, *tenderness* at the epigastrium, but slightly influenced by eating, *prominence* of the epigastrium, from distention by decomposing gases; occasional *nausea* and *vomiting*, the latter more common in drunkards, occurring on arising, termed *morning vomiting*, consisting of glairy mucus raised after great retching; *constant thirst*, water and at times stimulus being craved; often great *burning* at the pit of the stomach, the result of acidity; *bowels constipated*, *urine* high colored. A feeling of *mental depression* and *sleeplessness*, with occasional attacks of *vertigo*, add to the misery of the patient. The deficient digestion causes more or less *loss of flesh*, the fat disappearing, the muscles relaxed and the skin dry.

Prognosis. Favorable as to life, but not as to complete recovery, the atrophied glands more or less affecting digestion and assimilation.

Treatment. Regular diet. Avoid fatty, saccharine and starchy food. Also all *tonics*, *bitters*, or *acids*, *unless specially indicated.*

Locally, few *leeches*, *dry cups*, a *blister* or *emplas. belladonnæ.*

Purgatives are doubly indicated: *first*, relieving the constipation; *second*, clearing the stomach of the tenacious mucus, which neutralizes what gastric juice is secreted. Appropriate purgatives are the natural mineral waters, such as Saratoga or Friedrichshall, or—

℞. Magnesii sulph..... ℥ i–ij
Sodii et potass. tart..... ℥ ss–j
Acid. tartaric..... gr. xx. M.

Dissolved in a glass of water and drunk effervescing, an hour before breakfast.

Digestion may be temporarily aided by *pepsin* or *lactopepsin* with the meals.

For the morbid condition itself may be used, *liq. potass. arsenitis*, gtt. i–ij, *before meals*, or *bismuth subnit.*, gr. x-xx, before meals, to which may be added *sodii bicarb.*, gr. v, or *argenti nitrat.*, gr. ¼–⅓, or *argenti oxidi.*, gr. ½–j, in pill, *before meals.*

Pain is so severe in some cases that resort must be had at times to *opium* or *belladonna* in small doses, after meals.

Rest of body is almost as imperative as rest of the stomach.

GASTRIC ULCER.

Synonym. Chronic gastric ulcer.

Definition. A solution of the continuity, involving the mucous membrane and one or more layers of which the walls of the stomach are composed; characterized by pain, disorders of digestion and vomiting of blood.

Causes. Anæmia or its sequelæ the chief factor. Most common in young, anæmic women. Virchow claims *emboli* or *thrombi* form in nutrient gastric arteries which have lost their tonicity, an ulcer forming at the point of obstruction.

Pathological Anatomy. In the majority of cases the ulcer is solitary. The posterior wall near the pylorus is the most common site.

In a typical case there is a circular hole, with sharp borders, in the serous coat of the stomach; the loss of substance is greater in the mucous membrane than in the muscular coat, and greater in this than in the serous coat, so that the ulcer looks like a shallow funnel, the apex at the outer wall, the base at the inner wall of the stomach; it is first round, growing, becomes elliptical, bulging at portions, becoming irregular; size, from ¼–½ inch in diameter. When the ulcer heals before all the coats are perforated, a distinct cicatrix marks the location. During its progress nutrient vessels are eroded, causing profuse hemorrhage. Chronic gastric catarrh complicates majority of cases.

Symptoms. More or less prominent symptoms of indigestion. *Pain* constant, at the pit of stomach, increased by taking food, especially of an irritant kind, the pain often felt in the back, of a burning, gnawing character. *Tenderness* at one or more points, extending from front to back. *Vomiting* almost as constant as pain, coming on soon after eating, if ulcer at cardiac orifice; an hour or so after, if at or near pylorus; rejected matter may be undigested or partly digested food, or simply acrid mucus. *Vomiting of blood* in large quantities and arterial in color is almost diagnostic of gastric ulcer; the blood may be dark in color if has remained in stomach some time before rejected. Severe and frequent attacks of *gastralgia* may add to the suffering of the patient. The general condition of the patient is not significant, some being greatly debilitated, others the nutrition but little deranged.

Duration. The ulcer is slow in forming, and runs a very chronic course, an average duration being, perhaps, a year. Cases are recorded in which the disease has suddenly developed and terminated by *perforation*, *peritonitis* and *death* within two weeks, but they are rare.

Prognosis. Not very unfavorable. Recoveries are frequent. The dangers are *perforation*, *peritonitis*, or *fatal hemorrhage*.

Diagnosis. *Duodenal ulcer* presents symptoms so akin to gastric ulcer that a differential diagnosis is impossible.

Chronic gastritis is often confounded with gastric ulcer; the distinctive points are, absence of vomiting of blood, no localized, constant pain, aggravated by food, and no tenderness in the back; while the symptoms

of indigestion are marked and persistent, with, as a rule, a history of spirit drinking and the age of the patient—middle life; ulcer in the young.

The points of distinction between *gastric cancer* and *gastralgia* will be pointed out when treating those affections.

Treatment. Give the stomach as complete rest as possible; this is accomplished by *rectal* alimentation, or where it cannot be carried out, exclusive *milk* diet, adding *lime water*, to enable the stomach to better retain the milk; the amount of milk should be one or two ounces every two hours. *Rest in bed* is paramount, and should be insisted upon.

For *pain*, small doses of *morphia* should be used, as needed.

For *hemorrhage*, hypodermatic injections of *ergot* most reliable.

For the *ulcer*, *liq. potassii. arsenit.*, gtt. i–ij every five hours, has given excellent results in several cases treated by the author; *bismuth*, gr. xx–xxx, combined with *sodii bicarb.*, gr. iij–v, three times a day, stands second in importance; *argenti nitrat.*, gr. ¼–⅓, every four hours, or *argenti oxidi*, gr. ½, every four hours, has some value.

Those cases in which *anæmia* is marked, do well by *ferrum*, either *lactate* by stomach, or *dialysed*, *hypodermatically*, as first suggested by Prof. Da Costa.

If *perforation* and *peritonitis* result, full doses of *opium* are indicated.

GASTRIC CANCER.

Synonyms. Cancer of the stomach; gastric carcinoma.

Definition. A peculiar malignant growth, occurring for the most part at the pyloric extremity of the stomach, making constant progress, destroying the gastric tissues and infecting the lymphatic glands; characterized by disorders of digestion, pain, vomiting, marked anæmia, and terminating in all cases by the death of the patient.

Cause. Hereditary. Develops after forty years, for most part.

Pathological Anatomy. Cancer of the stomach is the most common form of cancer. It is, as a rule, a primary cancer. The variety is most commonly the *scirrhus*, next in frequency, *medullary*, the least frequent, *colloid*. As regards the location, eighty per cent. occur at the *pylorus*.

It originates usually in the *tubules*, rapidly infiltrating the remaining tissues, thickening everywhere as it progresses, and either remains a hard nodulated mass or undergoes ulceration. The hard nodulated growth at the pylorus constricts the orifice, resulting in distention of the stomach. The lymphatic glands adjacent to the stomach are infiltrated, secondary cancers resulting. Ulceration into an artery causes hemorrhage into the peritoneum, causing local peritonitis.

Complications; fatty heart, thrombosis or tuberculosis.

Symptoms. Indigestion, progressive in character, with *marked acidity*, *flatulency* and fetid breath.

The majority of cases have *vomiting* after eating if at cardiac orifice, some hours after if at pylorus, and if much distention of stomach, some days after. The rejected matter is food in various stages of digestion, and frequently *black, grumous masses* or changed blood. *Pain*, marked, constant, *dull, heavy*, increased by pressure, seldom lancinating. Marked *anæmia, emaciation*, and towards end *dropsy*, the surface having an earthy or *fawn color*. A *tumor* is found in three-fourths of cases, occupying the epigastric region, *not moving on inspiration.*

The duration of the disease is about one year, patient dying from *exhaustion, peritonitis* or *hemorrhage.*

Prognosis. Unfavorable. Recovery never occurs.

Diagnosis. *Chronic gastric catarrh* differs from gastric cancer, in the absence of a tumor, bloody vomit, characteristic pain, peculiar color of surface and dropsy.

Gastric ulcer differs in the character of pain, age of patient, large amount of bloody vomit and absence of tumor and progressive emaciation. Still the diagnosis is difficult.

Abdominal tumors may raise the question of a gastric cancerous tumor; the points of distinction are the characteristic symptoms of gastric cancer, and that abdominal tumors, especially of the liver and spleen, the ones most apt to cause error in diagnosis, are influenced by inspiration, while *tumors of the stomach are not.*

When a scirrhus of the pylorus lies upon the aorta, a pulsation may be communicated to it, raising the question of *aneurism of the abdominal aorta*, but the expansile pulsation of aneurism is wanting, as are the other symptoms of the affection, and if the patient is made to rest upon his hands and feet, the stomachic tumor falls away from the aorta and pulsation ceases.

Treatment. We possess no means of arresting the disease. Professor Billroth has *excised* the pylorus, thereby prolonging life seven months.

For *acidity* and *fetor of the breath, acidi. carbol.*, gr. $\frac{1}{4}$–$\frac{1}{3}$, or *charcoal*, modifies.

For *vomiting, bismuth* and *opium*, or washing out the stomach with stomach pump.

For *pain, morphia.* Avoid stimulants.

GASTRIC DILATATION.

Synonyms. Pyloric obstruction.

Definition. An abnormal expansion of the cavity of the stomach, with the walls either hypertrophied or decreased in thickness; characterized

by pronounced indigestion, vomiting of partly digested and partly decomposed food, every few days, and moving of flatus in abdomen.

Causes. Most common, stricture of pylorus, result of cancer; pressure of tumor against pylorus, preventing exit of stomach contents. Loss of muscular tone, occurring in anæmia. Prof. Bartholow cites cases resulting from excessive beer-drinkers, who drank thirty to forty glasses of beer habitually, every day.

Pathological Anatomy. When obstruction exists at the pylorus, the whole organ is dilated, with hypertrophy of the muscular layer of the stomach. Dilatation without pyloric obstruction, the muscular layer is thinner than normal, pale in color, and presents signs of fatty degeneration; the mucous membrane also pale, thin, and without rugæ.

Symptoms. Those of the disease producing the obstruction *plus* those of obstinate chronic gastric catarrh, with a *characteristic vomiting;* the cavity having a greatly increased capacity, large accumulations take place, which are rejected every few days, partly digested and partly decomposed. *Regurgitation* of partly digested aliment, acrid, acid and offensive, very common. *Bowels constipated*, stools hard and dry.

Physical signs of gastric dilatation are: *on inspection*, abnormal prominence of the whole epigastric region; *percussion*, if empty, tympanitic note extending to or below umbilicus, having metallic quality; if full, high-pitched and flat; *auscultation*, splashing and rumbling sound, the succussion sound being distinct if body is shaken.

Diagnosis. The cause being ascertained, no difficulty is experienced in making a diagnosis.

Treatment. Regulated diet. Restrict the use of fluids, using a "dry diet" almost exclusively.

Regardless of cause, washing out stomach with stomach pump, every day or two, gives relief, and, if no stricture, adding *strychnia* or *nux vomica*, very favorable results may follow.

GASTRIC HEMORRHAGE.

Synonyms. Hæmatemesis; gastrorrhagia.

Definition. Gastric hemorrhage is not, strictly speaking, a disease, but a *symptom;* still, vomiting of blood occurs under such a variety of conditions, that a separate consideration is desirable.

Causes. Ulcer of the stomach, cancer of the stomach, scurvy, purpura, hemorrhagic malarial fever, congestion of the liver or spleen, vicarious at menstrual period and in yellow fever.

Symptoms. Added to the symptoms of the cause of the hemorrhage, is a *feeling of faintness* and *sinking at the pit of the stomach*, followed by

the ejection of *blood* of *black, grumous*, or *coffee-ground* appearance. Rarely, and then generally in gastric ulcer, the ejected blood may have a *bright red* appearance, the gastric juice not having had time to act upon it. If the amount of blood escaping into the stomach is large, *blood will be voided by stool.*

Prognosis. Depends entirely upon the cause, the most unfavorable being the result of either gastric ulcer or cancer.

Diagnosis. *Hemorrhage from the lungs* may be confounded with gastric hemorrhage. In the former, the blood is red, is coughed up, not vomited, and a history of pulmonary disease. The chief point of distinction between pulmonary hemorrhage and the vomiting of red blood is, that in the former you can discern râles on auscultating the chest; they are absent in the latter.

Treatment. Perfect rest in bed. *Ice*, swallowed and over epigastrium.

Hypodermatic of *morphia* quiets patient's fear, and at same time has a constringing effect on vessels. *Ergot*, as fluid extract, or *ergotin* hypodermatically after patient is quieted, or *liquor ferri subsulph.*, gtt. j–v, well diluted, by stomach.

Allow no food by stomach for several days, nourishing patient by rectal alimentation.

The hemorrhage controlled, future treatment is guided by the exciting cause.

GASTRALGIA.

Synonyms. Cardialgia; gastrodynia; stomachic colic; spasm of the stomach.

Definition. A painful condition of the sensory nerves of the stomach, induced by various sources of irritation; characterized by violent paroxysms of gastric pain and spasm, associated with feeble cardiac action.

Causes. The affection belongs to the group of neuralgias. The most important factor in its causation is general nervous depression; other causes are, malaria, rheumatic or gouty diathesis, anæmia, and certain articles of food.

Symptoms. Like most neuroses, gastralgia is distinguished by its *paroxysmal* character. *Romberg* thus describes an attack:—

"Suddenly, or after a feeling of pressure, there is severe *griping pain* in the stomach, usually extending to the back, with a *feeling of faintness*, shrunken countenance, cold hands and feet, and an *intermittent pulse.* The *pain* becomes so excessive, the patient cries out. The *epigastrium* is either *puffed out*, like a ball, or *retracted*, with tension of the abdominal walls. There is often *pulsation in the epigastrium.* External pressure is

well borne, and not unfrequently the patient presses the pit of the stomach against some firm substance, or compresses it with his hands. Sympathetic pains often occur in the thorax, under the sternum, in the œsophageal branches of the pneumogastric, while they are rare in the exterior of the body.

"The attack lasts from a few minutes to half an hour; then the pain gradually subsides, leaving the patient much exhausted; or else it ceases suddenly, with eructation of gas or watery fluid, with vomiting, with a gentle, soft perspiration, or with the passage of reddish urine."

Besides such severe attacks, we often see *painful sensations in the epigastrium*, of various degrees of intensity, with passing faintness or sinking at the pit of the stomach.

Prognosis. As to perfect recovery, unfavorable, but not dangerous to life. A chronic affection, in that attacks are prone to return from time to time. The cause has much to influence a radical cure.

Diagnosis. From *myalgia of the abdominal muscles*, by the pain of gastralgia being more acute and lancinating, and accompanied by nausea and vomiting.

From *intercostal neuralgia*, by the facts that in this affection the pain is in the left hypochondrium, painful spots along the course of the nerve trunk and at the spine, and absence of nausea and vomiting.

From *gastric cancer*, by the age, character of vomited matter, constancy of the pain, the cachexia, emaciation and the tumor.

From *gastric ulcer*, by the localized pain and its constancy, with tenderness and vomiting of blood, and constant dyspeptic symptoms, which is not the case in gastralgia.

Treatment. *For the paroxysm*, hypodermatic of *morphia*, gr. $\frac{1}{12}$–$\frac{1}{4}$, or stomachic administration of the "compound of anodynes," the so-called *chlorodyne*. The relief afforded by opium in some form is apt to lead to the opium habit where the attacks are frequent. *In the interval*, regulated diet and one or more of the following remedies: *quinia*, *arsenicum*, *bismuth*, *ferrum*, *liq. iodinii comp.*, or small doses of *potassic iodide*.

ATONIC DYSPEPSIA.

Synonyms. Dyspepsia; indigestion; heartburn; pyrosis.

Definition. A functional derangement of the stomach, with either deficient secretion in *quantity* or *quality* of the gastric juice; characterized by disorders of the functions of digestion and assimilation.

Causes. Imperfect mastication; bolting of food; eating large quantities of food; same diet long continued; depressed nervous system, from worry, tire, etc. It is often inherited.

Symptoms. *Perverted appetite*, capricious or lost; *difficult digestion*, feeling of weight or fullness in epigastrium; *acidity*, from decomposition of albuminoids; *heartburn, flatulency, regurgitation, or vomiting* of portions of partly digested food or acrid fluid—*water brash* or *pyrosis*. *Pain* or *soreness* at pit of stomach during digestion. *Tongue* either clean or broad, flabby and pale, showing marks of teeth. *Bowels* constipated; *urine* generally scanty and high-colored, with excess of urates or oxalates, or, in persons of nervous type, it is pale, low sp. gr., and contains phosphates. *Drowsy* after meals, with *wakefulness* at night, *defective memory*, *headache*, and absent mental vigor, with *flashes of heat*, followed by more or less perspiration.

Prognosis. With careful living, dyspepsia is curable. It has been aptly termed "remorse of the stomach."

Treatment. The most important is to regulate the diet. Forbid saccharine, starchy or fatty articles of food. Eat small amounts at a time. *Rest after eating*, from half to an hour. Allow but small quantities of liquids with meals. In the vast majority of cases forbid the use of stimulants with meals.

Aid *digestion* with *pepsin*, with or without *muriatic acid dilute*.

Stimulate stomachic peristalsis with *nux vomica*, *gentian* or *cinchona*.

For *acidity*, *alkalies* at times of acidity.

For *pyrosis*, *bismuth* and *pulv. aromat.* in large doses.

For *constipation*, *pil. rhei comp*, at bedtime.

For *anæmia*, *pil. ferri carb. or ferri lactate*.

For *flatulency*, *tinct. nux. vom.*, before meals, *vegetable charcoal* or *acidum carbolicum*.

DISEASES OF THE INTESTINAL CANAL.

INTESTINAL COLIC.

Synonyms. Enteralgia; tormina; gripes.

Definition. A spasmodic contraction of the muscular layer of the intestinal tube; characterized by acute paroxysmal pain near the umbilicus, relieved by pressure, and associated with feeble cardiac action.

Causes. Constipation; presence of indigestible food; collections of flatus; an abnormal amount of bile discharged into the intestines; lead poisoning; syphilis; chronic malaria and hysteria.

Symptoms. *Romberg* thus describes a paroxysm: "There are attacks of *pain*, spreading from the navel over the abdomen, alternating with intervals of ease. The pain is *tearing*, *cutting*, *pressing*, most frequently

twitching, pinching, accompanied by peculiar *bearing-down pains.* The patient is restless, and seeks *relief* in changing his position and in *compressing the abdomen;* his surface may be cold and his features pinched. The *pulse is small and hard.* The abdomen is tense, whether puffed up or drawn inward. There are, *often*, *nausea* and *vomiting*, and *desire* for *stool.* There is usually constipation, but sometimes the bowels are regular or even too loose. *Duration* from a few minutes to several hours, relaxing at intervals. It ceases suddenly, with a feeling of the greatest relief, although some soreness remains for a few days."

Lead colic is always preceded by symptoms of lead poisoning, to wit: slate-colored skin, dark gums, showing blue line, heavy breath, with sweetish, metallic taste, obstinate constipation, impaired appetite, slow pulse and contracted abdominal walls.

Prognosis. Most favorable. Death is the rarest termination possible.

Diagnosis. *Gastralgia* differs from colic, in the pain being in epigastric region and associated with disorders of digestion.

In *hepatic colic*, or the passage of gall stones, the pain is in the hepatic region, attended with soreness over gall bladder, and retching and vomiting, followed by jaundice and the presence of bile in the urine.

In *nephritic colic* the pain follows the course of one or both ureters, shooting to loins and thigh, with retraction of the testicle of affected side, strangury and bloody urine.

In *uterine colic* the pain is in the pelvis, and associated with menstrual disorders, in fact, a dysmenorrhœa.

In *ovarian colic* or neuralgia, pain on pressure over ovaries, with hysterical phenomena.

Inflammatory disorders of the abdomen differ from colic by the presence of fever and tenderness on pressure.

Treatment. Relief of pain is the first indication, and is best accomplished by a hypodermatic of *morphia*, gr. $\frac{1}{6}$–$\frac{1}{3}$, which has the additional advantage of relaxing the spasm, thereby favoring the action of *purgatives*, which should soon follow. One of the best in colic, no matter from what cause, is—

℞. Sodii bicarbonatis..... gr. viij
Hydrargyri chloridi mite..... gr. viij
Pulv. zingib..... gr. iij. M.

After the relief of the pain and free action of the bowels, the cause of the attack should be ascertained and corrected, to prevent future suffering.

CONSTIPATION.

Synonyms. Intestinal torpor; costiveness.

Definition. A functional inactivity of the intestinal canal, due to either atony of the muscular coat, causing lessened peristalsis, or to a deficiency of intestinal and biliary secretion; characterized by a change in the character and quantity of the stools.

Causes. Dyspepsia; character of food; habits of patient; diseases of the stomach and liver; malaria; lead poisoning and syphilis.

Symptoms. In a normal condition, the majority of persons have *one stool* each day, although it is not to be considered abnormal if more than this number occur.

The *bowels* are moved every *three* or *four days*, with great *straining* and *distress*, the *face* often *flushed*, the *cerebral vessels full.*

Or in other cases the bowels may be relieved once a day, but the *stool is small and hard*, causing great pain.

Another group of cases have *frequent stools* during the day, *small* and *non-formed*, due to retained hardened fæces acting as an irritant to the rectum.

Prognosis. Death never results from functional constipation.

Treatment. The successful treatment depends upon the *removal of the cause* and the *coöperation of the patient.*

First, the patient must have a *regular hour* each day for *going to stool*, and must *remain a sufficient time* to permit a thorough evacuation of the bowels.

Second, the diet must be carefully regulated and lived-up to.

Third, purgative mineral waters or cathartic medicines are to be *used with caution*, their reckless administration often doing more harm than good.

Fourth, either of the following formulæ, aided by the enforcement of the above rules, will give good results :—

℞. Ext. nucis. vom..... gr. ¼
Ext. belladonnæ alco..... gr. ¼
Aloes soc..... gr. ss
Pulv. rhei..... gr. j
Ol. cajuputi..... gtt. j. M.

In pill, at bedtime, and after a week, every second or third night.

℞. Resinæ podophyl.,
Ext. physostig.,
Ext. belladonnæ alco.,
Aloine.....āā..... gr. ¼

In pill, every night, or second or third night.

℞. Tinct. physostigmæ,
Tinct. nucis vomicæ,
Tinct. belladonnæ.....āā..... gtt. x
Tinct. aloes et myrrh..... gtt. xxx. M.

At bedtime.

DIARRHŒA.

Synonyms. Enterorrhœa; alvine flux; purging.

Definition. Frequent loose alvine evacuations, without tenesmus; due to functional or organic derangement of the small intestines, produced by causes acting locally or constitutionally.

Causes. Those acting locally, such as *indigestion, indigestible food, impure food and water, irritating matters* or *secretions* poured into the bowels, *entozoa*, etc., cause the flux by direct irritation of the mucous surface. Those due to constitutional derangement, may be secondary to such diseases as *tuberculosis, pyæmia, albuminuria, typhoid fever*, or disturbances of the functions of other organs, giving rise to *vicarious fluxes, etc.*

Forms. Acute and chronic.

Symptoms. Acute diarrhœa presents itself in several forms, the result of its cause, to wit:—

Feculent diarrhœa. Few hours after meals the patient feels *colic and flatulence* and *desire for stool.* There is often *nausea, foul tongue*, but seldom vomiting. The *pain* is generally relieved by the purging which ensues. The *stools* have a *feculent* character, are of brown fluid, containing fæces, often *offensive*, the color becoming lighter after four or five evacuations. Constitutional symptoms are wanting.

This form is the result of over eating, eating too rapidly, or indigestion of different forms, or worms in intestinal canal, and patients generally recover in a day or two.

Lienteric diarrhœa. In this form there is, with the frequency of evacuations, a *want of assimilation* of *food*, which passes through the intestines more or less unaltered. The *stools* are frequent, *mucous* or *serous*, more or less *covered with bile*, mixed with *undigested food.* In this form the patients emaciate rapidly, owing to the deficient assimilation, the digested portions of the food being hurried on by the irritated bowel. It is usually sub-acute in its course.

Bilious diarrhœa. The *stools* are frequent, *green or yellow*, with *scalding sensations* at the anus and *griping pains* in abdomen. Excessive biliary secretion is the irritating cause.

Any of the above forms may pass into chronic diarrhœa by exciting permanent diseases of the intestines. Diarrhœa due to constitutional causes will be mentioned when speaking of those conditions.

Chronic diarrhœa results from repeated attacks of the acute form, or the result of some cachexia. The *symptoms*, as far as the *stools* are concerned, are much the same as the acute disease, except they are *paler*, whence it has been termed *white flux;* in addition, *dyspeptic* symptoms,

aphthous condition of mouth and tongue, *flatulency*, *colic*, *emaciation* and *anæmia*. The appetite at times capricious, again impaired.

Prognosis. Favorable in *feculent* and *bilious* forms; unfavorable in *lienteric* and *chronic* forms when emaciation begins. Diarrhœa occurring as a symptom, the prognosis is controlled by the original disease.

Treatment. *Acute diarrhœa.* If caused by indigestion the *indication* is a *laxative;* for adults, *tinct. rhei* or *ol ricini*, or both; for children between one and two years of age—

℞. Pulv. ipecac..... gr. $\frac{1}{12}$
Pulv. rhei..... gr. ¼–⅓
Sodii bicarb..... gr. ss–ij. M.

Every four hours, till character of stools change.

After irritant is removed, for adult, *opium* in some form, combined with *kino* or *tannin;* for children—

℞. Bismuth..... gr. iij–v
Cretæ. præp..... gr. v. M.

Every two hours.

In adults, an *opium* suppository often checks a flux that is uninfluenced by opium internally.

For *bilious* form—

℞. Hydrargyri chlor. mite..... gr. ⅛
Sodii bicarb..... gr. ij
Pulv. opii..... gr. ¼. M.

In pill, every two or three hours, until eight pills are used, followed by large doses of *bismuth* and *pepsin*.

In all acute forms *restricted* and *regulated diet* are imperative.

Chronic diarrhœa. Bismuth, gr. xxx–xl, in milk, every four hours; *Hope's camphor mixture*, every four hours; *cupri sulph.*, gr. $\frac{1}{12}$, *ext. opii* gr. $\frac{1}{12}$, every four hours; *argenti nitrat.* gr. ½, *ext. opii*, gr. ⅕, every five hours; may all be used with more or less success; when *dry tongue* and *great flatulency*, use—

℞. Ol. terebinthinæ..... ʒj
Ol. amygdal. express..... ʒss
Tinct. opii..... ʒij
Mucil acaciæ..... ʒv
Aq. lauro-cerasi..... ʒss. M.

Sig.—ʒj every three or four hours.

The diet should be nutritious in character, and moderate stimulants are indicated. Activity of the skin and kidneys should be encouraged.

CATARRHAL ENTERITIS.

Synonyms. Ileo-colitis; acute diarrhœa; inflammation of the bowels.

Definition. A catarrhal inflammation of the mucous membrane of the small intestines; characterized by fever, pain, tenderness and looseness of the bowels. When the catarrh is limited to the duodenum, it is termed *duodenitis*, the symptoms being of a different character.

Pathological Anatomy. There first ensues *hyperæmia* of the mucous membrane and intestinal glands, manifested by *redness*, *swelling* and *œdema;* this is followed by *increased secretion* and an *overgrowth* and *desquamation* of the epithelium, together with a copious *generation of young cells.* As a result of the hyperæmia, often occurs rupture of the capillaries and extravasation of blood.

The swollen glands show a strong tendency to ulcerate. This catarrhal process may involve the entire tube or be limited to portions.

Causes. Improper and indigestible food; summer temperature and exposure to cold and wet, when perspiring.

Symptoms. Begins with *languor*, followed by *chilliness* and *fever*, the temperature ranging at 102°–103°, this is followed by *pain*, colicky in character, situated about the umbilicus, localized *tenderness*, and *loose evacuations. Nausea* and *vomiting* often occur. The *stools* contain but *little fecal matter*, are *yellow* or *greenish yellow* in color, mixed with *undigested food;* if the stools are numerous, they become whitish and watery, the so called "*rice water*" discharges. The appetite is impaired, and this, with the want of assimilation and great waste, soon produce extreme *weakness* and *emaciation*, which is always marked in children.

Duration. In mild cases, four or five days; severe cases continue more or less marked, for a week or two.

Prognosis. Favorable, if early and proper treatment are obtained.

Diagnosis. From *colic*, by absence of tenderness and fever, and the presence of constipation and its paroxysmal character.

From *typhoid fever*, by absence of prodromes, characteristic temperature record and eruption.

For points of distinction from *dysentery* or *peritonitis*, see those affections.

Treatment. *Rest the bowels* by a restricted diet, to wit: milk and lime water, or weak mutton or chicken soups, with well boiled rice added.

Keep the patient quiet in bed, a difficult matter in the case of children.

For *adults*, *opium* is the remedy, in doses to control the symptoms; mild cases do well with—

℞. Ext. opii..... gr. ¼
Camphoræ..... gr. iij. M.

In pill, every three hours

Or—

℞. Tinct. opii deodorat..... gtt. x
Liq. potassii citrat..... ʒ ij. M.
Every four hours.

The strength and the frequency of administration of either of these formulæ must be governed by the severity of the attack.

For *children*—

℞. Tinct. opii deodorat..... gtt. j
Bismuth. subnit..... gr. v
Mist. cretæ..... fʒ j. M.
Every four hours, for child of one year.

If the case shows the least tendency to linger, the *acid* treatment should be substituted for the above, the best of which is "Hope's Camphor Mixture," the formula being—

℞. Acidi nitrosi..... fʒ j
Tinct. opii..... gtt. xl
Aquæ camphoræ..... fʒ viij. M.
The dose ranging from fʒ j to fʒ ij, according to age.

Acidum sulphuricum dilutum may be substituted for the acidum nitrosum in the above formula.

Locally, poultices, warm fomentations, or *ung. belladonnæ*, or *oleum camphorat.*, give great relief.

CROUPOUS ENTERITIS.

Synonym. Membranous enteritis.

Definition. A croupous inflammation of the mucous membrane of the small intestines; characterized by tenderness, paroxysmal pain, moderate fever, and the formation and discharge of membranous shreds or casts.

Causes. A disease of adult life. The female sex more liable than the male, and neuralgic, nervous, hysterical or hypochondriacal subjects are more subject to it than are other types.

A peculiar state of the nervous system seems necessary to its production.

Pathological Anatomy. A subacute inflammation of the small intestines, during which the mucous membrane becomes covered with a whitish or grayish white, firmly adherent, membranous deposit, cemented together by a coagulable exudation, and prolonged by rootlets from its under surface into the intestinal follicles.

Symptoms. Begins by *feverishness*, feeling of *soreness* and *distention* of the abdomen; these are followed by *pains* of a colicky character, severe and depressing, felt around the *umbilicus*, continuing for half an hour, an hour or longer, and after a longer or shorter interval occur again; these

phenomena obtain for a day or two, when *looseness of the bowels*, with distressing *pain and tenesmus* occurs, the *stools* containing *mucus*, with or without *blood*, and *shreds of membrane* or *cylindrical casts of the bowel.* Great relief is then experienced, although a *feeling* of *rawness* or *soreness* persists for a day or two.

Preceding the local manifestations of the disease are attacks of hysteria, hypochondriasis, neuralgia, nervousness or excitability.

The paroxysms recur at intervals of a week or two, or after several months; as long an interval as three years between attacks is recorded.

Prognosis. Favorable as to life, but one of the most difficult of diseases to eradicate.

Diagnosis. *Peritonitis* may be suspected until the characteristic stools occur.

Dysentery is excluded when the shreds and casts of membrane appear.

Treatment. The *diet* must be such as contains but a minimum of fecal forming matter.

For the *pain* and *suffering*, *opium* in some form is indicated, the most effective being a hypodermatic of *morphia.*

For *constipation* during a paroxysm, an emulsion of *oleum ricini* and *terebinthina* is of benefit. To prevent a return of the paroxysms either *liq. potassii arsenitis*, gtt. j–ij t. d., or *hydrargyrum chloridum corrosivum*, gr. $\frac{1}{60}$, t. d., with a course of *oleum morrhuæ*, seems to answer in the majority of cases. Prof. Da Costa speaks highly of *picis* in some form, as an alterative to the mucous membrane.

Under no circumstances must the bowels become constipated.

CHOLERA MORBUS.

Synonyms. Sporadic cholera; English cholera; bilious cholera.

Definition. An acute catarrhal inflammation of the mucous membranes of the stomach and intestines, of *sudden* onset; characterized by severe colicky pains, vomiting, purging, cold surface, rapid feeble pulse, and prostration.

Causes. A disease of summer and early autumn, climatic influence being an important factor. Irritants of all kinds, unripe fruits, and vegetables and fermentation of foods.

Symptoms. Onset sudden and violent, and unfortunately, generally *after midnight*, with chilliness, *intense nausea, vomiting and purging*, accompanied with distressing intestinal *pain* or *colic.* The *vomited matter* at first consists of the ordinary contents of the stomach, and the *stools* of ordinary fæces, but soon the *discharges* by vomit and stool are *liquid*, *whitish* or of a *green* or *yellowish* tint; if the attack is severe or protracted

the discharges partake of the "*rice water*" character. The patient is rapidly *emaciated* and *reduced* in strength, the body shrinks, the *surface cold* and covered with a *clammy sweat*. *Intense thirst* is present, and when drink is given it is at once rejected. Aggravating the distress of the patient are *severe cramps* of the muscles, and especially those of the calves.

Termination. *Mild cases* terminate without treatment, the patient able to be around next day, although weak.

Severe cases, the vomiting and purging cease after some hours, but the patient remains weak, with irritable stomach and bowels for a week or more.

Grave cases, the true cholera type, recover from the prostration very gradually; reaction comes on slowly and usually passes into a typhoid condition of some weeks' duration.

Prognosis. In the majority of cases favorable. The mortality about five per cent.

Diagnosis. *Asiatic cholera* and cholera morbus are easily confounded during an epidemic of the former, and there are no positive points of discrimination.

Irritant poisons, such as tartar emetic, elaterium, etc., cause vomiting and purging, similar to cholera morbus and are only discriminated from by the history.

Treatment. *At once*, regardless of the cause, a hypodermatic of *morphia*, gr. $\frac{1}{8}$–$\frac{1}{3}$, and *atropia*, gr. $\frac{1}{120}$, to be repeated in an hour, if no improvement; for patients who object to the hypodermatic mode, *opium* in some form by the mouth or rectum, giving preference to the liquid preparations.

At the same time *mustard* locally over the abdomen, small *pellets of ice* by stomach, and if much depression, small doses of *brandy* or *dry champagne*. The *intense thirst* must not be gratified by use of liquids. If the vomiting and purging continue, make use of—

℞. Bismuth subnit..... gr. xx
Acid. carbol..... gr. ½
Glycerinæ..... gtt. xx
Aquæ, ad..... ℥ iv. M.

Every two or three hours.

Dr. Hartshorne strongly recommends—

℞. Spts. ammon. aromat..... ℥ j
Magnes. optim..... ℥ j
Aq. menth. pip..... ℥ iv. M.

Sig.—℥ j every twenty minutes.

If case is seen early, and if diarrhœa is copious, he adds paregoric, f℥iv, to the mixture. The nearer the case approaches the true cholera type, the more severe are the *muscular cramps*, and treatment is indicated. Prof. DaCosta suggests—

℞. Chloral..... ℥ iv
Cosmoline..... ℥ j. M.

To be rubbed over the affected muscles.

Prof. Bartholow suggests—

℞. Chloral..... ℥ iij
Morphiæ sulph ..... gr. iv
Aquæ ..... f℥ j. M.

SIG.—*Twenty minims*, hypodermatically.

The after treatment depends upon the symptoms; generally, an *acid mixture* and *regulated diet*, with tonic doses of *quinia*, are indicated.

CHOLERA INFANTUM.

Synonyms. Choleriform diarrhœa; summer complaint.

Definition. An acute catarrhal inflammation of the mucous membrane of the stomach and intestines, together with an irritation of the sympathetic nervous system, occurring in children during their first dentition; characterized by severe colicky pains, vomiting, purging, febrile reaction and prostration.

Causes. Age; bad hygiene, or as it is now entitled "civic malaria;" continuous high temperature; improper food; dentition; constitution, as the feeble, delicate, nervous or irritable.

Pathological Anatomy. Resembles closely, if not identical with, the phenomena of catarrhal gastritis and enteritis, together with a powerful irritation of the fibres of the sympathetic nerve.

Symptoms. The onset is *sudden* in a child previously well, or in a child suffering from a bowel affection.

Begins with *vomiting*, *purging*, abdominal *pain*, *fever*, *rapid pulse* and *intense thirst*.

The *vomited matter* is partly digested food, sero-mucus, and finally bilious, and is accompanied with distressing *retching*. The *thirst* is a marked phenomena of the disease, and ice and water will be taken incessantly, though rejected only a few moments after.

The *stools* are first partly fecal, but soon watery or serous, soaking the clothing, leaving a faint greenish or yellowish stain; their odor is musty, at times fetid; their number is from ten to twenty in the day.

Pains precede the vomiting and purging, colicky in character.

The *fever* begins at once, temperature varying from 101° to 105°, with morning remissions. The *pulse* is rapid and feeble, ranging from 130 to 160.

These symptoms continue but a few hours, until *rapid wasting* follows, the body shrinks, eyes sunken and partly closed, mouth partly open, lips dry, cracked and bleeding. The child, at first *irritable* and *restless*, soon passes into semi-comatose condition, death soon following, or the symptoms slowly ameliorate, convalescence being slow and tedious.

Prognosis. Difficult to predict the result, and so care must be used in giving a prognosis. The duration of the choleraic symptoms is short, under five days, but relapses common, and sequelæ protracted.

Diagnosis. The *entero-colitis* or inflammatory diarrhœa of childhood is constantly being mistaken for cholera infantum. The symptoms of the former are; gradual onset, with *fretfulness*, *loss of appetite feverishness*, *nausea*, and moderate *vomiting*, soon followed by *diarrhœa*, the stools being semi-fluid, greenish, mixed with yellowish particles of fæces and undigested casein, with a sour odor, the "chopped spinach" stools, the *abdomen* distended and *tender*, moderate *fever* and *thirst*, having a *duration* of about two weeks.

Treatment. The first indication is to arrest the vomiting and purging, for which, use—

℞. Bismuth subnit..... gr. v–x
Mucil. acaciæ..... ℥ ss
Acidi carbolici..... gr. ½
Tinct. opii deodorat..... gtt. j
Mist. cretæ..... ℥ iss. M.

Every two hours for child between one and two years.

If this fail, or the stomach will not retain it, *tinct. opii* may be given by injections, with *zinci sulph.* and starch.

For *fever*, *quinia* is indicated.

For *depression* regulated nursing or feeding, every two hours, and water or ice to quench the intense thirst, and *cognac brandy*, gtt. x–xxx, every hour or two, in water.

Locally; over epigastrium, mustard, spice poultice or turpentine stupes.

If the *nervous symptoms* become aggravated, small dose of *potassic bromide* or *valerian*, which "reduces the reflex excitability, motility and sensibility," are indicated.

ACUTE DYSENTERY.

Synonyms. Colitis; colonitis; ulcerative colitis; flux; bloody flux.

Definition. An acute inflammation of the mucous membrane of the large intestines, either catarrhal or croupous in character; characterized by fever, tormina, tenesmus and frequent, small, mucous and bloody stools.

It occurs either in the sporadic, endemic or epidemic form.

Causes. *Sporadic* and *endemic dysentery* is caused most commonly by atmospheric changes, viz: hot days and cool nights, also from malarial attacks, and rarely, errors in diet.

Epidemic dysentery prevails in armies, jails, tenement houses, etc., propagated by decomposition of dysenteric stools, and the unfavorable hygienic surroundings.

It is not contagious.

Pathological Anatomy. *Sporadic dysentery* is catarrhal in character; congestion, swelling and œdema of the mucous membrane and sub-mucous tissue, with an over-production of mucus; the follicles are enlarged, from retention of their contents, the result of the swelling; the congested vessels often rupture; the mucous membrane softens in patches, and is detached, forming ulcers. Recovery follows, if the destruction of tissue is small, smooth cicatrices, minus gland structure, marking the site.

Epidemic dysentery is croupous in character; begins with intense congestion, swelling, and œdema of the mucous and sub-mucous tissue, with extravasations of blood and the whole mucous membrane covered with a firm fibrinous exudation; the mucous membrane softens and sloughs, leaving large ulcers and gangrenous spots. If recovery occurs, large cicatrices form, which narrow the calibre of the bowels.

The mesenteric glands enlarge, soften, and abscesses form in them; the liver becomes the seat of small abscesses from embolic obstruction of the radicles of the portal vein; the heart muscles are flabby and more or less fatty.

Symptoms. *Catarrhal form* begins gradually, with *diarrhœa*, *loss of appetite*, *nausea*, and *very slight fever*, which continues for two or three days, when the *true dysenteric* symptoms set in, to wit: pain on pressure along the transverse and descending colon, *tormina* or *colicky pains* about the umbilicus, *burning pain* in the rectum, with the sense of the presence of a foreign body and desire to expel it, or *tenesmus*, which is almost constant; the *stools* for the first day or two contain more or less fecal matter, but soon they consist of a *grayish*, *tough*, *transparent*, *mucus*, containing more or less *blood* and *pus*; during the *tormina*, *nausea* and *vomiting* may occur; the urine scanty and high colored; the number of stools ranges from five to twenty or more.

The *duration* is about *one week*, the patient being much *emaciated* and *enfeebled*.

The *croupous* or *epidemic form* sets in suddenly, the *stools* being more frequent containing more *blood* and *pus*, with *patches of membrane*, even

casts of the bowel, together with more or less *gangrenous mucous* membrane; *nausea*, *vomiting*, and great *prostration*, *cold skin*, *feeble pulse* and *emaciation*, with *anxious expression*, the *odor* surrounding the patient being *fetid*. The *duration* of the grave symptoms is three or four days, when collapse and death occur, or slow convalescence begins, continuing for weeks.

Complications. *Peritonitis; hepatic abscesses; phlebitis* of the intestinal veins; *intestinal perforation.*

Prognosis. *Catarrhal form* favorable. *Croupous* form, the prognosis is always grave, for if recovery does occur the bowel may be crippled, from loss of structure, or from narrowing of its calibre, from resulting cicatrices.

Diagnosis. *Enteritis* lacks the tenesmus and characteristic stools.

Peritonitis, when idiopathic, shows higher temperature, greater tenderness and constipation.

Treatment. Emaciation being rapid, the diet must be attended to from the onset, and be of the most nourishing character, to which stimulus should be added if much prostration occur.

The most common treatment is *opium*, combined with one or more *astringents*, viz.:—

℞. Ext. opii..... gr. ss
Plumbi acetat..... gr. ij. M.

Every two hours; or—

℞. Pulv. opii..... gr. ss
Plumbi acetat..... gr. ij
Pulv. ipecac..... gr. j. M.

Every two hours; or—

℞. Pulv. ipecac comp..... gr. x
Bismuth subnit..... gr. xx. M.

In milk, every two hours.

If the case is seen early the very best prescription possible is—

℞. Magnesii sulph..... ℥j
Acid. sulph. dil..... ♏ v
Tinct. opii deodorat..... ♏ xij
Aquæ menth..... ℥ij. M.

Every two or three hours, till fæces appear in the stools, when small doses of *opium* and *quinia* may be used.

Ipecac, in gr. xx–xl, is largely used in the first stages of dysentery, until the characteristic ipecac stools appear; the first doses being rapidly rejected by the stomach, the treatment is difficult to carry out outside of hospital practice.

The patient should be confined to bed in even the mildest cases, and the stools removed at once and disinfected.

Washing out the rectum with either tepid, hot, cold or iced water, as suggested by Prof. Da Costa, adds greatly to the patient's comfort and decrease of the inflammation.

TYPHLITIS.

Synonyms. Inflammation of the cæcum; catarrh of the cæcum.

Definition. A catarrhal inflammation of the mucous membrane of the cæcum and ascending colon; characterized by pain, tenderness, constipation, and in certain cases a characteristic vomit.

Causes. In a majority of cases *mechanical*, from the lodgment of seeds or hardened fæces.

Pathological Anatomy. Similar to the catarrhal inflammation of dysentery.

Symptoms. *Pain* and *tenderness* in the right illiac fossa and along the ascending colon, with some *prominence* of this region; the *bowels* are usually *constipated*, or small liquid stools may occur from time to time, due to accumulation of hardened fæces in the sacculated periphery of the cæcum, leaving a central cavity through which the liquid contents of the upper bowel can pass.

In *severe cases*, "the local *pain*, *tenderness* and *swelling* are greater, there are *impaction* of *fæces* and *no movement*. There are decided *fever*, *restlessness*, and also *nausea* and *vomiting*. The *vomited matters*, at first, contents of stomach, then of duodenum, with bilious matter, and ultimately, if the impaction persists, of matter having the oder of fæces. With these symptoms occur *great depression of the vital powers*. *Peritonitis* is finally developed by contiguity of tissue or by rupture of the bowel."

Duration. The *mild form* lasts about one week. The *severe form* may terminate in acute peritonitis, continuing about two weeks.

Prognosis. *Mild form* favorable. *Severe form* grave, although not necessarily fatal.

Diagnosis. The *mild form* is distinguished from other intestinal affections, by the localized pain and tenderness and prominence and constipation.

The *severe form* can only be distinguished from the other forms of *intestinal obstruction* by the history of the case and attack, and the results of treatment.

Treatment. The patient should be kept in bed, and placed on a strictly milk diet.

In *mild cases*, act upon the bowels, with either *oleum ricinum* or *magnesium sulphate*, in small doses, followed by an *opium* influence, to be maintained until convalescence is well pronounced.

In *severe cases*, begin *opium* influence at once, by hypodermatic injections of *morphia* guarded with *atropia*, continued until all symptoms of inflammation have subsided, when attempts to remove the accumulated fæces may be made by *irrigation of the bowel* with warm soap-suds, and the cautious administration of *magnesium sulphate*, in one drachm doses, every two hours.

Locally. Ice bags, or cold compresses, or if patient prefers, poultices.

PERITYPHLITIS.

Synonym. Perityphlitic abscess.

Definition. An acute inflammation of the connective tissue around the cæcum, tending to the formation of an abscess; characterized by pain, swelling, and febrile reaction.

Causes. Injuries to the abdomen about its site; and also extension of inflammation from cæcum by perforation. Often occurs with typhlitis.

Symptoms. Begins with a *feeling of weight*, *soreness* and *paroxysms* of *acute pain*, extending into the hip, thigh and abdomen, with the development of a *hard swelling* in the *right iliac region*. Its special tendency is toward *suppuration*, which is announced by *irregular chills*, *feverishness* and *sweats*, with a feeling of *tension* and *throbbing*. Its development is slow, and if associated with *typhlitis* the symptoms of that affection are added.

Treatment. If not associated with typhlitis, the treatment is to allay the inflammation in the first stages, by either *ice*, *locally*, or freely *painting* with *tinct. iodidi*; if suppuration is evident, hasten by *poultices*, and follow with evacuation of pus by the *aspirator* or *free opening*, conjoined with the use of *opium* and *quinia*.

PROCTITIS.

Synonyms. Catarrh of the rectum; dysentery; rectitis.

Definition. A catarrhal inflammation of the mucous membrane of the rectum and anus; characterized by pain, tenesmus and frequent stools of hardened fæces, or of mucus, pus and blood.

Causes. Chief cause constipation; also sitting on damp ground or stone steps; habitual use of enemata or of purgatives; diseases of the liver.

Pathological Anatomy. Similar to those occurring in catarrhal dysentery.

Symptoms. Uneasy sensations and *burning in the rectum*, with constant desire for stool, or *tenesmus*, often so severe as to cause *prolapse of the mucous membrane*. *The stools* may be either *hardened fæces* or *scybalæ* from the distended colon, which cause *intense pain* when they reach the

rectum; or *the stools* may be of *mucus, muco-pus, or bloody or blood-streaked.* Generally there is present *nausea*, especially during the tenesmus, *headache, feverishness* and *malaise.* In severe cases there is *strangury*, and with the tenesmus, *straining with urination.*

If the case is protracted and severe, inflammation of the connective tissue around the rectum occurs, causing *periproctitis*, which usually terminates in various kinds of fistulæ.

Complications. Periproctitis; peritonitis; abscesses of the liver.

Prognosis. Uncomplicated cases, favorable. Either of the complications adds greatly to the gravity of the affection.

Diagnosis. In *males*, the disease cannot be confounded with any other affection, save, perhaps, hemorrhoids. In *females*, displacements of the uterus may somewhat simulate the symptoms of proctitis.

Treatment. In cases due to constipation the chief indication is to empty the bowels, for which the *magnesium mixture* mentioned for dysentery is the most suitable remedy; after which *emollient enemata*, with *opium* are indicated. *Irrigation* of the *bowel* with warm water once or twice daily assists in the liquefaction of the hardened fæces.

Cases other than those due to constipation *emollient enemata* and *opium*, one of the best being—

℞. Ol. olivæ..... ℥ ij
Tinct. opii deodorat..... ... ♏ xv. M.
Every three or four hours.

If symptoms of *periproctitis* occur, use *ice* to parts, and if suppuration ensue, *evacuation* by free opening and *quinia.*

INTESTINAL OBSTRUCTION.

Synonyms. Intestinal occlusion; strangulated hernia; invagination; intestinal stricture.

Definition. A sudden or gradual closure of the intestinal canal; characterized by pain, nausea, vomiting, constipation, and finally collapse.

Causes. The numerous causes are arranged as follows, viz:—

1. *Accumulations within the bowel*, to wit: hardened fæces, foreign bodies, etc.
2. *Strictures*, to wit: from cancer, ulceration, cicatrices, etc.
3. *Pressure against the bowel*, to wit: peritoneal adhesions, tumors, abnormal growths, etc.
4. *Strangulations*, to wit: the numerous forms of hernia.
5. *Invagination* or intussusception, the most common.
6. *Twisting* or rotation of the bowel.

Pathological Anatomy. Invagination is the only form calling for special description. It is most usually caused by the lower portion of the ileum slipping down into the cæcum, as the finger of a glove might be invaginated, causing thus an actual mechanical obstruction; this is produced by a spasm of the ileum, whereby its calibre is greatly diminished, thus permitting its descent into the lower bowel. Resulting from this occlusion or compression, is congestion, inflammation, with secondary constitutional reaction and death, or more rarely the invaginated bowel sloughs off, and is voided by stool, union taking place at its site, and recovery.

Symptoms. The onset of the symptoms may be either *sudden* or *gradual*, and are as follows :—

Constipation, with more or less severe *colicky pains*, not relieved by either purgatives or injections; *feeling of weight* and *soreness* with *distention* of the abdomen and *nausea* and *vomiting;* the symptoms all grow more pronounced, the *pain* becoming *violent*, *tenderness* in limited areas, the *vomiting* becoming *stercoraceous*, the abdomen hard and tense, the *eyes sunken*, the *pulse quick* and *feeble*, the *skin cold* and covered with a clammy sweat. The above continue more or less pronounced for a week to ten days, when collapse and death occur, or more rarely gradual return to health.

Cases occur rarely in which small, fecal, muco-purulent stools containing more or less blood exist, in place of constipation.

Prognosis. Always grave, but guided by the cause. *Impacted fæces*, favorable. *Invagination* less favorable, but recoveries occur; the longer the symptoms continue, more favorable the outlook. *Strangulations*, unfavorable, but many recoveries recorded. *Strictures*, due to cancer, cicatrized ulcers and the like, most unfavorable.

Diagnosis. One of the most difficult, and can only be solved by a careful study of the case along with the different causes producing the affection. The site of the occlusion can rarely be determined positively.

Treatment. Stop all forms of purgatives as soon as the diagnosis of obstruction is determined.

Opium is indicated in all forms, and is best administered in the form of *morphia*, combined with small doses of *atropia*, hypodermatically.

If *impacted fæces* is the cause, *irrigation* by tepid soap-suds seem beneficial.

If *invagination*, raising the buttocks and lowering the chest, and repeated *injections* of *warmed oil*, are recommended. Distention of the bowel by *pumping air* through long rectal tubes, or disengage *carbonic*

acid gas in the bowel, by first injecting a solution of *sodium bicarbonate*, and follow this with a solution of *tartaric acid*, about one drachm of each, pressure being made against the anus, to prevent escape.

Flatulent distention can be removed by the long *aspirator* needle.

Laparotomy is no doubt the operation of the future, when our means of diagnosticating the site of the trouble is more perfect.

DISEASES OF THE PERITONEUM.

PERITONITIS.

Synonym. Inflammation of the peritoneum.

Definition. A fibrinous inflammation of the peritoneum, either *acute* or *chronic* in character, characterized by fever, pain, tenderness, vomiting and prostration. It may be limited to a part—*local*, or it may involve the whole membrane—*general* peritonitis.

Causes. Intense cold, protracted irritation by blisters, and blows on the abdomen, cause *primary* peritonitis. Inflammation of the abdominal or pelvic organs, or their perforation, or during the course of tuberculosis pyæmia, albuminuria, cause *secondary* peritonitis.

Pathological Anatomy. *Acute form;* hyperæmia of the serous membrane, the capillaries distended and occasional extravasations of blood from their rupture; the normal secretion is arrested, and the shiny membrane becomes dull and opaque, from an exudation of pure fibrin, which is adhesive, glueing the parts together; if the inflammatory action is now arrested, it is termed *adhesive* peritonitis; if, however, the action progresses, an effusion of serous fluid, of a reddish or bright yellow color, is poured out into the peritoneal cavity, the amount varying from a few ounces to several gallons; this is termed *exudative* peritonitis. If recovery results, the fluid is absorbed, with much of the solid exudation, the unabsorbed portions forming adhesions between the membrane and the different abdominal organs, often causing great deformity and irregularity in their relations

The chronic form follows the acute, or is associated with tuberculosis, Bright's disease, or cirrhosis of the liver.

The membrane is irregularly thickened, opaque, with strong adhesions to one or more coils of intestines, liver, spleen, etc.; the quantity of fluid present is small, purulent or sero-purulent in character, and encysted by the agglutinated membrane.

Symptoms. *Acute form;* when idiopathic, onset sudden, with *chill*, *fever*, 102–3°, *pulse* 100–140, wiry and tense, *severe pain*, cutting or boring in

character, and *tenderness;* becoming so great that the slightest touch aggravates it; the *decubitus* being on the back, with flexed thighs; the *abdomen distended* and *rigid*, from *constipation* and *meteorism; impaired appetite, nausea* and *vomiting* are almost constant, with *costal respiration* and *hiccough.*

These symptoms continue from six to eight days, when they begin to ameliorate and a tedious convalescence ensues, or pain and tenderness grow more marked, strength fails, surface cold, pulse rapid and collapse, with hippocratic face, to wit: anxious expression, pinched features, sunken eyes and drawn upper lip.

Secondary form, from extension, temperature increases, pulse becomes tense, exaggeration of pain and vomiting; *from perforation*, announced by severe pain and symptoms of shock.

Chronic form; irregular *chills, fever* and *sweats; distended abdomen, constipation*, alternating with *diarrhœa;* diffused *tenderness*, with *points of intenseness* and *hardness; colicky pains* during digestion, *rapid emaciation* and failure of strength. Usually, the lower portions of abdomen give a dull note on percussion, from presence of fluids, or scattered points of dullness, showing presence of encysted fluid.

Prognosis. *Idiopathic cases* favorable, and especially if continue longer than a week, as fatal cases usually end during the first week. Cases from *perforation* unfavorable.

Chronic peritonitis being generally of tuberculous origin, the prognosis is unfavorable, although partial or complete recovery results in the cases following the acute form of the disease.

Diagnosis. *Acute gastritis* differs from peritonitis in having a history of corrosive poisoning, severe pain, limited to stomach, early and severe vomiting; while the latter has fever, diffused abdominal pain and tenderness, with decided distention.

Acute enteritis has localized pain and tenderness, with marked diarrhœa.

Rheumatism of the abdominal muscles occurs with a rheumatic history, is subacute, lacks the great distention of peritonitis, and while tenderness exists, it is not aggravated by deeper pressure.

Treatment. *Acute form:* Idiopathic and robust cases, locally, *leeches* or *wet cups*, followed by *cold* or *hot* applications, as most agreeable to patient; adynamic cases, *dry cups*, followed by warm applications medicated with *tinct. opii.*

Opium and *quinia* are the remedies indicated at the onset of the disease, to wit: at once hypodermatic of *morphia*, gr. ¼–⅓, maintaining the effect by hourly doses of either *morphia* or *opium*, by the mouth. Prof. Clark

proved the tolerance of opium in this disease, by the tremendous amounts used in a case under his care; the first day he gave 200 grs., the second day 472 grs., the third day 236 grs., fourth day 120 grs., fifth day 54 grs., sixth day 22 grs., and on the seventh day 8 grains. Prof. Clark found that, as a rule, however, *morphia*, gr. $\frac{1}{6}$–$\frac{1}{4}$, every two hours, would maintain the effects of the drug. *Quinia*, gr. v, every four hours, until exudation, after which gr. ij, four times a day, is of marked benefit.

The decline of the vital powers must be averted by *regulated nutrition* and *free stimulation*.

During *convalescence*, perfect quiet, nourishing aliment, moderate stimulants, scattered flying-blisters, and the following:—

℞.	Potassii iodidi.....	gr. v	
	Ferri pyrophos	gr. ij	
	Spts. lavend. comp.....	♏xv	
	Syr. aurantii cortex.....ad.....	ʒ ij.	M.

Every six hours,

should constitute the treatment.

Peritonitis from *perforation*, absolute quiet, hypodermatic injections of *morphia*, ice locally, and stimulants per mouth or rectum.

Chronic peritonitis; locally, *tinct. iodidi*, and internally, *opium*, for pain; *pottassic iodidi* as an absorbent, with nourishing diet, *ol. morrhuæ* and *stimulants*, with rest in bed.

ASCITES.

Synonyms. Dropsy of the abdomen; peritoneal dropsy.

Definition. A collection of serous fluid in the abdomen, or more correctly in the peritoneal cavity; characterized by swollen abdomen, fluctuation, dullness on percussion, displacement of viscera, embarrassed respiration, *plus* the symptoms of its cause.

Causes. Ascites may form part of a general dropsy, to wit: cardiac or nephritic; the most common factor in its production is *mechanical obstruction* of the portal system, from cirrhosis of the liver, tumors, disease of the heart or lungs.

Pathological Anatomy. The quantity of fluid in the peritoneal sac ranges from a few ounces to many gallons. It is generally of a straw color, or at times greenish, and is transparent, having an alkaline reaction. When blood is present in any great quantity, it points to cancer as a cause. The peritoneum becomes cloudy, sodden, and thickened, from long contact of the fluid.

Symptoms. The onset is insidious, and considerable *swelling of the abdomen* occurs before the attention is attracted. *Constipation*, from pres-

sure of the fluid on the sigmoid flexure. *Scanty urine*, from pressure on renal vessels. *Embarrassed respiration* and *cardiac action*, from pressure of the diaphragm upwards. The *umbilicus* is forced *outward*.

Physical signs; on *palpation*, a peculiar wave-like impulse is imparted to the hand lying on the side of the abdomen, while gently tapping the opposite side.

Percussion; patient erect, the fluid distends the lower abdominal region, when *dullness* over site of fluid and *tympanitic note* above; if the patient turns on side the fluid changes, dullness over fluid, tympanitic over distended intestines.

Prognosis. Influenced by the cause producing it. *Idiopathic ascites*, which is most rare, terminates in health in a few weeks. If *peritoneal*, generally favorable. If from *organic disease*, most unfavorable, for while it may be removed, it rapidly returns.

Diagnosis. *Ovarian tumors* differ from ascites in history, enlargement limited to the illiac fossa, instead of uniform abdominal enlargement, does not change its position when the patient changes posture, and by detection of a tumor by conjoined manipulation through vagina, or by rectal exploration.

Pregnancy differs from ascites in the character of the enlargement, the history, absence of menses, increase of mammæ, changes in the neck of the uterus, absence of fluctuation, and presence of the sounds of the fœtal heart.

Distention of the Bladder has been mistaken for ascites; the points of distinction are, in the former, the history, presence of tenderness over bladder, rounded outline of the percussion dullness, and the relief afforded by the catheter.

Chronic Peritonitis is differentiated by the history, pain, tenderness, more or less vomiting, thickened abdominal walls, and its generally being associated with tubercle or cancer.

Chronic Tympanites presents the enlarged abdomen, but lacks the history, the dullness and the fluctuation, giving instead tense abdomen and universal tympanitic note.

Treatment. The first indication is to treat the cause of the ascites, and the second to remove the fluid.

Three modes present themselves, to wit: *first*, by hydragogue cathartics, *second*, diuretics, and *third*, tapping. The first and second modes may be combined, as follows:—

℞. Pulv. jalapæ comp..... ʒj-ij.

In water, an hour before breakfast, and

℞. Potassæ acetat.....gr.x-xx
Tinct. scillæ.....ʒss
Infus digitalis.....fʒiss. M.

Every six hours.

If these fail, as they certainly will after a time, the embarrassed respiration and cardiac action call for *tapping*, which may be done with the *trocar*, or better still, the *aspirator*.

DISEASES OF THE BILIARY PASSAGES.

CATARRHAL JAUNDICE.

Synonyms. Catarrh of the bile ducts; icterus.

Definition. An acute catarrhal inflammation of the mucous membrane of the bile ducts and of the duodenum; characterized by gastro-intestinal derangements, yellowness of the skin, feverishness and mental depression.

Causes. Excesses in eating and drinking; a debauch; malaria; climatic, as cool nights succeeding warm days.

Pathological Anatomy. The mucous membrane of one or more of the bile ducts or of the duodenum becomes hyperæmic, swollen and thickened, from an effusion of serum in the sub-mucous tissue; the result of this condition is closure of the biliary passages, thereby impeding the outward flow of bile. The bile in the hepatic ducts being obstructed, the result is a staining of the liver substance and an absorption of bile by the blood.

Symptoms. Begins by *epigastric distress*, *coated tongue*, *impaired appetite*, *nausea*, with, perhaps, *vomiting* and *looseness of the bowels* and *slight feverishness*, the phenomena of a gastro-intestinal catarrh. In from three to five days the *eyes become yellow* and *jaundice* then gradually appears over the whole body; the feverishness disappears, the *skin* harsh, dry and *itchy*, the *bowels constipated*, the *stools whitish* or *clay-colored*, accompanied with much *flatus* and *colicky pains;* the *urine heavy* and *dark*, loaded with urates.

Some drops of the urine placed on a whitish surface, and a drop or two of nitric acid made to flow against it, will exhibit the following "*play of colors:*" a *greenish* tint, from the conversion of bilirubin into biliverdin, quickly followed by *blue*, *violet* to *red*.

When the *jaundice* is complete, the *surface is cold*, the *heart's action slowed*, the *mind torpid* and *greatly depressed*, and pain or tenderness on pressure over the hepatic region.

Duration. In from three to five days after the jaundice appears the symptoms subside, save the torpid bowels, depression and discolored skin, which slowly disappear, often requiring a week or two.

Prognosis. Always favorable; if the attacks are of frequent occurrence, however, they are apt to lead to organic hepatic disease.

Diagnosis. After the appearance of jaundice mistakes are impossible. The numerous diseases of which jaundice is a symptom will be differentiated when treating of them.

Treatment. At the onset *quinia*, gr. x, morning and night, may modify the disease, and as soon as the diagnosis is established the indications are for *diaphoretics*, *diuretics* and *purgatives*.

For *diaphoresis*, the *warm bath*, to which *potassic carb.*, ℥j may be added, morning and night.

For *diuresis*, *bitartrate of potassa lemonade* every four hours.

For *purgation*, either *sodii pyrophos.*, ℥j–ij, every four hours, well diluted, or *ammonii muriat.*, gr. xv–xx, every five hours, well diluted.

Restricted diet, avoiding all starchy, fatty or saccharine articles, milk being the best.

For *convalescence*—

℞. Acid. nitro-muriat. dil..... gtt. v–x
Elix. taraxaci comp..... ℥ i–ij.. M

Before meals.

BILIARY CALCULI.

Synonyms. Hepatic calculi; gall stones; hepatic colic.

Definition. Concretions originating in the gall-bladder, or biliary ducts, derived partly or entirely from the constituents of the bile. Their presence is generally unrecognized until one or more attempt to pass along the ducts, when an attack of *hepatic colic* is produced.

Causes. Gall stones result from the *precipitation* of the crystallizable *cholesterine* and its combination with inspissated mucus of the gall bladder or ducts.

A disease of middle life, and more frequent in the obese, and in women.

Gall stones said to be common in carcinoma of the stomach or liver.

Pathological Anatomy. Cholesterine is the chief constituent of biliary calculi. Commonly several stones exist, and rarely one; as many as six hundred are recorded. They are generally found in the gall bladder or cystic duct, rarely in the liver or hepatic duct.

Symptoms. *Hepatic colic* begins suddenly at the moment a gall stone passes from the gall-bladder to the cystic duct.

The patient is seized with a *piercing, agonizing pain* in the region of the gall-bladder, and spreading over the abdomen, right chest and shoulder; the *abdominal muscles* are *cramped* and *tender;* there is *nausea* and

vomiting, small, *feeble pulse*, *cool skin*, *pale*, *distorted*, *anxious face*, with, may be, fainting, or spasmodic trembling, or chills.

The paroxysm continues from an hour or two to several days, with remission, but entire relief is not afforded until the stone reaches the duodenum, when the pain ceases suddenly.

Jaundice usually succeeds the paroxysm of pain. When the calculi reaches the intestines, the pain, nausea and vomiting cease, the appetite returns, and the jaundice soon disappears.

Should the calculi become impacted, *ulcerative perforation* and consequent *peritonitis* follow, the calculi discharging by the intestine, stomach, or through the abdominal walls.

Prognosis. Usual termination is in health. The prognosis becoming more unfavorable if ulcerative perforation results.

Diagnosis. The malady should not be mistaken if are present *severe pain*, *nausea*, *vomiting* and *jaundice*, suddenly terminated.

Treatment. For the *colic*, hypodermatic injections of *morphia*, gr. $\frac{1}{6}$–$\frac{1}{3}$–$\frac{1}{2}$, combined with *atropia*, gr. $\frac{1}{120}$, and warm fomentations over the hepatic region, are indicated.

Prof. Bartholow strongly urges the following prophylactic treatment. Carefully regulated diet, abstinence from all fatty and saccharine substances, daily exercise, stoppage of all excesses, and the long use of *sodæ phosphate* ℥j, before meals, well diluted, to which may be added, if gastro-intestinal catarrh be present, *sodæ arseniat*, gr. $\frac{1}{120}$, together with either Vichy or Saratoga Vichy water.

DISEASES OF THE LIVER.

CONGESTION OF THE LIVER.

Synonyms. Torpid liver; biliousness.

Definition. An abnormal fullness of the vessels of the liver, with consequent enlargement of that organ; it is termed *active* when arterial; *passive* when venous. The condition is characterized by torpidity of the digestive and mental functions, and slight jaundice.

Causes. *Active congestion;* malaria; excesses in eating and drinking; alcoholic or malt liquors.

Passive congestion; cardiac and pulmonary diseases.

Pathological Anatomy. The liver is enlarged in all directions, and is abnormally full of blood. Cases due to obstructive diseases of the heart or lungs present the so-called "nutmeg-liver," to wit: "At the centre of each lobule the dilated radicle of the hepatic vein, enlarged and congested,

may be discerned, while the neighboring parts of the lobule are pale," the radicles of the portal vein containing less blood.

Long continued congestion establishes atrophic degeneration of the organ; the decrease in size is confounded with the condition of cirrhosis, but the "atrophic liver" is smooth, while the "cirrhotic liver" is nodulated.

Symptoms. *Active congestion;* following cause rapidly produced *malaise, aching of limbs,* evening *feverishness, headache, yellowish tongue,* disgust for food, *nausea,* and, may be, *vomiting, constipation, scanty,* high-colored *urine,* with feeling of *fullness, weight* and *soreness* in hepatic region, and slight *jaundice,* the *eye yellow* and the *complexion muddy.*

Passive congestion; onset gradual, with feeling of weight and fullness in hepatic region, slight jaundice, and symptoms of gastro-intestinal catarrh.

On percussion the hepatic dullness is increased in all directions.

Prognosis. *Active congestion* favorable, unless repeated attacks rapidly succeeding each other, when "atrophic degeneration results.

Passive congestion controlled entirely by the cause.

Diagnosis. Acute congestion is continually confounded with *catarrhal jaundice;* the latter begins with marked gastro-intestinal symptoms and distinct jaundice; in the former these are less marked.

Obstructive congestion is diagnosticated by the clinical history.

Atrophic or *nutmeg liver* will be differentiated from cirrhotic liver when speaking of the latter.

Treatment. Attacks due to *excesses in eating and drinking:*—

℞. Sodii bicarb..... .....gr. x
Hydrarygri chlor. mite.....gr. iij–v.

followed by

℞. Acidi nitro-muriat. dil.....♏viiss
Elix. taraxaci c..... ℥ij.

Before meals, and care in diet.

Attacks due to *malaria;* the above purgative followed by *quiniæ sulph.,* gr. iv, every four hours. Attacks occurring with cardiac or pulmonary diseases must be managed by treating the cause.

Locally, in acute attacks, hot cloths, sinapisms, etc., are of benefit.

In *chronic cases* benefit follows, *elix. quiniæ ferri et strychniæ,* ℥j, three times a day, and great comfort and support is given by the use of the "*hydropathic belt,*" which is made of stout muslin shaped to the abdomen, with cross pieces of tape on the inner side, which keeps next to the skin a fold of cloth wrung out of cold water, and a piece of waterproof cloth or oiled silk, to prevent evaporation.

ABSCESS OF THE LIVER.

Synonyms. Parenchymatous hepatitis; acute hepatitis; suppurative hepatitis.

Definition. A diffused or circumscribed inflammation of the liver cells, resulting in suppuration, the abscesses being sometimes single and sometimes double; characterized by irregular febrile attacks, hepatic tenderness and symptoms of deranged gastro-intestinal and hepatic functions.

Causes. The result of the absorption of putrid material by portal radicles in dysentery; ulcer of the stomach; malaria; blows and injuries; heat; pyæmia.

Pathological Anatomy. Hyperæmia, swelling, effusion of lymph, degeneration and softening of hepatic cells; suppuration, beginning in points, in the lobules and coalesce. The abscess walls consist of the liver structure, more or less changed.

The abscess may advance toward the surface of the liver, bursting into the peritoneum, intestines, stomach, gall bladder, hepatic duct or vein, or pelvis of the right kidney, or into pleura or lungs, or externally through abdominal walls; after the discharge of pus, cicatrization; or the pus may be absorbed, the tissues around forming a dense cicatrix.

Symptoms. Very obscure. *Fever* simulating markedly intermittent or remittent; disorders of gastro-intestinal canal, with *obstinate vomiting*, *debility*, great *irritability* of the *nervous system*, slight *jaundice*, and if of long duration, *typhoid symptoms*.

Locally, if the abscess is near surface, *prominence of hepatic region*, *throbbing*, limited *tenderness*, and if it tends to the surface, redness, œdema and fluctuation. The abscess may burst into intestines, stomach, lung, pleura, etc., the symptoms of which will be pronounced.

Prognosis. Unfavorable. Recoveries, however, do occur. If the abscess bursts into lungs, bowels, or externally through abdominal wall, the case is more favorable.

Diagnosis. Hepatic abscess may be confounded with hydatids of the liver, hepatic or gastric cancer, abscess of the abdominal walls, and purulent effusion in the right pleural cavity.

The differentiation is most difficult, but *great aid* is obtained by the use of the *aspirator*.

Treatment. *Symptomatic*, and when *pus* is suspected, use of *aspirator* to remove it, and sustaining treatment, viz.: *quinia*, *ferrum*, *alcohol* and *oleum morrhuæ*.

ACUTE YELLOW ATROPHY.

Synonyms. General parenchymatous hepatitis; malignant jaundice; hemorrhagic icterus.

Definition. An acute diffused or general inflammation of the hepatic cells, resulting in their complete disintegration; characterized by diminution in the size of the liver, deep jaundice, and profound disturbance of the nervous system; terminating in death, usually, within one week.

Causes. Unsettled. It occurs most frequently in young pregnant women, from third to sixth month of pregnancy. Other causes, venereal excesses, syphilis, action of phosphorus, arsenic or antimony.

Pathological Anatomy. Begins with hyperæmia of the cells, with a grayish exudation between the lobules, followed by softening, dull yellow color, and disappearance of the cells, fat globules taking their place. The liver is reduced in size and in weight. The peritoneum covering the liver is thrown in folds. The spleen enlarged. The kidneys undergo degeneration. The blood contains a large amount of urea and considerable leucin. The urine is loaded with bile pigment, and contains albumen.

Symptoms. *Prodromic period;* begins as a *gastro-intestinal catarrh*, coated tongue, nausea, vomiting, tenderness over epigastrium, headache, quickened pulse, slight fever and slight *jaundice.*

Icteric period; jaundice deepens, pulse slows, headache increases, and great and obstinate *sleeplessness.*

Toxæmic period; fever, rapid *pulse*, more complete *jaundice*, *pain*, nausea, *vomiting of blackish, grumous blood*, or "coffee grounds," *tarry stools*, ecchymotic patches, *convulsions*, or epileptiform attacks, *coma*, insensibility, death. *Percussion* shows markedly *decreased* hepatic dullness.

Duration. Short. After appearance of jaundice about six days.

Prognosis. Unfavorable.

Treatment. Symptomatic entirely. Prof. Bartholow "advises the trial of very small doses of phosphorus, as early as possible, as this remedy affects the organ specifically, and an action of antagonism may be discovered between them."

SCLEROSIS OF THE LIVER.

Synonyms. Interstitial hepatitis; cirrhosis; hob-nailed liver; gin-drinkers' liver.

Definition. An inflammation of the intervening connective tissue of the liver, chronic in its progress, resulting in an induration or hardening of the organ; characterized by gastro-intestinal catarrh, emaciation, slight jaundice and ascites.

Causes. The prolonged use of alcoholic stimulants, gin, whisky, beer, porter, etc; syphilis.

Pathological Anatomy. *First stage;* hyperæmia of connective tissue (Glisson's capsule) of the liver, and the development of brownish-red connective tissue elements, whereby the organ is increased in size and density; this increase of the connective tissue presses upon the hepatic cells, causing them to undergo fatty degeneration. *Second stage;* the newly formed imperfectly developed connective tissue contracts, causing decrease and induration of the organ, its surface being nodulated. The hepatic and portal circulation is obstructed, from obliteration of their radicles.

The hepatic peritoneum is thickened and opaque, and adhesions are formed to the diaphragm, gall-bladder, etc.

Cases occur in which the sclerosis takes place while the organ continues enlarged; these are known as *hypertrophic sclerosis.*

Symptoms. No characteristic symptoms of the early stage of the affection. Persistent *gastro-intestinal catarrh*, with attacks of *jaundice*, in a drinking man, are suspicious. Symptoms of second stage are, *abdominal dropsy*, *enlarged* superficial *abdominal veins*, *dyspepsia*, localized peritoneal *pain*, *hemorrhages* from *stomach* or *intestines*, muddy or slightly *jaundiced* skin, *decided emaciation.*

Prognosis. Terminates in death. Average duration after appearance of dropsy, one year.

Diagnosis. *Atrophy of the liver*, or the nutmeg liver, is almost always confounded with sclerosis; the former occurs most commonly with obstructive diseases of the heart and lungs, and the surface of the organ is not nodulated, nor is there a history of alcoholism.

Cancer and tubercle of the peritoneum have many symptoms akin to sclerosis. The points of differentiation are, great tenderness over abdomen, rapidly developed ascites, rapid decline in strength and flesh, absence of jaundice, absence of long-continued dyspepsia, absence of hepatic changes on percussion, and the presence of tubercle or cancer deposits in other organs.

Treatment. For the changes in the hepatic structure, little if anything can be done; the following are some of the remedies recommended, to wit: *hydrargyri chlor. corro.*, gr. $\frac{1}{60}$–$\frac{1}{40}$, three times day; *hydrargyri chlor. mite*, gr. $\frac{1}{100}$, three times day; *aurii et sodii chloridi*, gr. $\frac{1}{30}$, after meals; *sodii phosphat.*, ℥ ss–℥ j, after meals.

The diet must be regulated, *milk* being the most suitable, and avoiding fats and saccharine foods.

The abdominal dropsy may be temporarily benefited by *purgatives* and *diuretics*, but sooner or later *tapping* becomes imperative.

AMYLOID LIVER.

Synonyms. Waxy liver; lardaceous liver; scrofulous liver; albuminoid liver.

Definition. A peculiar infiltration into, or a degeneration of, the structure of the liver by the deposit of an albuminoid material, which has been termed *amyloid*, from a superficial resemblance to starch granules.

Causes. The chief cause is prolonged suppuration, especially of the bones; coxalgia; syphilis; cancer.

Pathological Anatomy. The liver is uniformly enlarged. It presents a pale, glistening, translucent appearance, and has a doughy consistence. On section, the surface is homogeneous, is anæmic and whitish. The deposit begins in the arterioles and capillaries, finally closing them.

The reaction with iodine and sulphuric acid affords a certain test of the amyloid or albuminoid deposits. After thorough cleansing, brush over parts a solution of iodine with iodide of potassium in water, when they will assume a mahogany color, and if diluted sulphuric acid is added, a violet or bluish tint is produced. A pretty reaction is to take a one per cent. solution of anilin violet, which strikes a red or pink color with the amyloid or albuminoid material, while the unaltered tissues are stained blue, thus showing a beautiful contrast. The amyloid change involves the spleen, kidney, intestines and other organs.

Symptoms. Nothing characteristic. Hepatic dullness increased, with prominence over the liver. Absence of pain. Splenic dullness increased. Emaciation and anæmia. Urine increased in amount, pale, and containing some albumen, due to amyloid changes in kidneys. Disorders of digestion, with diarrhœa, due to amyloid changes in intestines. Jaundice is rare. Ascites seldom occurs. The above, associated with prolonged suppuration, is the clinical history of amyloid liver.

Prognosis. Unfavorable. The progress is rapid or slow, depending upon the cause.

Treatment. No specific. Symptomatic, with prolonged use of *ferrum*, *syr. calcii lacto-phosphates* and *oleum morrhuæ*.

HEPATIC CANCER.

Synonym. Carcinoma of the liver.

Definition. A peculiar morbid growth, progressively destroying the hepatic tissue; characterized by disorders of digestion, anæmia, emaciation, jaundice and ascites, and ending in the death of the patient.

Causes. Hereditary, when it is termed *primary* cancer; from extension from other organs, when it is termed *secondary* cancer. It is a disease of advanced life, from forty to sixty years.

Pathological Anatomy. The most common variety of cancer of the liver, is a compound of medullary and scirrhus.

The cancer cells develop from the interlobular connective tissue, and as they grow the hepatic cells disappear. The branches of the hepatic artery enlarge and permeate the growth, while the branches of the portal vein are compressed and atrophy, thereby blocking up the portal circulation.

The cancer may develop in nodules or masses, or may be diffused; the nodules vary in size, and those on the surface are rounded, with a central umbilication. The peritoneum is adherent, cloudy and thickened.

Symptoms. The recognition of hepatic cancer is preceded by history of dyspepsia, flatulency and constipation. Then *uneasiness*, *weight* and *pain*, increased by pressure, are noticed; *jaundice*, *ascites*, occasional intestinal *hemorrhages*, *emaciation*, *feebleness*, *anæmia*, *cold*, *dry*, *harsh skin*, *pinched features*, with *dejected*, worn *expression*. *Fever never occurs*. The hepatic dullness is increased, pain on palpation, and the liver is indurated, irregular and nodulated.

The duration is less than a year from the time the disease is recognized.

Prognosis. Always terminates in death.

Diagnosis. The points of differentiation are the *age*, *cachexia*, *pain* and *tenderness*, *enlarged liver*, with *hard nodules*, and *rapid progress*.

Treatment. Entirely symptomatic. Sooner or later *opium* must be used to relieve the terrible and persistent pain.

DISEASES OF THE KIDNEYS.

THE URINE.

The *normal quantity* of urine varies from 20 to 50 *ounces* in twenty-four hours; it is *decreased* by free perspiration and *increased* by chilling of the skin by cold.

The *normal color* is light amber, due to *urobilin*; the intensity is deepened if the quantity is decreased, and *vice versa*.

The *normal reaction* is slightly *acid*, due to the *acid sodic phosphate*, *uric* and *hippuric acids*. After meals it may be *neutral* or even *alkaline*.

The *normal specific gravity* varies from 1.008 to 1.020; it is *low* when an increased quantity is passed and *high* when the quantity is diminished.

The most important organic and inorganic solid constituents held in solution are *urea* (the index of nitrogenous excretion), from 308 to 617 grains daily; *uric acid*, from 6 to 12 grains; *urates of sodium*, *ammonium*, *potassium*, *calcium* and *magnesium*, from 9 to 14 grains; *phosphates of sodium*, etc., from 12 to 45 grains, and *chlorides of sodium*, etc., from 154 to 247 grains daily.

I. Quantitative test for *urea*, by hypo-bromite of sodium (Davy's Method).

Fill a graduated glass tube one-third full of *mercury*, and add one half drachm of the 24 hours' urine; then fill the tube evenly full with a saturated solution of *hypo-bromite of sodium*, and close it with the thumb *immediately;* invert the tube and place its open end beneath a sat. sol. of *chloride of sodium;* the mercury flows out and is replaced by the solution of salt; *nitrogen gas* is disengaged from the urea in the upper part of the tube.

Each *cubic inch of gas* represents .645 gr. of urea in the half drachm, from which the amount passed in 24 hours may be calculated.

II. Tests for *urates* and *uric acid* by nitric acid.

Urine containing an excess of urates and uric acid, on *cooling*, precipitates them (viz: "brickdust deposits" in "pot de chambre"). *Heat* dissolves them to certain extent.

Nitric acid deprives the soluble *neutral urates* of their bases, and produces, at first, a faint, milky precipitate of amorphous *acid urates;* adding more acid, the still less soluble *red crystals of uric acid* are deposited.

Put a small quantity of *nitric acid* in a test tube, and pour the urine carefully down the sides of the tube upon it, and a *zone* of *yellowish-red uric acid* and altered coloring matter will form at their union; and a dense, milky *zone* of *acid* urates above this, which, however, dissolves upon agitation. (See albumen test.)

III. Quantitative test for *uric acid* by nitric acid.

To *three ounces* of the 24 hours' urine (after being slightly acidulated, boiled and filtered while hot) add *one tenth* as much *nitric acid;* place in a cool place for 24 hours, then collect the deposit of *uric acid* on a weighed filter, wash it thoroughly, and dry at 212° F. The increased weight represents the uric acid in part excreted, approximately.

Heat or *liquor potassa* increases the cloudiness caused by earthy calcium and magnesium phosphates. *Acetic* or *nitric acid* clears it by dissolving them.

IV. Test for the earthy and alkaline *phosphates* by the magnesian fluid.

To two ounces of urine add one-third as much of the following solution, viz: ℞. Magnesium sulph., ammonium chlorid. puræ, liquor ammoniæ, each one part, aqua destil., eight parts; if the precipitate has a *milky*, cloudy appearance, the quantity of phosphates are normal; if *creamy*, the *phosphates* are in excess.

V. Test for the *chlorides* by nitrate of silver.

To a convenient quantity of urine add a small amount of nitric acid, to prevent the formation of the phosphate and other salts of silver; filter this if cloudy; add to this *one drop* of a solution of nitrate of silver (1 part to 8) and the precipitate of white cheesy lumps of *chloride of silver* denotes that the amount of *chlorides* are normal; if, however, only a *faint milkiness* occurs, the *chlorides* are diminished.

VI. Test for *mucus* by acetic acid and liquor iodinii comp.

Mucus alone is not visible, but causes *cloudiness*, from having entangled mucus or pus corpuscles, epithelium, granules of sodium urate, crystals of oxalate of lime and uric acid in various amounts.

Add to the urine a little *acetic acid*, or, in addition, a few drops of *liquor iodinii comp.*, when threads or bands of *mucin* are made visible. The addition of *nitric acid* dissolves them.

VII. Tests for *albumen* by heat and nitric acid.

Slightly acidulate the urine, if necessary, by addition of nitric or acetic acid, and *boil;* this causes a *white* deposit of *coagulated albumen*, which is not dissolved by nitric acid, unless in excess.

Nitric acid causes a *white* deposit of *coagulated albumen*, which is dissolved if a large excess is added. A delicate test is to put the *nitric acid* in the tube first, and then gradually pour the urine down the side of the tube upon it, when a *white zone* or *ring* of *coagulated albumen* appears. *Precaution*, see tests Nos. 3, 4, 9 and 11.

VIII. Quantitative test for *albumen*. Approximately.

Add a few drops of *nitric acid* to a proportion of the urine, and *boil;* set this away for 24 hours, and the proportionate depth of the resulting deposit is the comparative indication, viz., ¼–½, etc.

IX. Test for *blood* by heat and nitric acid.

Heat or nitric acid causes deposit of albumen, with the coloring matter changed to a *dirty brown.*

X. Test for *blood* by heat and caustic potash (Heller's).

Heat the urine, then add *caustic potash* and *heat* anew. The phosphates are thus precipitated, taking with them the coloring matter of the blood, which imparts a *dirty, yellowish-red* color to the sediment viewed by reflected light, and when seen by transmitted light, gives a splendid *blood-red color.*

Neither the coloring matter of the blood nor that of the bile is precipitated with the phosphates, so that coloration of urine which shows this reaction cannot be ascribed to the presence of the latter pigments.

When the quantity of blood in the urine is very large, it is of a *dark* or *brownish red*, and after standing, forms a coagulum of blood at the bottom of the vessel.

XI. Test for *pus* by liquor potassa.

Caution. Heat or nitric acid causes coagulation of the albumen in pus.

Add to the urine, or preferably to its deposit from standing, an equal volume of *liquor potassa;* when well mixed, a *viscid gelatinous fluid* or mass is formed, which pours like the white of an egg, or jelly.

XII. Test for *bile* by "fuming" or red nitric acid.

Allow a specimen of urine and a few drops of red "fuming" *nitric acid* to gradually intermingle on a porcelain dish, and a "play of colors," *green*, *blue*, *violet*, *red* and *yellow* or *brown*, occur, if biliary coloring matter is present.

XIII. Test for *bile pigment* by pure hydrochloric and pure nitric acids (Heller's).

Pour into a test-tube about 1.6 f℥ of pure *hydrochloric acid*, and add to it, drop by drop, just sufficient *urine* to distinctly color it. The two are mixed. Then drop down the side of the test-tube pure *nitric acid*, which will "underlay" the mixture of hydrochloric acid and urine. At the point of contact between the mixture and the colorless nitric acid, a handsome "play of colors appears." If the "underlying" nitric acid is now stirred with a glass rod, the set of colors which were superimposed upon one another will appear alongside of each other in the entire mixture, and should be studied by transmitted light.

If the hydrochloric acid, on addition of the biliary urine, is colored *reddish-yellow*, the coloring matter is *bilirubin;* if it is colored *green*, it is *biliverdin*.

XIV. Test for *sugar* by liquor potassa and heat. (Moore's).

Add to the urine half its volume of *liquor potassa*. (*Caution.* This *may* give a white, flaky precipitate of the earthy phosphates, which should be removed by filtering.) Now *boil;* this causes, at first, a *yellowish-brown* color, becoming *darker* if much sugar is present, due to glucic, and finally to melassic acid.

XV. Test for *sugar* by subnitrate of bismuth, liquor potassa and heat.

Add to the urine half its volume of *liquor potassa*, and then a little *bismuth subnitrate*, shake and thoroughly *boil;* the presence of sugar reduces the salt and *black metallic bismuth* is deposited, or if but little sugar, a *gray deposit* occurs.

Caution. Albumen must be absent.

XVI. Test for *sugar* by a solution of cupric sulphate, liquor potassa and heat (Trommer's).

Add to the urine a few drops of a solution of *cupric sulphate*, and then its own volume of *liquor potassa*. (*Caution.* On first addition a light greenish precipitate occurs, which, on further addition of the reagent, if sugar or certain other organic matters are present, are dissolved, giving a transparent blue liquid). Now *boil*, and a *yellowish* precipitate of *hydrated cupric suboxide*, occurring at once, denotes the *presence of sugar*.

Caution. Albumen must be absent.

XVII. Quantitative test for *sugar* by *Pavy's* solution, viz:—

℞.

Cupric sulphate,	gr. 320
Neutral potassic tartrate,	gr. 640
Caustic potash,	gr. 1280
Distilled water,	f℥ 20.

Keep corked.

Take of *Pavy's* solution of *cupric protoxide*, recently prepared (see margin), 200 minims, or a multiple of this quantity, and *boil* in a porcelain dish; while boiling, add, minim by minim, from a measured portion of the 24 hours 'urine, and it gives a *yellowish* precipitate of *hydrated cupric suboxide*, if *sugar* be present.

Note *carefully* the gradual disappearance of the *blue color*, and when *completed* (best determined by looking through the margin of the fluid against the white porcelain dish), from the amount of urine used, determine the amount of sugar passed daily. *The quantity of urine containing one grain of sugar being just sufficient to reduce the 200 minims of* the *copper solution.*

XVIII. Quantitative test for *sugar* by fermentation and the specific gravity.

Take *two* measured specimens from the 24 hours' urine, and to *one* add a little *yeast*. Place each specimen in a temperature of 75° to 80° Fah.; in 24 hours, *fermentation* having destroyed the *sugar* in the *one* containing the *yeast*, the difference in the *specific gravity* of the two specimens expresses the number of grains in each ounce of the urine. Approximately.

CONGESTION OF THE KIDNEYS.

Synonym. Catarrhal nephritis.

Definition. An increase in the amount of blood in the vessels of the kidneys; when arterial, it is termed *active congestion;* when venous, *passive congestion;* characterized by pain, frequent desire for urination, the amount of urine being scanty, high-colored, with occasional slight albumen.

Causes. *Active;* by cold; irritating substances eliminated by the kidneys, viz.: turpentine, copaiba, etc.; during the eruptive or continued fevers; injuries over the kidneys. *Passive;* obstructive diseases of the heart or lungs, and pressure of pregnant uterus.

Pathological Anatomy. The kidneys enlarge and increase in weight; increased redness (the color being bluish if *passive*), with points of vascularity corresponding to the Malpighian bodies, and occasionally minute ecchymoses. The abnormal hyperæmia causes a catarrhal state of the ducts of the pyramids, with shedding of their epithelium.

If mechanical (*passive*) obstruction continues for some time, increase of the connective tissue, with consequent induration and contraction, results, or a form of chronic Bright's disease.

Symptoms. *Active; pain* over kidneys and following course of ureters into testicles and penis, *irritable bladder*, almost constant and pressing desire for urination, the *urine scanty, high-colored,* and occasionally blood, fibrin, casts and albumen.

If the condition persists, *inflammation* ensues.

Passive; the kidney changes are masked by the *lung* or *heart* trouble, until *dropsy, scanty, high-colored, albuminous* urine is observed.

Prognosis. *Active;* if recognized and properly treated, favorable.

Passive, controlled by the cause, and if prolonged, terminating in *interstitial nephritis.*

Treatment. Rest of body, dry or wet cups over the loins, saline purgatives, warm bath or other mild diaphoretics; if great *irritability*

of the bladder, *camphora*, gr. ij–iv, every four hours, combined with *morphia sulph.*, gr. $\frac{1}{12}$–$\frac{1}{6}$, or hypodermatic injection of morphia, gr. $\frac{1}{12}$.

ACUTE BRIGHT'S DISEASE.

Synonyms. Acute desquamative nephritis; acute parenchymatous nephritis; acute tubal nephritis.

Definition. An acute inflammation of the epithelium of the uriniferous tubules; characterized by fever, scanty, high-colored or smoky urine, dropsy, with more or less constant nervous symptoms, the result of uræmia.

Causes. The young more liable than the aged; cold and exposure; scarlatina; persistent use of irritants, viz.: turpentine, cantharides, etc.

Pathological Anatomy. The kidneys are greatly swollen, engorged, more vascular, of red color; in the second stage, organ remains large, irregularly red, especially the cortex; the tubules are engorged and filled with epithelium, blood corpuscles and fibrin. The capsule is easily detached, and is more opaque than normal.

If favorable termination, the swelling lessens, the vascularity diminishes, the tubules returning to normal condition.

Symptoms. Usually begins suddenly. *Fever*, with *nausea* and *violent* and *persistent vomiting*, *pain* over kidneys, following ureters; *skin* harsh and dry, *pulse* quick, tense and full. Soon *dropsy* appears, the eyelids and face becoming puffy and swollen, followed by general œdema of the extremities, scrotum and abdominal wall.

The *urine* is scanty, smoky (like beef washings) in color, due to the presence of *blood*. *Albumen* is present in large quantities, and the microscope shows *casts* of the uriniferous tubules, blood corpuscles, uric acid crystals and epithelium.

Duration from one to four weeks.

Complications. *Pericarditis*, *pleuritis* and *peritonitis*, from retention and decomposition of urea in blood. Also marked nervous phenomena, from same cause, called *uræmia*, in which have rapidly recurring *convulsions or delirium*, terminating in stupor, coma and death, unless speedily checked.

Prognosis. Favorable. Majority of cases recover under prompt treatment. Rarely passes into chronic Bright's disease. *Uræmic* symptoms add to the gravity of the prognosis.

Diagnosis. The history, fever, scanty, smoky, albuminous urine, with dropsy beginning in face, should prevent any error.

Albuminuria may be confounded, on account of presence of albumen in urine, but lacks the clinical history, usually occurring in the course of some constitutional affection, viz.: diphtheria, cholera, etc.

Treatment. Absolute *rest in bed.* *Milk diet*, or if much depression, also weak *animal broth* and *oysters.* Drink freely of *water*, but neither tea, coffee nor stimulants. *Counter-irritation* over kidneys by dry or wet cups, or poultices of *digitalis.*

Free *purgation* by *pulv. jalapæ comp.*, ℥ j, in water, before breakfast.

Diaphoresis by warm baths, or an infusion of *jaborandi* leaves (℥ ij to *aqua* Oj), wineglassful every four hours, or *vinum ipecacuanhæ*, gtt. j–ij, every half hour.

Diuresis, by—

℞. Potass. acetat..... gr. x–xx
Infus. digital..... f℥ ij
Infus. juniperi..... f℥ ij. M.

Every four hours.

For *uræmic* convulsions, *morphia*, gr. ¼–½, hypodermatically, repeated if necessary; *venesection*, or inhalation of *chloroform*, or *chloral hydrat.*, or *potassii bromid.*, per rectum, and rapid and free purgation by *oleum tiglii* or *elaterium;* also acting on skin by *warm baths* or *pilocarpin*, gr. $\frac{1}{12}$–$\frac{1}{8}$, hypodermatically.

As soon as the blood disappears from the urine, a course of *ferrum*, in the shape of *Basham's mixture*, until albumen disappears and health is restored. The following is the formula of Basham's mixture:

℞. Liq. ammon. acetat..... f℥ vj
Acid acetic..... ℥ iij
Tinct. ferri chlor..... f℥ v
Alcoholis..... ℥ ij
Syrup ..... f℥ iv
Aquae..... ..... f℥ iv. M.

Sig.—Dose f℥ j f℥ j.

CHRONIC PARENCHYMATOUS NEPHRITIS.

Synonyms. Chronic Bright's disease; chronic tubal nephritis; chronic albuminuria; large white kidney.

Definition. A chronic inflammation of the cortical and tubular tissues of the kidneys; characterized by albuminous urine, dropsy, increasing anæmia, with attacks of *uræmia.*

Causes. Occasionally follows the acute form; syphilis; chronic malaria; chronic alcoholism; chronic mercurialism; lead poisoning; protracted suppuration. It is a disease of the young, rarely occurring after forty.

Pathological Anatomy. A large white or yellowish-white, smooth kidney, often twice normal size. The capsule is nowhere adherent to th

organ. Upon section, considerable tumefaction of the cortical substance and the rarity of vascular striæ are recognized. The medullary substance shows no appreciable alteration, its color being normal. The convoluted tubes are irregularly dilated and thickened, and filled with broken-down granulated epithelium and fibrinous casts. In pronounced cases there is fatty degeneration of the tubular epithelium.

Symptoms. Onset gradual and insidious, and seldom seen until the appearance of *dropsy*, beginning under eyes and in face, extending all over body, causing *dyspnœa*, from *ascites* or *hydrothorax*. The *urine* scanty, high-colored, *albuminous*, and under microscope shows *tube casts*, granular epithelium, and if fatty degeneration occurs, *fatty tube* casts and oil globules are seen.

Anæmia is pronounced, from the large waste of albumen. *Gastro-intestinal* disorders and vague *neuralgic pains* are common occurrences. *Bronchial catarrh*, with slight *œdema of the larynx*, causing *husky voice*, are frequent complications. *Uræmic* symptoms occur, and especially *uræmic asthma* (renal asthma).

Complications. Pneumonitis, pleuritis, pericarditis, and peritonitis.

Prognosis. Not unfavorable, unless urine contains persistently large numbers of fatty tube casts and oil globules. Relapses are frequent, but many complete recoveries are recorded.

Treatment. Regulated dietary, viz: milk, eggs animal broths, etc. Rest, even in bed for days at a time. Alcoholic stimulants contra-indicated. Promote free action of the skin by *warm bath*, *friction*, *jaborandi* and other *diaphoretics*.

For *dropsy*, purgatives, such as *pulv. jalap*, *comp. hydragogue*, *cathartics* and alkaline mineral waters. If there be great distention of the cavities, interfering with respiration, the *aspirator* should be used. Puncture of the skin may be necessary at times, and is well accomplished with an ordinary cambric needle.

For the disease and the condition of the blood, *ferrum* in some form does good, to wit: *Basham's mixture*, *tinct. ferri chloridi* with *liq. ammonii acetat*, or the *syrup. ferri iodidi*.

To check the waste of albumen, a difficult matter, the following remedies have been used with more or less success: *ergot*, *quinia*, *gallic acid*, *benzoic acid*, *tinct. cantharides*, *potassic*, *iodide*, and lastly, the Russian remedy, *blatta orientalis* (cockroach).

INTERSTITIAL NEPHRITIS.

Synonyms. Chronic Bright's disease; sclerosis of the kidneys; contracted kidneys; small red kidney; gouty kidney.

Definition. An inflammation of the intervening connective tissue of the kidney, chronic in its progress, resulting in an induration or hardening, with contraction of the organ; characterized by frequent passing of large amounts of pale, albuminous urine, of low specific gravity, disorders of the gastro-intestinal and nervous systems, and strong tendency to cardiac hypertrophy and changes in the vessels.

Causes. A disease of middle life, from forty to sixty years. Gout a great cause; lead cachexia; syphilis; alcoholism; alterations in the renal ganglionic centers (DaCosta and Longstreet).

Pathological Anatomy. The *kidneys* are reduced in size. The *capsule* is thickened, opaque and adherent. The *surface* of the kidney is granular, with cysts of various sizes of transparent color irregularly over the surface. On section the *tissue* of the kidney is tough and resistant. The *cortical* portion is thin, from atrophy, being only a line or two in thickness. The *connective tissue* is greatly thickened, compressing the tubules into mere threads, the *glomeruli* being grouped together in bunches, owing to the wasting of the intermediate tubes. The *color* varies from a darkish-brown to a yellowish-gray, according to the amount of blood in the organ.

The left side of the *heart* is hypertrophied, and there is also hypertrophy of the muscular fibre of the *arterioles* throughout the body; if the case is protracted the hypertrophied tissues undergo fatty degeneration.

The *retina* undergoes atrophy, termed *retinitis albuminuria.*

The "*ganglionic centres*" undergo fatty degeneration and atrophy (DaCosta and Longstreet).

Apoplexy, frequent termination of interstitial nephritis, the rupture of the cerebral vessel suggesting it a disease of degeneration.

Symptoms. Onset insidious and often marked alterations in kidneys, heart and vessels before recognized. Any of the following symptoms may first attract attention, to wit: *frequent micturition, increased* amount of *urine, pale color*, containing small amount of *albumen*, which may be absent for days, occasional *epithelial cells* and *hyaline casts.* No dropsy, but a little *puffiness* and *œdema* of *conjunctiva*—the Bright's eye. *Disorders of vision. Forcible cardiac action* with *high arterial tension.* And any of the following symptoms, the result of *uræmia.* Persistent *dyspepsia*, occasional *vomiting*, regardless of food; *headache, vertigo* and *stupor* or *drowsiness;* violent *itching* of skin; *tremors, convulsions, epileptic* seizures or *apoplectic attacks.*

The body weight declines, skin dry and scurfy, strength fails, and shortness of breath on exertion.

The *termination* is usually by convulsions, coma and death.

Complications. *Bronchitis; pneumonitis; pleuritis; pericarditis.*

Prognosis. Very chronic course; cases recorded under observation eleven years; but the termination is always fatal.

Diagnosis. Differs from *parenchymatous nephritis* in the following: large quantity of urine, clear, and low specific gravity, and small amount of albumen, and few hyaline casts; the hypertrophied heart and tense arteries and marked disorders of vision.

Treatment. Regulated diet. Diaphoresis. Diuretics. Avoid alcoholic stimulants. As near absolute rest as patient's general health will permit.

To prevent the growth of the connective tissue the following remedies are recommended, to wit: *potassic iodide, hydrargyri corrosiv. chlor.*, gr. $\frac{1}{20}$, *aurii et sodii chloridi, ferri iodidi* and *arsenicum.*

For *uræmia*, if patient conscious, *purgatives, diaphoretics* and *diuretics.* If unconscious, *morphia* hypodermatically or *chloroform* inhalations.

AMYLOID KIDNEY.

Synonyms. Chronic Bright's disease; waxy kidney; lardaceous kidney.

Definition. A peculiar infiltration into, or a degeneration of, the structure of the kidney by the deposit of an albuminoid material, having a superficial resemblance to starch granules. Similar changes occur in the liver, spleen, intestines and other organs.

Causes. The chief cause is prolonged suppuration, especially of the bones; coxalgia; syphilis; cancer.

Pathological Anatomy. The kidney is uniformly enlarged. It presents a pale, glistening, translucent appearance, and has a doughy consistence. On section, the surface is homogeneous, anæmic and whitish. The deposit occurs along the renal vessels and in the vascular tufts of the glomeruli, progressing until all parts of the organ are infiltrated. When the organ is thus infiltrated the proper structure undergoes an atrophic degeneration, from pressure.

The reaction with iodine and sulphuric acid affords a certain test of the *amyloid* deposit. Brush over a section of the affected kidney a solution of iodine with iodide of potassium in water, when a mahogany color will be produced, and if diluted sulphuric acid is now added, a violet or bluish tint results. A very pretty reaction is to take a one per cent. solution of anilin violet, which strikes a red or pink color with the amyloid material, while the unaltered tissues are stained blue, making a beautiful contrast.

Similar changes occur in other organs of the body. With the amyloid change may be associated either parenchymatous or interstitial nephritis.

Symptoms. Associated with wasting disease are *œdema* of the lower extremities and *ascites*, associated with *increased flow of urine*, pale, watery and of low specific gravity, containing *albumen* and *hyaline casts*, which are transparent. If amyloid change is associated with other forms of renal change, the urine will show the characteristics of such condition. A profuse, watery and persistent *diarrhœa* adds to the suffering caused by amyloid changes in the intestinal canal.

Prognosis. Controlled by the suppurating disease with which it is associated; the duration, when the amyloid change, is fully developed, is unfavorable, death occurring within a few months, or under favorable conditions, extending to one or more years.

Diagnosis. Differs from *parenchymatous nephritis* in its clinical history, character of urine, absence of dropsy, and the fact of always being associated with a suppurating disease.

From *interstitial nephritis*, in its history, character of urine, absence of uræmia, cardiac hypertrophy, changes in vessels, and the fact of association with suppurating diseases and similar changes in other organs.

Treatment. Sustaining and symptomatic in character. Generous diet, persistent use of *ferrum* and *oleum morrhuæ*.

If caused by syphilis, a thorough course of *potassic iodide* and *ferri iodidi*, with *oleum morrhuæ*.

PYELITIS.

Synonyms. Suppurative nephritis; pyelo-nephritis.

Definition. An acute catarrhal inflammation of the pelvis of the kidney; the term *pyelo-nephritis* is used when suppurative inflammation is superadded to the pelvic inflammation. The disease is characterized by lumbar pains, irritability of the bladder, the urine neutral, or alkaline in reaction, and milky in appearance; if *pyelo-nephritis* occur, symptoms of hectic fever and exhaustion are added.

Causes. Cold or exposure; cystitis; obstruction of the ureters by renal calculi; pressure of tumor, etc.

Pathological Anatomy. The inflammation is *catarrhal;* it is characterized by injection of the mucous membrane of the pelvis of the kidney, with slight extravasations of blood; relaxation and softening, shedding of the epithelium, and the subsequent discharge of mucus and pus. If the morbid process has existed for some time, the kidneys, one or both, are in a process of suppuration, they are enlarged, deeply congested, except where suppuration is proceeding, where they are of a yellowish-white

color—*pyelo-nephritis*. Pus is constantly forming, and if there is no obstruction, flows away with the urine; should there be an impediment to its escape, pus accumulates in the pelvis of the kidney, which distends it, giving rise to the condition known as *pyo-nephrosis*. The pressure caused by the obstruction finally leads to destruction of the entire organ, a mere sac, or *renal cyst*, remaining.

Symptoms. If caused by *cystitis*, symptoms of this condition precede; if from *renal calculi*, its characteristic symptoms precede those of pyelitis.

Begins by *chilliness*, *feverishness*, *lumbar pains* following course of ureters, *frequent micturition*, the *urine milky* in appearance when voided, *acid* or *neutral* reaction, and deposits a copious sediment, whitish or yellowish-white in color, containing only small amount of albumen, not more than is proper to *pus*.

If *pyelo-nephritis* follow, symptoms of pyæmia supervene, to wit: *fever*, typhoid in character, low, muttering *delirium*, *subsultus tendinum*, *stupor*, decline in strength, and loss of flesh, with perhaps a *tumor* in lumbar region.

If both kidneys are affected *uræmic* symptoms are frequent.

Prognosis. Simple cases, where no obstruction to flow of pus, *recover* in a week to ten days. If obstruction of the ureter, the prognosis grave. Suppurative cases unfavorable.

Diagnosis. From *cystitis*, by history, lumbar pains and *acidity* of purulent urine, the urine in cystitis being always *alkaline*.

Peri-nephritis, a disease of loose tissue, around about the kidneys, terminating in abscess, giving lumbar pain, increased by motion or pressure, hectic fever, sense of fluctuation over kidneys, the *urine remaining normal*.

Treatment. Rest in bed. Milk diet. Free use of water to dilute the urine, and free diaphoresis. *Quinia* to keep down temperature, prevent formation of pus and maintain the powers of life.

To change the character of secretion, Prof. DaCosta strongly recommends *picis;* other remedies are *sandal wood*, *copaiba*, *eucalyptol*, *terebinthina* and *cubeba*.

If *abscess* result, aspiration, *quinia* and stimulants.

RENAL CALCULI.

Synonyms. Nephro-lithiasis; gravel; renal colic.

Definition. *Renal calculi* are concretions formed by precipitation of certain substances from the urine, about some body or substance acting as a nucleus.

Their presence may not be recognized until one or more attempt to pass

along the ureters, when an attack of *renal colic* results; or, by irritation, *pyelitis* is produced; or, more rarely, they are voided by the urine without exciting any symptoms.

By *gravel* is meant very small concretions, which are often passed in the urine in large numbers

Causes. Occur at all ages; frequent before the fifth year and from five to fifteen. Males more liable than females. A special liability seems to exist in some families, but the precise etiology of calculi is not yet determined.

Varieties. 1. *Uric acid*, as calculi and gravel, and especially associated with the gouty diathesis.

2. *Urates*, chiefly urate of ammonia; nearly always in childhood.

3. *Oxalate of lime* or mulberry calculus; characterized by hardness, roughness, and very dark color.

4. *Phosphatic calculi* form as frequently in the bladder as in the kidney, and present a chalky or earthy appearance.

5. *Alternating calculi*, consisting of alternate layers of two or more primary deposits.

Anatomical Characters. In structure, a urinary calculus usually consists of a *central nucleus*, surrounded by the *body*, and outside of all there may be a phosphatic *crust*. The nucleus may or may not be of the same material as the rest of the stone, sometimes being a foreign body, mucus or blood.

A section generally shows a *stratified* arrangement, or it may be partly or completely *radiated*.

Symptoms. The clinical signs of renal calculi are those consequent on the results of their presence, to wit: *hemorrhage*, *renal congestion*, *inflammation*, terminating in *abscess*, *pyelitis* or *pyelo-nephritis*, *cystitis* or *renal colic*.

The symptoms of *renal colic* begin abruptly, by severe, agonizing *pain* in the lumbar region, following ureters into corresponding groin and thigh. *Pain* and *retraction* of corresponding testis, also in glans penis. *Face pale* and *features pinched*, the surface cold and damp. Irritability of the bladder, the urine passed in drops containing some blood. So severe is the pain at times that the patient may faint or pass into unconsciousness with a general convulsion. If both ureters are obstructed *uræmic symptoms* will arise.

The paroxysm usually terminates suddenly after some minutes or hours, the stone escaping into the bladder.

Prognosis. Renal calculus is attended with many dangers. It may produce extensive disorganization of the kidneys, or its passage along the

ureter may prove fatal. If the stone is very large, or if more than one, the prognosis is more grave. Calculus is a disease very apt to recur. Renal sand (*gravel*) and small concretions may, after more or less delay, be voided with the urine.

Treatment. An attack of *renal colic* is best relieved by a hypodermatic injection of *morphia* and a warm bath, or a suppository of *ext. opii*, gr. j, *ext. belladonnæ alco.* gr., ss., repeated if needed. For attacks of *gravel*, *liquor potassii citratis*, f℥ ss, every three hours, and if much *vesical irritability*, add *tinct. opii camph.*, f℥ ss–j.

GENERAL DISEASES.

DIPHTHERIA.

Synonyms. Putrid sore throat; malignant ulcerous sore throat; malignant quinsy; membranous angina.

Definition. An acute specific constitutional disease, both *epidemic* and *contagious*, beginning by an affection of the throat, and characterized by a local exudation and glandular enlargements; attended with great prostration of the vital powers and albuminuria, and having for its sequelæ various paralyses.

Causes. *A specific poison* the character of which is unknown. It is preëminently a disease of childhood. Rare among adults; very rare in old age. It is apt to recur in those who have once been affected. All conditions of bad hygiene increase its virulence and favor its diffusion, although the chief cause of its spread is *contagion*.

The poison exists in the exudations and secretions of the fauces and the breath, and floats in the atmosphere at a considerable distance from the original source.

The theory of "No bacteria, no diphtheria," is not proven.

The *period of incubation* is from three to five days.

Pathological Anatomy. The *diphtheritic* inflammation differs from either the *croupous* or *catarrhal* form, in that the exudation is not only *upon*, but also *within*, the substance of the mucous membrane. At first there is *redness*, which may begin in any part of the throat, associated with *swelling* and *increased secretion* of viscid mucus. The redness spreads over the entire mucous surface, when the *exudation* makes its appearance. The deposit may commence from one or several points, such as on one tonsil, the soft palate, or the back of the fauces, at first only small specks being observed, which, however, speedily extend and coalesce so as to form extensive patches, or even to cover uniformly the entire surface.

The patches are of variable thickness, which is increased by successive layers being formed underneath.

The *color* is usually gray, white or slightly yellow, but may be brownish or blackish, the *consistence* ranging from "cream to wash leather."

On removing the membrane, which is accomplished with more or less difficulty, a raw, bleeding surface is exposed; at times an ulcer, which is speedily covered with a fresh deposit.

If the exudation separates itself, it is either not renewed at all or only in thinner films.

Occasionally considerable ulceration or sloughing of the soft palate, uvula or tonsils is set up, or abscesses may form.

The exudation or membrane, examined by the microscope, is composed of fibrin, pus corpuscles, epithelial and granular cells and bacteria.

If the *larynx*, *trachea* or *nasal* mucous membranes participate in the disease, the *croupous* and not the *diphtheritic* form of inflammation occurs.

The *lymphatic glands* of the neck, whose vessels originate in the faucial tissues, are enlarged and inflamed, and contain large numbers of *bacteria*, probably the result of decomposition.

The muscular tissue of the *heart* becomes soft, is easily torn, and its fibrillæ are far advanced in fatty degneration. Ulcerative endocarditis has been frequently observed.

The *kidneys* undergo a granular degeneration in severe attacks.

The *blood* undergoes alteration, being black and fluid.

Symptoms. Following the law of *contagious* diseases, the symptoms vary in intensity in different cases, the prominent symptoms being often disproportionate to the gravity of the attack.

The *invasion* may be *mild*, with *rigors* succeeded by moderate *fever*, *headache*, *languor*, *loss of appetite*; at the same time *stiffnesss of the neck*, *tenderness* about the *angles of the jaw*, or *slight soreness of the throat.*

In other cases the *invasion* is more *abrupt* and *severe*, with *chilliness* followed by great *febrile* reaction, 103°, F., to 105° being reached, *pain in the ear*, *aching of the limbs*, *loss of strength*, *painful deglutition* and *swelling of the neck*, compelling the patient to take to bed from the onset.

The *appetite* is poor, the *tongue* slightly coated, sometimes more or less exudation appearing upon it, the *bowels* being either regular or slightly relaxed. The *pulse*, at first full and strong, soon becoming either frequent or slow, but *compressible.* The *urine* is scanty, high colored, and contains *albumen.*

The *local* symptoms in the majority of cases are associated with the throat. The patient complains of frequent and persistent desire to hawk,

in order to clear the throat. On *inspection* the fauces are seen *red* and *swollen*, and more or less covered with the diphtheritic *exudation;* sometimes the *tonsils* and *uvula* are greatly *swollen* and spotted with exudation. In bad cases, more or less *ulceration* or *sloughing* may be observed. Not unfrequently fragments of exudation, the *false membrane*, are expectorated, with particles of the ulcerated tissues, having an *offensive odor* which is transmitted to the breath. The *lymphatic glands* of the neck are *enlarged* and *tender*, and in severe cases the structures of the neck are greatly tumefied.

Extension to the *nasal cavities* cause a *sanious* and *offensive* discharge from the nose, with attacks of *epistaxis.*

Extension to the *larynx* is indicated by *hoarseness* or *complete loss of voice*, *croupy cough* and obstructive *dyspnœa*, which often becomes urgent, the breathing being *noisy* and *stridulous*, and subject to paroxysmal exacerbations. If the inflammation extends to the *bronchi*, the breathing becomes still more embarrassed.

Duration. Ranges from two to fourteen days, an average being about nine days, although complications and sequelæ may prolong its course.

Relapses are not uncommon.

Sequelæ. Those who recover from a severe attack remain often for weeks with a *pale* and *cachectic* appearance, due to the profound blood alteration.

Paralysis is a common sequelæ, following the mild as often as the severe attacks. Usually not occurring until the patient seems fully convalescent.

Pharyngeal paralysis is the most common, causing difficulty or inability of *deglutition*, fluids regurgitating through the nose.

Cardiac paralysis is not unfrequent, the pulsations descending to 60, 50, 40, and in a case seen by the author, to 20 per minute.

Diphtheritic paralysis may affect the motor muscles of the eye, causing *strabismus;* the muscles of one side, *hemiplegia;* of the legs, *paraplegia;* and of the bladder, leading to *retention of urine* or difficulty in passing it.

Sensation is also *diminished* in the paralyzed parts.

Prognosis. Always grave, but much worse in children than in adults. Its gravity, in the majority of cases, is proportionate to the local symptoms. The average mortality is about *ten per cent.*

Favorable indications are, moderate fever, strength slightly impaired, a good constitution, and moderate exudation.

Unfavorable indications are, great depression, spreading exudation, great swelling of the cervical glands, large amount of albumen, extension to

larynx and nasal mucous membranes, hemorrhages from fauces and nose, and epidemic character.

Diagnosis. From *follicular ulceration of the tonsils*, which is frequently termed diphtheria, by the slight or absent systemic symptoms, the ulcerated condition being limited to the tonsils, often but one; and the absence of glandular enlargement and following palsies.

From *pharyngitis*, by the absence of exudation and loss of faucial tissue, and constitutional symptoms.

From *membranous croup*, by the difference in the constitutional symptoms; in diphtheria of the larynx, the depression is markedly that of blood alteration, while in croup all symptoms of depression are in proportion to the obstruction to respiration. In croup the pharynx contains no membrane, and is but slightly inflamed, the reverse obtaining in diphtheria. Again, in croup the laryngeal symptoms are from the onset, while in laryngeal diphtheria the pharyngeal symptoms almost always precede.

From *scarlatina*, by the presence of the eruption and absence of membrane in the fauces.

Treatment. *No specific.* The blood being more or less altered, it follows that *sustaining* measures must be resorted to in *all cases.*

The *diet* must be of the most nutritious from the onset, such as milk, eggs, broths, oysters, etc., at *intervals* of every *two or three hours.* If deglutition is too painful, resort must be had to nutritious *enemata.*

Stimulants must be used boldly from the onset, guiding the dose by the effect; usually, a child of two years requires from *thirty* to *sixty minims* of *spiritus vini gallici* every two or three hours; an adult, from *two* to *four drachms* every three hours.

Ferrum and *potassii chloras*, in full doses frequently repeated, have seemed, when begun early in the attack, to modify the course of the malady, and they have the additional advantage of locally acting upon the throat as they are swallowed. A good formula is—

℞. Tinct. ferri chlor..... gtt. viiss
Potassii chlor..... gr. iij
Glycerinæ..... ♏ xv
Syr. zingib.....ad..... f℥j. M.

Sig.—In water every three hours, for a child of two or three years.

The efficacy of the above is greatly enhanced, in the author's experience, by the addition to each dose of *tinct. belladonnæ*, gtt. j–v.

Quinia, in doses of from two to five grains every four hours, should be used throughout the disease.

Dr. Reiter strongly recommends *calomel* as curative in diphtheria, his mode of administration being, "One scruple, the first dose, and then ten grains every hour until the symptoms improve, the fever subsides, the exudation stops spreading and is detaching, etc.," and cites "a boy of eight years with half an ounce of calomel in his *prima viæ, not prostrated*, but *restored*." He adds, "where a case has not reached a fatal condition, from twenty-four to forty hours' medication effects a cure." Prof. DaCosta says he has seen *calomel* do good, in broken doses, where other treatment fails and the exudation is spreading.

Locally. Cleanliness of the fauces is of the utmost importance, and if a *non-irritating disinfectant* is added, its value is enhanced. Prof. Bartholow "has seen excellent results from the frequent application of a solution of *acidum lacticum*, strong enough to taste sour, by means of a mop." The following used as a *gargle*, or applied by a mop is useful:—

℞. Acid. salicyl..... gr. xx
Glycerinæ..... f℥j
Aquæ destil..... f℥iij. M.

Or—

℞. Acid. muriat. dil..... f℥j
Aluminis..... ℥iss
Mellis..... ℥j
Aquæ..... f℥v. M.

Inhalations of steam and hot water, and allowing patient to suck pellets of ice, give relief. Sponges dipped in hot water and applied to angles of jaw are beneficial.

For *laryngeal diphtheria* same general treatment and *inhalations* of lime by slaking freshly burned lime in a vessel and directing the vapor to the child by newspaper, or some similar contrivance, or using three parts of *liquor calcis* and one part of glycerin, in *atomizer*, every half hour or hour. If these means fail, resort must be had to *tracheotomy*, which has succeeded in several desperate cases.

For *nasal diphtheria* the same general treatment, and syringing the nose every two or three hours with a weak solution *potassa chlorat.*, or *acidum carbolicum*, or the following:—

℞. Sodii sulphit..... ℥iij
Glycerinæ..... f℥ij
Aquæ..... f℥iv. M.

For *the paralysis, strychnia* and *ferrum* internally, or *strychnia* hypodermatically, with the *galvanic current* locally.

ACUTE ARTICULAR RHEUMATISM.

Synonyms. Rheumatic fever; inflammatory rheumatism.

Definition. A constitutional disease, characterized by fever, by inflammation in and around the joints, occurring in succession, and by a great tendency to inflammation of either the endocardium or pericardium.

Causes. The *predisposing* causes are inherited tendency, scarlatina, and the puerperal state.

The *exciting* causes, exposure to cold and chilling of the body. Rheumatism rarely occurs before seven or after fifty years. The liability to the disease is increased by having had an attack.

Pathological Anatomy. The *blood* contains an excess of *lactic acid.* The *joints* bear the brunt of the attack; the synovial membrane is reddened, the vascularity of the synovial fringes is increased, so with the synovial fluid, which is thinner, of a reddish color, containing some gelatinous coagula of fibrin, and under the microscope nucleated cells, ordinary pus cells being rarely seen.

The swelling visible about the affected part depends mostly on inflammatory œdema of the connective tissue around the joint.

The *pain* is probably due, in all cases, to stretching of and pressure on the elements of the tissue by the dilated capillaries and the inflammatory œdema. For the changes which ensue when the endo- or peri-cardium is attacked, the reader is referred to the articles on those diseases.

Symptoms. Begins suddenly, generally at night, with a *chill* or chilliness, *pain* and *stiffness in the joints*, loss of appetite, at times, nausea and vomiting, followed by *fever*, the temperature soon reaching 102°, F., to 104°, in rare cases 108° to 110° (*the hyperpyrexia*), the *pulse* seldom exceeding 95, *great thirst, profuse acid sweats*, scanty, *high colored, acid urine*, at times showing traces of albumen, the *bowels* being *constipated.* The *fever* continues throughout the attack, showing marked remissions. Delirium is absent except the *hyperpyrexia* occur. *Sleep* is prevented by *pain* and profuse *perspirations.* The strength is moderately well preserved. The *skin* is often covered with an eruption of *miliaria rubra, red papulæ* and *miliaria alba*, the result of irritation at the orifices of the perspiratory glands, from excessive sweating.

The *local* phenomena are *pain, tenderness, increased heat, swelling* and *redness* of one or more joints; if but one joint it is termed *monoarthritis*, if more than one, *polyarthritis. Pain* is aggravated by motion and *pressure. Swelling* is most apparent in those joints not covered with muscle, viz: knee, wrist, elbow, ankle, and the hands and feet, and is proportionate to the acuteness of the attack. The inflammation may

abruptly cease at one or more joints, and as suddenly attack others. The disease is extremely irregular as regards the number of joints affected, although the local manifestations are controlled by an important pathological law, viz; *the law of parallelism.* Corresponding joints are often affected together, and when not, the different affected joints are either on one side of the body, or those on both sides which are analogous, viz: knee, elbow, wrist, ankle, hip and shoulder, are attacked together.

Complications. *Pericarditis, endocarditis, myocarditis,* and *cerebral endarteritis,* bronchitis, pneumonitis and pleuritis.

Duration. The duration of acute rheumatism is governed entirely by the presence or absence of complications. Uncomplicated cases recover in from *thirteen* to *twenty-one days,* although they may be prolonged to five or six weeks.

Prognosis. Recovery the rule in uncomplicated cases, the mortality being about three per cent. When death occurs it usually depends upon hyperpyrexia, cardiac complication, or cerebral endarteritis.

Diagnosis. A typical case cannot be mistaken for any other disease, but cases running a *subacute* course may be mistaken for acute rheumatoid arthritis, gonorrhœal rheumatism, or pyæmia.

Acute rheumatoid arthritis, attacks one joint at a time and becomes permanent, has slight if any fever, no sweats or cardiac lesions.

Gonorrhœal rheumatism is associated with a gleety discharge, attacks either the ankle or wrist only, is slowly influenced by treatment, and lacks the febrile phenomena.

Pyæmia is usually manifested at a single joint at the time, and is followed by suppuration and all the symptoms of hectic fever.

Treatment. Rest in bed, whether the pain forces it or not, is imperative. Next, keep the patient *warm,* for which purpose he should be kept in *blankets*—no sheets, and wear woolen garments. The *diet* must be easily digested food, milk being the best.

Locally, the affected joints should be wrapped in cotton-wool or flannel, saturated with a solution of *tinct. opii,* one part and *liq. plumb. subacetat. dil,* two parts. Prof. Bartholow finds the application of *blisters* an effective method. He says, "I have small blisters, the size of a silver dollar, placed around the joint, leaving an interval between for succeeding applications. It is by no means so painful and disagreeable as it appears at first sight. The blisters remarkably relieve the pain, bring about a more alkaline condition of the blood, and render the urine less acid, or bring it to neutral, or even to alkaline."

Strong and vigorous patients do best with *acidum salicylicum* or the *salicylates* in large and frequently repeated doses, viz:—

℞. Acid. salicyl..... gr. xx
Liq. ammon. acetat. ..... f℥iss
Spts. ætheris. nitrosi ..... ♏xv
Syr. simplicis..... ..... ♏xv.
Every three hours, well diluted.

Or,

℞. Sodii salicyl..... gr. xx
Spts. lavend. comp..... ♏xv
Glycerinæ..... ℥ss
Aquæ.....ad..... f℥ss.
Every three hours, well diluted.

If benefit follows, the evidence is quickly afforded in relief of pain and decline of temperature and swelling. If therefore, after three or four days' use of the salicylates or acidum salicylicum, as above recommended, signs of improvement are wanting, the treatment had better be changed for the *alkaline* treatment, which consists in the administration of *an ounce and a half* of the alkaline carbonates, either alone or with a vegetable acid, each twenty-four hours, until the *urine becomes neutral* or *alkaline*, when the quantity is reduced to an amount sufficient to maintain alkaline urine, viz:—

℞. Potass. bicarb..... ℥ij
Acid tartaric..... gr. xv
Dissolved in a glass of water and drank effervescing every three hours.

Or,

℞. Potass. bicarb..... ℥ij
Succi limonis..... ℥j
Aquæ cinnamomi.....ad..... f℥ss. M.
Sig.—In water every three hours.

After the more *acute* symptoms are passed, change either of the above for *tinct. ferri chlor.*, gtt. xx every four hours, well diluted.

Pale, feeble and anæmic patients, or attacks following scarlatina, etc., are most favorably influenced with

℞. Tinct. ferri chlor..... gtt. xx–xxx
Syr. limonis..... gtt. xx
Aquæ..... f℥j. M.
Sig.—Every four hours, in glass of water.

Prof. DaCosta reports a lessened proportion of *cardiac complication* with *ammonii bromidum*, gr. xv–xx, every four hours.

Sub-acute attacks and lingering cases are favorably influenced by

℞. Lithii citrat..... gr. xxx
Syr. zingib..... f℥j
Aq. lauro-cerasi..... f℥j.
Every four hours.

Pain and *restlessness* should be controlled by *opium* in some form, in full doses, or *atropia*, gr. $\frac{1}{80}$, hypodermatically.

For the *hyperpyrexia*, *quinia*, gr. xxx–lx repeated p. r. n., with the *cold bath* or *wet-pack*.

The complications are to be treated according to their character.

MUSCULAR RHEUMATISM.

Synonyms. According to location, viz: lumbago; torticollis; pleurodynia, etc.

Definition. An affection of the voluntary muscles, inflammatory in character, either *acute* or *chronic;* characterized by pain, tenderness, and stiffness of the affected muscles. It is never complicated with cardiac diseases.

Cause. A disease of adult life. One attack predisposes to another. Almost always due to cold and damp, or direct draught of cold air. Gout increases the tendency to attacks.

Pathological Anatomy. The true nature of muscular rheumatism is not yet determined. Virchow suggests a "hyperæmia of, and scanty serous exudation between, the muscular striæ, and in chronic cases inflammatory proliferation of the connective tissue."

Symptoms. The *first* attack is generally *acute*. Onset rather sudden, with *pain* in affected muscles, slight *tenderness*, and considerable *stiffness*, with *difficulty of movement*, by which also the pain is increased.

The suffering may be severe and constant, or only on motion. *Spasm* of the affected muscles may occur. *Objective* symptoms are wanting, except it is evident the patient keeps the affected muscles as quiet as possible. Fever is absent. The pain may prevent sleep.

Duration, *acute* form, about one week. *Chronic* returns frequently, and finally constant or aggravated when the weather is damp.

Varieties. It may affect any or all of the voluntary muscles, but its most frequent and important varieties are:—

1. *Cephalodynia.* Situated in the occipito-frontal muscle. Distinguished from *neuralgia* of the trifacial, or occipital nerve, by pain on both sides of the head, excited or aggravated by movements of the muscle, and by absence of disseminated points of tenderness.

The muscles of the eye may be affected when movements of that organ excite pain. If the temporal and masseter muscles are attacked, mastication excites pain.

2. *Torticollis.* Wry-neck, or stiff-neck. Situated in the sterno-mastoid muscles. Generally limited to one side of the neck, towards which side

the head is twisted, great pain being excited on attempting to turn to the opposite side. Rheumatism of the muscle of the back of the neck, *cervicodynia*, may be mistaken for occipital neuralgia.

3. *Pleurodynia.* Situated in the thoracic muscles, and may be mistaken for pleuritis, or intercostal neuralgia, from which it is differentiated by the absence of the diagnostic features of each. Pain is excited by forced breathing, coughing and sneezing.

4. *Lumbodynia* or *lumbago.* Situated in the mass of muscles with the fasciæ which occupy the lumbar region. Most common variety. Usually affects both sides. It may set in rapidly and become very severe. Motion of any kind aggravates the pain, often becoming sharp or stabbing in character. It is sometimes complicated with *acute sciatica*, when the suffering is agonizing.

Prognosis. Difficult to eradicate, and in chronic cases to ameliorate, but is not dangerous to life. Death never results.

Diagnosis. The different varieties may be mistaken for any of the following ailments, to wit: trifacial, occipital or intercostal neuralgia, pains of progressive muscular atrophy, syphilis, metallic poisons, or painful affections of the loins, arising from calculi or gravel in the kidney.

A careful examination of the history is usually sufficient to arrive at a correct diagnosis.

Treatment. *Rest* is the first indication. This is accomplished in *pleurodynia* by firmly strapping the affected side with broad strips of plaster extending from midspine to midsternum.

The *local* application to the affected muscles of *hot* poultices, made of two-thirds *jaborandi* leaves and one-third *flaxseed* meal, changing them every two hours, is, in the opinion of the author, the most rapidly successful treatment in acute cases.

For the *pain* and consequent sleeplessness use—

℞. Pulv. ipecac comp..... gr. x
Potass nitrat..... gr. v–x. M.

SIG.—In powder morning and night.

Or, hypodermatically, at the seat of pain *morphia* $\frac{1}{8}$–$\frac{1}{4}$, and *atropia*, gr. $\frac{1}{80}$, p. r. n.

Chronic cases; Rest, flannel worn next to skin, stimulating and anodyne liniments, mild galvanism, dry heat, as ironing over the affected part with a common flat-iron, a piece of paper, towel, etc., being placed next to the skin.

Internally, potassii iodidum, *ammon. muriat.*, *sulphur*, *guaiacum* or *arsenicum*, variously combined.

RHEUMATOID ARTHRITIS.

Synonyms. Arthrititis deformans; Rheumatic gout.

Definition. An inflammation of the joints, accompanied with but slight fever, without suppuration, progressive in character, causing nearly symmetrical enlargement and deformity of various articulations.

Causes. More common in females than males, and in the weak and anæmic. Among the causes are bad hygiene, exposure, prolonged lactation, frequent pregnancies, menopause, grief, tubercular diathesis, and following attacks of articular rheumatism.

Pathological Anatomy. It is not rheumatism, as the blood contains no *lactic acid*. It is not gout, as *uric acid* is not found in the blood nor *urate of sodium* in the joints.

At first rheumatoid arthritis is attended with hyperæmia of the affected synovial membrane and increase of the synovial fluid. Soon the capsular ligament becomes irregularly thickened, the synovial fluid decreasing. If the process continue, the internal ligament is destroyed, thus allowing dislocations to occur. The inter-articular fibro-cartilages ulcerate and disappear, as does the cartilages covering the ends of the bones, the ends of the bones becoming smooth and eburnated, and often greatly enlarged.

Symptoms. Either *acute* or *chronic*, the latter most common.

Acute form involves several joints at the same time, and is attended with slight pyrexia.

Chronic form slowly involves one joint, which seemingly soon recovers, and is attacked again, and may never recover, but grow progressively worse.

The *joint* slowly *enlarges*, is *painful*, movement exciting *neuralgic pains* along the limb. Soon the articulation becomes *rigid* or slightly movable after prolonged attempts. Redness and tenderness are wanting. *Crepitation* is distinct after ulceration has destroyed the cartilages.

The hands are first involved, the disease spreading symmetrically from articulation to articulation, until in severe cases every joint is deformed.

Prognosis. If early treatment is instituted, the disease may be held in abeyance for several years. After pronounced structural changes have begun, the malady is incurable, although it may remain stationary for years.

Diagnosis. *Chronic articular rheumatism* is often confounded with rheumatoid arthritis; but the former lacks the marked structural changes and the progressive involvement of joint after joint.

Gout differs from rheumatoid arthritis by the presence of deposits of urate of sodium in the joints, the ears, tips of fingers and the bursæ over the

olecranon process of the elbow, the presence of uric acid in the blood, and the decided history of acute paroxysms.

Gonorrhœal rheumatism, so-called, has symptoms akin to rheumatoid arthritis, but the history of urethral suppuration clears up the diagnosis.

Paralysis agitans, when pronounced, might be confounded with rheumatoid arthritis, if the examination were limited to the joints, but the whole history, such as the tremor, the gait, etc., should prevent mistake.

Treatment. If treatment is instituted before serious structural lesions have occurred, the author has seen benefit in many cases by the following treatment: *Oleum morrhuæ* carefully and thoroughly rubbed into the affected joints, three times a day, with the internal use of *lithii citrat. effervescentes* ℥j, three times a day, and the following *tonic* mixture:—

℞. Massæ ferri carbonat..... gr. v
Liquor. potass. arsenit..... ♏v
Vini xerici..... ℥j
Aquæ..... ℥j. M.
After meals, well diluted.

Attention to diet, hygiene, etc., are also necessary. When structural changes have destroyed portions of the joint, palliative treatment is the only indication.

GOUT.

Synonyms. Podagra, gout in the foot; chiragra, the hand; gonagra, the knee.

Definition. A constitutional disease, usually inherited; characterized by the sudden occurrence of a paroxysm of severe pain and swelling in one of the smaller joints—the great-toe usually—with the presence of uric acid in the blood, and the deposit of the urate of sodium in the structure of the joint.

Causes. *Predisposing;* inherited; male more than female—woman after menopause.

Exciting. Malt and wine drinking, whether male or female; large consumption of animal food; lead poisoning; winter season.

When inherited tendency, may begin early in life; when acquired tendency, after thirty-five years.

The pathological cause consists in the presence of an excess of *uric acid* in the blood, in the form of *urate of sodium*.

Pathological Anatomy. Gout is characterized by the deposit of *urate of sodium* from the blood into the structure of the joints and tissues that are not very vascular. The deposit is associated with signs of inflammation, viz: hyperæmia and redness of the surface, with swelling and

effusion in and around the affected joint. The surfaces of the joint are incrusted with chalk-like masses, consisting of urates, which become greater with each attack, finally causing great deformity.

The deposit usually begins in the metatarso-phalangeal joint of the great-toe, but other and many joints soon suffer.

The deposits may also be found in the knuckles, eyelids, and cartilages of the ear.

"Crystals of urate of soda are deposited in the tubules and inter-tubular tissues" of the kidneys—"gouty kidney"—and may be seen by the naked eye, the kidneys becoming small, granular and fibrous.

Hypertrophy of the left ventricle and the arteries ending in atheromatous changes are results of gout.

Symptoms. *Acute Gout.* Occurs in paroxysms; one year's interval between first and second attack; six months usually between second and third, after which may occur at any time.

Prodromes usually precede paroxysm for several days, viz: acid dyspepsia, constipation, headache, etc.

The *paroxysm* begins suddenly, between midnight and 2 A. M., with acute *pain* in the ball of great-toe, which becomes *red*, *hot*, *swollen*, and *so sensitive* that the slightest touch cannot be borne.

The veins are filled, the foot, ankle and leg swollen, and the limb the seat of sudden spasmodic contractions, which increase the suffering. Slight relief is afforded by elevating the limb. Associated with the local symptoms are, *chill*, *fever*, quickened *pulse*, *thirst*, *coated tongue*, *constipation*, and *scanty*, *acid*, high-colored *urine*, which deposits, on cooling, a heavy *brick-dust* sediment.

Towards daylight the symptoms ameliorate, to return again at sundown, the severity gradually lessening, until fourth or fifth day, when convalescence is established, the patient, as a rule, feeling better than before the attack.

Chronic Gout. Either result of acute attacks or with a greater number of joints being attacked.

The *paroxysms* occur at any time, but develop slowly, with less pronounced local and general symptoms. Deposits are noticed, the joints becoming hard, knobby, and often distorted. The deposits or *chalk-stones* (urate of sodium) occur about the joints, tendons and bursæ, helix of the ear, etc.

Prognosis. Acute gout rarely fatal, but is prone to return, but much depending upon the mode of living.

Chronic gout decidedly shortens life. The most serious signs are those

indicating advanced renal disease, with non-elimination of uric acid. Gout influences unfavorably the prognosis from acute diseases or injuries.

Diagnosis. An error cannot occur if the history of the case can be obtained, to wit: hereditary tendency, age, sex (females rare, until menopause), mode of living, character of symptoms and presence of the characteristic deposits.

Treatment. For the *acute paroxysms*, at once *vinum colchici radicis*, gtt. xv–xx–xxx, every two hours, *well diluted*, either alone or in combination with an *alkali*, or, *sodii salicylas*, gr. xx, every three or four hours, well diluted.

For the *pain*, hypodermatic injection of *morphia* and wrapping the inflamed joint with cotton wool saturated with *liq. plumb. sub-acetat. dil.* and *opii tinct.*

The diet must be reduced to liquid food.

For *chronic gout*, regulated diet, free action on the secretions, and *lithii citrat. effervescentes* ʒj, three or four times a day, well diluted with water.

To prevent paroxysm, keep secretions acting, regulated diet, systematic exercise and a prolonged course of *alkaline waters*.

LITHÆMIA.

Synonyms. Lithiasis; uric acid diathesis; half gout.

Definition. A condition in which the fluids of the body are saturated with nitrogenized waste, in the form of *lithic* or *uric acid;* characterized by marked dyspepsia, various nervous phenomena, muscular and articular pains, bronchial catarrh, all or any of these associated with scanty, high-colored, acid urine.

Causes. High living, with little exercise; imperfect digestion of nitrogenized food; impaired elimination of uric acid.

Symptoms. Those of *dyspepsia* associated with *irregular bowels*, scanty, high-colored *acid urine*, sp. gr. 1.024–1.028 containing neither sugar nor albumen, but showing *increased* proportion of *urates*. Also, *depressed spirits, impaired memory, loss of interest in occupation, sleepless nights*, attacks of *vertigo*, neuralgic pains in head, and constant dread of apoplexy or cerebral disease. Also, *pains in joints*, of neuralgic character.

If the condition is allowed to continue, the following organic changes may result, viz: fatty heart; fibroid kidney; enlarged liver, or changes in cerebral vessels.

Prognosis. If properly recognized and treated, complete recovery will result, although it is of long duration.

If not properly treated, results in organic diseases mentioned.

Diagnosis. From gout by absence of acute paroxysms and resulting changes in joints.

Treatment. Regulate diet, avoiding much meat and sugar, and all forms of stimulants. Act freely on all the secretions. Systematic exercise. Avoid tonics, bromides, chloral, opium, etc. Long course of alkaline waters. Good results follow *lithii citratis*, gr. xx t. d., *sodii phosph.*, gr. xxx bis die, *acid benzoic*, gr. x, t. d., all well diluted with water. The author strongly urges the use of *acid nitric dil.*, gtt. x, in half a glass of water, four times a day, with occasional use of *piluiæ rhei comp.* at bedtime.

DIABETES MELLITUS.

Synonyms. Glycosuria; melituria.

Definition. A chronic affection characterized by the constant presence of grape-sugar in the urine, by an excessive urinary discharge, and by progressive loss of flesh and strength.

Causes. Most common in males. Occurs at all ages, but most frequently between twenty-five and fifty years. It is often hereditary. Disorders of the nervous, hepatic and renal systems. Excessive use of farinaceous food and malt liquors. Sexual excesses.

The exact *pathology* of diabetes mellitus differs in different cases, and in the present state of our knowledge, no exclusive view can be adopted. Still, there are reasons for believing that, in a large proportion of cases, the nervous system is primarily at fault, though the character of the lesions may differ.

Pathological Anatomy. None peculiar to diabetes are yet recognized.

Hyperæmia and hypertrophy of the liver and kidneys are generally present, the result of increased functional activity.

The changes in the lungs peculiar to phthisis are often found in very chronic cases.

The changes in the nervous system are not fully determined.

Symptoms. Clinically cases differ greatly in their course and severity; one class presenting slight symptoms and chronic course; another group having marked local and constitutional symptoms and an acute course. The symptoms of a typical case may be arranged under the following heads:—

Urinary Organs and Urine. Micturition more frequent and the *urine* increased in quantity. *Pain* over the region of the kidneys. The *quantity of urine* may amount to 4, 8, 12, 20 or 30 pints in twenty-four hours. It is usually *pale*, *clear* and *watery*, having a *sweetish taste* and *odor*, the *specific gravity* ranging from 1.015 to 1.050. It ferments rapidly if kept in a warm place. It yields *grape sugar* to the usual tests, the amount present varying from *an ounce to two pounds* in the twenty-four hours.

The urea and uric acid are increased. Albumen may be present.

Digestive Organs. An almost constant symptom is *thirst*, with a dry and parched condition of the mouth. At times the *appetite is excessive*, again absent. The breath may have a sweetish odor, the *tongue* irritable, red, and often cracked. *Dyspeptic symptoms* are common, and occasionally vomiting. The *bowels* constipated, the stools pale and dry. At times diarrhœa may occur.

General Symptoms. The patient complains of feeling *very weak*, languid, and of *soreness and pain in the limbs.* The prominent features are more or less *emaciated*, the *skin* harsh and dry, and the *countenance distressed and worn.*

The mind is often greatly altered; depression of spirits, decline in firmness of character and moral tone, with irritability, are present. Sexual inclination and power are diminished. Defects of vision are present.

The blood and various secretions contain sugar.

Complications. Pulmonary phthisis; Bright's disease; defects of vision from atrophy of the retina or the formation of a soft cataract; boils and carbuncles, and chronic skin affections, such as psoriasis, etc.

Course. The clinical history varies in different cases. In the majority of cases the course is chronic, lasting for years, the symptoms beginning insidiously, and becoming progressively worse, with, at times, decided remissions. Occasionally the disease runs an acute course, death occurring within four or five weeks.

Termination. The majority of cases ultimately prove fatal, the symptoms markedly changing, the *urine and sugar diminishing* in quantity, the occurrence of *albuminuria*, *disgust for food and drink*, and the development of hectic fever or colliquative diarrhœa.

The fatal result usually arises from *gradual exhaustion* from blood poisoning, leading to *stupor*, *ending in complete coma*, or occasionally to *delirium* or *convulsions*, or from complications.

Rarely, death occurs suddenly, from *uræmic convulsions* or *uræmic coma.*

Prognosis. Most unfavorable, as regards a cure, it being fairly questionable if complete recovery has ever occurred in a typical case. Still, decided amelioration may take place in the symptoms, and the progress of the malady greatly retarded. The younger the patient the more rapid the fatal termination.

Diagnosis. Diabetes mellitus only exists when *grape sugar* is permanently present in the urine. "It is not the quantity, but the persistence of sugar which constitutes diabetes."

When are present grape sugar in the urine, with more or less increase in the urinary flow, it can be mistaken for no other affection.

Treatment. Impress upon patients the importance of a strictly *regulated diet.* Prohibit or restrict the consumption of such articles as contain *sugar* or *starch*, especially ordinary bread or flour, sugar, honey, potatoes, peas, beans, rice, arrowroot, etc.

The main diet should be of *animal food*, including meat, poultry, game and fish, etc.

A moderate amount of fluids should be allowed, and in a majority of cases *milk* will prove beneficial, although theoretically, contraindicated. Tea, coffee and cocoa, without sugar, may be allowed in moderation, glycerine acting as a substitute for the sugar.

Regulated exercise is of importance. The patient should wear flannel, and have two or three warm baths every week, or an occasional Turkish bath.

Therapeutical Treatment. Opium exercises an influence over the excretion of sugar, but the effect is not maintained. Pavy strongly urges the use of *codeia* in doses of gr. ½–iij, three times a day. Prof. DaCosta suggested the use of *ergota*, which has decreased the urinary discharge and quantity of sugar in a number of cases. Prof. Bartholow has met with an apparent cure by *ammonii carbonas.* The author has met with decided partial success with *uranii nitras*, gr. j–iij, three times a day, the cases not yet being under observation a sufficient length of time to pronounce them cured, although in two the urine has been diminished from three quarts per day to normal, the quantity of sugar from nine ounces to less than half an ounce, in the twenty-four hours.

Potassii bromid., ℥j during the twenty-four hours, is strongly urged. The following remedies are recommended by different observers, viz: *pepsin, liquor potassii arsenites, iodum, potassii idod., sodii salicylat., acid lacticum, glycerinum, quinia, tinct. cannab. indica*, etc. The evidence in favor of the majority of these drugs is far from satisfactory.

Symptomatic treatment is mostly called for. For emaciation and anæmia, *ferrum* and *oleum morrhuæ;* for sleeplessness and restlessness, *morphia, potassii bromidum, chloral* or *hyoscyamia;* the dyspepsia, lung symptoms, etc., must be managed on ordinary principles.

DIABETES INSIPIDUS.

Synonyms. Polyuria; polydipsia.

Definition. An affection characterized by the habitual discharge of a very large quantity of pale, watery urine, free from albumen and sugar.

Causes. Occasionally hereditary, or diabetes mellitus may have existed in the parent; more common in children or young adults; men are more subject than women; injuries and diseases of the nervous sys-

tem; exposure to cold; drinking freely of cold water; fatigue; prolonged debility; malaria; syphilis.

The probable immediate cause of the excessive flow of urine consists in dilatation of the renal vessels, the result of paralysis of their muscular coat, caused by derangement of innervation, as the condition can be induced experimentally by irritating a spot in the fourth ventricle, or by section of portions of the sympathetic nerve.

Symptoms. The affection is characterized by *great thirst*, with an increased flow of pale, watery, slightly acid urine, the amount varying from *one to five or six gallons* in the twenty-four hours. The *specific gravity* ranges from 1.001–1.007. Sugar and albumen are absent. Urea and the other solids are increased. The *appetite* is voracious, the *bowels* are obstinately constipated, and the *skin* is dry and harsh.

The large flow of urine is usually preceded by various nervous phenomena, viz: *nervousness, irritability, inability to concentrate the mind, vivid imagination, failure of memory, and headache.*

Unless the affection is soon arrested, great loss of flesh and strength result.

Prognosis. Unfavorable as to a radical cure, unless caused by syphilis. Death rarely is due to the diabetes, but to some intercurrent malady that the patient has been unable to withstand on account of the weakness produced by the diabetes.

Diagnosis. It differs from *diabetes mellitus* by the absence of grape-sugar in the urine.

From *paroxysmal diuresis*, by the absence of the increase of urine permanently.

From *intestinal nephritis*, by the greater amount of urinary discharge, and the absence of albumen, œdema, etc.

Treatment. If due to syphilis, *potassii iodidum* and *hydrargyrum* are of real benefit. Prof. DaCosta has had success with *ergota* in the form of the fluid extract or the aqueous extract. *Jaborandi* has been used with success. Prof. Bartholow recommends *galvanism* in cases not cured by potassii iodidum, placing "one electrode to the neck below the occiput, the other to the hypochondriac regions in turn." *Valerian* and *potassii bromidum* have been used. The author has effected a cure in three cases, where other remedies had failed, by the use, internally, of

℞. Strychniæ sulph..... gr. $\frac{1}{40}$
Acid. muriat. dil..... ♏x
Aquæ lauro-crasi.....ad..... ℥ij. M.

Well diluted.

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SUPRA-HYOID REGION.

NAME.	ORIGIN.	INSERTION.	ACTION.	NERVOUS SUPPLY.
Digastric. anterior belly,	posterior surface of lower jaw near symphysis,	hyoid bone.	depresses jaw and raises hyoid bone and tongue,	inferior dental.
Digastric. posterior belly,	digastric groove of mastoid process,			facial.
Stylo-hyoid,	styloid process of temporal,	body of hyoid,	draws hyoid up and backwards.	facial.
Mylo-hyoid,	mylo-hyoid ridge of lower jaw,	body of hyoid and middle line,	draws hyoid up and forwards,	inferior dental.
Genio-hyoid,	lower genial tubercle of lower jaw.	body of hyoid,	draws hyoid up and forwards,	hypo-glossal.

TRIANGLES OF THE NECK.

There are five triangular spaces on each side of the neck, formed by the peculiar location of the muscles. Three triangles are named after arteries, because incisions are made in them when ligation of the artery is to be done; the two other triangles are named after bones, because they are situated below these bones. The arterial triangles are: 1, the superior carotid; 2, the inferior carotid; and 3, the subclavian; the others are: 4, the submaxillary, and 5, the sub-occipital. The formation of the cervicle triangles will be understood by the following description. The quadrilateral space, formed by the middle line of the neck, the clavicle, the edge of the Trapezius and the line of the body of the lower jaw, is divided into two large triangles by the

TABLE OF CRANIAL NERVES.

Number and Name.	*Superficial Origin.*	*Deep Origin.*	*Foramen of Exit.*	*Function*	*Principal Branches and Distribution.*
XII. Hypo-glossal.	In front of olivary body of medulla oblongata.	Floor of fourth ventricle.	Anterior condyloid foramen.	Motion.	Distributed to the "glossus" and "hyoid" muscles, except Palato-glossus (5th), Mylo-hyoid (5th,) and Stylo-hoid (7th). DESCENDING BRANCH, or Descendens Noni, which communicates with 2d and 3d cervical by the so-called Communicans Noni of the cervical plexus.

All these cranial nerves, with the exception, perhaps, of the olfactory and optic, have branches of communication with neighboring cranial, spinal, and sympathetic nerves; but no mention has been made of these, except in cases where they are specially important. It is to be observed that those whose function is common sensation, have ganglia, similar to the sensory, or posterior, roots of spinal nerves. This analogy is greatest in the case of the fifth nerve, which has a small motor root without a ganglion, and a large sensory root with one. The pneumogastric presents a similar character, if the spinal accessory be looked upon as its motor root.

Connected with the fifth, or Trifacial nerve, there are a number of sympathetic ganglia, which had better be described in this place, although the general sympathetic nervous system has not yet been discussed.

Each ganglion has a communication, or root, with a motor, a sensory and a sympathetic nerve; and then furnishes branches to neighboring structures.

CHAPTER VI.

ORGANS OF DIGESTION.

Under the term digestive apparatus are included the mouth, pharynx, œsophagus, stomach, large and small intestines, and certain accessory organs, which have functions necessary to the completion of the digestive process. The accessory organs located within, or in the vicinity of, the mouth are the teeth, tongue and salivary glands; those situated in the abdomen are the liver and pancreas. The spleen, although not an organ of digestion, is usually described with the other abdominal organs.

THE MOUTH.

The mouth is an oval cavity, in which the food is masticated, or chewed, preparatory to deglutition, and which also serves as an entrance to the respiratory tract. It is bounded by lips, cheeks, jaws, palate and tongue, and opens posteriorly into the pharynx. The lining mucous membrane is continuous with that of the pharynx and œsophagus.

THE TEETH are imbedded in the alveolar processes of the jaws and are surrounded by the gums, which are composed of fibrous tissue covered with mucous membrane of slight sensibility. There are two sets of teeth: the temporary, or milk, teeth of childhood; and the permanent, which appear after the shedding of the milk teeth and last during the greater part of adult life. The temporary teeth are ten, the permanent sixteen in number in each jaw; which makes in both jaws twenty temporary and thirty-two permanent teeth. The teeth of each half of each jaw are:—

Temporary	incisors, two. canine, one. molars, two.	Permanent	incisors, two. canine, one. bicuspids, two. molars, three.

All teeth have a crown, or body, which is the portion seen above the gum; a root, or fang, inserted into the socket in the jaw; a neck, or constriction, between the crown and the fang. A vertical section of a tooth shows a cavity in the interior, called the pulp cavity, which is continuous with an orifice in the point of the root. Vessels and nerves enter