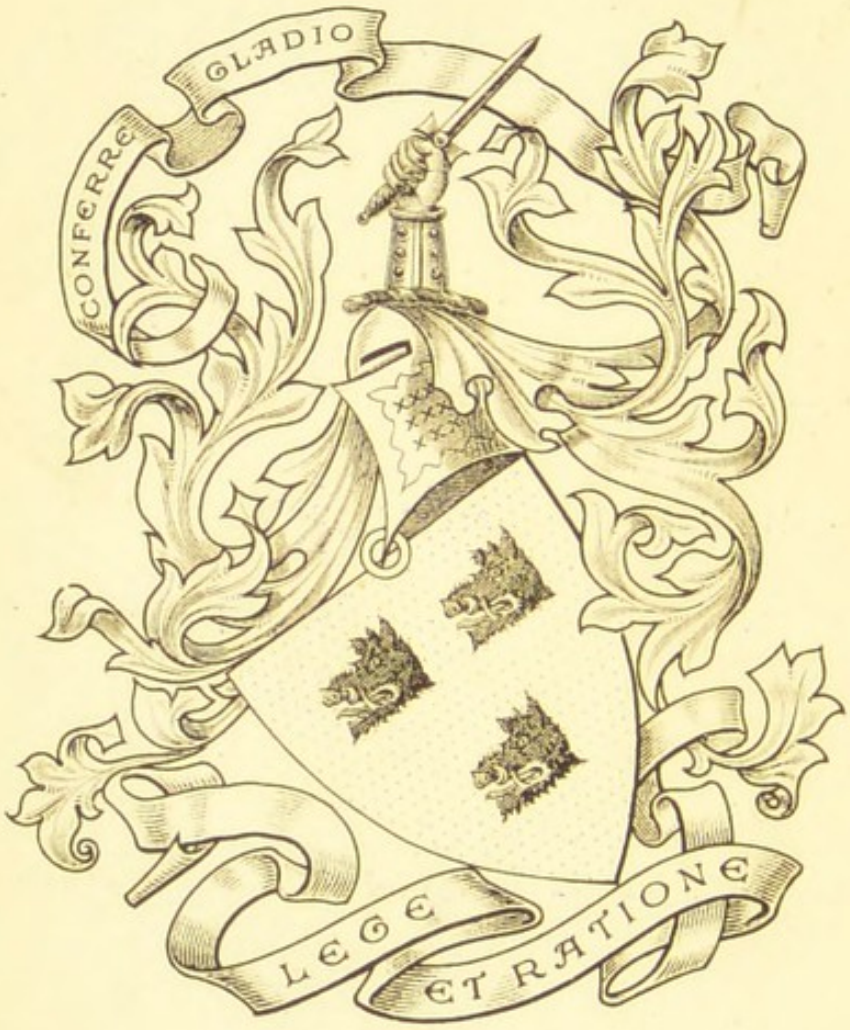
The student's guide to medical case-taking / by Francis Warner.

STUDENTS GUIDE SERIES



Edgar March Crookshank.

SAINT HILL, SUSSEX.

Edgar M. Crookshank

THE STUDENT'S GUIDE TO MEDICAL CASE-TAKING

THE STUDENT'S GUIDE

TO

MEDICAL CASE-TAKING

BY

FRANCIS WARNER, M.D. Lond., M.R.C.P.

ASSISTANT PHYSICIAN, LECTURER ON BOTANY, AND
LATE MEDICAL REGISTRAR TO THE LONDON HOSPITAL; ASSISTANT PHYSICIAN
TO THE EAST LONDON HOSPITAL FOR CHILDREN

LONDON
J. & A. CHURCHILL, NEW BURLINGTON STREET
—
1881

INTRODUCTION.

During the three years that I held the office of Medical Registrar to the London Hospital, I saw that the student, on commencing his duties as clinical clerk, required some guide as to the method of arranging the history of his case, and the facts observed. A card of "instructions for case-taking" was provided, almost similar to that given at page xi. It was further evident that with each case the student needed, when taking his notes, to be told what special points to note in the history, and what special points to look to under each of the heads of the "instructions." Further, zeal was much stimulated in the thoughtful student by telling him why these special points should be enquired for, and their presence or absence noted.

Such points, with regard to the more commonly recurring diseases, have been put together, and presented in the following pages.

The object has been to provide, in a small space, a guide for the student to use at the bedside, when wanting to know what to look for, and what to note. Pathology and treatment are not touched upon, and for this reason, independent of the general incompleteness of this little work, the student is recommended to read, in some text-book, all about his case in hand. Much attention has been given to the special conditions met with in disturbance and disease of the nervous system.

To encourage enquiry as to the origin of disease, the principal causes in each case are indicated under the heading "*causation*," which will usually be found on the left-hand page, sometimes on the right-hand; thus the student may find his enquiries directed on reasonable grounds. As to the scheme of the work, as far as possible the facts indicated as specially to be observed are arranged under the ordinary heads of a case on the left-hand page, and on the corresponding right-hand page are given explanations, characters of the special disease, or points of interest in its natural history, etc. This plan could not in all cases be adhered to, and general convenience and the necessities of printing had then to take precedence of the original scheme.

Names printed in the text in **thick type** are heads of chapters contained in the work, which may be found on reference to the index. Thus, in taking a case of fever, look for "**Signs of Fever**," and if **Vomiting** or **Jaundice** be present look up these heads by means of the index.

F. W.

24, Harley Street, W.

CONTENTS.

Diseases of the Respiratory System.

Diseases of the Digestive System.

Diseases of the Liver.

INSTRUCTIONS FOR CASE-TAKING.

I. Enter name, age, occupation, address, date of admission to hospital, and date at which the notes were taken.

II. State what the patient complains of, as far as possible using his own words. With children say what the friends complain of.

III. Family History.—Number and condition of health of those living. Ages and diseases of those dead. Specially enquire as to points in the inheritance bearing on the case and its causation.

Personal History.—Habits, occupations, residences, previous illnesses and diseases. Indications of scrofula, gout, rickets, syphilis, etc. Give dates.

History of Present Illness.—Date and manner of commencement; date when last at work. Order of the occurrence of symptoms, with dates. Indicate the day of illness on the temperature chart. In taking this history look up the causation and course of disease as given in the text. Probable causes.

IV. Present Condition.—General condition. Intelligence; mental state; sleep; complaints of pain, etc. Nutrition; emaciation; anæmia; œdema; complexion; any specially obvious abnormal condition or source of distress, etc. Position of patient in bed; orthopnœa; dorsal decubitus; etc. P.= ; T.= ; R.= ; W.= .

Lymphatic Glands in neck, axilla, groins; size, hardness, mobility; tendency to suppuration.

Locomotor System.—State of bones, muscles, joints, scars, nodes. Skin, dry or moist; bed-sores.

V. Nervous System. — General Condition. Intelligence; sleep; speech. Vertigo; head-pain. Delirium; paralysis; convulsion; tremor; coma, etc.

Motor Power.—Ability to stand or work; movements of extremities; gait in walking; co-ordination of limbs.

Sensibility.—Tactile sensibility of skin; sensibility to heat and cold, also to pricking. Anæsthesia; hyperæsthesia; dysæsthesia. Special senses.

Cranial Nerves.—Movements of eyes, tongue, palate, face. State of pupils. Ophthalmoscopic examination.

VI. Vascular System.—Pulse, frequency and other characters; condition of the vessels, especially the arteries. Cyanosis. Heart; palpate, auscultate, percuss. Note precordial dulness if normal. Palpitation, pain or signs of heart disease.

VII. Respiratory System.—Dyspnœa, frequency and characters of the respiratory movements. Cough; expectoration; hæmoptysis.

Physical Examination.—Inspection; palpation; percussion; auscultation. Signs of bulging or contraction of chest or solidification of lungs, etc. Larynx.

VIII. Digestive System.—Tongue; teeth; throat. Appetite; thirst. Vomiting; hæmatemesis; melæna. State of bowels; tenesmus; griping; piles. Fulness or pain after food; flatulence; pyrosis; colic or other disturbance. Abdominal pain or tenderness.

Liver.—Size and general characters as determined by percussion and palpation: whether tender or not. Jaundice.

Spleen.—Size as determined by percussion and palpation.

Abdomen.—Physical examination. Whether tender, distended, retracted. Ascites. Tumour.

IX. Urinary System.—Urine, quantity, colour, reaction, Sp. gr. Albumen, bile, sugar. Deposit, its general, chemical, and microscopical characters. Frequency of micturition; if accompanied by pain; hæmaturia.

X. Generative System.—Menstruation: frequency; duration; quantity increased or otherwise; whether painful; other discharges. Conditions of uterus and pelvic organs.

XI. Treatment.—Prescriptions and diet, etc., should be entered in the notes, and all alterations noted, with the dates.

XII. Diagnosis.—Should enumerate the principal disease, secondary lesions, complications and specially important conditions, symptoms or points in the treatment.

ADDITIONAL INSTRUCTIONS FOR CHILDREN'S CASES.

II. State complaints made concerning the child, or obvious conditions of disease.

III. Family History.—Number and condition of health of those living. Ages and diseases of those dead. Specially enquire as to the inheritance bearing on the case. History of mother's health during the intra-uterine life of the child. Note any miscarriages.

Personal History.—Whether healthy at birth; how brought up; if suckled; if farinaceous food has been used. Previous illnesses, and diseases.

IV. Present Condition.—*General condition:* plumpness; skin elastic, clear or muddy looking, with aged appearance; anæmic; sweating. Bones, feel them all while the child is stripped. Signs of syphilis, rickets, etc. Note warmth of the limbs; whether the child sheds tears in crying. T. = ; P. = ; R. = ; W. = .

V. Nervous System.—General condition. Intelligence, as indicated by movements of face and eyes directed towards objects noticed. Sleep; making noises; consciousness; exhaustion; coma. Paralysis; examine each limb. Spasm; tremor; contraction.

Motor Power.—Reflex action on tickling hands, putting finger in mouth, etc. Playfulness; ability to laugh. Power over large joints, small joints, movements of fingers, etc.

Cranial Nerves.—Movements of eyes and face.

Head.—Its shape and circumference. Fontanelle if patent, prominent, or depressed. State of other sutures. Ophthalmoscope.

VI. Vascular System.—Pulse: frequency and character. Cyanosis. Heart: palpate, percuss, auscultate.

VII. Respiratory System.—Dyspnœa; frequency of respiratory movements; laryngeal stridor, spasm, or obstruction. Warmth or coldness of breath. Cough.

Physical Examination.—Inspection; signs of collapse at bases and clavicular regions. [To examine back, let child be held leaning over nurse's shoulder.] Palpation; rhonchi may sometimes be felt. Percussion. Auscultation.

VIII. Digestive System.—Tongue, lips, throat; state of dentition. Appetite and liking for food; how it is fed. Vomiting. State of bowels. Abdomen: whether full or empty; palpate; note size of liver and spleen. State of umbilicus. Pain after food; flatulence; abdominal tenderness; griping of bowels.

THE

STUDENT'S GUIDE TO MEDICAL CASE-TAKING

GENERAL DISEASES — CLASS I

FEVER, SIGNS OF.

General condition.—Temperature raised; respirations and pulse frequent; skin dry and hot, or sweating; rigors; fever pains; aching in back and limbs; prostration of muscular power. P. = ; T. = ; R. = .

Digestion.—Anorexia; thirst; bowels confined or relaxed; describe the motions passed. Tongue furred, dry, or moist; papillæ may be enlarged. State of gums; teeth. **Vomiting.** *Spleen* may be enlarged. *Liver*, see **Jaundice.**

Vascular system.—Pulse frequent, soft, may be dichrotous and intermittent. Heart's action quick; note strength of impulse and first sound. Tendency to capillary congestion.

Respiratory system.—Respirations frequent; tendency to congestion of the lungs. **Pulmonary œdema; Bronchitis; Pneumonia; Pleurisy.**

Nervous system.—Mental condition, see general condition of **Nervous System.** Sleep; **Headache; Delirium; Typhoid State.**

Urine.—Scanty. Sp. gr. high. Commonly a deposit of **Lithates.** It may be jaundiced or albuminous.

Look for rash and the characters of the **Specific Fevers;** local and general complications.

FEVER, SIGNS OF.

General condition.—An exanthematous fever does not often recur in the same individual. The date and mode of onset are important, so also whether sudden or gradual, with or without rigors.

Digestion.—Sordes and accumulations of mucus may occur on lips and teeth. Note any inability to take food or swallow. Jaundice is common in relapsing fever, and may be present with **Pyæmia, Typhus, etc.**

Vascular system, see **Pericarditis.**—Danger may arise from failure of heart's action, and weakness of the circulation; note complexion of the lips and face, fulness and tension of pulse.

Respiratory system.—Note fulness or shallowness of respirations. Examine lungs frequently, even if there be no symptoms of their disturbance. Note cough or EXPECTORATION.

Nervous system.—Mental condition disturbed; delirium not necessarily of bad prognosis. Hyperpyrexia and adynamia dangerous.

Urine.—**Albuminuria** may be temporary, or it may lead to chronic Bright's disease.

Look for causation; cold, contagion in case of specific fevers, bad hygienic conditions.

SPECIFIC FEVERS.

DAYS OF FEVER AND RASH.	SIGNS AND SYMPTOMS.
ENTERIC FEVER.—Onset gradual; temperature slowly rising, falling at end of 3rd or in the 4th week with exacerbations at night. Small, oval, hyperæmic spots on abdomen in successive crops in 2nd and early in 3rd weeks.	Abdominal pain and tenderness; gurgling over cæcum. Bowels usually relaxed. **Spleen** large. Temperature may be excessive. Occasionally sudamina. **Bronchitis** common. Bowels may be constipated.
TYPHUS FEVER.—Onset severe with rigors and pains in back and limbs. Temperature rises rapidly 4 to 5 days, falling about 14th day. Mulberry-coloured maculæ, at first slightly raised, then dull mottling, appear in 1st week, disappear end of 2nd week.	Headache and nervous symptoms prominent; delirium usual. Much tendency to heart failure and hypostatic congestions. Bronchitis. Bowels not usually relaxed.
SCARLET FEVER.—Onset rather sudden, with chilliness. Temperature rising rapidly. Rash 2nd day on neck, chest, and trunk, extending to the limbs; minute red points quickly becoming a diffused erythema. Rash passes off about 7th day, leaving desquamation of skin. Temperature falls about same time.	Tongue thickly coated, with enlarged red papillæ protruding; tip quickly becoming red. Fauces inflamed; tonsillitis. Desquamation specially seen on hands and feet. Sudamina common. Occasionally there is no rash. Delirium.

SPECIFIC FEVERS.

COMPLICATIONS.	CAUSATION.
ENTERIC FEVER.—Signs of heart failure. **Delirium. Typhoid State.** Hypostatic congestion of lungs. **Albuminuria.** Hæmorrhage from bowels; perforation of intestine. Profuse sweating, see **Tuberculosis.** Phlebitis. Sequential abscesses. Tendency to relapses of fever and other symptoms.	Impure water. Sewer gas. Probably not contagious, but by the evacuations. Note occupation, residence, and its hygienic condition.
TYPHUS FEVER.—Active **Delirium** passing into the **Typhoid State.** Hypostatic pneumonia. **Albuminuria.** Weak action of ventricles, and very soft pulse.	Contagious from the sick to the healthy. Its spread is favoured by over-crowding and bad hygienic conditions.
SCARLET FEVER.—Albuminuria, and anæmia with anasarca from **Acute Bright's Disease.** Inflammation of the throat may be excessive with ulceration. Arthritis. Scarlatinal rheumatism. Inflammation of the middle ear. Glandular abscess in neck. Hyperpyrexia. **Pleurisy** or empyema rather than pneumonia. CONVULSIONS.	Highly infectious, especially through the dust of the skin. The type varies greatly in different epidemics; in some, greater tendency to complications or death.

SPECIFIC FEVERS.

DAYS OF FEVER AND RASH.	SIGNS AND SYMPTOMS.
MEASLES. — Rash appears about 4th day; begins on face, spreading to the trunk and limbs. Fine red points, becoming flat and forming crescentic patches. Temperature begins to fall after rash appears.	Specially common in children. Onset with chills or rigors. Sleepiness. Catarrh; conjunctivæ watery; coryza. If rash is full, desquamation may follow.
VARIOLA.—Rash appears 3rd day, first on forehead as red papules, soon becoming vesicles, feeling hard as shot; 5th day they become umbilicated and purulent; 8th day pustules mature, then scab. Temperature rises rapidly; falls as rash appears; secondary fever with the suppuration.	Incubation after inoculation, 7 days; after infection, 12 days. Onset with great pains in limbs and back. Rigors. VOMITING. The pustules may become confluent or remain distinct.
VARICELLA.—With onset, small red spots appear on trunk, face, scalp, becoming vesicles, but these are not cellular or umbilicated; they crust. Temperature not high.	Very little constitutional disturbance.

SPECIFIC FEVERS.

COMPLICATIONS.	CAUSATION.
MEASLES.—Mostly in respiratory system. **Bronchitis.** Acute broncho-pneumonia, which may become chronic. **Laryngitis** may be severe; it precedes the rash. There may be vomiting and diarrhœa. **Delirium.** Rarely cutaneous hæmorrhages. Occasionally **Albuminuria.**	Very infectious, especially during the eruptive stage.
VARIOLA.—Mucous surfaces frequently affected, especially conjunctivæ, throat, nose. BRONCHITIS; PNEUMONIA; PLEURISY; diarrhœa; ALBUMINURIA; abscesses. Cutaneous hæmorrhages and bleeding from the mucous surfaces. TYPHOID STATE.	Very infectious. Inoculable by pus of vesicles, also by scabs.
VARICELLA.—None are usual.	Infectious.

ERYSIPELAS.

Describe the part affected, whether much swollen, red, œdematous; whether the margins of the inflamed part are defined or diffused. Note any vesicles or bullæ. Look for enlarged lymphatic glands. Note signs and **Symptoms of Fever.**

Complications.—Cellulitis; abscess; gangrene. **Delirium; the Typhoid state; Albuminuria; Pneumonia; Pleurisy; Phlebitis; Pericarditis;** œdema of larynx; inflammation of fauces. Diarrhœa; Relapses of the disease.

DIPHTHERIA.

General condition of the patient; ability to swallow, strength of voice, **Dyspnœa**, position of body. P. = ; T. = ; R. = . Examine **Mouth and Throat** for redness and swelling of the fauces, soft palate, uvula, pharynx. Patches of membranous exudation, whitish or greyish, often multiple; membrane may be peeled off, leaving surface of mucous membrane raw, but not excavated. Examine lips, cheeks, gums, glands under the jaw. Note voice or cry. See signs of **Laryngeal disease.**

Laryngeal symptoms.—Commencing with a short cough, and some difficulty of breathing; breathing noisy, stridulous, with a metallic-sounding cough; weak voice; struggling for breath in paroxysms; chest collapsing; pulse weak; face bluish; extremities cold; sweating.

Complications.—**Pneumonia; Pleurisy; Albuminuria;** adynamia; false membrane on conjunctiva and skin; **Paralysis.**

ERYSIPELAS.

An acute febrile disease characterized by local diffused inflammation of skin and cellular tissue with bullæ and vesiculation. Idiopathic erysipelas usually attacks the face, commencing about the eye.

Causation.—Epidemic and endemic causes. Exposure to cold, and bad hygienic conditions; contagion. It may follow injury or operation. Those once attacked by the disease are liable to recurrence.

DIPHTHERIA.

A febrile contagious disease, characterized by the formation of membranous exudations on the fauces and respiratory mucous membrane, frequently obstructing the larynx, often attacking the mucous membrane of the nose and causing an acrid discharge. It is asthenic in its course and attended by great debility, frequently proving fatal through **Laryngeal obstruction** or by pneumonia. The period of incubation is various. It may commence with lassitude, febrile disturbance, sore throat, or those preliminary symptoms may be absent, laryngeal stridor being the first symptom noticed. Sometimes swelling of the glands under the jaw first attracts attention. There may be membrane in the larynx and none on the fauces. There is less pain on attempting to swallow than with quinsy. Fever not prominent; rarely runs high. When paralysis follows, it is usually after convalescence.

Causation.—Communicable from the diseased to the healthy by secretion of mouth, vomits, expired air. Bad water; sewer gas. Most common in children. It may be epidemic or endemic.

PYÆMIA.

Examine the body all over for any wound, local inflammation, or suppuration. A very slight wound may produce the disease, *e.g.*, a thorn under the nail, etc. See **Signs of Fever** and **General Condition of the Nervous System,** prostration, **Coma, Typhoid state.**

Causation.—Suppuration connected with diseased bone; whitlow; **Phlebitis;** softening clots; ulceration from tertiary syphilis; **Periostitis.** Occasionally it is secondary to internal suppuration or ulceration, *e.g.*, enteric fever, gastric ulcer, abscess of kidney, etc.

Complications.—Occasionally a cutaneous erythema. **Jaundice,** without signs of obstruction; **Albuminuria;** hæmorrhages in skin or from mucous membranes. Low forms of inflammation; **Pericarditis; Pneumonia; Pleurisy;** empyema; **Peritonitis.**

AGUE.

Enquire as to the periodicity of the paroxysms. Describe an attack, giving, if possible, the duration of the stages. Note conditions of health in the inter-paroxysmal period. Paroxysms may occur daily—quotidian; with one day interval—tertian; with two days interval—Quortian. Note general appearance and condition; whether **Anæmia** or cachexia. Examine optic discs. Urine. T. = ; R. = ; P. = . Also note condition of **Spleen** and liver. General condition of the **Nervous System.**

Complications and Sequelæ.—Enlargement of spleen and occasionally liver; digestive organs disturbed. **Dysentery;** jaundice; **Anæmia;** melanæmia (pigment granules in blood); retinal hæmorrhages; cachexia; **Neuralgia;** brow ague.

Causation.—Endemic, in low and ill-drained districts. Symptoms may follow in a few hours after imbibing the poison, or may be delayed.

PYÆMIA.

Usually commences by an insidious onset, or with chilliness or rigors, and fever with sweating and great prostration. It is characterized by the formation of multiple abscesses, and arthritis with a tendency to suppuration in or around the joints. The tendency is to death by exhaustion, the patient passing into the typhoid state, or by its complications. It may be mistaken for **Rheumatism** or **Enteric Fever,** or may be confounded with broncho-pneumonia, which often accompanies it. Any source of suppuration may lead to the disease, whether the pus be discharged, as from an open abscess, or retained in deep parts, as from periostitis and acute necrosis.

AGUE.

Characterized by feverish paroxysms recurring at regular intervals, the patient being well between the paroxysms.

Paroxysm.—1. *Cold stage :* Lassitude, headache, malaise, chilliness, shivering, passing on to rigors, the teeth chattering and limbs trembling; muscular pains; epigastric discomfort; goose skin; face dusky, pinched, shrunken. Pulse small, respirations quick, temperature rising rapidly.

2. *Hot stage :* Rigors and chilliness disappear, succeeded by a comfortable warmth; face less shrunken. Patient then feels hot; flushes; there may be mental excitement. Skin dry and frequently hot, pulse full and strong, respirations more rapid. Headache. Temperature rises higher. Urine abundant.

3. *Sweating stage :* Feeling of heat diminishes; temperature falls. Skin becomes moist and sweating profuse. Pulse and respirations fall in frequency. Headache passes off. Patient feels easy and sleeps, awaking feeling well. Urine scanty, depositing lithates.

Temperature may rise without a developed paroxysm.

HOOPING-COUGH.

General condition.—State of nutrition; look for signs of **Rickets.**
P. = ; T. = ; R. = ; W. = .

Respiration.—Physical examination of lungs; the chest, its shape and movements, signs of collapse. Cough; paroxysms, describe them, their frequency, duration, and mode of subsidence; note the amount of asphyxia and venous congestion.

SYPHILIS—Inherited.

General condition.—Unhealthy aspect; dull earthy complexion; old and shrivelled appearance. Rash on skin; erythematous patches with abrupt margins; coppery tint. Sometimes a scab or a pustular rash with bullæ; there may be much desquamation. The skin about nates and mouth mostly affected. Nails may be unhealthy and chippy.

Mucous membranes.—Mucous tubercles or condylomata at anus and at angles of the mouth; diffuse stomatitis; inflammation of gums and tooth sacs. Thrush. Discharge from nose, often excoriating the lip; snuffles. **Laryngitis.**

Viscera may be affected, spleen large; liver.

Bones.—**Periostitis** may be very extensive, causing much deformity of limbs and thickening of the skull. Skull thick, forehead prominent.

Nervous system.—Deafness (nerve disease) and amaurosis more common than with the acquired disease; palsy of a single nerve less common.

HOOPING-COUGH.

Characterized by paroxysms commencing with a series of expiratory coughs, followed by deep, full inspiration with loud laryngeal spasm. Frequently vomiting and expectoration with paroxysms. Child may be comparatively well in intervals.

Complications.—Pulmonary collapse; specially in cases of **Rickets,** which usually do badly. Bronchitis and broncho-pneumonia; **Convulsions; Diarrhœa.** Epistaxis; blood often ejected from mouth.

SYPHILIS—Inherited.

This may lead to deposit of gummata.

Eyes.—May be early the seat of iritis, later of keratitis, which occurs towards adult life and is usually symmetrical. There may also be CHOROIDITIS.

Nose.—Mucous membrane swollen; this leaves nose sunken and flattened. Occasionally, in severe cases, the skin disease is obvious at birth, but usually child appears perfectly healthy till about six weeks old, the thrush and the rash, etc., then appear.

Marks left in Adult.—Bridge of nose sunken in; linear scars near angles of mouth and about anus. Interstitial keratitis; iritis; choroiditis. Prominent forehead.

Teeth.—All the incisors may be dwarfed and malformed. The upper central incisors are most reliable, dwarfed, usually narrow and short, with atrophy of the middle lobe, leaving a single broad vertical groove.

SYPHILIS—Constitutional and Acquired.

Stages:—Incubation; efflorescence; decline; relapse; sequelæ.

General condition.—Tendency to emaciation; debility; vague pains. **Anæmia.** Look for scar of primary sore.

Digestion.—Mucous tubercles of lips; sores, leaving scars, at angles of mouth. **Tongue, soft palate,** pharynx; ulceration on tonsils. Superficial and symmetrical ulcers in first stage; deep, destroying parts, when tertiary; destruction of these parts. Ulceration and condylomata of anus. **Liver**, perihepatitis; gummata.

Respiration.—**Largyneal disease** with ulceration and tendency to contraction. Lung disease of chronic character.

Nervous system.—**Disease of Brain** or **Spinal Cord.** Gummata, forming tumour in brain. Palsy of **Cranial Nerves,** especially nerve iii.; disease of auditory nerve. Iritis; CHOROIDITIS; retinitis. Meningitis; predisposition to **Ataxy**.

Locomotor system.—Nodes and thickening of bones; PERIOSTITIS. Skin: syphilides, psoriasis, serpiginous tubercular patches, ulcers with ragged edges, etc.

Lymphatic glands.—Generally enlarged in neck and groins without tendency to suppuration.

Special phenomena.—Gummatous masses in viscera and skin, etc. Condylomata and mucous patches on mucous membranes, or ulceration with tendency to contracting scars. Disease of testes.

SYPHILIS*—Constitutional and Acquired.

These phenomena may be considered as occurring in the second and third stages.

2nd Stage.—Follows six weeks to two months after inoculation. Rash on skin, scattered coppery eruption; or it may be scaly, papular, pustular, rather on flexor than dorsal aspect. On mucous membranes symmetrical ulcers, tonsils especially, with abrupt edges; condylomata may form anywhere. Iritis usually symmetrical. Occasionally slight periostitis.

3rd Stage.—Tendency to unsymmetrical ulceration of skin and mucous membranes, with great tendency to relapse. Scars tend to contraction and pigmentation. Tendency to sloughing.

Bone disease.—Periostitis, nodes, chronic thickening, destruction of nasal and palatal bones.

Gummata may form in any viscus. In liver they may be felt during life; in brain may cause signs of TUMOUR; in skin may lead to extensive sloughing.

Arteries often diseased. This may lead to aortic ANEURISM, minute arterial aneurisms in brain, and hæmorrhage, thrombosis, and gangrene.

* Mr. Hutchinson's Article—Reynolds' "System of Medicine."

GENERAL DISEASES — CLASS II

ANÆMIA.

Pallor of skin and mucous membranes, lips, and conjunctivæ. When the fingers are held up to the light the redness of the borders is seen diminished. **Œdema** of feet; possibly puffiness of face.

Circulation.—Examine arteries and veins in the neck; condition of heart. See condition of the blood and its microscopical characters. Look for **Disease of Vessels.** Breathlessness.

Nervous system.—**Headache; Neuralgia,** especially spinal; intercostal neuralgia; drowsiness; mental weakness and irritability; muscular weakness. Examine optic discs.

Menstruation.—Disordered; usually lessened, or absent.

Look for **Pernicious Anæmia,** leucocythæmia, enlarged glands, cancer, hæmorrhages from mucous membranes or under skin; heart disease; chronic lung disease; **Bright's Disease.** Examine urine. Examine liver and spleen. T. = ; P. = ; R. = ; W. = .

PERNICIOUS (Progressive) ANÆMIA.

Look for general signs of anæmia and the ordinary causes. See amount of redness of the fingers held before a strong light. Examine optic discs; there may be retinal hæmorrhages. Note condition of the joints and general power of the patient; also state of digestion.

CANCER.

General condition.—**Anæmia;** cachexia; **Emaciation;** loss of muscular strength. Temperature not raised.

Disturbed function of parts affected.—Pressure signs from growth of mass, *e.g.*—(1) Glands in transverse fissure of liver obstructing the vena portæ and causing **Ascites,** or the duct, causing jaundice; (2) Mediastinal tumour; (3) Pressure on veins, *e.g.*, vena cava or iliac veins; (4) Intracranial tumour; (5) Annular stricture of intestine.

ANÆMIA.

Circulation.—Over jugular vein, especially on the right side, a thrill may be felt with the fingers, particularly in children; but this does not necessarily indicate anæmia. A continuous humming sound heard, Bruit de Diable, over jugular like wind among trees, varying with the pressure of the stethoscope. Systolic blowing over the carotid or subclavian artery on very slight pressure. Over the pulmonary (2nd left) costal cartilage a systolic bellows, the second sound being often sharp and accentuated. Heart's action quick; easily excited to palpitation. **Pulse** soft and frequent.

Causation.—Hæmorrhage; menorrhagia. Sequent to acute disease. Defective hygienic surroundings. Hot rooms. Want of good food regularly taken. Dyspepsia; chronic gastric disease; **Alcoholism**; **Plumbism**; mental exhaustion; fright; **Malaria**; heart disease; **Cancer.**

PERNICIOUS (Progressive) ANÆMIA.

Profound increasing anæmia, accompanied by increasing debility and prostration, tending to death in many cases. Hæmorrhages; spongy gums; epistaxis; breathlessness; palpitation on exertion. Fat of the body not absorbed; the subconjunctival fat yellowish. Excretion of urea diminished. There may be irregular pyrexia.

CANCER.

Causation.—Hereditary; declining period of life; sequent to blows. Organs commonly affected—uterus, mammæ, liver, stomach, peritoneum, other abdominal sites, lungs.

Secondary deposits.—In liver, from the rectum, sigmoid flexure, stomach, etc. In lymphatic glands next to the organ affected.

Complications.—Serous effusion; adjacent inflammations; thrombus of veins.

RICKETS.

Enquire as to conditions of feeding; ability to stand or walk; age at which walking commenced; previous health, especially as to symptoms and complications of rickets. Examine bones, head, abdomen.

Bones.—Ribs beaded; enlargement of ends of ribs at their junction with the cartilages. Sternum thrust forward by the falling in of the ribs at side of chest; hypochondriac regions depressed. Spine may be bent backwards, but is capable of being straightened on suspending the body, lifting the child by the arms. Shaft of long bones often bent, especially in tibiæ if child has walked; epiphysis enlarged, particularly in radius. Skull may remain patent long after the first year; the head is large, wide, and flat on the vertex. See diagnosis from **Chronic Hydrocephalus.** Head may be small and not ill-shapen.

EMACIATION.

History as to probable causation. Emaciation, whether gradual or sudden, or coincident with other signs of disease. Examine all the organs and urine. Note weight of patient, and record it once a week. Specially enquire as to history of phthisis. Look for **Anæmia**, and the signs of any disease supposed to have produced the emaciation. When a muscle is struck, *e.g.*, biceps, note its irritability, longitudinal contractions, and transverse knotting.

RICKETS.

Thickening and deformity of bones. The child may be fat or ill-nourished. Much tendency to sweating, especially about the head; throws off the clothes at night; head much rubbed on the pillow, so that hair is worn from occiput. Dentition late; the teeth often devoid of enamel —soon decaying. General tenderness, so that child cries on being moved. Late in walking.

Complications.—Tendency to catarrh of intestines; diarrhœa; abdomen large and prominent; **Spleen** and liver large. **Bronchitis**; collapse of base of lungs. If **Hooping-Cough** supervenes it runs an unfavourable course with Bronchitis. **Convulsions** and **Laryngismus.**

Causation.—Ill-feeding during infancy, especially with farinaceous food; intestinal catarrh; bad hygienic conditions; premature birth.

EMACIATION.

Causation.—Chronic lung disease; **Phthisis**; caseous bronchial glands. **Cancer.** Chronic stomach disease; **Diarrhœa**; **Vomiting.** Starvation and ill-feeding, especially in infants. Defective hygienic conditions. Senile degeneration. Sequent to acute disease. **Fever. Diabetes.** General **Tuberculosis.** Disturbance of the general condition of the **Nervous System.**

ŒDEMA OR ANASARCA.

Anæmia. Signs of disease of heart or vessels. Look for **Cardiac Dilatation** or degeneration.

Lungs, especially emphysema or phthisis.

Urine, see signs of **Bright's Disease.**

If anasarca be thought to be due to passive congestion, look for the signs of passive congestion, and note if the œdema lessen or increase with such other signs, *e.g.*, note if œdema lessen with the disappearance of pulmonary œdema, etc. If anasarca be due to Bright's disease, note if it lessen with lessening **Albuminuria,** and increase of the quantity and sp. gr. of the urine.

AMYLOID DEGENERATION.

Pasty, anæmic appearance. Anasarca.

Liver.—Large, firm-edged, uniformly enlarged, smooth. Usually no jaundice or ascites.

Spleen.—Large, firm, smooth.

Kidneys.—Urine very albuminous. Anasarca.

Intestines.—Diarrhœa.

Causation.—**Syphilis.** Chronic suppuration. **Phthisis,** with suppuration of bronchi. Chronic disease of bone, see **Scrofulosis.**

ŒDEMA OR ANASARCA.

Causation—

Obstruction at heart.—**Passive (cardiac) Congestion.** Cardiac valvular disease; failure of the ventricles, fatty heart, dilated right ventricle. Adherent pericardium.

Obstruction at lungs.—**Emphysema.** Chronic bronchitis. Conditions obstructing circulation in one lung, *e.g.*, chronic pleurisy, empyema, collapse of one lung.

Local pressure on veins.—Pressure on vena cava or iliac veins in abdomen from enlarged glands, **Cancer, Aneurism,** pregnancy, **Abdominal Tumour,** pelvic effusion; pressure from ascites. Pressure on subclavian vein from thoracic aneurism or mediastinal tumour.

Changes in blood or vessels.—**Bright's Disease. Anæmia;** extreme debility from chronic disease, *e.g.*, cancer, **Phthisis,** diarrhœa in children, **Phlebitis,** phlegmasia dolens, varicose veins.

SCROFULOSIS.

Characterized by a dull phlegmatic temperament; pasty complexion; plain features. Lymphatic glands enlarged; bones thick; abdomen full. Tendency to catarrhal inflammation of mucous membranes, with suppuration or excessive discharge. Bronchitis; diarrhœa; ophthalmia; tinæa tarsi; otorrhœa. Skin easily inflamed; lymphatics readily irritated; eczema frequent. Frequently chronic pneumonia passing on to phthisis. Predisposition to disease of bones and joints. Specially examine **Lymphatic Glands,** skin, lungs, digestive organs.

GENERAL MILIARY TUBERCULOSIS.

General condition.—Look for signs of strumous disease in bones, joints, spine; enlarged glands; **Emaciation**; state of skin. P. = ; T. = ; R. = . Look for **Signs of Fever.**

Respiratory system.—Signs of **Consolidation of Lung** or **Phthisis**; enlarged bronchial glands; cough.

Digestive system.—Vomiting; state of bowels, see **Ulceration of Bowels**; ability to take food.

Nervous system.—Signs of **Meningitis**; signs of **Brain Disease. Ophthalmoscopic examination** may show optic neuritis or tubercles in choroid.

The onset may be insidious, with a previous period of emaciation and lassitude, and after a few days or weeks may be followed by the somewhat sudden onset of a special complication, as **Pneumonia**; **Meningitis.** The general symptoms are mostly prostration, **Emaciation,** sweating, cough, moderate fever—this may be absent. Some of the complications are usually present, and frequently there are the signs of old strumous disease. The disease tends to death by exhaustion or by complications. The presence of miliary tubercles in the lungs does not necessarily cause any abnormal physical signs.

ENTERIC FEVER resembles	GENERAL MILIARY TUBERCULOSIS.
I. Diarrhœa from typhoid ulceration of Peyer's patches.	Diarrhœa from tubercular disease of intestines.
II. Evening exacerbations of fever, mostly in 3rd or 4th weeks.	Remittent hectic fever common, with caseous lung or glands, etc.
III. Profuse sweating, with great debility and prostration.	Profuse sweating, a part of the natural course of the disease.
IV. Bronchitis and pneumonia, common complications.	Chronic pneumonia may set up general tuberculosis.
V. Emaciation from fever.	Emaciation from tuberculosis.
VI. Mental dulness from fever.	Commencing **Meningitis.**

DIAGNOSTIC DIFFERENCES.	
I. Characteristic rash on the abdomen, etc.	No exanthem. Skin may be erythematous; or sudamina.
II. Diarrhœa and abdominal symptoms prominent.	Bowels usually constipated.
III. Spleen often large.	Spleen usually normal size.
IV. Lung symptoms, late in appearing.	Lung symptoms appear early.
V. **Delirium** and exhaustion, proportioned to height and duration of fever.	Definite signs of meningitis.
VI. Occurs in those previously healthy.	Usually previous lung disease.
VII. Profuse sweating less common.	Sweating usual.
VIII. High fever.	Fever not high.
IX. History of individual and family healthy.	Individual or family scrofulous.

DIABETES MELLITUS.

General condition.—**Emaciation**; weakness. Skin harsh and dry. Mental aberration; low spirits. See **Nervous System.**

Digestion.—Appetite greatly increased; intense thirst. Tongue frequently devoid of epithelium, raw and cracked. Bowels costive; sometimes diarrhœa.

Urine.—Quantity usually greatly increased; greenish colour; high sp. gr.; sugar abundant. Micturition frequent.

Causation.—Most common in males and middle-aged adults; frequent in phthisical families. Exposure to cold, **Alcoholism**; excessive use of sugar; violent emotional disturbance; organic **Brain Disease.** It may be associated with **Gout.**

ADDISON'S DISEASE.

General condition.—Debility, faintness, pigmentation. Anæmia without emaciation. Frequently tubercular tendency. Breathlessness.

Digestion.—Nausea, retching, vomiting, epigastric pain. Examine buccal mucous membrane and that of lips.

Nervous system.—Its general condition. Pains and sleeplessness. Loss of nerve-muscular power.

DIABETES MELLITUS.

Characterized by excessive thirst, excessive hunger, emaciation. Urine saccharine, dense, and greatly increased in quantity, as a constant occurrence. Saccharine urine may be temporary, as after a convulsion or administration of chloroform. Diabetes is the more permanent condition of glycosuria with constitutional symptoms, and a tendency to certain complications; it usually has a fatal tendency. Onset of symptoms may be insidious or sudden, with nervous disturbance. Sugar may be detected in sweat, tears, saliva.

Urine.—The quantity of sugar usually greatest after food. Glucose may temporarily disappear; so also not uncommonly shortly before death.

Complications.—**Broncho-pneumonia**; **Phthisis**; **Pleurisy.** Serous inflammation of low type. **Head-pain**; sudden **Coma**; cataract; **Albuminuria.** Skin disease, boils, carbuncle, psoriasis.

ADDISON'S DISEASE.

Characterized by pigmentation of the skin; attacks of syncope and extreme debility; **Anæmia**, often without emaciation. **Vomiting**, nausea, or epigastric pain. Discoloration is a bronzing colour, specially marked in face, hands, neck, groins, axillæ, penis, scrotum; areolæ very dark; buccal mucous membrane stained; conjunctiva always free. Tendency to advance to death by asthenia. Sometimes termination is sudden.

ARTHRITIC DISEASES

ARTHRITIS.

Note pain, tenderness, swelling, heat, redness, effusion in joints, periarthritis. Deposits or enlargement of ends of bones or out-growth therefrom. Position of joints; mobility or anchylosis. P.= ; T.= ; R.= .

Look for signs of **Rheumatism** and its complications; **Gonorrhœal Rheumatism**; **Gout** and its history; **Rheumatoid Arthritis,** especially when the arthritis has a chronic course with much stiffness and but little fever.

Tabulate the joints affected, indicating the condition of each —"effusion," "swollen and painful," "tender and red," etc.

RHEUMATISM.

History of rheumatism; heart disease; chorea in family and in collateral relations. Previous attacks in patient.

Present condition.—General signs of **Fever**. P.= ; T.= ; R.= . Skin moist, sweating, sudamina. Note any erythema.

Joints.—Whether tender or painful on movement; swollen with effusion, with or without cutaneous redness. Enumerate the joints affected, specially noting whether large or small joints are mostly affected.

Vascular system.—Development of cardiac bruits from valvular disease; pericarditis, with or without effusion. Always map out area of cardiac dulness. Pulse, regularity, etc.

Respiratory system.—Pleurisy, single or double; extensive effusion common. Pneumonia, usually at base; it may occur without special acute symptoms.

Nervous system.—Rheumatism may alternate with chorea, one following the other, near or at distant intervals. Occasionally delirium. Sleep.

Urine.—Usually a deposit of pink lithates during fever. Rarely a trace of albumen.

ARTHRITIS.

JOINTS.

RIGHT.	LEFT.
Shoulder.—	*Shoulder.*—
Elbow.—	*Elbow.*—
Wrist.—	*Wrist.*—
Hand.—Note separately the metacarpo-phalangeal joints and internodes.	*Hand.*—
Hip.—	*Hip.*—
Ankle.—	*Ankle.*—
Foot.—Specially note metacarpo-phalangeal joint of great toe.	*Foot.*—

Temporo-maxillary and vertebral joints.

RHEUMATISM.

A feverish disease, characterized by pyrexia and arthritis with effusion, the inflammation changing from joint to joint and attended with great pain. Skin moist, often sweating; this may be excessive and produce miliaria. Great tendency to serous inflammations attended with great effusion, usually quickly absorbed and not leading to suppuration. Tendency of all these conditions to relapse after convalescence. Subacute attacks often succeed the acute.

In children pain and fever often slight, but still tendency to heart damage very great.

Complications.—Inflammatory conditions; endocarditis; **Pericarditis**; **Pleurisy**; **Pneumonia**; **Bronchitis.** Relapses of fever and arthritis. Erythema. Hyperpyrexia; **Delirium**; **Chorea.**

Causation.—Exposure to cold and wet. Inherited tendency. Tendency to recurrence, especially in early years.

GONORRHŒAL RHEUMATISM.

Joints.—Wrist and knee affected by preference. Pain and effusion; much stiffness, often causing a considerable amount of anchylosis. No tendency to suppuration, but infiltration and thickening around joint.

Generative system.—Muco-purulent or gleety discharge from urethra.

RHEUMATOID ARTHRITIS.

Joints.—Arthritis may be acute or subacute. There may be effusion, or only stiffness and pulpy feeling on manipulation. The hand, when made into fist and squeezed, is tender if finger joints are affected. Enumerate joints affected; it may attack temporo-maxillary articulation, or stiffen cervical spine. Every joint in the body may be anchylosed. Dislocation of affected joints may occur.

Causation.—Debilitating causes, hæmorrhages, mental depression, starvation, dampness, and possibly heredity. It may occur at any age.

GOUT.

Joints.—Enumerate joints affected. Note periarthritic inflammation and infiltration, deposit of concretion, or thickening of bones. Examine bursæ for tophi. Take the history of previous joint affections. See **Arthritis.**

Vascular system.—When gout has lasted many years the vascular system often degenerates; **Heart** becomes **dilated** and **hypertrophied,** especially with **Granular Kidneys. Pulse,** force and tension.

Digestive system.—General signs. These functions are often disturbed. Teeth much ground. Liver disease common. Enquire for piles.

Urine.—Often albuminous with signs of chronic Bright's disease. Amount of **Uric Acid** deficient.

GONORRHŒAL RHEUMATISM.

Seldom seen in females. The disease runs its course through weeks or months. After slightly affecting many joints it becomes confined to one or two. No great pyrexia; but little tendency to inflammation of internal organs.

RHEUMATOID ARTHRITIS.

Small joints commonly first affected, but large joints may be equally attacked. The attacks last longer, are less severe; less pyrexia and constitutional disturbance than with **Gout** and acute **Rheumatism**; more thickening left, with deformity of joints. No deposits of urate of soda; no sweating. More commonly commences in fingers than toes, and not with a sudden short attack of single joints.

Complications and accompaniments. — Any organic disease. **Anæmia**; **Neuralgia.**

GOUT.

An acute attack usually commences in early morning in one great toe. Severe pain, followed by swelling around the joint; local œdema; skin red and glazed, exquisitely tender. Attacks tend to recur at shorter intervals. Tophi or concretions of urate of soda may form around joints, in bursæ, or in the external ears.

Causation.—Most common in males at middle life. Hereditary tendency marked. Habits of intemperance; exposure to weather. **Plumbism.** Any depressing circumstances or injury may excite an attack.

Complications and accompaniments.—**Chronic Bright's Disease.** Heart changes and **Disease of Vessels.** Skin affections; psoriasis, eczema. **Diabetes.** Liver disease. Thrombus in veins. Tophi may discharge, forming sinuses.

DISEASES OF THE NERVOUS SYSTEM

NERVOUS SYSTEM.

General conditions.—INTELLIGENCE; SPEECH; SLEEP; HEAD-PAIN; VERTIGO; COMA; VOMITING; PARALYSIS; CONVULSION; SPASM; TREMOR; RHYTHMICAL MUSCULAR MOVEMENTS; DELIRIUM.

INTELLIGENCE.—Giving good clear answers to questions. Memory: Memory for past events, or those of recent occurrence; power to perform easy calculations. The face may temporarily or permanently lose the expression of intelligence.

SPEECH.—Stammering. Slow, jerky. Using inarticulate sounds only. Mute. **Aphasia.**

SLEEP.—Easily falling asleep; sleeping soundly and waking up refreshed in the morning. Wakeful; disturbed by dreams; remembering dreams. Insomnia. Raving at night. Somnambulism. Tooth grinding.

HEAD-PAIN.—1. Its situation, whether general or local.

2. Its characters—heavy, dull, aching, throbbing, shooting, darting, sense of fulness. Whether constant, intermittent, recurrent, or periodical. Its intensity and variability.
3. Effects of movement and change of position, of light and sounds, etc.
4. Its mode of onset. If previous attacks, note periodicity.
5. If accompanied by soreness or tenderness at particular spots, see **Neuralgia.**
6. Look to state of **Special Senses,** especially **Sight;** enquire for dysæsthesia of sight.
7. If accompanied by **Vomiting,** note its relation to pain.
8. Look for signs of **Brain Disease, Convulsions, Paralysis, Hysteria, Condition of Sensation.** Examine **Optic Discs.** Look for **Neuralgia.**
9. Examine urine for sugar and albumen.
10. Characters of pulse; temperature.

History of neurosis in individual or family. History of phthisis or strumous affections.

NERVOUS SYSTEM.

General conditions.—Note all departures from the physiological condition. The muscular power should be such as to enable ordinary work to be performed.

INTELLIGENCE may be naturally dull, or mental power may be lost from disease, *e.g.*, senile decay, dementia, general paralysis, epilepsy. Mental delusions may arise in sane people. Intelligence is proportioned to age, education, and surroundings. Ask as to school-work in children.

SPEECH.—APHASIA = loss of faculty to speak words, though he can recognize them when written or spoken.

AMNESIA = loss of faculty for the memory of words, but can repeat them if suggested to him.

SLEEP.—Restless tendency to turn the body may prevent sleep even if drowsiness is present; frequent in **Alcoholism.** Insomnia may be caused by heart disease or over mental exertion. Muscular twitching and cramps not uncommon from fatigue. Pain may prevent sleep.

HEAD-PAIN.—The first thing to decide is whether the case be one of organic or functional disease; in the latter case, the attacks, when recurrent, are commonly spoken of as headaches.

HEADACHE may be pericranial, frontal, occipital, or diffused, or bilateral. Headaches may recur periodically; in women frequently at the menstrual period. After an attack there is a certain amount of immunity. Attacks may be excited by over-work, sleeplessness, want of food, errors of diet, constipation, etc. With the attacks disorders of sight are common; sparks, coloured stars, zig-zags with coloured bright margins; hemiopia (seeing only half of any object looked at). Other senses may be disordered. Vomiting frequently terminates the attack. Accompanying the attacks, or alternating with them, may be much mental depression, mental weakness, and perverted ideas of things. Such recurrent headaches are common during pregnancy. Such attacks, accompanied by vomiting and coloured vision, are often spoken of as "bilious attacks."

History.—Look for signs of **Meningitis** and **Brain Disease.**

VERTIGO.

I. Feeling of giddiness experienced by the patient, objects appearing stationary.

II. External objects appear to move, *e.g.*, up and down, horizontally, approaching and receding.

Vertigo may be increased or relieved by movement and position.

Test hearing and sight. Examine for diplopia. Look for signs of **Brain Disease. Anæmia.** Examine **Vascular System.** Urine.

COMA.

History; onset; previous signs of **Brain Disease; Convulsions; Vomiting.**

Causation.—1. Injury to head.

2. Examine urine generally; also for alcohol and poisons.
3. Cerebral hæmorrhage. See signs of **Bright's Disease. Vascular Degeneration.**
4. Coma sequent to **Convulsion.**
5. Coma may occur during fevers.
6. Meningitis, and coarse disease of brain.
7. Heart failure. Examine pulse and heart's sounds.
8. Delirium frequently ends in coma.
9. **Alcoholism** and poisons.

Look for signs of **Brain Disease.** State of **Intelligence** and **Sensation.** Test power to perform certain acts, *e.g.*, protrude tongue, swallow food, move fingers, etc. Condition of sphincters. Note condition of sleep. **Delirium.** Subsultus tendinum. Position of body, *e.g.*, dorsal decubitus. Character of respiration, whether stertorous.

Examine for signs of **Brain Disease** and **Paralysis.** Examine urine; lungs; heart, its strength and sounds; pulse; condition of arteries. Smell breath for alcohol. **Œdema.** Temperature. Action of sphincters. Eyes: strabismus; **Pupils. Ophthalmoscope.**

VERTIGO.

May occur during sleep or on waking. It is common at climacteric period with degeneration of vessels, **Emphysema, Bright's Disease.** Vertigo may be due to diplopia dependent upon weakness of an ocular muscle; Ménière's disease of ear; **Alcoholism**; excessive smoking; mental or physical exhaustion; dyspepsia; anæmia; heart disease; exposure to the sun. It may accompany simple recurrent **Headaches.**

COMA.

History. Coma may result from old-standing brain disease. There may be history of chronic disease capable of producing coma.

Causation.—1. Injury may produce compression of the brain. Collapse; shock; syncope.

2. See **Uræmia.** In **Diabetes** glycosuria may disappear before coma sets in.
3. Extensive cerebral hæmorrhage may cause deep coma. Hæmorrhage into pons causes universal powerlessness and contracted pupils, resembling opium poisoning.
4. Any severe exhaustion may cause coma.
5. Exposure to great heat, as summer sun.
6. Almost any brain disease may end in coma.
7. **Arterial Disease** may lead to cerebral hæmorrhage; heart disease to **Embolism.**
8. This is a great danger in fevers.

Look for—Coma may be partial or complete, constant or remittent. Signs of motor power may be partially or wholly lost. It may be a sign of the **Typhoid state,** with delirium; then the pulse is usually very soft. Wandering at night in febrile diseases may pass on into **Delirium** and coma. The lungs are usually congested, with pulmonary œdema or hypostatic pneumonia.

Examine for **Alcoholism**; smell breath and test urine. The vomits or washings of the stomach may be smelt and tested for poisons—opium, alcohol, hydrocyanic acid. Urine may be obtained by the catheter. Stomach-pump may be used in poisoning cases. Avoid mistaking brain disease for poisoning.

VOMITING.

Describe vomits; containing undigested food, frothy like yeast, look for sarcinæ; watery; smell; containing blood or bile.

See **State of Tongue** and bowels; **Abdominal Pain**; signs of dyspepsia.

Look for reflex causes, *e.g.*, pregnancy, **Ovarian Tumour**, disease of liver, **Gall-stones**; **Renal Calculus**. Examine urine.

Causation.—Stomach disease or derangement. Œsophageal obstruction. **Obstruction of Bowels.** Poisons. **Alcoholism. Uræmia.** Hepatic disease. Pelvic disease. Pregnancy. Ovarian disease. **Addison's Disease. Brain Disease** or disturbance. Migraine.

DELIRIUM.

Its characters; if attended with illusions and purposeless muscular movements, *e.g.*, subsultus tendinum, picking of bed-clothes, etc. Test consciousness by speaking to patient and requiring an answer to a question or that he shall protrude his tongue, etc.

Causation.—**Plumbism, Alcoholism,** and such causes as may produce **Coma.**

TYPHOID STATE.

Asthenia or adynamia. Temperature not high. Tongue tends to dryness, with crusting and formation of sordes on teeth and gums; lips cracked and dry; deglutition difficult. Pulse very soft, compressible, dicrotous, irregular. Heart's action weak; first sound hardly heard. Tendency to pulmonary congestion, œdema, and hypostatic pneumonia.

Drowsiness; **Delirium**; **Coma**; subsultus tendinum; picking bed-clothes. Paralysis of sphincters or retention of urine. Dorsal decubitus complete.

VOMITING.

If of cerebral origin it is—1. Purposeless, not specially after taking food, and not relieving symptoms.

2. Tongue clean; no special signs of **Digestive Disturbance.**
3. General absence of premonitory symptoms or nausea before vomiting; contents of stomach ejected easily without retching or much effort.
4. Vomiting frequently arrested by the horizontal position, recurring on becoming erect.
5. Concomitant signs of disturbance of the **Nervous System** or signs of **Brain Disease.**

If vomiting appear to be of cerebral origin use **Ophthalmoscope.** Take temperature; look for other signs of **Brain Disease.** Intermittent pulse is an early sign of **Meningitis** in children.

DELIRIUM.

May be active; violent; low muttering. It usually commences at night with talking and wandering of the mind. When moderate in degree temporary consciousness may be restored by speaking loudly and clearly. Is usual in the course of fevers. It may be due to simple exhaustion; as from hæmorrhage after labour, etc.

TYPHOID STATE.

A prostrated condition, nervous symptoms, heart failure. An unfavourable termination of **Delirium, Coma,** delirium tremens, and acute febrile diseases. Note at each observation strength of heart sounds, force of pulse, and the manifestation of any further nervous symptoms. Dorsal decubitus is usually complete, *i.e.*, the patient lies flat in the trough of the bed; muscular power is prostrated. If prolonged, bed-sore may form. **Albuminuria** and hypostatic pneumonia frequently coincident.

PARALYSIS.

See **Hemiplegia**; **Palsy of Cranial Nerves**; **Partial Paralysis.**
Test **Motor Power.**
See signs of **Brain Disease**; signs of **Disease of Spinal Cord.**
View the part paralysed, and examine as to **Motor Power.** Note the parts paralysed and muscles affected, stating whether the fine and general movements of the limb are wholly lost. Note state of nutrition of the part, contractions, rigidity, etc. Test reflex action by tickling, pricking, etc. See **Sensation. Electric Tests.** Examine **Optic Discs.** Look for signs of **Syphilis. Vascular Degeneration.**

ELECTRIC TESTS.

If one muscle contract to a lesser force of the current than another, it is said to be more irritable. To ascertain the irritability of a muscle reduce the strength of the current to the lowest point at which it will produce action. A full power of current simply shows the strength of the muscle. If in hemiplegia there be a well-marked difference in the reaction of the two sides the paralysis is not feigned. Diminished contractility may be due to disease of brain, cord, motor nerve, morbid condition of the muscle.

The faradaic current may be applied over the muscle to be tested, or the galvanic current to the nerve supplying it.

Loss of electric contractility is a sure sign of disease. Faradization is sometimes useful to prove the presence of muscle in a fat limb in which it is suspected that tissue is wasted.

PARALYSIS.

Paralysis may depend upon disease of nerves or nerve-centres, or may be only **Functional Paralysis**. When a muscle is paralysed, it usually atrophies in a short time, and on regaining strength regains its nutrition. In **pseudo-hypertrophic Paralysis**, the flexor muscles of the lower extremities become weak, but greatly enlarged.

In paraplegia, see **Spinal Cord Disease**.

Paralysed muscles often become rigid, *e.g.*, hemiplegia, **Infantile Paralysis**. General muscular weakness, not dependent on simple debility, and not secondary to disease of viscera, is seen in **General Paralysis** and **Diphtheritic Paralysis**. See **Minor Paralyses**.

FUNCTIONAL.	ORGANIC.
Age and sex.—Most frequent at onset of puberty and climacteric period; almost confined to females.	Most common in degeneration; sexes more equally affected.
Hysteria.—Present more or less. No signs of organic disease.	No signs of **Hysteria** or **Epilepsy**. Disease of heart, kidneys, etc.
Atrophy of palsied part.—Palsied part well nourished. No bed-sore.	Atrophy follows paralysis. Sacral bed-sore frequent.
Sensation.—May be lost, hyperæsthetic, or perverted.	If lost temporarily, usually returns before motor power.
Reflex action.—Not obliterated.	In very many cases lost.
Electric tests.—Reaction readily obtained.	Lost in disease of cord.
Palsy of **Cranial Nerves.**—Not seen.	Common; specially of face and tongue.
Aphonia.—Common; may be the only palsy.	Rare from organic nerve disease. See **Aphasia** in right hemiplegia.
Part paralysed. — Frequent change. Often partial of one limb or part. Sphincters not paralysed. Urine often retained.	No changes without fresh lesion.

CONVULSION.

Paroxysm.—Note the order, progress, and kind of spasm; whether mostly **Tonic** or **Clonic Spasm**. Commencement, whether general or local; commencing on one side, *e.g.*, one hand or finger. Note suddenness of onset, whether attended with asphyxia and marked cyanosis; its duration. Face pale or flushed; fulness of veins; whether distortion of face; head retracted. Eyes: their position; strabismus; state of **Pupils**. Condition of consciousness.

Premonitory symptoms.—**Aura Epileptic**; muscular twitches; dilatation of pupils.

Causation.—**Brain Disease**; **Rickets**; **Syphilis**; **Bright's Disease**; **Epilepsy**; **Hysteria**. Acute diseases—(1) Cerebral; (2) Febrile; (3) Exanthemata; (4) Pulmonary. Reflex exciting causes, *e.g.*, indigestion, worms, teething, ear disease. Examine heart, urine, temperature.

Sequelæ.—**Paralysis**; amaurosis; strabismus; defect of speech; mental disturbance; mania; drowsiness; sleep; **Coma**.

SPASM.

1. **Tonic Spasm** = continuous muscular contraction during a longer or shorter interval.
2. **Clonic Spasm** = alternate contraction and relaxation of muscles.

Facial Spasm is usually one-sided only. The successive clonic spasms are of equal extent and severity, so that successive grimaces resemble one another. In many cases it is chronic in duration and unaccompanied by other spasms. In these particulars it differs from **Chorea**.

Writers' Cramp.—On attempting to write, the muscles ordinarily used in the act are thrown into a state of tonic spasm; this subsides on discontinuing the act of writing. Other dissimilar acts may be performed without spasm.

CONVULSION.

Paroxysm.—Usually commences with tonic spasm and pallor or cyanosis, followed by clonic spasms. One side or one limb may be primarily or chiefly affected; then, occasionally, the eyes and head turn to that side, and there may be a few one-sided jerks of the head. **Pupils** usually dilated.

Premonitory symptoms.—In children, frequently, fist is clenched, with thumb turned in. **Laryngismus** may precede convulsion.

Causation.—In children convulsions are very easily produced by slight causes. Ill-feeding, teething, worms, and **Rickets** very common predisposing causes. Pyrexia may be due to an acute disease or to continued tonic spasm. Urine may be albuminous from **Bright's Disease**, or may contain albumen or sugar consequent upon the convulsion.

Sequelæ.—Convulsions may be symptomatic of brain disease, which may subsequently advance.

SPASM.

Tonic Spasm is frequently attended by pain, and may be preceded by hyperæsthesia. It is seen in the first stage of an **Epileptic** convulsion; trismus, or lock-jaw; tetanus; spasmodic talipes; spasmodic torticullis.

Clonic Spasm may be increased by effort or mental excitement, and may subside during sleep and under chloroform, *e.g.*, epilepsy. It causes movement or displacement of the limb or part affected. It is seen in chorea and muscular tic.

Causation.—Look for signs of **Hysteria.** Reflex exciting causes, *e.g.*, pregnancy, intestinal worms, teething. Dyscrasiæ, **Uræmia**, fevers, spinal irritation, and meningitis. Hydrophobia. **Hysteria. Brain Disease.**

LARYNGISMUS.

Look to **Nervous System. Convulsion.** General convulsions often follow. It may occur in hysterical women, but is most common in infants. Paroxysms may be brought on by excitement or fatigue. Look for **Rickets**, teething, constipation. There may be tonic contraction of muscles of limbs.

TREMOR.

I. Tremor absent when at rest, but of various intensity when executing a more or less co-ordinated movement, *e.g.*, raising a glass of water, picking up a pin.

II. Tremor continuous and permanent. Responsive movements exaggerate it, but it does not disappear on repose.

Note the sets of muscles affected; whether head is moved; whether muscles supplied by **Cranial Motor Nerves** are affected. Test **Patella Tendon Reflex.** Take sample of patient's writing.

RHYTHMICAL MUSCULAR MOVEMENTS.

Athetosis = gliding movements, frequently repeated in the same order. Generally accompanies epilepsy, and usually hemiplegic in situation.

LARYNGISMUS.

Characterized by paroxysmal convulsion of the laryngeal muscles and noisy inspiration; no specific catarrh or special lung trouble, as in **Hooping-cough**. Muscles of chest and abdomen may be involved. Most common in young boys, and on waking from sleep. It may become almost continuous crowing, the veins being distended and face distressed. Child rarely dies in an attack.

TREMOR.

In **Paralysis Agitans**, tremor continues when at rest.

In **Sclerosis**, tremor is increased by movement, ceasing during repose; so also in mercurial tremor.

In paralysis agitans, the face, head, and cranial nerves usually escape.

Sleep arrests tremor temporarily. Tremor may be general, affecting the head, or not; it may be localized to a limb. Tremor is a simple vibratory repetition of purposeless movements, not displacing a limb greatly. Fine movements are those through small arcs.

Muscular tremor is a characteristic symptom in paralysis agitans. Disseminated sclerosis; **Alcoholism**; mercurial tremor; **General Paralysis of the Insane.**

RHYTHMICAL MUSCULAR MOVEMENTS.

Athetosis may be a congenital or an acquired disease; it may be hemiplegic or both-sided.

MOTOR POWER.

Ability to stand, walk, walk up stairs, work, etc. State some act the patient can or cannot perform; how far he can walk. Power over large joints, small joints, finer movements of fingers, *e.g.*, writing.

Movements of upper and lower extremities.—Test power of simple movement, and power to overcome resistance. Test movements of larger joints and muscles; and power over individual digits.

Movements of head and trunk.—Patient lying on his back, let him erect trunk without use of hands. Examine spine.

Respiratory movements.—Note respiratory rhythm; movements, whether principally thoracic or diaphragmatic.

Co-ordination of the limbs.—Gait in walking; walking well and firmly with head erect; also walking straight with eyes shut; walking stiff, one joint being kept immobile from pain; hip movements much restrained in **Sciatica.** Circumducting one leg, swinging it round, not moving it forward as the other, seen in **Hemiplegia.** Staggering, moving trunk over place where the legs are. Lifting legs inordinately high, then bringing them suddenly down. Walk with eyes shut. Test for **Muscular Anæsthesia.**

MOTOR POWER

May be lessened from general weakness or be lost in one or two extremities only, or in a certain group of muscles. See **Paralysis.**

Movements of upper and lower extremities.—Palsy of upper extremity, if of cerebral origin, is usually accompanied by weakening of lower extremity. Let patient move limbs to order ; lift weights ; pick up a pin, etc.

Movements of head and trunk.—Motor power over spine may be lost from caries of spine. **Pseudo-hypertrophic Paralysis.** View spine ; feel for curvatures.

Respiratory movements.—Cheyne's respiration = a series of respirations hurried and deep up to a certain point, then subsiding to a dead pause.

Co-ordination of the limbs.—If defective, examine joints. **Sciatica. Spasms. Tremors. Paraplegia. Chorea.** In **Paralysis Agitans** there is a tendency to propulsion or retropulsion. In **General Paralysis,** stumbling and staggering, or tottering. In **Ataxy,** muscular power in the legs is not lost ; the patient may walk, feeling the ground with a stick. In **Hemiplegia** the patient in walking swings round the leg, and then keeping it stiff balances the trunk upon it.

SENSATION.

Objective sensibility (ascertained by examination).—Tactile sensibility of skin. Examine separately the flexor and extensor surfaces, face, trunk. Test the least distance at which two points can be distinguished in various regions. Sensibility to heat and cold. Apply to various parts two test tubes, one containing hot water, the other cold. Or apply a hot and cold sponge alternately.

Subjective sensibility (sensations experienced by patient).—Localized pain in the area of a certain cutaneous nerve, constant or periodical, suggests enquiry as to **Neuralgia**. Sensibility may be lessened, anæsthesia; exalted, hyperæsthesia. Sensation may be perverted, the patient experiencing altogether abnormal sensations, dysæsthesia, *e.g.*, numbness, "pins and needles," a sense of burning, heat and cold. If subjective sensations are complained of, examine for an objective cause, *e.g.*, local tenderness, local inflammation or disease, periostitis. Reflex causes, gastric, uterine, etc. See **Head-pain, Vertigo, Hysteria, Neuralgia, Muscular Anæsthesia.**

MUSCULAR ANÆSTHESIA.

Let patient carry his hand to his mouth, and repeat the act with his eyes shut; let him state the position of his limbs with his eyes shut; let him distinguish between different weights. In all such attempts he fails. Test reflex action, and **electric** excitability (usually diminished). Note what muscles are affected; state of muscular nutrition; presence or absence of pain. Test cutaneous sensibility.

SENSATION.

Anæsthesia, loss or diminution of sensibility; hyperæsthesia, exaltation of sensibility. Both these conditions frequently met with in **Hysteria.**

Hemianæsthesia is usually functional; it may paralyse the special senses of side affected; it is frequent in hysteria. Analgesia is the loss of sensibility to pricking, pinching, etc. It may be temporarily removed or transferred to the other side of the body.

Subjective sensibility may be anæsthetic, hyperæsthetic, or dysæsthetic, *i.e.*, sensibility may be lessened, exalted, or perverted. The brain centres of the organs of special sense may be altered in any of these ways; so also the sense of touch. As sensations of physical life we may speak of "organic sensations," or those due to the changes occurring in the organs of digestion, circulation, respiration, etc.; the "appetites," a group of uneasy feelings produced by the recurring wants or necessities of the physical system, as sleep, exercise, repose, thirst, hunger, etc. Special dysæsthesiæ are the epileptic **aura**, the lightning pains of ataxy, the sensation of girthing frequent in spinal cord disease.

MUSCULAR ANÆSTHESIA.*

"A loss of the feeling of muscular action, attended by irregularity, sluggishness, and diminished force of voluntary movement; but unattended by any necessary loss of cutaneous sensibility or by distinct paralysis."

A condition frequently seen in **Hysteria.** Usually there is no pain in the limbs, but pain is common in **Locomotor Ataxy.** It may be local. It often precedes paraplegia. Usually impaired or lost in **General Paralysis.** Some muscular anæsthesia may accompany attacks of migraine. See **Headache.**

* Dr. Reynolds' "System of Medicine."

SPECIAL SENSES.

Sight.—Test acuteness of vision with test-type. Examine for perception of colour. To completely examine the sense of sight, further test power of accommodation, refraction, action of ocular muscles separately and in the combined movements of the eyes. Examine the field of vision. See **Pupils. Ophthalmoscopic appearances.**

Hearing.—Test hearing with a watch held at the greatest distance at which it can be heard from each ear. If watch cannot be heard thus, test auditory power of the nerve for sounds conducted through the skull, *i.e.*, place watch on forehead or between teeth. Look for otorrhœa; examine throat; use ear speculum.

Taste.—For acids, bitters, sapid substances; determine each separately at anterior and posterior portions on either side.

Smell.—For pungent substances, *e.g.*, ammonia; aromatic substances, *e.g.*, oil of cinnamon.

CRANIAL NERVES.

Observe movements of eyes, tongue, face, lips, palate, muscles of mastication and deglutition. **Pupils.**

Test **Special Senses**; sensibility of head and face.

Nerve I.—Olfactory, see **Smell.**

Nerve II.—Optic, see **Sight, Pupils, Ophthalmoscopic appearances.**

Nerve III. (Palsy).—Ptosis or drooping of the upper eyelid; permanent external strabismus; dilated pupil; loss of accommodation for near objects.

Nystagmus = purposeless vibratory movements of the eyes; usually the movements are in the horizontal plane.

Nerve IV.—Superior oblique muscle. Palsy produces no appreciable deviation of the axis of the eye, but diplopia results and the diagnosis generally depends upon the relative position of the two images.

Nerve V.—Motor to temporals, masseters, and pterygoid muscles. Examine condition of its separate branches. See **Neuralgia, Trigeminal.** Examine power of **Taste.**

SPECIAL SENSES.

Sight.—Defects may occur from errors of accommodation, myopia, hypermetropia, or astigmatism, from changes in the optic nerve or other parts. Illusions may represent an aura preceding an epileptic fit; common in delirium and insanity, not uncommon with recurrent **Headaches.**

Hearing.—Deafness may result from obstruction of the Eustachian tube from pharyngeal catarrh, or tonsil disease; wax in ear; disease of tympanum. The nerve may be paralysed from disease, *e.g.*, **Syphilis**; rarely from cerebral tumour. Tinnitus common with and without ear disease.

Taste.—Taste may be lost on one side only. It is impaired in some cases of palsy of Nerve VII.

Smell.—Test either nostril separately.

CRANIAL NERVES

Are some sensory, others nerves of special sense, while others are purely motor. The condition of the parts that they supply, as found on examination, often throws much light on the condition of the brain. Paralysis of an ocular muscle or the tongue would indicate intra-cranial disease.

Nerve III.—Paralysis often partial, *e.g.*, ptosis only. Accommodative power alone may be lost, *e.g.*, in **Diphtheritic Paralysis.** This nerve is frequently paralysed from **Syphilis.**

Nystagmus.—A chronic condition, usually congenital, and dependent upon deeply-seated brain lesion

Nerve V.—Sensory branches give sensibility to the lateral and anterior parts of the head and the eyeball, and common sensibility with taste to the anterior two-thirds of the tongue. It is the afferent nerve in reflex winking on touching the eyeball; if palsied, the eyeball becomes insensitive and the cornea ulcerates and sloughs. See **Neuralgia, Trigeminal.**

CRANIAL NERVES.

Nerve VI.—External rectus of the eye.

Nerve VII.—Examine movements of face in natural expression, in forced voluntary movements, *e.g.*, to grin and show teeth, to frown, to elevate the forehead, to whistle. See respiratory movements of alæ nasi. Facial movements, are they symmetrical; compare the two sides of the face. See position of the angles of the mouth, and slope and curve of the upper and lower lips. The depth of the naso-labial groove. *Orbicularis oris*, its power of holding air in the mouth with the cheeks blown out. *Orbicularis oculi*, its action in closing the eyelids, in producing similar folds of the eyelids on the two sides; a similar width of palpebral fissure on the two sides; a firm application of the lower eyelid to the globe, with the punctum applied to the conjunctiva. Note action of *Occipito-frontalis* and *Corrugator*. Test reflex actions of the eyes. Note pronunciation. Examine with care the movement of the soft palate and tongue. Test **Hearing, Sight, Smell, Taste.** Look for dryness of mouth from want of saliva.

Nerve VIII.—**Pneumogastric; Glosso-pharyngeal; Spinal Accessory; Pneumogastric.** Not purely a cerebral nerve; partly spinal, and receiving branches from the sympathetic.

Motor branches.—To larynx, pharynx, œsophagus. Pharyngeal, concerned in reflex act of deglutition.

Superior laryngeal.—Mostly sensory, but motor to arytenoid and crico-thyroid. Its stimulation inhibits inspiration, *e.g.*, when opening of larynx is irritated.

CRANIAL NERVES.

Nerve VI.—It is opposed by Nerve III.

Nerve VII.—Motor to muscles of face, these muscles being used in expression, respiration, eating; certain reflex actions, *e.g.*, eyelids, mouth.

Intra-cranial branches.—Great petrosal through Michel's ganglion to levator palati and azygos uvulæ. *Small petrosal* through otic ganglion to tensor palati and tensor tympani and parotid gland. *Tympanic branches* to stapedius and laxator tympani. *Chorda tympani* to submaxillary gland and lingualis.

Bell's Paralysis of the Face differs from the facial paralysis produced by brain disease in being more complete and general in distribution; in the latter the muscles about the angles of the mouth are mostly affected as seen in grinning. Bell's paralysis affects all the muscles on the side of the face; the eyelids, however, retain a little power. The creases of the face are obliterated, as seen on the forehead and in the naso-labial groove; the eye remains more or less permanently open, and the tears overflow. The patient cannot distend the mouth with air, and food accumulates in the cheeks.

Causation.—Cold, disease of ear, syphilitic disease of temporal bone, pressure of glands on facial nerve.

Nerve VIII.—

Pneumogastric nerve.—Is concerned in certain reflex actions, *e.g.*, deglutition, reflex movements of glottis.

Pharyngeal branches.—Palsied in **Diphtheritic Palsy**, in **Bulbar Paralysis**, and much dulled in the **Typhoid State**. Concerned in reflex throat cough.

Superior laryngeal.—Afferent nerve in reflex movements, closing larynx in deglutition or when irritated.

CRANIAL NERVES.

Nerve VIII.—*Continued.*

Recurrent laryngeal.—Chiefly motor; supplies all the muscles of the larynx except the crico-thyroid.

Cardiac branches.—Inhibitory; pulse may be irregular from brain disease, and small from mental depression.

Pulmonary branches.—Afferent fibres convey the feeling of the necessity to breathe. Motor fibres supply the bronchi.

Gastric branches.—Regulate the peristaltic movements, and the secretion of gastric juice.

Abdominal branches.—Supply liver and are connected with the renal plexus.

Glosso-pharyngeal nerve.—Gives common and gustatory sensibility to the tongue, supplying circumvalate papillæ at back of tongue.

Spinal accessory nerve.—A motor nerve closely associated with the pneumogastric and giving it motor fibres, some of which go to larynx.

Nerve IX.—Principally motor to the tongue and depressors of the larynx and lower jaw.

CRANIAL NERVES.

Nerve VIII.—*Continued.*

Recurrent laryngeal.—Left winds round arch of aorta, right round innominate artery. When paralysed glottis is passively narrowed on inspiration, and passively dilated on expiration. It may be paralysed by thoracic **Aneurism** or mediastinal tumour, and thus lead to palsy of corresponding vocal cord.

Pulmonary branches.—Concerned in spasmodic **Asthma, Hooping-cough, Laryngismus Stridulus.** When paralysed leads to congestion of the lungs, *e.g.*, in **Typhoid State.**

Gastric branches.—Afferent in cerebral **Vomiting.** Dyspepsia may result from brain disturbance.

Abdominal branches.—Mental shock may excite **Diabetes.** Anxiety causes flow of pale urine of low sp. gr.

Glosso-pharyngeal nerve.—It is concerned in reflex deglutition.

Spinal accessory nerve.—Motor to sterno-mastoid and trapezius; fibres pass to the larynx and control the voice, not respiratory movements.

Nerve IX.—Concerned in articulation, mastication, and the commencing act of deglutition. Each function may be separately lost.

BRAIN DISEASE, SIGNS OF.

Head-pain; Vertigo; **Cerebral Vomiting**; **Convulsion**; **Paralysis**; **Hemiplegia**; palsy of **Cranial Nerves**; strabismus; palsy of **Special Senses**. Mental or intellectual disturbance; **Coma**; **Aphasia**. Changes in **Optic Nerve**. **Pulse**, intermittence of. **Pupils**. See general condition of the **Nervous System**; **Sensation**; **Hysteria**.

Examination.—Look for history of neuroses; previous signs of **Brain Disease**. Indications of acute disease, *e.g.*, take temperature and look for other signs of **Fever**. Examine vascular system and urine.

OPHTHALMOSCOPIC APPEARANCES.

Test sight and examine **Pupils** previous to using atropine. Some of the principal conditions of the fundus that may be observed are—**Optic Neuritis**; **Optic Atrophy**, (1) primary, (2) secondary to neuritis or consecutive atrophy; over-fulness of veins; emptiness of arteries; **Hæmorrhages**; **Choroiditis**; **Tubercle of Choroid**; retinitis albuminurica.

OPTIC NEURITIS.—Disc blurred, outline indistinct; vessels on disc in parts covered with effusion; veins large. Vision may be perfect. Neuritis is very indicative of coarse intra-cranial disease, *e.g.*, **Tumour**. This condition may subside, leaving but little change noticeable, or it may leave consecutive atrophy. See signs of **Brain Disease**.

OPTIC ATROPHY.—May be sequent to neuritis. It differs in appearance from primary atrophy in having more disturbance of the choroidal pigment around the disc, a less sharply-defined margin, and sometimes thickening of the sheaths of the vessels remains; it looks dull. Primary optic atrophy gives a more clearly-defined margin: it is clean cut, and its general appearance brighter. Vessels atrophied or obliterated.

BRAIN DISEASE, SIGNS OF.

The condition of the brain may be judged of by observation of the optic discs and retinæ, as expansions of nerve matter in connection with the circulation of the brain. Also by the condition of parts supplied by nerves having their centres in the brain. Special signs are found in conditions of the muscles, paralysis, spasm, convulsion, want of co-ordination, etc. See **Motor Power.**

Examination.—Onset of acute febrile disease may cause cerebral symptoms. Cerebral symptoms with pyrexia contra-indicate a purely functional disturbance.

OPHTHALMOSCOPIC APPEARANCES.

HÆMORRHAGES in the fundus are usually situated in the retinæ. They are common in **Pernicious Anæmia**; in retinitis albuminurica—here they are accompanied by white shining spots. They may be seen in ague and leucocythæmia. Hæmorrhages, even if considerable, may be quickly absorbed and may recur.

CHOROIDITIS.—Dull yellowish patches over fundus; there may be subsequent atrophy, the shining sclerotic showing through. Around the patches the choroidal pigment is much disturbed, forming black rings or patches. It may be disseminated or marginal. It is often **syphilitic.**

TUBERCLE OF CHOROID.—Small circular spots, more or less circumscribed, reddish or greyish-white in colour. They may be elevated above the level of the choroid with retinal vessels passing over them; adjacent choroid may be normal. Their growth in size may be watched. See **General Tuberculosis.**

PUPILS.*

Let a full light fall upon the face. Keep one eye covered and test the other; letting light suddenly fall upon it, observe its reaction. Partially screening one eye, let light fall suddenly upon the other, and observe the reflex effect upon the first eye. This reaction involves the optic nerve on side exposed to light, corpora quadrigemina, and Nerve III. on the side shaded. Note contraction of pupil on near accommodation.

Observe.—1. Its shape, regularity, and outline; adhesions may cause irregularity; shape when dilated.

2. Size; may be measured by reference to the holes of catheter gauge.

3. Activity to light and on near accommodation.

4. Any differences between the two pupils.

5. Colour of iris, distinctness of muscular bundles.

Mydriasis = great dilatation of pupil. 1. Artificial, by atropine. 2. Paralytic, from palsy of Nerve III. 3. Spasmodic.

Myosis = contraction of pupil.

* See Mr. Hutchinson's article on "States of the Pupil." "Brain," Vol. i. ii.

PUPILS.

Large in **Anæmia** and debility; dilated during rigor and **Convulsion.** May be exceedingly mobile in debility. Sluggish pupils indicate defect of vaso-motor nerve, and then the pupil is rather small. A pupil sluggish to the direct action of light may respond immediately when the other eye is acted on by light, thus—(1) Irido-motor apparatus is sound; (2) Peripheral structures of the second eye are sound; (3) There is a defect in the percipient structures of the first eye. Pupils may remain active with optic atrophy. The movements upon accommodation (Nerve III.) may be good though reaction to light (vaso-motor) be lost, *e.g.*, in **Ataxy**. Precise symmetry in size of the eyes is not common.

Iridoplegia = palsy of pupil to light, but not to drugs.

Cycloplegia = absolute loss of accommodation.

Ophthalmoplegia interna = both the radiating and circular fibres of iris and the ciliary muscle are paralysed. Pupil is motionless and accommodation lost.

Iritis may be a sign of previous **Syphilis.**

SPINAL CORD DISEASE, SIGNS OF.

Paraplegia, partial or complete; **Spasms**; **Tremors.** Dysæsthesia, principally confined to the lower extremities; **Paralysis of Sphincters**; sacral bed-sore; atrophy of optic nerve.

Motor power.—See power of co-ordination of the limbs; their state of nutrition. Enquire as to the state of sphincters. Test reflex action of extremities and patellar tendon reflex.* If there be paralysis, state what groups of muscles are involved, and which escaped; gait in walking.

Sensation.—Objective sensibility; examine the muscular sense. See **Muscular Anæsthesia.** Subjective sensibility; dysæsthesia of lower extremities.

Look for **Ophthalmoscopic appearances**; condition of spine. See **Pupils.**

Causation.—Exposure to cold; over-exertion; functional paraplegia in hysteria; heredity; reflex paraplegia, from urethral stricture, sequent to confinement; spinal meningitis; spinal hæmorrhage; injury to back; **Syphilis**; **Alcoholism.**

* Dr. Gowers: "Med.-Chir. Trans." 1879.

SPINAL CORD DISEASE, SIGNS OF.

Muscles supplied by spinal nerves are alone paralysed. See if signs of **Brain Disease** and **Palsy of Cranial Nerves** are absent. Paraplegia may be purely functional.

Motor power.—If there is paralysis of a special group of muscles, see **Minor Paralyses**. Specially note the power of **Co-ordination of the Limbs**.

Sensation.—Sensation of girthing round abdomen, frequent in spinal cord disease.

"Lightning pains," darting, burning, or pricking; common prodrometra of **Ataxy**, often mistaken for rheumatism.

Look for sacral bed-sore, very apt to form in myelitis, probably as the direct effect of the nervous lesion. No bed-sore in **Hysteria**.

Causation.—Reflex paraplegia seldom complete, less widely-spread, and less defined than paraplegia from myelitis. See **Paralysis, Functional or Organic**.

MINOR PARALYSES.

Paralysis of isolated muscles, or groups of muscles. Spinal (Infantile) **Paralysis**. Onset sudden; most common in infancy; frequent in healthy children; occurs but once; large muscles principally affected, *e.g.*, deltoid rather than muscles of fingers.

PROGRESSIVE MUSCULAR ATROPHY.—A chronic disease causing atrophy of certain muscles with corresponding loss of power, attacking shoulder and ball of thumb by preference, gradually involving more muscles; no pain.

PSEUDO-HYPERTROPHIC PARALYSIS.—Enlargement of muscles paralysed; usually attacks calves, thighs, buttocks, erector spinal muscles. Mostly seen in children.

PARALYSIS OF EXTENSORS OF FOREARM.—Usually due to plumbism.

CROSS PARALYSIS.—Palsy of face on one side, and hemiplegia of the opposite side.

LABIO-GLOSSO-LARYNGEAL PARALYSIS (Bulbar paralysis).—Paralysis of muscles of tongue, palate, pharynx, orbicularis oris; death by asphyxia.

PARALYSIS OF THE FACE.—See **Bell's Paralysis**. Paralysis of muscles of deglutition frequently due to **Diphtheria**.

NEURALGIA.

Symptoms.—Onset, whether sudden or gradual, whether preceded by general or local disturbance; the paroxysms, whether severe, their frequency, the character of the pain. The effect of heat and cold upon the pain. Look for tender points in the course of the nerve affected, and its branches. Examine cutaneous sensibility at the seat of pain.

Causation.—Age, sex, heredity, injury to nerve, frequent movement of the limb, or pressure upon a nerve. **Malaria, Syphilis, Gout, Rheumatism, Alcoholism, Anæmia, Hysteria**, cold, mental anxiety, carious teeth. Reflex causes, *e.g.*, from pregnancy; pain in eyeball from caries of a tooth.

Conditions characterized by neuralgia.—**Locomotor Ataxy**, lower extremities; **Herpes Zoster**, a long area of skin supplied by nerve affected.

MINOR PARALYSES.

Paralysis of isolated muscles, or groups of muscles. See **Infantile Paralysis.**

PROGRESSIVE MUSCULAR ATROPHY.—Enquire for injury to nerves; lead poisoning; the nature of the employment, as to its using one particular set of muscles. **Electric tests.** Irritability of muscles when struck. Cutaneous sensibility.

PSEUDO-HYPERTROPHIC PARALYSIS.—Test reflex action, and electric tests. See motor power.

PARALYSIS OF EXTENSORS OF FOREARM. — Supinator longus and extensor carpi rad. longior usually escape.

CROSS PARALYSIS.—May be due to disease of pons.

LABIO-GLOSSO-LARYNGEAL PARALYSIS.—Often accompanies hemiplegia and chronic brain disease.

PARALYSIS OF FACE.—May be due to lesion of brain, or **Bell's Paralysis.**

NEURALGIA.

Symptoms.—Pain localized, almost invariably unilateral; in recent cases paroxysmal or distinctly intermittent. Gradual formation of tender points, where nerve-branches become superficial, passing through bone or fascia, the points of Valleix.* Absence of local causes of pain, such as inflammation, periostitis, new growth. Absence of fever or local heat.

Causation.—Most common in females at puberty; when developing at forty years or older, is very intractable. Malarial neuralgia, usually in supra-orbital nerve. Injury to a nerve may cause neuralgia of branches communicating with it.

Conditions characterized by neuralgia.—The subjects of hysteria and epilepsy are very liable to neuralgia.

* See Anstie on "Neuralgia."

NEURALGIA.

TRIGEMINAL.—Tender points. 1. Supra-orbital. 2. Palpebral, in upper eyelid. 3. Nasal, at junction of nasal bone and cartilage. 4. Ocular, a point in the eyeball. 5. Trochlear, at inner angle of orbit.

Superior maxillary division.—1. Intra-orbital. 2. Malar. 3. A point in the line of the upper jaw.

Inferior division.—1. Temporal, a little in front of the ear. 2. Inferior dental (mental), towards front of lower jaw. 3. Lingual, at side of tongue.

SCIATICA.—Is a neuralgia of the sensory fibres of the sciatic plexus. Note gait in walking; the muscular power of the limb; the state of its nutrition. Look for tender points—along the course of the nerve and its branches, *e.g.*, superficial cutaneous branches in gluteal region; down back of thigh, calcanean and malleolar branches. Also behind trochanter.

INTERCOSTAL NEURALGIA.—There is pain and tenderness in the course and distribution of the nerve or nerves affected. It is most common in the left infra-mammary nerve. Pain is constant, at times shooting. Painful points. 1. Vertebral. 2. Lateral, along outer margin of trapezius. 3. Sternal.

NEURALGIA.

TRIGEMINAL.—*Causation:* Any cause of neuralgia, specially malaria; dental or maxillary disease; cerebral tumour. It mostly occurs in conditions of low nervous depression. Some severe cases are associated with hereditary insanity. With disease of trigeminal nerve there may be profound disturbance in the eyeball, as in cases of herpes in this region. Ulceration of cornea, iritis, suppuration, and disorganization.

SCIATICA.—*Causation:* Rare under twenty years. May arise from pressure on the sacral plexus, *e.g.*, pelvic tumours, ovarian, hard fæces; cold; peripheral irritation, *e.g.*, tight boots. Examine hip-joint.

Pain is more constant and less paroxysmal than in other neuralgia; motor as well as sensory fibres often affected, diminishing muscular strength; the limb may emaciate and become somewhat anæsthetic. In walking, the foot on side affected is planted carefully, so as to avoid any jar which would increase the pain.

HEMIPLEGIA.

State side affected. Give history of the onset, whether sudden, gradual, with convulsion or loss of consciousness; whether preceded by abnormal sensations; whether first attack.

P.C.—General condition of **Nervous System.** Look for palsy of **Cranial Nerves.** Examine limbs affected as to **Motor Power,** coarse movements, *e.g.*, power to raise limb from the bed, to move large joints, pronate and supinate; to lift weights. As to finer movements, *e.g*, use of fingers, to pick up a pin, etc., to write. Note power of tongue and face. Palsied limbs, their temperature, atrophy or rigidity, condition of **Sensation.** Look for signs of **Brain Disease. Special Senses.** Condition of cranial nerves. **Sight,** examine for limitation of the field of vision.* Examine **Optic Discs.** Look for bed-sore.

Causation.—Examine heart, and look for signs of **Vascular Degeneration.** Look for signs of **Bright's Disease.** Look for signs of **Syphilis. Hysteria.**

* Dr. Gowers: "Brit. Med. Jour."

HEMIPLEGIA.*

Right hemiplegia commonly associated with **Aphasia**. Hemiplegia from **Embolism** most commonly right-sided. Onset sudden in embolism, and in cases of extensive hæmorrhage. Sometimes premonitory warnings are experienced in the head or limbs.

P.C.—Nerve VII., when affected, is usually partially paralysed, muscles about mouth being most weakened. There may be the following phenomena :—

1. Head turned to side of lesion.
2. Conjugate deviation of the eyes, both being turned to the side of lesion.
3. Muscles of chest and belly weakened on side opposite to lesion.
4. Paralysis of muscles passing from the trunk to the limbs paralysed.
5. The face paralysed on the side of hemiplegia.
6. The tongue protruded to side of hemiplegia.
7. Arm and leg paralysed on the side opposite to the lesion.

Nos. 1 and 2 are very temporary. Those parts suffer most and longest which have the most voluntary uses. Sensibility is usually restored before motor power.

Causation.—Valvular disease of the heart may lead to embolism, **Atheroma** to cerebral hæmorrhage or thrombus. Bright's disease, being associated often with disease of vessels and hypertrophy of heart, frequently leads to cerebral hæmorrhage. Syphilitic disease of arteries.

* Dr. Hughlings-Jackson : Reynolds' "System of Medicine."

CHOREA.

If there have been previous attacks, say whether one-sided and state side affected. The manner of commencement. Previous history as to the general condition of the **Nervous System.** History of school-life. **Headaches.**

P.C.—General condition of the nervous system. Look for signs of **Brain Disease.** Specially note condition of **Intelligence, Speech, Sleep.**

Motor Power.—Whether muscles supplied by cranial and spinal nerves are alike affected. Examine face, tongue, movements of eyes, movements of head, respiratory movements, movements of trunk and head.

Examine the extremities in detail, e.g., right upper extremity. Is the shoulder much moved? in which direction principally? by the action of what muscles? The elbow, is it more or less moved than the shoulder? what are the principal movements—flexor, extensor, pronator, or supinator? The hand; movements of wrist, fingers, thumb. Fingers may twitch with extensor-flexor, or adductor-abductor movements; some digits may move more than others.

Complications.—Onset of **Rheumatism, Pericarditis, Endocarditis.** Mental symptoms.

Examine heart, its sounds, regularity. Look for signs of **Anæmia.** Examine urine for urea and uro-hæmatin.

Causation.—The most distinctly demonstrated lines of causation are in connection with **Rheumatism, Heart Disease,** and sudden mental impressions. Reflex causes, *e.g.*, intestinal worms, pregnancy.

CHOREA.

Special character of the muscular movements.—Are the movements due to mere clonic jerks of certain muscles, repeated in a meaningless manner (muscular tic), or are they of the character of gesticulations, wriggling, twisting movements, flinging the limbs about? Do the movements greatly displace the limbs, or after the movements do the limbs always fall back into their previous position? Are the movements independent of voluntary efforts? are they increased by voluntary efforts? are they equal on the two sides? Accompanying muscular weakness. **Urine** often of high sp. gr. and loaded with urea.

SCLEROSIS.*	CHOREA.
Rhythmical oscillations. In lifting the arm, the main direction of the movement persists in spite of the obstacles caused by the jerks of the tremors, and it reaches its goal.	The main direction of motion is disturbed from the outset by contradicting movements which cause the goal to be missed. Movements sudden, and unexpected when the limbs are at rest, and apart from the action of the will.

Complications.—In pregnant women miscarriage is frequent and attended with danger.

Examine.—Mitral bruits, very common. Urine often scanty and very dense, being loaded with urea; uro-hæmatin often in large amount.

Causation.—The connection with rheumatism is shown by its occurrence before, after, or with the chorea. The frequency of cardiac bruits has suggested that the disease is due to embolism. If pregnancy excites chorea, there has usually been chorea in childhood. Chorea most common in females and in childhood near puberty.

* Charcot: "New Syd. Soc. Trans."

HYSTERIA.

Describe briefly patient's complaints. State if able to perform ordinary work; if not, say why. Enquire if any "attacks, fits, or **Convulsions** occur;" if they do, note time and circumstance. Note general condition of **Nervous System**; signs of **Brain Disease.**

Motor Power.—General character of movements, whether active or sluggish. Test reflex excitability.

Sensation.—Should be examined carefully. Globus (sensation of a ball rising in the throat and choking). **Headaches. Neuralgia**, specially **Infra-mammary Neuralgia**, and of Nerve V. Look for **Muscular Anæsthesia.** Note mental and intellectual condition.

Causation.—Almost exclusively in female sex; common in early life; may be very persistent.

EPILEPSY.

A condition of disease characterized by convulsive paroxysms with loss of consciousness. Look to the general condition of the **Nervous System** and signs of **Brain Disease.** See **Convulsions.** Note history of onset, frequency of paroxysms, their periodicity and characters, condition in intervals of the paroxysms.

Paroxysms.—Note state of consciousness, whether persistent, partially or wholly lost. Note carefully the degree, kind, and range of **Spasm**, whether **Tonic** or **Clonic.** The amount of fixation of respiratory muscles and signs of cyanosis. Whether head is drawn to one side, face distorted, or signs of opisthotonos. Position of eyes and state of pupils. Look for spasms in muscles supplied by cranial nerves, and one-sided, local, or repeated movements. Condition of sphincters. Temperature, pulse, heart. Next passed urine.

HYSTERIA.

The will is defective; all voluntary movements are usually sluggish and wanting in energy, but movements excited by emotion may be in excess. The condition is most common in young females, and is frequently associated with disordered menstruation. A special character is the liability to attacks of convulsive nature. Disturbance of **Sensation** is very common, sometimes assuming the form of hemi-anæsthesia, one half the body having lost sensibility, or hyperæsthesia. **Functional Paralysis** is common in this condition; it may be paraplegic, hemiplegic, or of a single extremity—functional aphonia. **Spasm of Muscle**, more or less continued, is not uncommon, thus causing contraction of a joint, talipes, or a phantom tumour in the rectus abdominis. Among signs of disturbance of organic nerves are **Vomiting** and **Angina Pectoris.**

Causation.—Inherited tendency to neuroses. Disordered menstruation. Depressing mental circumstances.

EPILEPSY.*

Symptoms of the Attack.—Stage I. Sudden loss of consciousness; tonic rigidity of muscles; arrested respiration, often with a cry due to forcing air through closed glottis. Pallor or duskiness. Pupils dilated. Stage II.—Unconsciousness continues; clonic convulsion; laboured breathing and foaming; profuse sweating. Stage III.—Partial return of consciousness and voluntary power.

Classes of Paroxysms.—I. Loss of consciousness without evident spasm.

II.—Loss of consciousness with local spasm.

III.—Loss of consciousness with general tonic and clonic convulsion.

IV.—Without complete loss of consciousness, convulsion being general or partial (abortive epilepsy).

Le petit mal = classes I. and II.

* Dr. Reynolds' "System of Medicine."

EPILEPSY—*continued.*

Premonitory symptoms.—Mental condition, excitability, dulness, vertigo, dysæsthesia. Aura epileptica strictly implies a sensation of wind blowing upon a limb. An aura may commence in a limb, or the epigastrium, or in the pharynx, in each case passing upwards towards the brain. An aura may commence in an organ of special sense, *e.g.*, the vision of a shape or colour, a "nasty taste," a sound, a smell, a mental sensation. The aura is immediately followed by loss of consciousness.

Sequelæ.—Permanent impairment of intelligence and mental capacity. **Vertigo.**

Complications. — Post-epileptic mania may succeed the paroxysm; in this state acts of violence or homicide may be unconsciously performed. In a condition after the paroxysms termed "reduction" the patient may perform unconscious acts, *e.g.*, place things in strange places.

Causation.—Age, sex, psychical causes, and heredity; the commonest antecedents are reflex causes, teething, intestinal worms; physical causes, *e.g.*, blows on head, exposure to great heat.

Commonest in female sex and from thirteen to sixteen years of age; may be secondary to other organic changes; heart disease is common.

CONVULSIONS.

EPILEPTIC	or HYSTERICAL.
Onset.—Sudden, often with an aura. Loss of consciousness usually complete.	Less sudden, with emotional disturbance. Loss of consciousness more protracted, or very apparent.
Prodroma.—Aura epileptica.	Globus hystericus.
Asphyxia—Often very complete.	Flushed, not asphyxiated.
Face.—Features distorted.	Not distorted.
Coma.—Usually profound, with stertorous breathing. Conjunctiva insensible.	Insensibility complete. Reflex movements of eye usually continue on touching it.
Subsequent state.—Coma; stupor; drowsiness.	Exhaustion.
Pyrexia.—May arise if much tonic spasm is present.	Temperature normal.
Sleep.—Common during sleep, and when falling asleep.	Usual during day-time, when others are about.
Tongue.—Often bitten.	Not bitten.
General condition.—Signs of epilepsy.	Signs of emotional disturbance.
Urine.—Occasionally contains albumen or sugar.	Copious, limpid, light-coloured, sp. gr. low.

CEREBRAL TUMOUR.

Special symptoms.—**Vomiting, Head-pain, Paralysis of Cranial Nerves,** palsy of **Special Senses, Optic Nerve changes, Convulsions, Hemiplegia,** or other form of **Paralysis.**

Look for **Syphilis, Scrofula, Phthisis, Cancer** or new growth in other parts. See **Motor Power,** and gait in walking. Examine urine for sugar and albumen.

Causation.—**Syphilis.** Scrofulous diathesis leading to tubercular mass. Tubercular tendency. Cancer.

CEREBRAL MENINGITIS.

Note symptoms with date and manner of commencement.

Special symptoms.—See general condition of **Nervous System,** signs of **Brain Disease,** vomiting, paralysis of **Cranial Nerves,** intermittent pulse. Look for signs of **General Tuberculosis, Phthisis,** strumous disease. Ophthalmoscopic examination may show tubercles in the choroid. Note eyes, their movements, strabismus, state of **Pupils,** photophobia. General state of nutrition. Take temperature. Examine lungs as to phthisis and recent pneumonia or pleurisy. Examine urine, and note whether it be retained.

Look for **Head-pain, Vomiting,** ear disease, **Syphilis.** Take temperature.

CEREBRAL TUMOUR.

Head-pain may be localized, and permanent or intermittent with exacerbations. **Vertigo** is common. Hearing is not commonly palsied. Urine may be saccharine.

Convulsions, partial, clonic, or tonic, not uncommon; they may resemble epilepsy, but usually differ from such attacks as follows:—1. Irregular in development, with less loss of consciousness and no asphyxia or subsequent coma. 2. Not specially a disease of female sex or early period of life. 3. Less tendency to mental disturbance. 4. No special inheritance of neurosis. 5. Characteristic symptoms of tumour develop.

The course of the disease is generally slow. Hemiplegia, if present, usually develops slowly; if on the right side may be accompanied by aphasia. Preceding death the temperature often rises high.

Causation.—Cerebral tumour may cause ventricular effusion, resembling simple **Hydrocephalus.**

CEREBRAL MENINGITIS.

Onset often insidious; poorliness and loss of appetite, with head-pain and vomiting. Temperature is a very uncertain sign; vomiting, though important when present, is frequently absent throughout. Intermittence of the pulse and paralysis of a cranial nerve are very important signs. Tubercles may occur in the choroid, independently of meningitis.

Causation.—**Miliary Tuberculosis.** Disease of ear. **Syphilis.** Injury to head. **Cerebral Tumour.**

CHRONIC HYDROCEPHALUS.

History of family; of the pregnancies and labours of the mother. State of the head at birth, or date at which symptoms were first observed. Enquire for **Convulsions**. Note general **Motor Power. Sensation.** Nutrition; power to hold head up. Eyesight. Hearing. **Intelligence**, whether child notices sounds and colours, and plays with toys, or is backward for age.

Head.—Is it held well up, well shaped; its circumference, measurement from ear to ear, over the vertex, and from the nose to the occiput. State of sutures and fontanelles, whether patent or ossified.

Eyes, whether of normal direction; condition of optic nerve. Dentition. Look for signs of **Rickets**.

CHRONIC HYDROCEPHALUS

Must not be mistaken for the large head of rickets. Congenital hydrocephalus usually causes difficult labour. Head may be normal at birth, subsequently enlarging. Sometimes accompanied by spina bifida. Tendency to enlargement of the head is progressive.

HYDROCEPHALUS.	RICKETS.
No signs of **Rickets**, but signs of **Brain Disease.**	Signs and symptoms of **Rickets.**
Head has a tendency to globular shape; eyes depressed; often strabismus; optic nerves atrophied. Cranial bones thin. Cannot hold head up. Paralysis common, or a contracted limb.	**Head** large, tending to broadness and squareness; there may be irregular thickening of bones. No paralysis, head held up, child playful.
Tendency to increase of relative size of head to body, indicated by measurements. Progressive enlargement; patency of fontanelle continuing. Usually imbecile.	As signs of **Rickets** pass away the relative size of the head less noticeable. May have good power.

ALCOHOLISM.

See **Nervous System.** See **Motor Power.** Tendency to tremor; tongue tremulous, coated, glazed. Muscular weakness and want of muscular co-ordination. See co-ordination of the limbs. Muscular inquietude; muscular fidgetiness. Look to **Muscular Sense** (usually diminished). **Paralysis, Paraplegia.** See signs of disease of **Spinal Cord** and **General Paralysis.** Flushing and congestion of the face and eyes. **Vomiting**, specially in the morning. Conditions of **Sleep.** Neuralgic pains. **Anæmia.**

Mental disturbance.—Deterioration of mental power, restlessness, loss of memory, hallucinations, delusions. Mental alteration, *e.g.*, inaptitude for business, avoidance of friends.

Sensation.—Cutaneous sensibility, dysæsthesia, muscæ volitantes, buzzings in ears, vertigo. Note state of nutrition.

Complications.—Look for signs of disease of liver, kidneys, vascular system, emphysema. Acne rosacea of nose. Bronchitis. Pneumonia. **Delirium** and symptoms of delirium tremens.

ACUTE ALCOHOLISM.

Excessive dose may produce **Coma**; breathing stertorous; breath smelling of alcohol. Appearance of face. Examine urine for albumen and alcohol. Look for signs of general condition of **Nervous System. Vomiting. Paralysis.** See causes and examination of cases of coma. Examine heart and condition of blood vessels.

Look for—Injury to head. **Uræmia.** Simple exhaustion. **Meningitis.** There may be **Albuminuria** from acute renal congestion. Complications of chronic alcoholism.

ALCOHOLISM.

Principally produces nervous symptoms; affects next the digestive system. Nutrition may become much impaired. In chronic cases, kidneys and liver often become cirrhotic. Vascular system degenerates. **Emphysema.**

Chronic Cases.—In advanced stages, the lower extremities may become unsteady, hands and fingers tremulous, so also the tongue. At first, the tremors may be restrained by voluntary effort. Acne rosacea.

Diagnosis from—

Commencing General **Paralysis of Insane**, mind depressed.
Paralysis Agitans.
Plumbism, with tremor and delirium.
Locomotor Ataxy.
Paraplegia, from **Disease of Cord.**
Senile degeneration.
Sclerosis.
Hysteria.
Nervous malaise, from simple dyspepsia.

Complications. — **Cirrhosis of Liver** and **Ascites. Chronic Bright's Disease.** Atheroma or **Degeneration of Arteries** and small vessels. Chronic gastritis. Fatty degeneration of heart and liver.

ACUTE ALCOHOLISM.

Acute symptoms may be due to **Delirium Tremens**, or to an excessive dose causing toxic effects, *e.g.*, coma, etc. When drunk—**Coma**, face livid, breath smelling of alcohol, tendency to vomit. Vomits or washings of stomach contain spirit. In very deep coma there may be strabismus. There may be great excitement in place of coma. Cerebral hæmorrhage may occur during intoxication.

DELIRIUM TREMENS.

Delirium, delusions, illusions of **Sight** and hearing, **Vomiting**, inability to take food. Intense restlessness. Look for the degenerative changes of chronic alcoholism. Specially examine lungs, urine, heart, and pulse. Note muscular condition, general strength and power of movement, **Tremor**, subsultus tendinum. Sleep; degree of consciousness.

Complications. — **Typhoid State.** Subsultus. **Coma.** Heart failure and pulmonary congestion. Syncope. Albuminuria. **Pneumonia.** Rapid development of phthisis.

INSANITY.

1. Mania. 2. Monomania. 3. Melancholia. 4. Moral insanity. 5. Dementia. 6. Idiocy, including imbecility. 7. **General Paralysis** or **Paresis.**

Causation.—Heredity of primary importance; enquire back to the third generation in the families of each parent. See also as to collateral relations.

Alcoholism. Habits and mode of life. Mental anxiety. Injuries to head.

Signs of Insanity.—Talking to self, fantastic dress, refusing food, squandering property, kleptomania, self injury, violence, delusions, melancholy, incapacity for business, avoiding friends, delirium. See signs of **Brain Disease.**

Illusions of the senses. Sight; they may be coloured, moving forms. Hearing, smell, taste, touch. The perception of the sense is mistaken, and the impression made is false.

Complications.—**Phthisis**, fragile bones, heart disease, **Epilepsy.** Attacks of partial coma.

Examination of Patients.—Test **Motor Power, Pupils, Muscular Sense, Nervous System, Sensation**, heart and lungs.

DELIRIUM TREMENS.

Usually the effect of long-continued drinking, with dyspepsia and deprivation of food. Commences with disturbance of general condition of the **Nervous System**; diminished motor power. Insomnia, night wandering and horrors, with delusions, passing on to delirium with violence and suicidal tendency. Delirium may be busy, low muttering, or talkative.

Complications.—Sudden syncope during violent struggling in the delirium may lead to sudden death.

GENERAL PARALYSIS OF THE INSANE.

Characterized by progressive diminution of mental power, followed by paralysis, involving the whole of the muscular system. **Pupils** show want of symmetry of size, and want of mobility. Mental condition characterized by an exaggerated feeling of power, extravagant exalted ideas, loss of memory, attacks of excitement and violence. Hallucination; delusion.

Motor Power.—Failure first seen in tongue; inaccurate articulation, fibrillar trembling of the tongue. Pupils unequal. Automatic and reflex actions lessened; electric contractility of muscles retained. Teeth-grinding. Late in disease sphincters lose their control, and there is tendency to choking. Bones may be very brittle.

Sensation.—Cutaneous sensibility usually diminished, and later lost. **Muscular Sense** lost. Attacks of excitement and violence; epileptiform convulsions. Face becomes expressionless.

Diagnosis from **Alcoholism.**—Ideas of exaltation; pupils unequal; effect of removing alcohol; paralysis of sphincters.

Causation.—Inheritance, intemperance; most common in men.

PARALYSIS AGITANS.

State principal sites of tremor; hemiplegic type, paraplegic, or confined to one extremity. Examine **Motor Power**; whether movements of head, face, tongue; if speech be affected. Expression of face. Power to walk; gait in walking. Note any tendency to involuntary forward or backward movement, or dragging of limbs, etc. Ability to perform certain acts, walk, hold out limbs, pick up a pin, or write; keep specimen of writing. Let him hold a glass of water, and carry it to his mouth. Note effect of emotion on tremors. Describe the **Tremor.**

SCLEROSIS OF CORD.

Examine condition of the **Motor Power** and reflex excitability. **Tremors**; see whether they cease during repose and are increased by voluntary acts. Let patient raise a glass of water to his mouth and describe the result. Let him stand and walk; then close his eyes and again perform the same acts. Note whether tremors are fine or coarse. Note the extent of parts affected by tremor; whether head, trunk, and all the extremities are affected. Examine for **Brain Disease.**

PARALYSIS AGITANS.

Characterized by muscular tremor, constant even in repose. Head not tremulous, but may be shaken by movements of the body. **Tremor** consists of jerks, more regular and rapid than in **Disseminated Sclerosis.** No real difficulty of speech, but the utterance is slow and with jerk-like effects. Respiratory movements not affected. In advanced cases muscular rigidity may lead to deformity; this is specially seen in the hand. There may be a subjective sensation of heat. No **Nystagmus.**

SCLEROSIS OF CORD.

Characterized by muscular tremor, increased in direct proportion to the extent of any movement executed. It is only manifested by voluntary movements of some extent, and ceases when the muscles are in complete repose. The oscillations are larger than in **Paralysis Agitans**, and more resemble the gesticulations of **Chorea.** Voluntary acts may be performed despite the tremors. Closing the eyes does not affect the tremors, as in ataxy. Movements are not seen, independent of voluntary efforts, as in chorea. The head is usually affected with tremor; **Nystagmus** is common. Patellar tendon reflex is exaggerated in sclerosis, obliterated in **Ataxy.**

LOCOMOTOR ATAXY.

Examine condition of the **Motor Power**; especially the gait in walking, and co-ordination of the limbs. Let him walk with his eyes open, then shut; let him walk with slight assistance or using a stick. Also test power to keep knee flexed or extended. Test upper extremities, *e.g.*, precision with which he can touch an object, his eye or nose, or execute definite movements. Reflex excitability and patellar tendon reflex.

Electric Tests.

Sensation.—Tactile sensibility; sense of heat and cold. Subjective sensibility; consciousness of ground in walking; perverted sensations in lower extremities. **Sight**, reaction of **Pupils, Ophthalmoscopic Appearances.**

Examine the joints and skin. Look for signs of **Disease of Cord.** Temporary defects of third nerve common. Bowels and action of bladder sluggish. This disease is often associated with **Syphilis.**

LOCOMOTOR ATAXY.

Characterized by difficulty in walking, especially with the eyes shut, there being no motor paralysis and no loss of nutrition of the lower extremities. Commonest in males, and at ages thirty-five to fifty years. In walking there is exaggeration of the movements; the feet are lifted too high and the heel brought suddenly down. The lower extremities are the most affected, but there may be want of co-ordination of the upper extremities also. Electric irritability not impaired. Patellar tendon reflex obliterated more or less completely. In early stages "lightning-pains" in legs and back are usual; they may last for years and cause much distress.

Pupils usually small, inactive to light (vaso-motor palsy); contraction for near accommodation intact, *i.e.*, ciliary muscle sound—it is supplied by Nerve III. The optic nerves sometimes become white from atrophy. Large joints may be the seat of effusion and chronic absorption of the cartilages. It is distinguished from disseminated sclerosis by the marked increase of symptoms produced by closing the eyes; this does not so modify the rhythmic jerks of sclerosis.

INFANTILE PARALYSIS.

History.—General condition of health. Look specially for **Rickets**. Test general strength of motor power. State which extremity is affected; note its state of nutrition. Examine the separate muscles. Test reflex action and sensation. **Electric Tests.** Observe temperature of the paralysed limb, and the condition of the skin.

Upper extremity.—Can he move the fingers separately? point with index and little fingers, etc.? Movement of wrist; power of pronation and supination; hold out the limb from the shoulder; put his hand to back of his head. Measure length and circumference and compare with opposite side.

Lower extremity.—Can child walk, stand, move toes, flex ankle and knee, or hold out the limb? When sitting down can he get up?

Causation.—Age six months to six years. Equally in both sexes. Sequel to exposure to cold or an exanthematous fever. Possibly due to dentition.

INFANTILE PARALYSIS.

Occurs during ages from six months to seven years, attacking a certain muscle or group of muscles. It is unattended by pain or signs of brain disease. It often occurs in children apparently perfectly healthy. The attack of paralysis is never repeated.

Invasion.—There may be premonitory symptoms two or three days, or more; then the limb may be found paralysed. Such premonitory symptoms may be wholly absent. Onset not usually attended with much disturbance of the general condition of the nervous system. Paralysis may be noted without any premonitory symptoms.

Course of disease.—Usually the general health remains good. Most of the muscles first paralysed usually regain power in two or three weeks, leaving some muscles, or a single muscle, *e.g.*, deltoid, permanently weakened. In regaining power the order of recovery is the reverse of that seen in paralysis from brain disease; the finer movements are first regained, *e.g.*, movements of fingers and toes before the wrist and ankles. The muscles permanently paralysed atrophy. The growth of the limb may be checked, especially in the lower extremity. Permanent paralysis may be in one leg only. The palsied limb becomes cold and bluish.

Sensation not affected. **Reflex excitability** impaired or abolished, and electric excitability lost.

GRAVES' DISEASE (Exophthalmic Goître).

Exophthalmos.—Frequently eyelids cannot close over eyeballs, the eyes remaining open even during sleep. The degree of prominence of either eye is usually equal, but may be more marked on one side. Eyelids tremble on endeavouring to cover eyeball. Eyes appear staring, bright, and glistening. Test sight and optical refraction.

Goître.—This sign may be absent. Enlargement usually moderate, with a thrill felt and hæmic murmur on auscultation. It is very rarely cystic. Thyroid enlargement usually first seen on the right side.

Vascular system.—Throbbing in arteries of neck, and in thyroid. Hæmic bruits over goître and vessels in neck. Violent and frequent action of heart even without exertion. Left ventricle may be dilated. Valvular lesion not very common.

Complications.—Dilatation of heart. Asphyxiating attacks. Diarrhœa. Paraplegia.

PLUMBISM.

General condition.—**Anæmia**; emaciation; gout.

Digestive system.—Attacks of colic and constipation, may be with vomiting, nausea, loss of appetite. Blue line on margin of gums, especially opposite the teeth. Abdomen retracted. Breath fœtid.

Nervous system.—Paralysis usually of extensors of forearm attended with atrophy and loss of electrical reaction. Usually paralysis is preceded by attacks of colic. Look to the general condition of the **Nervous System. Motor Power. Sensation.** See **Optic Discs.**

HERPES ZOSTER.

History of illness; date of onset of symptoms, and of the appearance of rash. Enquire as to recent use of arsenic. Look to general condition, debility, **Anæmia**, etc.

Look for signs of **Neuralgia**, condition of skin at seat of pain, sensibility, subjective pain, etc., tenderness, tender points along the course of the nerve supplying area affected. Note any nutritional effects on parts affected, ulceration, scars (with Nerve V. see Iritis); note subsequent state of **Sensation.**

GRAVES' DISEASE (Exophthalmic Goître).

Mainly characterized by prominence of the eyeballs. Pulsating goître. **Palpitation.** Usually there is **Anæmia** and disordered menstruation. Emaciation. Mental irritability and want of sleep. See **Motor Power.** There is a tendency to intercurrent attacks of diarrhœa; appetite capricious. Occasionally enlargement of liver, spleen, and mammæ. Frequently there is increase of the symptoms at the menstrual periods.

Pupils.—No alteration from the normal; natural size and activity; accommodation normal.

Causation.—Usually develops in females above age of puberty; rare in men. May date from a mental shock or period of over-work. It is connected with anæmia and disordered menstruation.

PLUMBISM.

Characterized by colic, anæmia, blue lines on gums, **Paralysis** of extensors of forearm, and brain disturbance.

Nervous system.—There may be profound disturbance of the brain. Optic neuritis. **Delirium.** Epileptiform convulsions. General **Tremors.** Palsy of the extensors of the forearm, principally marked on the right side; the supinator longus and extensor longior carpi radialis escape palsy.

Sensation may be at fault; numbness in limbs, neuralgia, headache.

Complications.—**Gout**; **Bright's Disease**; optic nerve changes; paralysis.

HERPES ZOSTER.

Commonly occurs in young subjects; it has been noted as common in persons taking arsenic. The disease does not return. Pain precedes the eruption; it may be severe and last for days. The rash is vesicular, vesicles appearing along the area of a cutaneous nerve; the vesicles contain a clear watery fluid, and may have inflamed bases. The patches seldom cross the median line. Vesicles dry up and scab; in debilitated subjects ulceration may follow.

DISEASES OF THE VASCULAR SYSTEM

HEART—PHYSICAL EXAMINATION.

Inspection.—See front of chest. Look for and define apex-beat; it should be seen in fifth space an inch below, and internal to left nipple. Look for other sites of pulsation. Pulsation of left auricle may be seen in third space.

Palpation.—Feel the general force of the cardiac impulse, indicating strong or weak action, **Hypertrophy**, or **Dilatation**. Determine area of impulse and site of apex-beat. Search for a thrill, especially towards apex; feel first with tips of fingers, afterwards with ends of metacarpal bones. Look for friction fremitus. See pericarditis. See **Displacement of Heart.**

Auscultation.—Listen for 1st and 2nd sounds; each should be clear "lub-dub."

1st Sound.—Systolic, coinciding with the impulse. Loudest towards apex; to be traced upwards to the base, towards epigastrium and to axilla. Note character of sounds, sharp, clear, feeble, dull, prolonged, or short, or much resembling 2nd sound (tic-tac). Accompanying bruits are termed systolic.

2nd Sound.—Diastolic, coinciding with subsidence of cardiac impulse. Loudest at level of second costal cartilage; aortic valves to the right side (aortic cartilage), pulmonary valves to the left (pulmonary cartilage). Trace the sound to the apex. The whole 2nd sound may be accentuated, or either the aortic or pulmonary only. It may be reduplicated. Accompanying bruits are termed diastolic.

Cardiac Murmurs.—The fact of a cardiac murmur being decided, determine its periodicity, systolic, diastolic, or presystolic. The site of maximum intensity, and relative conductivity in various directions, towards base or apex, to axilla or along sternum, or along the vessels at the base. Observe if audible by spine or at angle of left scapula. Character of murmurs—plain bellows sound, musical, rasping.

HEART—PHYSICAL EXAMINATION.

Inspection.—May detect a diffused wave of impulse, *e.g.*, **Pericarditis.** Hypertrophied left auricle may be seen pulsating in mitral stenosis or contraction of left lung. Abnormal site of pulsation from **Aneurism,** usually in right third space. See bulging of precordium.

Palpation.—Pulsation may be detected in epigastrium in dilatation. Thrill systolic over aortic cartilage (second right) in aortic stenosis or aneurism; at apex in mitral regurgitation. A diastolic thrill at base in aortic regurgitation; at apex just before the systole in mitral stenosis. Strong heaving impulse with hypertrophy.

Auscultation.—Determine if heart's sounds are healthy and in due rhythm; if accompanied by, or replaced by, abnormal sounds (bruits or murmurs) which are generally due to pathological conditions of the valves. Note they may be due to **Anæmia** or **Aneurism.**

1st Sound.—Indicates the muscular condition of the heart, and how it is working; strong in **Hypertrophy,** weak in degeneration of the walls. It may be reduplicated; may be masked by **Emphysema.** Anæmic bruit at base common.

2nd Sound.—Due to closure of semilunar valves, aortic and pulmonary; each should be examined separately. Pulmonary 2nd sound not often accompanied by a bruit unless from anæmia; it is accentuated in recent pulmonary congestion, as from recent mitral regurgitation. Aortic 2nd sound accentuated in obstructed arterial (systemic) circulation, as in **Bright's Disease.**

Cardiac Murmurs.—If the normal heart's sounds are heard, and the other physical signs and the pulse are healthy, we may conclude that the heart is healthy. If a bruit be heard look for all the **Signs of Heart Disease** and the presence or history of some cause likely to produce valvular defects. If there be no other proof of heart disease than the bruit, look for signs of **Anæmia** and anæmic bruits.

HEART—PHYSICAL EXAMINATION.

Percussion.—Determine and mark out the area of relative and absolute precordial dulness. In health it extends from about the third left cartilage to the apex-beat, being limited below by the line of the liver, and not crossing the median line. Area of dulness may be diminished by atrophy of the heart, as in old age, or heart may be overlapped by **Emphysema** of the lungs. The area may be increased by pericardial effusion as a triangle, larger than the normal area, with its apex towards the top of the sternum.

PULSE.

Usually felt in radial artery; it may be examined in any superficial artery.

1. *Frequency.*—Frequent or infrequent refers to the number of pulsations per minute. P. = .

2. *Quick or slow.*—Refers to the time occupied by each beat, not including the interval between it and its successor.

3. *Rhythm.*—Regular or irregular implies the order of succession. Intermittent, the occasional dropping of a beat.

4. *Large or small.*—Refers to the degree of dilatation of the artery.

5. *Jerking or collapsing.*—Full, rising quickly and falling suddenly.

6. *Tension.*—Soft or hard. Felt by the fingers and measured by the force required to extinguish the pulse by pressure.

7. *Dicrotous.*—The wave is double-headed and the pulse soft.

8. *Locomotor.*—When the artery is seen to travel like a snake under the skin.

State of arteries.—Examine radial, brachial, femoral, dorsalis pedis, temoral, etc. The artery as a piece of tissue may be hard or soft, irregular on the surface, dilated, etc.

HEART—PHYSICAL EXAMINATION.

Percussion.—Hypertrophy of right ventricle increases the width of the area of dulness, so that it may reach to the right of the median line. Hypertrophy of the left ventricle extends the dulness outwards and downwards. Abnormal areas of dulness adjoining the heart may be due to **Consolidation of Lung**, mediastinal tumour, or **Aneurism.**

PULSE.

May indicate the condition of the cavities of the heart and valves, and the state of the nervous system.

1. *Frequency.*—High in fever and in mental excitement; in disease of the valves and walls of the heart; in **Graves' Disease.**
2. *Quickness.*—Chiefly affected by conditions of the nervous system.
3. *Rhythm.*—Irregularity may depend upon valvular lesions, especially mitral disease, or on the state of the muscular walls of the heart; brain disease, *e.g.*, **Meningitis**; reflex causes, *e.g.*, dyspepsia.
4. *Large or small.*—Depends upon strength of the left ventricle and condition of valves. It may be small in mitral disease or depressed innervation.
5. *Jerking.*—In aortic regurgitation with hypertrophy of left ventricle. This character may be less marked if mitral disease coexist.
6. *Tension.*—High in **Chronic Bright's Disease,** and in the cold stage of ague. Low in **Typhoid State** and conditions of adynamia.
7. *Dicrotous.*—In fevers, especially in the typhoid state.
8. *Locomotor.*—Indicates a hard, thickened, or **Atheromatous Artery,** or an hypertrophied left ventricle.

State of arteries.—Rigid, tortuous, and rough upon the surface in atheroma. See **Vessels, Disease of.**

PASSIVE (Cardiac) CONGESTION.

Starting from an obstructed circulation on the left side of the heart, *e.g.*, mitral obstruction.

Pulmonary veins overfull (open into left auricle); receive blood from pulmonary capillaries and some of the bronchial capillaries.

Pulmonary capillaries overfull; hence **Pulmonary Œdema,** *i.e.*, effusion into air vesicles.

Pulmonary artery (leading from right ventricle) conveys blood to the overfull pulmonary capillaries; hence tension rises in the pulmonary artery and pulmonary 2nd sound may be accentuated.

Right ventricle (drives blood into the pulmonary artery, which is overfull). It becomes over-distended and dilated; this may lead to **Tricuspid Regurgitation.**

Right auricle (drives blood into the right ventricle, which is overfull). It receives blood from superior and inferior venæ cavæ, and bronchial veins.

Superior vena cava receives blood from *bronchial veins;* these carry blood from bronchial capillaries (which also partly empty into pulmonary veins); hence **Bronchitis.** The bronchial veins also receive blood from the pleura; hence **Hydro-thorax.**

Jugular veins, and the veins of the head and upper extremities send their blood to the superior cava; hence **Cyanosis of the Face**, jugulars standing out in the neck, **Congestion of the Brain, Œdema** of the upper extremities. If there be tricuspid incompetence, jugulars may be seen and felt pulsating.

[*Continued next page.*

PASSIVE (Cardiac) CONGESTION.

Inferior vena cava receives blood from the *Hepatic Vein;* hence congestion of intra-lobular veins and hepatic capillaries in the lobules causes **Enlargement of the Liver** and **Jaundice,** also obstruction to the outflow from the vena portæ and congestions of the vessels emptying into the *Portal System,* viz., gastric, splenic, intestinal, hæmorrhoidal; hence **Spleen** large, **Ascites, Hæmatemesis,** or **Melæna.**

Renal veins (branches of the inferior cava) receive the veins which collect blood from the capillary plexus surrounding the uriniferous tubes; this plexus becomes primarily congested, and as it receives blood from the afferent vessels of the malpighian tufts, these capillaries become secondarily congested, leading to **Scanty Secretion of Urine** and **Albuminuria.**

Iliac and femoral veins return blood from the lower extremities, and their over-fulness leads to capillary congestion and **Œdema of the Feet,** the pressure being the greatest in the most dependent set of capillaries.

MITRAL REGURGITATION.	MITRAL OBSTRUCTION.
Inspection. — Apex-beat displaced outwards and downwards; impulse diffused. Right ventricle probably dilated.	Pulsation of hypertrophied left auricle sometimes seen in third left interspace. Right ventricle probably dilated.
Palpation. — Right ventricle usually hypertrophied or dilated. Apex-beat displaced outwards and downwards. Pulse frequent, small, irregular. Systolic thrill at apex. Heart's action may be irregular.	Right ventricle hypertrophied. Thrill at apex just preceding impulse. Pulse small.
Auscultation.—Systolic bruit at apex conducted well into axilla, also heard at angle of left scapula. Pulmonary 2nd sound accentuated.	Presystolic bruit at apex. Pulmonary second sound accentuated from increased tension in pulmonary artery. Aortic 2nd sound feeble at apex. Bruit almost localized to apex beat.
Percussion.—Dilatation or hypertrophy of right ventricle.	Left auricle and right side of heart hypertrophied. Left ventricle not hypertrophied.

AORTIC REGURGITATION.	AORTIC OBSTRUCTION.
Inspection.—Left ventricle hypertrophied; apex-beat displaced outwards and downwards; much precordial impulse seen. Pulse seen locomotor.	Left ventricle hypertrophied, but less dilated than with regurgitation.
Palpation. — Thrill diastolic, distinct at base; great hypertrophy of left ventricle, precordium thrust forward at systole, etc.	Thrill systolic over aortic valves. Signs of hypertrophy; impulse strong, heaving.
Pulse full and collapsing.	Pulse small or not abnormal.
Auscultation. — Diastolic bruit at aortic cartilage and conducted down left side of sternum.	Systolic bruit over aortic cartilage conducted to right sterno-clavicular joint.
Co-existing mitral disease common.	Exclude anæmic bruit.
Percussion. — Area of dulness increased downwards and outwards, from hypertrophy of left ventricle.	

HYPERTROPHY OF HEART.

Inspection.—Heart's impulse may be seen over an extended precordial area, shaking and thrusting forward the chest-walls. Apex-beat displaced, usually outwards and downwards. In children the cardiac area may be bulged forward.

Palpation.—Shock of heart against chest-wall very distinct, raising the hand or stethoscope. Impulse felt in several interspaces. Epigastric pulsation if right ventricle is hypertrophied. Pulse full and strong in proportion to the hypertrophy.

Auscultation.—First sound prolonged, dull, strong. Aortic 2nd sound intensified. *Note* diagnosis from pericardial effusion by intensity of 1st sound coinciding with increased area of dulness.

Percussion.—Area of dulness. Left ventricle enlarged downwards and outwards, and may extend a little upwards. Right ventricle enlarged laterally, and may extend to right of sternum.

HYPERTROPHY AND DILATATION.

Causation—

Obstructions in the pulmonary circulation (right heart affected).—**Emphysema.** Chronic bronchitis. Chronic pleurisy. Adhesions of lung preventing expansion.

Obstructions in the aortic circulation (primarily affecting left side).—Arterial disease. **Chronic Bright's Disease** with thickening of small arteries. General plethora. Repeated pregnancies.

Causes originating in or about the heart.—Primary dilatation, *e.g.*, after fevers, in **Anæmia.** Valvular disease and stenosis of the outlets. Adherent pericardium. Excessive exercise. **Displacements of the Heart.** Malformations. Emotional disturbance long continued. Fatty or other form of degeneration.

DILATATION OF HEART.

Inspection.—Impulse diffused, not bulging or shaking walls of chest. If right ventricle is dilated, epigastric pulsation may be seen, and **Tricuspid Regurgitation** may lead to pulsation in jugular veins. Cyanosis and dropsy common.

Palpation.—Impulse diffused; it may be heaving if ventricles are hypertrophied, or feeble if walls are degenerate. Impulse may be masked by emphysematous lung overlapping the heart. Pulse weak, especially if walls of ventricle are degenerate.

Auscultation.—If walls of heart are degenerate, 1st sound feeble, short, and much resembling 2nd sound.

HYPERTROPHY AND DILATATION.

Dilatation of either ventricle may exist without much compensative hypertrophy; perhaps this is most common on the right side. A dilated and hypertrophied heart may be capable of carrying on the circulation so perfectly as to compensate for a valvular lesion, but when degeneration of the heart-walls follows, then signs of **Cardiac Congestion** are apt to supervene. Very great hypertrophy of the left ventricle without any bruit or valvular lesion is common with **Granular Contracted Kidneys**. The cardiac impulse and area of dulness are often masked by emphysema of the lungs; but still, with hypertrophy the pulse is strong. Examine heart, lungs, urine.

CARDIAC DISPLACEMENTS.

Pleuritic Effusion, pushing the heart to the opposite side; subsequent contraction of lung may draw it to the side affected. Cirrhosis of lung, or other form of contraction, drawing heart to side affected. Cancer of lung, if diffused, dragging it to side affected by contracting. Mediastinal tumour, cancer, **Aneurism**, glandular, pushing heart aside. **Abdominal Tumour**, hepatic, ovarian, etc., pressing up diaphragm may displace heart.

VALVULAR DISEASE.

Causation.—**Rheumatism**, atheroma, rupture of valves, scarlet fever, **Syphilis**, **Alcoholism**, muscular over-strain, congenital heart defect.

HEART DISEASE.

General symptoms.—Seldom attended with pain, unless **Angina**.

General condition.—**Anæmia**, mal-nutrition, **Œdema**, hæmorrhages, faintness, langour.

Digestion.—Dyspepsia, **Jaundice**, **Ascites**, **Liver** large.

Vascular system.—**Palpitation**. Irregularity of heart's action. Hæmorrhages. Cyanosis. See **Passive (Cardiac) Congestion**. Dropsy. **Embolism**. Irregular pulse, feeble, etc. Over-fulness of veins.

Nervous system.—Disturbance of general condition of **Nervous System**. Insomnia, **Vertigo**, **Headache**, **Chorea**, **Convulsions**, **Paralysis**, **Angina Pectoris**.

Respiratory system.—Orthopnœa. Dyspnœa, especially on exertion. Respirations frequent. Bronchitis, **Emphysema**, **Cough**.

Urine.—Scanty, with deposit of lithates. Sp. gr. high. May contain albumen or blood.

CARDIAC DISPLACEMENTS.

May be diagnosed by palpation and percussion principally. The heart may be raised by pericardial effusion. Apex-beat may be displaced by cardiac **Hypertrophy** or **Dilatation**. Displacement may cause cardiac dyspnœa, etc., *e.g.*, in cases of sudden pleuritic effusion.

VALVULAR DISEASE.

Causation.—Rheumatism usually attacks the mitral valve and may spread to the aortic. **Atheroma** spreads from the aorta to the valves.

HEART DISEASE.

Enquire for signs and symptoms of heart disease, then make a careful physical examination. Listen for the normal sounds, and bruits accompanying or replacing them. Look for signs of **Hypertrophy** or **Dilatation**. If a bruit is heard, look for signs of anæmia. Note state of pulse and respiratory system. Examine arteries. Valvular lesions are often combined, *e.g.*, aortic regurgitation and mitral regurgitation coexisting, etc. Many symptoms result from passive congestion, *e.g.*, œdema, cyanosis, pulmonary œdema, bronchitis, hydro-thorax, hæmoptysis, large spleen, enlargement of liver, jaundice, ascites, **Albuminuria**, congestion of brain. These symptoms then vary with the heart's condition.

PALPITATION.

FUNCTIONAL.	ORGANIC.
Disturbance of the general condition of the **Nervous System.**	Physical signs of disease of walls of heart or its valves.
Excessive smoking, or use of tea and coffee.	Accompanying general **Signs of Heart Disease.**
Often relieved by exercise.	Excited by exertion, relieved by rest.
Frequent in recumbent posture.	Mostly while at work.
Mostly in hysterical women.	Mostly in men who labour.
Attacks intermittent, as causes producing them vary, *e.g.*, dyspepsia, menstruation.	Coincide with the amount of exercise, but may be excited by emotion.
Between attacks heart and pulse natural.	In intervals signs of heart disease may be best detected.
Often accompanied by neuralgic pains.	Not often accompanied by true pain, but there may be attacks of **Angina Pectoris.**
In attacks face may be flushed, throbbing in ears, tinnitus aurium.	In attack, pulse small and irregular.
Gout, masturbation, want of sleep. **Graves' Disease.**	Disease of walls of heart; vessels. **Aneurism.**

ANGINA PECTORIS.

Note exciting causes of paroxysms, the times and circumstances under which they occur.

In the paroxysm, note position and attitude of patient, facial expression, ability to speak or otherwise, state of skin; **Pulse**, its frequency and characters; action of heart during attack. Note state of respiration. Examine urine passed after attack. Examine heart and vessels in the intervals of the paroxysms.

It is characterized by sudden paroxysms of intense suffering, with the sense of impending death, or a sense of want of air, burning pain in chest, or sense of constriction, pain radiating from the chest down to the left arm. In paroxysms there may be profuse sweating, face pale, occasionally flushed, palpitation, subsequent exhaustion.

Pulse may be small and weak, or strong and not frequent.

Causation.—Organic disease of heart, walls, or valves. Disease of vessels. See **Signs of Heart Disease**, especially hypertrophy and dilatation. Atheroma of arteries, **Syphilis**, **Aneurism**, over-exertion, **Alcoholism**, **Gout**, **Hysteria**. Reflex exciting causes, *e.g.*, dyspepsia, uterine derangement, mental excitement.

PERICARDITIS.

Precordial pain and tenderness; dyspnœa, especially in upright posture. Tendency to syncope. **Palpitation.** Pain on swallowing. **Fever.**

Inspection.—A diffused wavy impulse may be seen. In young subjects the precordial region may bulge.

Palpation.—Precordial fremitus may be felt, especially if patient sit or stand up. Apex-beat may be elevated and slightly displaced outwards. Tenderness on upward pressure from epigastrium. Pulse feeble, irregular, intermittent.

Auscultation.—Friction sound not suspended on holding the breath; it may be altered by pressure—"to-and-fro," or only systolic; a brush or hard grating sound. Describe the heart's sounds heard as well as these adventitious sounds.

Percussion.—Tenderness. Enlarged area of cardiac dulness extending as a triangle, apex upwards, to second rib, and even passing to right of sternum. Area of dulness may pass outside apex-beat.

Causation.—**Rheumatism. Bright's Disease. Scarlet Fever. Erysipelas** and other fevers. **Pyæmia.** Cold. Neighbouring abscess or cancer, etc.

PERICARDITIS.

May coexist with other inflammatory conditions, *e.g.*, **Pneumonia, Pleurisy.** If valvular disease coexist there may be orthopnœa. The œsophagus is in close relation to the pericardium.

Inspection.—Extended wave of impulse may be due to **Aneurism** or **Retracted Lung** exposing the left auricle.

Palpation.—Fremitus may be absent in recumbent posture, if effusion be excessive or purulent. Diffused impulse may be mistaken for cardiac dilatation; it is weaker than in cardiac **Hypertrophy.**

Auscultation.—Friction may be inaudible with excessive serous effusion or with pus; it ceases when adhesion occurs. Friction of a roughened pleura moved by heart may be mistaken for pericarditis. Endocardial murmurs may accompany those exocardial.

Percussion.—Extended area of dulness may suggest hypertrophy, but in pericardial effusion the sounds are indistinct. Extended dulness, apparently cardiac, may be due to solidification of the left lung.

Diagnosis.—From endocardial murmurs by the friction being felt and being heard as localized and not specially conducted in certain directions. Fremitus may be altered by pressure of the stethoscope on the chest, especially in young subjects. The friction is heard as superficial and more grating than an endocardial murmur.

CONGENITAL DEFECTS OF THE HEART.

Among the signs of malformation, or congenital defects of the heart and vessels, there may be cyanosis, clubbed fingers and toes, low temperature, a general want of development, or some special deformity of the mouth, ears, fingers, etc. Enquire as to the history of the mother's pregnancy.

Make physical examination of the heart; there may be hypertrophy of one or both ventricles in various forms of malformation. **Tricuspid Constriction** may result from fœtal endocarditis.

TRICUSPID REGURGITATION.

Systolic murmur at the lower part of the sternum to its right side or near the ensiform cartilage, not conducted to the aorta. Examine for other valvular lesions and **Emphysema.** As a primary disease it is rare and usually congenital. Examine jugulars for venous pulse, and see if they refill from below when emptied.

CONGENITAL DEFECTS OF THE HEART.

Some conditions are incompatible with life. The conditions most commonly met with are communications between the ventricles through the septum; this may be accompanied by a systolic bruit heard near the base of the heart, not conducted into the arteries. Cyanosis is not a necessary accompaniment; the bruit may not be constant. Patent foramen ovale but rarely produces a murmur; it is often accompanied by a contracted pulmonary orifice, which produces a systolic murmur at the base.

TRICUSPID REGURGITATION.

Usually secondary to mitral disease or emphysema; the right ventricle is then hypertrophied. At systole regurgitation takes place into the vena cava, causing venous pulse in the neck, the pulsation being perceptible to sight and touch. It may be temporary from over-distension of right ventricle during an attack of **Bronchitis.**

THORACIC ANEURISM.

Physical signs.—Pulsation, when the aneurism points against the chest-wall, most usually about third right rib. The chest-walls may be bulged, the ribs absorbed, and the tumour become prominent. Impulse may be felt with a thrill at same point. The heart may be displaced, but is not usually hypertrophied. The sternum or chest-walls may be heaved up without any prominent tumour. A systolic or double bruit may be heard at seat of impulse, but not necessarily so. Heart sounds may be heard as distinctly over the aneurism as over the heart itself. The aortic valves may be incompetent. Dulness over chest in an abnormal situation without signs of lung consolidation.

Pressure signs.—Pressure on one lung or bronchus causes dyspnœa on exertion, and loss of respiratory murmur over the lung compressed. Dysphagia from pressure on the œsophagus. Constant pain in back. Pressure on subclavian artery causing unequal pulses in radials. Pressure on veins causing œdema and enlargement of superficial veins. Irritation of sympathetic nerve in chest causing dilatation of the corresponding pupil, or its contraction if nerve is paralysed. Paralysis of one recurrent laryngeal nerve causing paralysis of the corresponding vocal cord, causing cough, laryngeal stridor, and metallic-toned voice. (*Note*—left nerve turns round arch of aorta, the right round the innominate artery.) Pressure on trachea causes spasmodic cough, often with tracheal respiration, heard over sternum and vertebræ.

THORACIC ANEURISM.

Prominent symptoms.—Pulsation on the surface of the chest with dulness at a point remote from cardiac impulse; dyspnœa on exertion; stridulous laryngeal breathing from paralysis of one vocal cord; pressure signs in thorax; **Angina Pectoris.**

Causation.—Atheroma of aorta. Syphilitic arteritis. Strains and injuries. Most common in men and in middle and later life. See **Vessels, Disease of.**

Diagnosis from chronic laryngitis; cough loud and paroxysmal with a ringing sound, laryngoscope showing palsy of one cord with no other disease. The pulmonary artery or left auricle may be uncovered by retraction of the left lung, and abnormal pulsation on the surface may result, with an enlarged area of dulness. A cancerous tumour may be pulsatile. Rarely an empyema may pulsate.

Course of disease.—The tendency of an aneurism is to increase in size. If blood is pumped into the sac at a pressure of one ounce to the square inch, that amount of pressure is exerted on each square inch of the aneurism. Pressure may cause absorption of vertebræ, ribs, sternum. The sac may burst into the pleura, lungs, pericardium, œsophagus, or externally, etc.

VESSELS, DISEASE OF.

Look for **Anæmia, Heart Disease, Œdema, Bright's Disease,** cutaneous hæmorrhages, loss of elasticity of skin, **Syphilis, Gout, Alcoholism.**

Arteries.—Examine all the superficial arteries, *e.g.*, radials, brachials, temporals, femorals, dorsales pedis, etc. Feel the condition of the vessels, whether soft or hard, rough upon the surface, rigid, calcareous, locomotor, tortuous, snake-like. **Embolism** may occlude any artery in the limbs: in spleen causes its enlargement with tenderness; in kidney temporary albuminuria or hæmaturia; in brain, hemiplegia. Retinal artery may be blocked.

Veins.—Most often diseased in lower extremities; may be enlarged, showing situation of valves. Varicose veins may become hard from occurrence of thrombosis, the clot organizing and becoming hard and cord-like; then ulcer of the skin may result.

Phlebitis may occur during fevers, *e.g.*, enteric, scarlet fever, erysipelas, the vein becoming tender, swollen, hard, cord-like. There may be œdema and subsequent abscess. Look for gout, pressure on the vein, cancer, phthisis, or other cause of great debility. Anæmia.

Capillaries.—Often seen dilated over malar bones in persons exposed to the weather; in **Cirrhosis of the Liver,** chronic Bright's disease, heart disease, alcoholism.

VESSELS, DISEASE OF.

Often coexists with general degeneration of the tissues of the body, and especially of the kidneys.

Arteries.—Disease may be senile degeneration or due to local injury or strain, atheroma, gout, rheumatism, syphilis, alcoholism. There may result **Aneurism,** aortic incompetency, thrombus, embolism, gangrene, cerebral hæmorrhage. **Embolism** may start from a diseased valve or point of atheromatous artery. Onset of symptoms often sudden; it may obstruct any systemic artery; it often occurs in brain.

Veins.—Staining of the legs in course of veins may result from constantly sitting before the fire. Varicose veins may result from long standing or constipation. Phlegmasia dolens after confinement.

Phlebitis or inflammation of a vein. The clot may break down and lead to pyæmia. It may be detached and carried to the right side of the heart and plug the pulmonary artery, or a branch, causing dyspnœa, hæmoptysis from collateral hyperæmia, syncope from arrest of circulation in the right heart, and sudden death.

Capillaries.—Chronic capillary congestion in a limb often seen when the nervous centres are diseased, *e.g.*, paralysis, idiots, etc.; hands blue and cold; chilblains.

DISEASES OF THE RESPIRATORY SYSTEM

CLINICAL REGIONS OF THE CHEST.*

Supra-clavicular.—From outer end of clavicle to trachea.

Clavicular.—Behind inner half of clavicle.

Infra-clavicular.—From clavicle to lower border of third rib, and outwards to a vertical line from the acromial angle which divides the anterior from the lateral regions.

Mammary.—Extends to lower border of sixth rib. The nipple is usually over the fourth rib.

Infra-mammary.—Extends to lower margin of the ribs.

Lateral regions: Axillary.—From apex of axilla to line continuous with lower border of mammary region, and bounded posteriorly by scapula.

Infra-axillary.—Extends down to the margin of the ribs.

Upper and lower scapular regions.—Above and below spine of scapula.

Inter-scapular region.—Between inner edge of scapula and spines of dorsal vertebræ.

Infra-scapular region.—From angle of scapula to margin of ribs.

Upper sternal.—Extends to lower border of third rib.

Lower sternal.—From third rib downwards.

* After Dr. Walshe: "Diseases of the Lungs."

CLINICAL REGIONS OF THE CHEST.

Supra-clavicular.—Contains apex of lung; this is usually highest on the right side; also portions of subclavian and carotid arteries, and large veins.

Clavicular.—Lungs, large arteries.

Infra-clavicular.—Upper lobe of either lung. Right side, close to sternal border, lies the superior cava, and part of the arch of aorta. Left side edge of pulmonary artery, the base of the heart being below.

Mammary.—Right side, middle lobe of lung. Left side, precordial area sloping outwards and downwards to a point about an inch below and internal to nipple.

Infra-mammary.—Right side, liver dulness, the lung encroaching to a variable extent on full inspiration. Left side, stomach, and inner portion of left lobe of the liver. Spleen rising to sixth rib in lateral region.

Lateral regions: Axillary.—Contains upper lobes of the lungs.

Infra-axillary.—Lower margins of the lungs sloping downwards and backwards. Right side liver, left side spleen and stomach.

Upper and lower scapular regions.—Contain lungs.

Inter-scapular region.—Lungs, main bronchi, and glands, descending aorta, œsophagus.

Infra-scapular region.—Lungs down to eleventh rib; liver lies below this on right side. Left side may be partially occupied below by intestine. Aorta descends along the left inner boundary.

Upper sternal.—Contains large vessels; transverse portion of the arch of aorta. Aortic valves at level of third right cartilage, pulmonary valves to the left. Bifurcation of trachea at level of second ribs.

Lower sternal.—Main portion of right ventricle and a small portion of the left resting upon the diaphragm and liver; at upper part a small portion of the left lung.

PHYSICAL EXAMINATION OF THE CHEST.

Inspection.—Observe general configuration; form, especially local or on one side, *e.g.*, bulging or retraction; observe spine, if straight. Chest movements—thoracic, abdominal. In health expansive movements are forward and upward. The sternum moves forwards and upwards on inspiration. Specially observe expansive movements in the infra-clavicular regions. In calm breathing abdominal movements are scarcely observable. Observe position of heart's apex-beat, and the condition of the intercostal spaces.

PATHOLOGICAL CONDITIONS.

Expansion, or bulging, may affect one or both sides; it may be general over one side or only affect a particular area. Observe intercostal spaces, whether bulged or sunken. Look for position of heart's apex-beat. In all cases carefully compare the corresponding regions on the two sides.

Retraction, or depression, may be general over one or both sides of the chest. It may be localized in one side, as in flattening or retraction in the infra-clavicular region, or in the axillary regions. Examine spine; it may be bent to side contracted with dropping of that shoulder. Contraction in infra-mammary regions common in infants from **Rickets** and collapse of lung.

Chest movements.—Deficient expansion may be bilateral and general, one-sided or local. There may be a permanent condition of expansion, *e.g.*, **Pleuritic Effusion** or permanent **Contraction.** In women respiratory movements are principally thoracic. Movements of diaphragm may be restricted by various conditions of the abdomen, *e.g.*, **Ascites,** ovarian tumour, **Abdominal Tumour.**

Rhythm of the respiratory act.—In health, if the total duration of one movement be taken at 10, inspiratory movement = 5, expiratory 4, pause 1.

PHYSICAL EXAMINATION OF THE CHEST.

Inspection.—The general form should be symmetrical on the two sides, and slightly convex in the infra-clavicular regions. Shoulders should be on the same level, and the spine straight. Specially observe movements, and **Signs of Retraction** in the infra-clavicular regions. The two sides of chest should be symmetrical, but in men muscular development may cause greater fulness on the right side. There may be expansion, or bulging, or retraction, or altered chest movements. Chest may be deformed from **Rickets.**

PATHOLOGICAL CONDITIONS.

Expansion, or bulging.—General enlargement of both sides may be due to **Emphysema.** If one-sided from **Pleuritic Effusion** or pneumo-thorax, the heart is then generally displaced. Local bulging may be due to **Aneurism,** mediastinal tumour, encysted empyema; in right infra-axillary region from enlargement or tumour of liver. In children **Cardiac Hypertrophy** may cause local bulging.

Retraction, or depression, implies contraction of the lung corresponding, as from consolidation or pleurisy. It may be general in atrophous emphysema. In infra-clavicular regions it is an important indication of **Phthisis.** Collapse of lung may occur from **Laryngeal Disease,** and accompanies "pigeon-breast" in rickets.

Chest movements.—Movements may be restricted by the pain of a pleuritic stitch or by pleurodynia; by ossification of the ribs or by conditions of the lung and pleura. Deficient movement in the infra-clavicular spaces accompanies contraction of the apex. In **Emphysema** vertical movement of the sternum is usually unaccompanied by any forward expansive movement.

Rhythm of the respiratory act.—Duration of expiratory movement may be greater than the inspiratory, *e.g.*, in obstruction to entry of air, in emphysema. Inspiration may be short and abrupt.

PHYSICAL EXAMINATION OF THE CHEST.

Palpation.—Observe movements of the chest, both general and local. Compare the two sides. Determine the intensity of tactile vocal fremitus (T.V.F.) in various situations. A friction fremitus from pleurisy or pericarditis, or from a rhonchus in young subjects, may be detected.

Percussion.—Percus each region of the chest, and determine the boundaries of the heart and liver, height of apices of lungs in neck. If the percussion note varies from the normal, determine the area of this abnormality, and compare with the same region on the other side.

Hyper-resonant or tympanitic.

Cracked-pot sound.—Jerky and with metallic character.

Amphoric.—Like the sound of filliping the cheeks tensely distended.

AUSCULTATION.*

Note separately inspiration and expiration, their character, relative duration, and whether accompanied by adventitious sounds. Auscultate each region of the chest.

Normal respiration.—Vesicular murmur; breezy.

Puerile respiration.—Exaggerated in both sounds, increased in intensity, especially the expiratory.

ABNORMAL SOUNDS FROM ALTERED CONDUCTIVITY OF LUNG-TISSUE.

Harsh respiration.—Loss of natural softness and breeziness. Expiration increased in duration and in intensity.

Bronchial respiration.—A higher degree of harsh respiration. Both inspiration and expiration are altered.

Tubular respiration.—Air heard drawn in and puffed back with a metallic character.

Cavernous respiration.—Hollow metallic sound.

* These definitions are mostly quoted from Dr. Walshe, op. cit.

PHYSICAL EXAMINATION OF THE CHEST.

Palpation.—Of great value in detecting local contractions and impairment of movement. T.V.F. (tactile vocal fremitus) increased (usually) over **Solidified Lung** and diminished over a **Pleuritic Effusion.**

Percussion.—In health the sound is resonant, and resistance vibratile over lung. Sound approaches dulness and resistance increases with various degrees of consolidation of the lung, or pleuritic effusion. Dulness may be noted on superficial or deep percussion only.

Hyper-resonant or Tympanitic.— Over **Emphysema** or **Pneumo-thorax.**

Cracked pot. — Over a vomica; sometimes in young children without disease.

Amphoric.—Vomica. Pneumo-thorax.

AUSCULTATION.

Helps to determine the physical condition of the lungs, and the position of their margins. In health duration of inspiratory sound to the expiratory is as 3 : 1 (inspiratory movement of chest to expiratory as 5 : 6). Note separately the respiratory murmur and any adventitious sounds.

Puerile respiration.—Normal in children. In adults frequently due to a portion of lung doing extra work (supplemental respiration) on account of neighbouring lung-tissue consolidated or compressed.

ABNORMAL SOUNDS FROM ALTERED CONDUCTIVITY OF LUNG-TISSUE.

Harsh respiration.—In moderate degrees of consolidation and in **Emphysema.**

Bronchial respiration.—Indicates slight condensation of lung substance.

Tubular respiration.—Perfectly developed over hepatized lung in pneumonia.

Cavernous respiration.—Indicates probable cavity from phthisis; dilated bronchus.

AUSCULTATION.

ADVENTITIOUS SOUNDS.

Rhonchi.—Whistling, cooing, bubbling, crackling sounds.

Sonorous rhonchus.—Inspiratory and expiratory usually; sometimes heard without contact with the chest. It is a snoring sound.

Sibilant rhonchus.—Dry sounding; high pitched, sometimes hissing in character; whistling.

Crepitations are crackling râles occurring in successive puffs, all resembling one another. They may occur with inspiration or expiration.

Fine crepitation resembles the sound produced by rubbing hair near the ear; it occurs on inspiration in the first stage of **Pneumonia.**

Pleural friction sound.—Heard only with respiratory movements, except that occasionally a lung, roughened at its margin, is moved by the heart. It may be heard on inspiration and expiration; jerky in character; grating; like a simple brush; or a creak like that of new leather.

COUGH.

Note character and frequency; paroxysmal, *e.g.*, **Hooping Cough**; whether occurring in prolonged attacks; accompanied by **Sputa.**

Causation.—**Bronchitis**; lung disease; **Phthisis**; bronchopneumonia; **Pleurisy**; **Heart Disease**; pressure on air tubes in chest, *e.g.*, **Aneurism**, mediastinal tumour, enlarged bronchial glands. See hooping cough. Reflex causes; examine **Mouth**, fauces, pharynx, **Larynx.**

AUSCULTATION.

ADVENTITIOUS SOUNDS.

Rhonchi may be greatly altered by a cough; they may disappear and return, being much less constant than the frictions, which they sometimes resemble. They are characteristic of **Bronchitis**, and are frequently so loud as to mask all respiratory sounds. The fremitus produced by a rhonchus may commonly be felt in children on palpation.

Crepitations may be mistaken for pleuritic friction. Small bubbling crepitations are heard at bases in **Pulmonary Œdema**. Scattered crepitations are commonly heard at the apices in **Phthisis**. Crepitations are sometimes absent till patient has coughed and cleared the bronchus leading to the seat of crepitus.

Pleural friction sound.—It is more lasting than a rhonchus, and cannot be coughed away. It indicates a roughened pleura, but may not be heard in **Pleurisy** on account of **Pleuritic Effusion** or the hepatization of lung beneath pleura preventing its movement.

COUGH.

Not a necessary accompaniment of lung disease, and often not dependent upon lung disease. Prolonged attacks of coughing sometimes cause so much asphyxia that temporary loss of consciousness arises from passive congestion of the brain.

SPUTUM.

Its amount, consistence, whether aërated, colour, mixture of substances, blood, colourless, mixed with blood, streaked with blood, yellowish, white; frothy, mucilaginous-looking, watery, viscid, grumous; mucus, purulent, numulated in viscid masses.

HÆMOPTYSIS.

Causation—

Valvular disease of left side of heart (pulmonary).
Valvular disease of right side of heart (bronchial).
Embolism of pulmonary artery from peripheral veins (infarction).
Embolism of bronchial artery from left side of heart.
Blow on chest.
Bronchitis. Plastic bronchitis. Foreign body in trachea.
Blood entering the larynx and coughed up.
Aneurism bursting into bronchus.
Spasmodic **Asthma** (bronchial).
Emphysema. Asphyxia (bronchial).
Scurvy. Hæmorrhagic diathesis.
Renal disease (vessels diseased). **Uræmia** (blood changes).
Degeneration of tissues and vessels (alcoholic)
Phthisis. Cancer of lung.
Pneumonia. Abscess of lung.
Vicarious menstruation attended with amenorrhœa.

After an attack of hæmoptysis there may be signs of blood having run down to base of lungs (crepitations and dulness). It may occur accidentally without organic disease. Hæmorrhage from the throat may be mistaken for hæmoptysis.

SPUTUM.

Often frothy, watery, colourless in early **Phthisis**; later purulent, copious, and when vomicæ have formed numulated. Viscid, sticky, golden coloured in **Pneumonia**, and prune-juice colour if mixed with blood. White, aërated, frothy in simple bronchitis. Stinking with gangrene of lung, and in some cases of dilated bronchial tubes.

Diagnosis of HÆMOPTYSIS from HÆMATEMESIS.

Blood ejected.—Bright, frothy, may be mixed with mucus. Alkaline.	Dark, clotted, mixed with food. Acid.
Manner of ejection.—Coughed up, expelled without effort; faintness subsequent to ejection. No food expelled.	Vomited mixed with food. Acid. Patient often faints before ejection.
Premonitory symptoms.—Cough, signs of **Phthisis**, previous specks of blood with expectoration.	Signs of **Ulcer** or **Cancer of Stomach**, pain with food, epigastric tenderness, malaria. **Cirrhosis of Liver.**
Subsequent symptoms.—Subsequent expectoration of mucus and blood.	Subsequent blood by stool, usually black, tar-like matter.

Hæmoptysis is mostly due to disease of the lungs or heart. It may also be due to blood changes, *e.g.*, uræmia. Carefully examine heart, lungs, urine. P. = ; T. = ; R. = ; W. = . Enquire as to history of lung disease in patient or his family, also for early deaths in family. General condition of nutrition, etc. Hæmoptysis may apparently be sometimes purely accidental in a lung previously healthy, and blood remaining in the lung may set up phthisical changes.

DYSPNŒA.

General condition.—Position of the patient, orthopnœa, cyanosis, fulness of the veins, **Œdema, Anæmia.** P. = ; T. = ; R. = . Note any stridulous breathing or sign of **Laryngitis.** Respiratory movements, whether thoracic or abdominal; if accompanied by collapse of the base of the chest or recession of the epigastrium on inspiration. Ability to speak; voice. Character of the dyspnœa, constant or paroxysmal; causing much distress; attended with pain, cough, and expectoration. Increased by exertion or occurring on exertion only (probably cardiac). Examine the lungs, heart, urine. Note condition of the circulation, **Pulse, Vessels.** Respiratory muscles, if in a state of over-action, especially the sterno-mastoids. Action of alæ nasi. Fixation of the arms to enable chest muscles to act at greater advantage. General condition of the **Nervous System.**

PULMONARY ŒDEMA.

At base of lungs abundant small bubbling râles. T.V.F. may be increased or diminished. On percussion resonance diminished and resistance increased. Dyspnœa.

DYSPNŒA.

Causation.—

Structural changes.—**Emphysema**; **Phthisis**; **Pneumonia**; **Bronchitis.** Œdema of lungs. **Pleuritic Effusion,** pneumo-thorax, acute pleurisy. Upward pressure of diaphragm from ascites.

Conditions of pulmonary circulation.—Congestion. Heart disease. **Embolism** of pulmonary artery. Clot in heart. Heart failure as when fatty or dilated. Aneurism or mediastinal tumour pressing on trachea or bronchus.

Laryngeal obstruction.—Laryngitis; paralysis of cord; growth upon cord; œdema of larynx.

General condition.—Anæmia. Fever. **Uræmia.**

Nerve conditions.—**Asthma. Hysteria.** Paralysis of nervous centres. **Graves' Disease.** Spasm of respiratory muscles, *e.g.*, from tetanus.

ŒDEMA OF LUNGS.

In the course of pneumonia it may occur in lung tissue adjacent to that inflamed, or in the opposite lung. May attend bronchitis or any lung disease. With pleuritic effusion may attack the other lung. **Uræmia**; **Fevers**; **Passive (cardiac) Congestion** from valvular disease, or degeneration of heart's walls. Frequent in conditions of prostration with dorsal decubitus.

CONTRACTION OF LUNG.

Inspection.—Over portion of lung contracted, thorax contracted; expansion (inspiratory) diminished. Contraction of one side of chest suggests previous **Pleurisy**; of an apex, **Phthisis**. Contraction of left lung may uncover left auricle. Look specially at infra-clavicular regions in adults, and at bases in infants.

Palpation.—Note diminished expansion, general, one-sided, or local. Position of heart; it may be drawn over by a contracting lung. Pulsation of left auricle may be felt if left lung is contracted. T.V.F. may be increased.

Percussion.—Sound may be of impaired resonance from thickening of pleura with lung consolidation. The resistance felt may be increased. Frequently dulness exists from coincident consolidation.

Area of pulmonary resonance above clavicle diminished over a contracted apex.

Auscultation.—Respiratory sounds usually weak and may be abnormal from altered conditions of the lung.

Look for signs of **Consolidation. Phthisis.**

SOLIDIFICATION OF LUNG.

Inspection.—Very commonly coincident signs of contraction, especially if the consolidation is at the apex.

Palpation.—T.V.F.* increased. Diminished expansive movement may also be detected. Note area affected and whether over one or both lungs.

Percussion.—Dulness or various degrees of impaired resonance may be observed over area of solidification; line of dulness not level, and changing with position of patient as in pleuritic effusion. Note effect of light and deep percussion.

Auscultation.—V.R.† increased. Respiration harsh, bronchial, or tubular; may be cavernous if there be excavation. Puerile in neighbourhood of consolidation.

Look for signs of **Contraction of Lung**; **Phthisis**; **Pneumonia.**

* T.V.F. = Tactile vocal fremitus.
† V.R. = Vocal resonance.

Diagnosis of **PNEUMONIA** from **PLEURITIC EFFUSION.**

Inspection. — Expansion diminished. No contraction of chest unless lung shrinks from chronic changes.	Bulging of side of chest affected, also of the intercostal spaces. As fluid is absorbed contraction and bending of spine to side affected.
Palpation.—T.V.F. increased (sometimes diminished), occasionally a pleuritic fremitus felt.	T.V.F. absent below line of dulness; may be increased above. Fremitus in first stage.
Mensuration. — Rarely any bulging.	Bulging usual. Tracing by cyrtometer.
Auscultation. — First stage, fine inspiratory crepitant râles, often also pleuritic rub. Second stage, tubular respiration. Rhonchus or scattered râles. V.R. increased. Resolution: Redux loose crepitus, inspiratory and expiratory. Friction sound may return.	First stage, pleuritic friction, inspiratory, expiratory, or both. Second stage, effusion. Respiratory murmur absent in axilla, frequently blowing respiration near spine; puerile at apex. V.R. absent or œgophonic. Resolution: Return of respiratory sounds at base. Redux friction.
Percussion.—Dulness at base, usually following the line of lower lobe downwards and forwards. Increased resistance felt. No change with alteration of position.	Line of dulness at base level coming round to the front. Dulness shifting with position of patient. May be tympanitic above fluid.
Determination of the position of heart and liver. No displacement.	Heart displaced, especially with effusion on left side; liver may be depressed.

PLEURISY.

Friction heard during inspiration, or expiration, or during both periods; it is lost after effusion has occurred, and may return after absorption of fluid or reduction of a pneumonia.

Friction of pleural surface usually attended with pain, causing patient to hold his breath; he lies on side affected.

If the pleurisy be secondary to lung disease, *e.g.*, phthisis, symptoms will be those of the lung disease. Pyrexia in pleurisy lower than the inflammatory fever of pneumonia.

See signs of **Pleuritic Effusion.** P.= ; T.= ; R. =.

Causation, see same in **Pneumonia.**

EMPYEMA.

Often not distinguishable from serous effusions before tapping. It is most common in young subjects, debilitated or very strumous. Also when effusion is very chronic. Temperature not necessarily high. More displacement of chest walls and viscera than with serous effusion.

HYDRO-THORAX.

Passive dropsical effusion without pleurisy. May occur from **Passive (cardiac) Congestion, Bright's Disease,** etc. It is usually double and unaccompanied by fever.

PHTHISIS.

Physical signs.—**Signs of Consolidation** and **Contraction of Apex** of lung. Carefully inspect movement in infra-clavicular fossæ on each side, examining for signs of contraction of the apex. Palpate, noting if T.V.F. is increased. In some cases the left auricle is uncovered from contraction of the left lung. Percussion gives a dull or wooden note; note the sound of light and deep percussion. The resistance increased over consolidated lung. It may be amphoric over a vomica, but still the resistance is augmented. Auscultation shows V.R. increased, respiration harsh or bronchial, with adventitious sounds, scattered râles, crepitation.

Digestion.—Dyspepsia often troublesome. **Diarrhœa** may be due to tubercular **Ulceration of Intestines.**

Circulation.—Note force and strength of heart's action; it often partakes in the general wasting.

Nervous system.—General condition. Sleep.

Urine.—Albuminuria may be present. **Diabetes** is a frequent cause of phthisis.

PHTHISIS.

Cough, with expectoration and **Hæmoptysis**, debility and weakness, emaciation. Sweatings, especially at night. Flushings; fever; dyspnœa on exertion. Anæmia, and in women amenorrhœa. Muscular irritability often marked. In pregnant women phthisis is often temporarily arrested, becoming active after parturition. In advanced cases there may be œdema of the legs.

Causation.—Inheritance; history of consumption or **Scrofulous** disease in family; give ages of any members of the family who died. Hygienic conditions, locality of residence with regard to climate and dampness, dusty trades. Exposure to cold. Sequent to acute lung diseases, or hæmoptysis. A common termination in diabetes mellitus.

Complications.—**Laryngitis**, bronchitis, pneumonia, hæmoptysis, **Pleurisy**, empyema, pneumo-thorax.

Failure of heart's action; thrombosis; bed-sores. Diarrhœa or **Melæna** from tubercular ulceration of intestines; fistula; **Peritonitis**; **Liver large**, fatty or amyloid; **Albuminuria**; **General Miliary Tuberculosis**; **Œdema** of legs.

Signs of a cavity (vomica). Percussion, giving a metallic crack-pot sound on auscultation; respiration blowing, tubular, cavernous, with moist râles at apex. Pectoriloquy.

PNEUMONIA.

Physical signs.—Signs of **Consolidation** over hepatized lung. Earliest sign, fine inspiratory crepitation resembling the rustling of hair; there may be also a pleuritic friction. In hepatization, dulness along outline of the lobe solidified; if at base, sloping downwards and forwards. T.V.F. usually increased. Respiration tubular and often accompanied by rhonchus and râles. Voice broncho-phonic. On resolution respiration becomes less tubular; crepitation loose inspiratory and expiratory (= redux crepitation). A return of the friction rub may be heard.

Digestion.—Tongue furred; thirst; anorexia. There may be vomiting, diarrhœa, **Jaundice.**

Circulation.—Note force of impulse and first sound of heart. Characters of pulse.

Nervous system.—General condition of **Nervous System**; sleep, restlessness, **Delirium.**

Urine.—Scanty, with excess of lithates; chlorides deficient. May be albuminous.

Complications.—Pulmonary œdema; collateral congestion. Bronchitis; high fever; failure of heart, pulse becoming weak and soft. Jaundice; **Delirium**; **Albuminuria**; **Typhoid State.**

PNEUMONIA.

In acute cases onset sudden with rigor, fever, quick breathing. Pleuritic pain and dyspnœa usually subside with the pyrexia, and coincidently with the signs of hepatization. Cough; expectoration viscid, golden colour, occasionally streaked with blood; it may be accompanied by aërated, frothy bronchial sputum. Note date of disease; P.= T.= ; R.= . Pleuritic pain may return during resolution. Symptoms usually subside by crisis; dyspnœa, fever, distress passing off suddenly, leaving lung hepatized and patient prostrated.

Classes of Pneumonia.—Acute sthenic as above described: usually at base. Asthenic with adynamic symptoms: less sudden onset and no marked crisis; less distinctly marked signs of solidification; much tendency to bronchitis and pulmonary œdema, patient tending to the **Typhoid State.**

Pneumonia of the apex. Frequently accompanied by grave nervous disturbance, and long convalescence or subsequent phthisis.

Causation.—Exposure to cold. A complication of fevers. Secondary to chronic disease, *e.g.*, of lungs or kidneys; rheumatism; injury; adjacent inflammation or disease, *e.g.*, pneumonia, cancer, tubercle.

EMPHYSEMA.

Physical signs.—Chest may be large or small; expansion is markedly diminished, and such movement as there may be is usually vertical without forward expansion. Heart's impulse more or less encroached upon, and marked by lung covering it, but it may be felt as somewhat diffused. General hyper-resonance on percussion. Absolute dulness over heart may be wanting with an extended area of relative dulness. On auscultation, expiratory sound much prolonged; feeble and toneless, harsh, often accompanied by rhonchi and sibili. Liver may be depressed.

Circulation.—Pulse feeble; right ventricle dilated; heart may be hypertrophied. **Passive Venous Congestion.**

Urine.—May be scanty and albuminous. **Chronic Granular Kidney** not uncommonly accompanies emphysema.

Causation.—Vicarious dilatation, *e.g.*, adjacent to pulmonary collapse or consolidation, or cells obstructed by bronchitis. Paroxysmal cough; laborious work; **Hooping Cough**; heart disease; **Alcohol**; **Gout** leading to ill-nourished condition of lungs. Senile changes.

EMPHYSEMA.

Lungs lose their elasticity, much aërating surface is lost, and many pulmonary capillaries destroyed, thus obstructing the flow from the right ventricle. Passive venous congestion results. The difficulty of expanding lungs with diminished elasticity throws respiratory muscles into strong action, and the sterno-mastoids are often hypertrophied.

The patient may emaciate or grow fat; in neither case is nutrition good. Usually chronic winter cough and liability to acute bronchitis.

Complications and accompaniments.—Heart: right **Ventricle Dilated** and hypertrophied; veins large; cyanosis; **Tricuspid Regurgitation**. Œdema of feet. **Bronchitis** due to passive congestion of bronchial veins, which empty their blood into the right heart. Dyspnœa on exertion.

Albuminuria may be from coexisting Bright's disease, and is then usually constant; if albumen be due to renal congestion, it may pass off with other signs of congestion, the albumen lessening and the quantity of urine increasing.

Cutaneous capillaries of cheek often enlarge.

BRONCHITIS.

Physical signs.—If bronchitis is secondary to, or complicates other disease of lungs, the signs will be partly those of that other diseased condition.

Auscultation.—Often gives negative results, especially in chronic winter bronchitis. Rhonchi; sibili; râles.

Palpation.—Rhonchi are sometimes felt by the hand, especially in the elastic chests of infants. Palpate heart.

Percussion.—No change from the normal, or temporary tonelessness in parts.

Inspection.—Observe chest movements; collapse of chest at apices, or in hypochondriac regions. **Dyspnœa.**

Urine may be albuminous, a similar cause producing Bright's disease and bronchitis. See **Albuminuria.**

Inquire for—P. = ; T. = ; R. = ; W. = . Signs of **Consolidation of Lungs**; signs of contraction. **Cough; Expectoration; Hæmoptysis.**

ASTHMA.

Respiration.—Percussion unaltered during paroxysms; shrill whistling sibili. Examine lungs during paroxysms and during intervals. The paroxysms, note their frequency and duration, exciting and predisposing causes. Cough; expectoration.

Causation.—Hereditary tendency to neuroses. Reflex ceases, uterine, constipation. Tubercular diathesis; **Emphysema; Heart Disease; Uræmia.**

BRONCHITIS.

This condition may be acute or chronic; primary or secondary to other disease, *e.g.*, **Emphysema, Phthisis, Pneumonia,** etc.

It is characterized by cough, with expectoration usually frothy and watery, sometimes viscid or purulent; dyspnœa. Fever usually slight, but high in children. Post-sternal pain and tenderness, increased on coughing; skin over sternum sometimes sore.

Causation.—Exposure to cold; fevers; bronchitis secondary to chronic lung conditions; phthisis; emphysema secondary to acute conditions; pneumonia; pleurisy.

Secondary to heart disease; **Rickets**; mechanical irritants.

Course of disease if towards fatal termination.—Inability to expectorate. Rapid respiration. Pulse becoming weak, compressible, irregular; heart distended on the right side; veins prominent; cyanosis. **Œdema** of legs increasing. Râles all over lungs. Sleeplessness. Tendency to **Coma** and the **Typhoid State.**

Urine scanty and albuminous. Temperature falling. In children collapse of chest at bases with infalling of epigastrium.

ASTHMA.

An affection characterized by paroxysms of dyspnœa.

Paroxysms.—Orthopnœa; respiratory muscles, ordinary and extraordinary, at work. Chest fully dilated and respiratory movement almost nil. Sense of want of air. Voice weak or lost. Onset of paroxysm sudden, subsidence rapid; they frequently occur at night. They may be preceded by drowsiness and a sense of fatigue.

LARYNX, DISEASE OF.

Acute conditions.—**Diphtheria,** croup, catarrh, œdema, laryngismus stridulus.

Chronic conditions.—Laryngitis: syphilitic, strumous, or phthisical. **Hysteria.** Palsy of vocal cords, or one cord.

General condition.—P. = ; T. = ; R. = ; W. = . State of nutrition; signs of struma or **Syphilis; Rickets; Phthisis.**

Digestion.—Examine mouth and fauces, using laryngeal reflector.

Circulation.—Examine heart as to strength and dilatation of right side; venous fulness; strength and regularity of pulse.

Respiration.—Signs of laryngeal disease; laryngoscopic appearances; movements of cords. Bronchitis, œdema of lungs, pneumonia, etc. Chest movements. Look for **Phthisis.**

Nervous system.—Signs of **Convulsions,** thumb turned in fist; chronic spasm of muscles; hysteria. Palsy of one cord, usually from pressure on recurrent nerve. See **Aneurism.**

Urine often albuminous in diphtheria; there may be coincident acute Bright's disease.

LARYNX, DISEASE OF.

Signs of Laryngeal disease.—Voice husky or lost; stridulous inspiration, aphonia, cough, dyspnœa, cyanosis. Dilatation of right side of heart, and other signs of obstruction to the entrance of air, *e.g.*, infalling of supra-sternal notch, supra-clavicular spaces, and epigastrium, and in young children collapse of the hypochondriac regions. Tracheotomy may be required when this obstruction is extreme; in such a case observe the condition of the heart, pulse, and circulation before and after operation.

Laryngismus Stridulus.—Mostly in children; spasmodic crowing sound on inspiration, child being well in intervals. Frequent during dentition, in **Rickets**, and associated with general **Convulsions.**

Œdema may occur during **Bright's Disease, Erysipelas**, etc., acute catarrh from cold, or with onset of **Measles.** In **Hysterical Aphonia** cords are seen healthy but motionless; pharynx often very anæsthetic.

DISEASES OF THE DIGESTIVE SYSTEM

SIGNS OF DIGESTIVE FUNCTIONS.

Appetite.—Good, bad, indifferent, altogether lost. Frequency of recurrence, capricious and fanciful; variable, excessive, voracious. Nausea. **Vomiting.**

Fulness or pain after food. Enquire how soon after food; its character and duration; whether pain is relieved by vomiting. Whether pain without food. Flatulence and eructations.

Eructations. Heartburn. Water-brash. Pyrosis.

State of Bowels.—Regular, constipated, relaxed, with or without pain. **Diarrhœa**; frequency of action. If disturbed see and describe the motions—solid, liquid, light, clay-coloured, dark, black; hard scybalæ, flattened or tape-like, well formed, with blood, pus, etc.

SIGNS OF DIGESTIVE FUNCTIONS.

Appetite increases with thirst in **Diabetes.** Anorexia (loss of appetite) and thirst in **Fever.** In children often variable, especially in nervous cases; they often drink much in health, when urine is scanty with high sp. gr. Appetite is often lost in functional disturbance of the nervous system, *e.g.*, over-work, loss of sleep. In **Hysteria** and insanity the appetite may be greatly perverted; so also during pregnancy.

State of Bowels.—Constipation may result from **Plumbism,** senile atrophy of bowels, inactive habits of life, ill-arranged diet.

Relaxation or looseness from **Dysentery, Ulceration of Bowels,** or other organic condition. In infants from ill-feeding or summer heat.

EXAMINATION OF THE MOUTH AND THROAT.

On obtaining a good view of all parts of the mouth, see—tongue; hard and soft palate, with uvula; pillars of the fauces, anterior and posterior; tonsils; pharynx; the buccal cavity; cheeks and lips, mucous membrane; gums; teeth.

Tongue.—Mucous membrane and condition of muscle. Indented at edges by the teeth; flabby; clean or coated with fur; white, yellow, dirty, dry, or moist. Enlarged papillæ at tip projecting through fur. How protruded; straight or deviating to one side, kept well out and steady, or a jerked, tremulous, distinct muscular tremor.

Palate and Uvula.—High arched roof, cleft. Ulceration, destruction of soft palate, adhesions. Movements of soft palate and fauces.

Tonsils.—Enlarged, one or both. Smooth, pale or congested; with large follicles. Ulcers superficial or deep, if symmetrical. Exudation on surface.

Pharynx.—Mucous membrane and movements. Look for ulcers or old scars and adhesions. Thrush in children; exudation in diphtheria.

Teeth.—Look for tender teeth; those subject of caries; see if wisdom teeth be cut. Note condition to dentition in infants.

Gums.—Whether of normal substance or shrunken; condition of mucous membrane.

EXAMINATION OF THE MOUTH AND THROAT.

It is necessary to obtain a good light in the pharynx; hence it is often convenient to use a lamp and the frontal reflector of laryngoscope. There may be signs of local or general disturbance.

Tongue.—Flabby and coated in dyspepsia; often red with **Gastric Ulcers** and **Cerebral Vomiting.** Protruded to one side in **Hemiplegia.** Tremulous in **Alcoholism,** excessive smoking, **General Paralysis of the Insane.** Jerked and twitching in **Chorea.** Ulceration from local irritation. **Syphilis.** Epithelioma.

Palate and Uvula.—Palate high, arched, flat, cleft. Ulceration, scars, adhesion from scrofulous disease or **Syphilis.** Uvula commonly elongated. Movements of palate and uvula affected in palsy of Nerve VII.

Tonsils.—Chronic enlargement in rickets, often with deafness. Ulcers symmetrical in secondary syphilis. See quinsy, **Diphtheria,** syphilis.

Pharynx.—Scars from syphilis or strumous ulceration. Paralysis from diphtheria. Epithelioma. Post-pharyngeal abscess from spinal caries.

Teeth.—Upper central incisors (of second dentition) may be dwarfed, with atrophy of the middle lobe in **Inherited Syphilis.** Much ground in gouty people and children who suffer from **Headaches.**

Gums.—Blue line in **Plumbism.** Spongy in mercurialism. Swollen and bleeding in scurvy. Covered with sordes in fever.

DIARRHŒA.

Note mode of onset and duration; if attended with pain, griping; **Melæna**; tenesmus (frequent desire to evacuate the bowels, but without effect). Whether acute with paroxysmal griping, melæna, collapse, as in cholera.

Motions passed.—Relaxed, liquid, pea-soup-like; containing bile or not; scybalæ, shreds of mucous membrane, undigested food, worms.

VOMITING.

Note the frequency of vomiting; whether it occurs only after food; whether giving relief to symptoms; if affected by position. State of tongue and bowels. Examine abdomen for tenderness; signs of disease of stomach. See general condition of **Nervous System.** Signs of **Brain Disease.** Examine urine.

Matters vomited.—Food unchanged; bile-stained fluid; clear acid fluid; yeast-like matter containing sarcinæ seen on microscopical examination; blood (hæmatemesis); dark coffee-grounds-like matter, altered blood; lumbrici. Fæcal matters may be thrown up in obstruction of bowels low down.

DIARRHŒA.

May be indicative of local disease or general disturbance.

Causation.—Disease of the bowels; **Tubercular Ulceration**; **Amyloid Disease**; stricture of bowel, rectum; scybalæ; enteric fever; **Dysentery**; cholera; erysipelas, etc.; **Bright's Disease**; ill-feeding; **Alcoholism**; exposure to heat and cold; poisoning; **Rickets**; nervous disturbance; **Graves' Disease.**

VOMITING.

May indicate local or general disturbance or brain disease. See **Cerebral Vomiting.**

Causation.—

Stomach.—Gastritis; dilatation of stomach; catarrh secondary to **Cirrhosis of the Liver**; irritating food; **Alcoholism**; poisons; **Cancer**; **Gastric Ulcer**; constriction of pylorus or duodenum.

Reflex causes.—Pregnancy; ovarian disease; uterine disturbance; dysmenorrhœa; dentition; intestinal worms; **Gall-stones**; **Renal Calculus**; **Addison's Disease**; liver disease, cancer, abscess, etc.; disturbance of special senses, glaucoma, ear disease. Attendant on paroxysms of hooping cough.

Brain disease.—**Headache**; **Hysteria.** See **Cerebral Vomiting.**

Blood conditions.—Fever; malaria; **Bright's Disease**; **Obstruction of Bowels**; **Peritonitis.**

ACUTE ABDOMINAL PAIN.

Enquire as to digestive functions; previous attacks of **Biliary Colic**, **Renal Colic**, gastric ulcer.

Examine mouth and tongue for indications of **Gastric Ulcer**, poisoning; and gums for blue lead line.

Palpate and examine abdomen; note if tender and tympanitic; position of the patient, whether still and prostrate or moving about. In females look for signs of pregnancy, uterine action, or hæmorrhage.

Examine heart, pulse, skin, pupils, urine. T. = . Note if much collapsed; whether able to speak; whether vomiting.

DYSPHAGIA.

General Condition.—**Anæmia.** Signs of **Cancer.** General condition of **Nervous System.** Syphilis. Senile degeneration.

Digestion.—Examine mouth and throat for ulceration, scars, etc. Auscultate spine while patient drinks, looking for gurgling at one point. Pass œsophageal bougie.

Vascular system.—Signs of disease of vessels or aneurism.

ACUTE ABDOMINAL PAIN.

Causation.—Rupture of hollow viscera, stomach, intestine, bladder. **Renal** or **Biliary Calculus.** Irritant poison. Over-feeding. Colic, simple or from gout. **Plumbism,** often relieved by pressure. Rupture of abdominal **Aneurism,** abscess, **Hydatid. Peritonitis.** Perihepatitis. Ulceration of bowels with peritonitis or perforation. **Tubercular Ulceration.** Acute disease, *e.g.*, cholera. In females during pregnancy, concealed accidental hæmorrhage.

Pain and tenderness suggest enteritis or peritonitis, rather than colic, the latter being often relieved by pressure.

DYSPHAGIA.

Causation.—Tonsillitis; syphilitic ulcerations; disease of larynx; cancer of œsophagus or of cardiac end of the stomach; thoracic tumour; abscess, post-pharyngeal or mediastinal; **Aneurism**; traumatic injury or action of caustics; **Diphtheritic Paralysis**; **Bulbar Paralysis.**

In **General Paralysis of the Insane** there is much tendency to choking. **Hysterical** dysphagia.

HÆMATEMESIS.

Enquire as to the general signs of the **Digestive Functions**, previous vomiting, pain, tenderness, etc. See causes of **Vomiting**. Examine the matters vomited and the motions as to hæmorrhage, etc. Examine the abdomen generally. Look for disease of stomach and liver. Examine lungs and heart to determine absence of causes of hæmoptysis. See diagnosis of **Hæmoptysis** from **Hæmatemesis**. **Urine**. **Anæmia**. Amenorrhœa.

MELÆNA.

General condition.—State of nutrition. **Anæmia** or cachexia.

Digestion.—Examine motions; presence of abdominal pain or signs of gastric disease, pain on defæcation, etc.

Enquire for signs of **Cancer**; history of malaria; previous diarrhœa; signs of stricture of bowels.

Examine abdomen; if necessary examine rectum; urine; lungs, as to signs of tubercular disease.

HÆMATEMESIS.

Causation.—**Gastric Ulcer.** Corrosive poisons. **Cancer of Stomach.** Continued vomiting (reflex). Acute gastric catarrh. **Lardaceous Disease.** Pyloric ulcer. **Bright's Disease;** uræmia. **Passive Congestion** of stomach. Scurvy. **Cirrhosis of Liver.** Vicarious menstruation. Blood swallowed and vomited. Patient often faints from hæmorrhage, previous to the discharge of the blood from the mouth.

MELÆNA.

May be caused by all the causes of **Hæmatemesis,** the blood passing from the stomach to the intestines. **Cirrhosis of Liver,** or other obstruction to portal circulation. **Ulceration of Bowels,** tubercular. **Gastric Ulcer.** Cancer of bowels. **Enteric Fever. Dysentery. Intussusception.** Pelvic hæmatocele or abscess. Piles may cause bleeding from the anus. Villous growth in rectum. **Bright's Disease.**

OBSTRUCTION OF THE BOWELS.

General condition.—Position of patient; pain; abdominal tenderness; signs of collapse. T. = . Note when bowels last acted.

Digestion.—Habitual condition of bowels, regular, costive, or relaxed. Previous signs of disease, *e.g.*, **Melæna, Vomiting.** State of tongue. See and describe the motions passed.

Examine abdomen, especially the abdominal rings, and femoral rings for hernia. Note fulness, tenderness, local swelling or tumour; an elongated tumour from **Intussusception.** Signs of **Peritonitis.** Track out colon, if distended, by palpation and percussion. Note if any signs of contraction at any point.

Examine rectum with the finger, or give enema noting what quantity of fluid can be retained; pass the long tube. Sometimes the whole hand is introduced into the rectum.

Examine per vaginam.—Signs of pregnancy. See general signs of **Cancer.**

OBSTRUCTION OF THE BOWELS.

Causation.—I. *Compression.*—Cancer or inflammatory mass involving intestine; **Abdominal Tumour**; pregnant uterus; ovarian tumour; pelvic tumour; uterine, ovarian, cellulitis; retroverted uterus.

II. *Changes in wall of gut.*—Cicatrization of intestinal ulcers, dysenteric, tubercular; congenital deformity of rectum, etc.; **Cancer**; epithelioma and syphilitic disease of rectum.

III. *Strangulation.*—Generally in small intestine; hernia; constriction from mesentery of portion of intestine drawn into a hernial sac; or from bowels, due to peritonitis.

IV. *Plugging.*—Undigested substances, fruit stones and seeds, hardened fæces, masses of worms.
Intussusception; volvulus.

Symptoms vary according to the position of the obstruction, its degree, its cause, the complications. If in small intestines there may be no marked and characteristic symptoms.

The motions may be pipe-like or not formed. Formed motions may be produced by fæces passing the stricture and being moulded in rectum. Constipation; flatulence. If in rectum pain and straining on defæcation.

GASTRIC ULCER.

Digestion.—Pain immediately after food, relieved only by vomiting. Water-brash vomiting. **Hæmatemesis. Melæna.** Inability to take solid food. Localized tenderness at epigastrium; no tumour felt. Bowels usually confined; examine the motions. Tongue usually red.

Note.—General condition; position of patient; state of nutrition; signs of **Anæmia.** General condition of abdomen. Signs of **Hysteria.** General condition of the **Nervous System.** W. = . Urine.

TYPHLITIS.

Local examination of right iliac fossa. Vaginal or rectal examination to determine absence of pelvic cellulitis.

Causation.—Hardened fæces; undigested food; dysentery.

GASTRIC ULCER.

Pain may be less if the ulcer is on the lesser curvature of stomach. In long-lasting cases, some thickening of walls of stomach may be felt, or stricture of the pylorus may result. Usually there is emaciation, anæmia, or cachectic appearance. Menstruation absent or disturbed. Recovery may occur for a while with tendency to relapse of the symptoms, or perforation and **Peritonitis**, vomiting, hæmorrhage, exhaustion.

Causation.—Most common in females; specially accompanies disordered menstruation; may result from action of caustics.

TYPHLITIS.

Abdominal pain; local signs of inflammation in the right iliac fossa, pain, tenderness, swelling. Local peritonitis with infiltration of the cellular tissue; it may suppurate. Constitutional disturbance with fever may be considerable if the bowel is involved; less acute if only around the bowel. Perforation of bowel may follow. Usually pain and difficulty in moving right leg.

ABDOMINAL CANCER.

General condition.—Note state of nutrition. W. = . Emaciation. Pain in back, exhaustion, and cachexia, with the general signs of **Cancer.**

Digestion.—Signs of digestive functions. Vomiting, hæmorrhage, acid secretions, stomach pain.

Examine abdomen.—Clear out bowels with purgatives or enemata; empty bladder. Palpate and percuss to detect any abdominal tumour. Note any signs of **Obstructed Bowels; Peritonitis; Ascites.** Examine rectum and per vaginam if necessary.

Cancer of Stomach.—A mass may be felt in epigastrium, or an increased resistance, often most distinct along greater curve of stomach. A rounded and movable mass may be felt over the pylorus.

Cancer of Intestines.—A mass may be felt on palpation; it may be movable. Clear out bowels. Inspect and describe the motions, whether full-sized or flattened and small. **Melæna.** If there is obstruction or arterial hæmorrhage, examine rectum with finger. Look for piles.

ABDOMINAL CANCER.

May affect stomach, intestines, peritoneum, mesenteric glands, liver, kidneys, spleen, uterus. Secondary deposits in the liver are common. See **Abdominal Tumour.**

Cancer of Stomach.—General signs of cancer. Pain in region of stomach, a very varying symptom. Vomiting acid frothy matter, often with sarcinæ; there may be arterial **Hæmatemesis** or coffee-ground-like matter. Excessive acid secretion. Usually it is primary. Secondary deposits may occur in the liver; it may creep on to pylorus and involve gall-duct. Jaundice. A mass may thicken the pylorus causing a tumour that can be felt there, and stricture with vomiting late after food. Scirrhus of stomach may run its course through many years. With a mass that can be felt, patient may still gain weight.

Cancer of Intestines.—Usually primary; most common in the sigmoid flexure, cæcum, and rectum. Abdominal pain. Tendency to annular contraction, causing **Obstruction.** May be mistaken for fæcal accumulations.

Note.—Ulceration of rectum may be from epithelioma or **Syphilis.**

ULCERATION OF BOWELS.

Typhoid. Cancer. Epithelioma at anus. Syphilis. Ulceration from gall-stones, scybalæ, intussusception, etc.

Dysentery.—Note state of nutrition; anæmia. P.= ; T. = ; R.= ; W.= .

Digestion.—Appetite. Abdominal pain or tenderness. Evacuations: colour, consistence, smell, bile, mucus, or sloughs.

Liver.—Size, absence of tenderness, jaundice, etc.

Complications and Sequelæ.—Chronic dysentery. Hæmorrhage from bowel. Abscess of liver.

Tubercular Ulceration.—*General condition.*—Emaciation; excessive sweating.

Digestion.—Appetite. Abdominal condition; fulness, tenderness, pain, general or localized. Bowels relaxed; may be acting with pain and **Melæna**. Enquire for fistula in ano.

Respiration.—Examine lungs, and look for signs of **Phthisis**.

ULCERATION OF BOWELS.

Dysentery.—A disease more common in the tropics than here. Caused by malaria, scorbutus, bad water, salt food, etc. It may occur in an acute or chronic form. It is febrile, characterized by tenesmus with the passage of mucus without fæcal matter or bile; sloughs may be passed with blood. These symptoms depend upon inflammation of the colon with exudation; it may extend to the small intestine.

Tubercular Ulceration.—Common in cases of phthisis and other strumous affections. Abdominal pain, diarrhœa, and melæna may result. The tubercular ulcers in the bowels are transverse; they may heal up, leading to scars, which may cause stricture of the bowels. Ulcers occur mostly in the lower part of the ilium and cæcum.

Complications.—**Peritonitis. Ascites.** Perforation of bowels. **Acute Miliary Tuberculosis.**

ABDOMINAL TUMOURS.

General condition.—State of nutrition. W. = . Signs of **Cancer** or **Scrofulosis.** Abdominal pain, tenderness, vomiting, condition of bowels, signs of **Obstruction.** Digestive functions. Look for **Ascites, Peritonitis, Abdominal Cancer,** œdema. Urine.

Examination of abdomen.—Palpate and percuss abdomen; thus endeavour to detect any tumour present. Define its position with regard to the anatomical regions; determine its boundaries and connections; particularly note if distinct from liver and pelvic organs. Map out liver and spleen, showing them of normal size. Note physical conditions of tumour, its size, if smooth, rounded, lobulated, hard, impressible, doughy, fluctuating. If movable or moving with respiratory movements. Measure the abdomen, girth at base of chest and at the umbilicus, vertical measurements from umbilicus to pelvis, and umbilicus to xyphoid cartilage. In the normal the umbilicus is about an inch nearer to the pubes than the sternum. Note pain or tenderness. Empty bowels and bladder.

History.—Commencing on one side; enlarging from below upwards; enlarging of the abdomen uniformly; with pain and fever or not. Did symptoms commence at a menstrual period?

ABDOMINAL TUMOURS.

Ovarian.—Globular, movable, fluctuating; usually situated more to one flank than the other. Springing from the pelvis and may be felt there. Usually dulness in centre of abdomen with resonance in the flanks. If very large may be mistaken for ascites. See diagnosis of **Ovarian Tumour** from **Ascites.** It may be accompanied by ascites. Dulness over an ovarian tumour shows that no intestines are in front of it; so also with a pregnant uterus.

Kidney.—Colon usually passes in front of tumour however large it becomes; this may be indicated by partial and varying resonance over it. There may be mixed resonance and dulness, varying on different occasions. Tumour may be felt in the flank, usually between false ribs and ilium; a tumour in this region may be renal, peri-nephritic, fæcal in colon. Abscess; cancer; hydro-nephrosis; blood-tumour. The outline is rounded or lobulated (cystic tumour), not easily defined. Absence of fluctuation.

Liver.—See **Large Livers.** A hepatic tumour descends on inspiration. Gall-bladder; **Hydatid; Cancer.**

Percuss, palpate liver, define and mark on skin the vertical and other dimensions.

FLUID IN PERITONEUM.

Physical signs.—Enlargement of abdomen. In dorsal position, dulness on percussion over the fluid, which gravitates into the flanks leaving central region clear; line of dulness shifting with position. Thrill transmitted on filliping abdomen; fluctuation. When placed on hands and knees, fluid will gravitate to the umbilicus. Clear out bowels; empty bladder; examine per vaginam.

Symptoms.—Dyspnœa and thoracic breathing. Pressure on renal veins may cause scanty urine and **Albuminuria**. Pressure on iliac veins causing œdema of legs. Superficial abdominal veins enlarged.

Causation.—**Cirrhosis of Liver.** Cardiac disease. Disease of peritoneum, tubercle, cancer, **Peritonitis.** Exposure to cold. Ovarian or other abdominal tumour.

Conditions simulating Ascites.—Ovarian cyst. Hydatid cystic kidney. Pregnant uterus. Distended urinary bladder. Fluid in intestines. See **Abdominal Tumours.**

ABDOMINAL TUMOURS.

Spleen.—Feel for the notch towards anterior margin. Usually firm, flat superficial under abdominal walls without intestine in front. Stretching from left hypochondrium. Surface may be lobulated; it may be tender and movable.

Causation.—Hypertrophy; chronic congestion from cardiac or liver disease; **Ague**; **Amyloid Disease**; cancer. Examine blood for leucocythæmia. In children **Rickets**. **Syphilis**. Large sometimes in fevers, specially enteric. Frequent seat of **Embolism**.

Abdominal Aneurism.—A tumour pulsating and laterally expansile, with a thrill and systolic bruit often also heard over spine. Pain. No necessary dyspeptic symptoms. Pressure signs less common than in thorax; it may press on vena cava, or cause erosion of vertebræ. It does not fall forward when patient is in knee-elbow position. A tumour lying on the aorta may receive a communicated impulse. The pulsating aorta without disease may often be felt in nervous or dyspeptic patients, especially in females if emaciated. See **Aneurism**.

Diagnosis of

OVARIAN TUMOUR from ASCITES.

Palpation.—Definite margins may be felt. Usually situate more in one side of abdomen than in the other. It may be traceable into the pelvis and felt there.	Fluctuation may be detected; thrill transmitted in any direction on filliping the surface.
Percussion.—Dulness in central region, intestines giving a resonant note in the lumbar regions. But little shifting of dulness on alteration of position of patient.	Dulness in flanks; central region tympanitic as patient lies on her back, and shifting with alteration of position.
Mensuration.—Distance of umbilicus from sternum, equal to or less than that from the pelvis. Greatest girth below the umbilicus.	Distance between umbilicus and sternum maintains normal ratio. Greatest girth at umbilicus or above it.
Inspection.—General roundness of abdomen; tumour may be seen somewhat rounded and prominent.	Abdomen flattened, but prominent and broad.

ABDOMINAL TUMOURS.

Tumours arising from the pelvis.—Examine per vaginam. **Ovarian.** Perimetritis. Pregnant uterus.

Inflammatory swellings.—Renal or perinephritic abscess. Pelvic cellulitis. Parametritis; towards groins and iliac fossæ.

Fæcal accumulations.—Usually in colon, in either iliac fossa. There may be coincident diarrhœa.

Tubercular mesenteric glands.—Masses may be felt. Belly large and tender, emaciation, diarrhœa. Signs of **Scrofulosis.** Usually coincident signs of **Tubercular Peritonitis.** Tympanitis. **Ascites. Abdominal Cancer** may cause enlarged glands.

Phantom Tumour.—Arises from local contraction of rectus muscle, one or both. It may be dull on percussion, and visibly prominent; usually it occurs in the lower portion of the abdomen. It subsides under chloroform. Not uncommon in **Hysteria.**

Intussusception.—Cylindrical tumour produced by intussuscepted bowel, movable from day to day. Tenesmus; passage of blood and mucus. Signs of **Obstruction of Bowels.**

PERITONITIS.

General condition of patient.—Position, complaints of pain, state of skin, tongue, pulse. Look for emaciation or other signs of chronic disease. T.= ; R.= ; P.= ; W.= . See **Ascites; Abdominal Tumour; Abdominal Cancer; Acute Abdominal Pain; Hysteria.** Examine abdomen.

Causation.—Traumatic. Rupture of bladder or other viscera. Ulceration from a gall-stone, etc., action of poisons, pressure on gut from hernia, etc. Exposure to cold. **Pyæmia.** Puerperal fever. **Bright's Disease.** Enteric fever. Enteritis. Cancer. **Tubercular Ulceration of Bowels.** Pelvic inflammations. **Perityphlitis. Abdominal Tumour.**

PERITONITIS.

Acute and chronic. Acute cases characterized by abdominal pain and tenderness, with fever, nausea, vomiting, constipation, abdominal distension, cold sweats. Patient usually lies on his back with the legs drawn up on the abdomen; collapse, pulse small and wiry, skin moist, extremities cold. Abdomen distended and tympanitic. There may be effusion of fluid. Bowels constipated. Respiration shallow and thoracic. Tubercular peritonitis usually occurs in young scrofulous subjects. Masses of glands may be felt in abdomen.

DISEASES OF THE LIVER

JAUNDICE.*

A.—*Mechanical Obstruction of Bile Duct.*

I. Obstruction by foreign bodies within the duct.

II. Obstruction by stricture or obliteration of the duct.

III. Obstruction by **Abdominal Tumours** closing the orifice of the duct, or growing into its interior.

B.—*Jaundice Independent of Mechanical Obstruction of the Bile Duct.*

I. Poisons in the blood interfering with chemical changes in bile.

II. Mineral poisons.

III. Liver diseases.

IV. Nervous causes.

V. Intestinal accumulation.

Jaundice.—Shade and depth of colour. It affects also urine, sebaceous matter and sweat, milk. Taste bitter. Heart's action slow. Cerebral depression common in cases dependent upon obstruction, and when there is no obstruction tendency to stupor, coma, typhoid state. Skin liable to urticaria, lichen, boils, vitiligoidea; itchiness of skin may precede the jaundice. Digestion disturbed, constipation, flatulence, emaciation. In chronic hepatic affections hæmorrhages are common.

* See Dr. Murchison's table: "Diseases of the Liver."

JAUNDICE.

A.—*Mechanical Obstruction of Bile Duct.*

I. Gall-stones, inspissated bile, foreign bodies from intestines.

II. (*a*) Catarrh of duodenum, extending from gastric catarrh. (*b*) Congenital defect. (*c*) Cicatrix after gall-stones.

III. Also pressure of glands of transverse fissure of liver, amyloid or cancerous. **Cancer of Liver.**

B.—*Jaundice Independent of Mechanical Obstruction of the Bile Duct.*

I. Relapsing fever, enteric, typhus, pyæmia.

II. Phosphorus. Metallic poisons.

III. Acute yellow atrophy. Congestion of liver in heart disease.

IV. Sudden fright.

V. Chronic constipation.

Jaundice.—Colour pale sulphur, lemon, deep olive. As it passes off skin is the last to clear. Urine may contain jaundiced casts. There may be a bitter taste from bile acids.

Diagnosis from—1. Yellow eye due to subconjunctival fat.

2. **Addison's Disease.** Here discoloration of skin is patchy and urine is normal.

3. Urine blood-coloured; may resemble jaundice, but is also albuminous.

4. Infants soon after birth may be red and subsequently yellow, suggesting icterus neonatorum.

LARGE LIVERS.*

1. Lardaceous. Uniform enlargement. See **Amyloid Degeneration.**
2. Fatty. Uniform enlargement.
3. **Hydatid** tumour. Bulging or projecting from liver.
4. Tight lacing may cause downward bulging of liver.
5. Congestion, passive, *e.g.*, from heart disease. Enlargement uniform.
6. Catarrh of bile ducts. Enlargement uniform.
7. Obstruction of common duct, *e.g.*, sequent to **Gall-stones.**
8. Pyæmic abscess. If numerous, enlargement uniform.
9. Tropical abscess, causing a bulging tumour.
10. **Cancer,** if secondary, is usually diffused, *e.g.*, secondary to cancer of sigmoid flexure or stomach.

Note size of liver, whether enlargement be uniform or irregular; whether it be tender; if accompanied by **Jaundice.** T.= .

Percuss; palpate and map out the liver.

Normal Liver Dulness.—Commencing posteriorly about the tenth or eleventh dorsal vertebra, it ascends slightly towards the axilla and the nipple, then again descends gradually towards the median line in front. In median line in front usually corresponds with the base of the ensiform cartilage, and to the left of this blends with the cardiac dulness at level of fifth space. In right mammary line 4—5 inches.

Cancer of Liver.—*General condition*, see **Cancer**, signs of. Note if jaundiced. **Liver** large; its measurements, outline, condition of surface and margin; if smooth, rough, nodular with masses. Note pain or tenderness. Spleen rarely enlarged. Look for other signs of **Abdominal Cancer. Ascites.**

* See Dr. Murchison.

LARGE LIVERS.

1. Firm, smooth, easily felt and defined.
2. Less definable; there may be general fatty growth in the body.
3. A prominent and fluctuating tumour may be felt.
4. Tissue of liver may be healthy, and symptoms may be absent.
5. Active congestion in fevers; frequent in tropical climates.
6. Accompanied by signs of dyspepsia and jaundice.
7. External pressure on duct may obstruct it.
8. There may be large abscesses, and irregular enlargement.
9. Usually secondary to **Dysentery.**
10. Primary cancer usually forms a mass that can be felt.

Look for — **Anæmia.** Causes capable of producing **Passive Congestion.** History of **Alcoholism** or residence in tropical climates. Malaria.

Cancer of Liver. — In primary cases usually cancerous masses, or large nodules, that can be felt. It may be secondary to other abdominal cancer; then usually diffused in liver, enlarging it uniformly. Such deposits occurring may cause vomiting.

Diagnosis from — Nodular contractions of rectus muscles; **Amyloid** or **Cirrhosis of Liver**; multiple hydatid.

SMALL LIVERS.

1. Simple atrophy. 2. Acute yellow atrophy. 3. Chronic atrophy.

1. Simple atrophy occurs in senile degeneration and inanition.

2. **Acute Yellow Atrophy.**—General condition much disturbed.

History.—Habits, especially as to intemperance. **Syphilis.** Pregnancies.

Digestion.—Anorexia; vomiting; tongue furred.

Liver.—Note size and subsequent diminution. Jaundice, with bile in fæces.

Nervous system.—Headache; loss of muscular power; muscular twitchings. General disturbance of **Nervous System** tending to **Coma.**

Urine.—Urea, uric acid, and salts diminished. Presence of leucine and tyrosine, products of metamorphosis intermediate between albumen and the less complex nitrogenous compound, urea.

Causation.—**Alcoholism. Syphilis. Malaria. Typhus.** Strong emotional disturbance. Frequent pregnancy.

SMALL LIVERS.

1. No disease and no change of structure of the tissue.

2. **Acute Yellow Atrophy.**—Liver rapidly decreasing in size; jaundice without obstruction; symptoms of blood-poisoning.

Premonitory symptoms.—Digestion disturbed; general vague pains. Jaundice slight, bile still appearing in fæces.

Fully established disease.—Sets in with sudden onset of symptoms due to the blood-poisoning, depending upon the defective formation of urea and uric acid; this affects the general condition of the patient. Loss of strength. Jaundice increases; headache, restlessness, delirium, convulsions, vomiting, coma. **Typhoid State.** Tongue dry and brown. Hæmorrhages in skin and mucous membranes may occur. Liver dulness constantly and rapidly diminishes. Spleen may enlarge.

CIRRHOSIS OF LIVER.

General condition.—**Anæmia**; emaciation; sallowness; epistaxis; **Ascites.**

Digestion.—Dyspepsia; flatulence; vomiting; piles.

Spleen.—Often large.

Liver.—Usually small, but it may be enlarged in early stage; edge and surface rough, hob-nailed, hard. Jaundice may be present; then it is slight. Subsequently liver contracts. If there be peri-hepatitis, liver is tender.

SYPHILITIC DISEASE OF LIVER.

Gummata may be felt on palpation. Liver may be tender from peri-hepatitis; lobulated from irregular contraction, producing a notched margin. See signs of **Syphilis.**

CIRRHOSIS OF LIVER.

A chronic disease, mostly caused by chronic **Alcoholism.** Dyspeptic symptoms, subsequently **Ascites** or **Hæmatemesis.** Often associated with **Emphysema** and **Granular Kidneys.**

SYPHILITIC DISEASE OF LIVER.

May result from inherited or acquired disease. There may be gummata, a general change throughout the liver, or peri-hepatitis.

GALL-STONES.

Occasionally they may be felt on palpation, or heard on auscultation. There may be pain on jolting or any sudden movement. They are common with cancer of gall-bladder. A stone may cause obstruction of the common duct and **Jaundice**. There may be recurrent attacks of biliary colic. Ulceration of gall-bladder may result, and extend to neighbouring organs, causing perforation of any of the hollow viscera.

BILIARY COLIC.

Attacks of severe **Abdominal Pain**, due to passage of a gall-stone from the gall-bladder to the duodenum. The attacks usually set in suddenly after exertion, and may subside suddenly, and be followed by jaundice. Attacks are apt to recur if there be many stones present.

HYDATID OF LIVER.

A chronic tumour causing an irregular outline to the liver; usually painless, unless it be inflamed. It may be of any size; is usually rounded, firm, slightly fluctuating. If there be no adhesion it is depressed on deep inspiration; not accompanied by jaundice unless there be some complication. Usually single, but there may be many in the liver.

Diagnosis from—Cancer; gummata or syphilitic liver with irregular contractions; abscess of the liver; distended gall-bladder; cystic tumour of kidney; ascites. See **Abdominal Tumours.** The spleen is not enlarged, as in some other conditions.

Course of disease.—The hydatid may suppurate and burst into the abdomen, lungs, pleura, etc.; it may form adhesions; it may shrink up.

Fluid in cyst.—Often removed by aspiration. It is not albuminous if there has been no inflammation. Sp. gr., about 1005; chlorides abundant. Microscopically, small cysts, with secondary cysts inside, may be seen; "heads," separate hooklets. Highly refractive particles.

DISEASES OF THE URINARY SYSTEM

BRIGHT'S DISEASE.

General debility. **Anæmia.** Dyspepsia. **Œdema** or anasarca. Necessity to urinate frequently. Skin dry; often unable to perspire. **Uræmia.**

Digestion.—Dyspepsia; **Vomiting**; diarrhœa; **Hæmatemesis**; melæna.

Vascular system.—**Hypertrophy of Heart;** high tension of pulse; arteries thickened and hard; capillaries dilated on cheeks. Liability to hæmorrhages, epistaxis, hæmoptysis, etc. Excited action of the heart in uræmia.

Nervous system.—Disturbance of the general condition of **Nervous System; Vomiting, Headache, Vertigo,** etc. Retinitis albuminurica. See **Uræmia. Convulsions.**

Urine.—Albuminuria almost always present in Bright's disease. Quantity altered, usually diminished. Sp. gr. low; the total of urea excreted diminished. Casts: fatty, hyaline, larger, small, epithelial, granular. Apparent absence of casts not an absolute proof of absence of Bright's disease, but evidence in that direction.

BRIGHT'S DISEASE.

The name signifies disease of the kidneys accompanied by **Albuminuria**, and dependent upon structural changes. The disease is usually unattended with pain, or any subjective symptoms characteristic of the disease. Pallor of the face is often a marked sign, and in elderly people is often suggestive of albuminuria. Attention must always be given in taking the history, and in observing, to determine if the disease be **Acute** or **Chronic.**

Vascular system.—May be profoundly altered and disturbed, as indicated on the other page, the blood changes being shown by anæmia, tendency to hæmorrhages, secondary inflammations, etc.

Causation. — Exanthemata, specially scarlet fever; febrile conditions, *e.g.*, pneumonia, rheumatic fever, ague, erysipelas; **Alcoholism**; exposure to cold; wet and cold work; repeated pregnancies; dyspepsia; **Gout.**

It is of great importance to determine whether the disease is acute or chronic.

Complications.—Inflammatory conditions; **Pericarditis**; **Pleurisy**; **Pneumonia.** Cerebral hæmorrhage; hæmorrhages from mucous membranes. Epistaxis. **Uræmia.**

URÆMIA.

General condition.—**Anasarca. Anæmia.** Skin harsh and dry. Look for signs of **Contracted Kidneys.**

Nervous system.—**Head Pain**; drowsiness; **Delirium**; **Coma**; temporary blindness; retinitis albuminurica; neuro-retinitis; **Typhoid State**; muscular twitchings; **Convulsions.**

Vascular system.—Liability to hæmorrhages from mucous membranes, *e.g.*, epistaxis, **Hæmoptysis**; **Hypertrophy of Heart,** pulse hard.

Digestive system.—Dyspepsia; **Diarrhœa**; **Vomiting.**

Respiratory system.—Breath smelling ammoniacal; paroxysmal dyspnœa, resembling asthma.

Urine.—Quantity; albuminous; sp. gr. low; deficient in urea and salts; **Hæmaturia.** Casts in deposit.

Causation.—Bright's disease, acute or chronic. Suppression of urine from obstruction of ureters. Obstruction to renal veins or arteries. Destruction of one or both kidneys by abscess, calculi, etc. Cystic kidneys; surgical kidneys, sequent to stricture and pyelitis.

URÆMIA.

Many of these signs may be met with without uræmia. Inflammatory complications, *e.g.*, **Pericarditis, Pleurisy.** Dropsical complications, **Hydro-thorax,** hydro-pericardium, **Ascites.** Uræmia is a condition of blood-poisoning; the breath becomes ammoniacal, and the excretion of urea is much diminished. Diarrhœa or vomiting may lead to a favourable termination. The skin seldom acts spontaneously, but its action is favourable. Symptoms may set in gradually or suddenly, with convulsions. Progress may be towards recovery, especially in acute Bright's disease; it frequently ends in death. Relapses and the recurrence of symptoms are common. Pulse full, strong, hard; heart's impulse strong.

Urine.—Scanty or suppressed from Bright's disease, **Passive Congestion** of kidneys, or pressure upon renal vessels, etc.

Causation.—Ureters may be obstructed by calculi or pressed upon by pelvic tumour, *e.g.*, ovarian. Venous congestion may result from heart disease, **Emphysema,** etc. Arteries may be obstructed by embolism or pressure on arteries by an **Abdominal Tumour.**

ALBUMINURIA.

Causation.—**Bright's Disease.** **Passive Congestion** of the kidneys. Simple or latent albuminuria.* Albuminuria from fevers. **Calculus** disease. Due to presence of pus or blood in urine. In females from leucorrhœal discharge, etc., or menstruation.

Passive (mechanical) congestion.—**Heart Disease** or **Emphysema**, etc., may produce over-fulness of vena cava, and congestion of the kidneys. Pressure on the renal veins may also prevent return of blood from kidneys, and be due to pressure of a pregnant uterus or **Abdominal Tumour.** **Ascites** pressing on renal veins.

Urine.—Sp. gr.; quantity. Albumen, its quantity and variability under circumstances. Deposit, casts, crystals, blood discs, epithelium.

Look for—Signs of **Bright's Disease.** Heart disease and **Diseased Vessels.** Emphysema and other lung disease. Causes of passive congestion.

* Dr. Geo. Johnson: "Brit. Med. Journ." Dec. 13, 1879.

ALBUMINURIA.

Passive congestion of the kidneys.—Then the amount of albumen tends to vary with the other signs of passive congestion, *e.g.*, ascites, jaundice, œdema of legs, etc. No history of Bright's disease previous to the cause of congestion. Albumen less abundant and casts but scanty if Bright's disease is absent. Urine of high sp. gr., scanty in quantity, a few granular casts.

Simple Albuminuria, *i.e.*, not dependent upon Bright's disease. Urine albuminous without any marked structural lesion. May be due to exposure to cold; excess of nitrogenous food. Often accompanied by oxalates. During fevers and febrile conditions, *e.g.*, typhus, enteric, cholera, diphtheria, pneumonia, rheumatic fever. But few casts, if any.

HÆMATURIA.

Causation.—Disease in renal tissue, pelvis of kidney, ureter, bladder, urethra. **Bright's Disease**, acute or chronic. Passive congestion of kidneys. See **Passive (cardiac) Congestion.** Active congestion of kidneys from alcohol, turpentine, cantharides. Traumatic injury. Stone. See **Renal Calculus. Bladder, disease of**: cystitis, stone, cancer, villous growth, etc. In females during menstrual period. **Intermittent Hæmaturia.**

Urine.—Albuminous, alkaline, smoky, blood-coloured, porter-like. Containing hæmatin, but no corpuscles. See if in subsequent course albumen occurs without blood. Note the colour in relation to the amount of albumen and sp. gr.

Deposit.—Lithates with high sp. gr. from renal congestion. Blood casts; renal casts; epithelial and hyaline casts in Bright's disease; granular and hyaline in renal congestion. Crystals.

Blood may be mixed with the urine; in clots; in clots moulded in ureter.

Note quantity of urine, and any difficulty in micturition.

HÆMATURIA.

If blood comes from the renal structure usually there are blood casts and smoky urine; if from the urinary passages no casts; if from the bladder or urethra pure blood and clots may be passed, usually after micturition. Periodical attacks of discharge of porter-like urine, with granules and hyaline casts, and the deposit of brownish granular matter in place of corpuscles. See paroxysmal hæmaturia.

Paroxysmal Hæmaturia.—At irregular intervals sudden attacks of rigors, the next urine passed being loaded with blood. Health may long continue good. The *paroxysms* are unattended with pain; there may be a feeling of chilliness across the loins, weakness, nausea, vomiting, joint-pain. The patient becomes languid, weak, anæmic. See **Anæmia.** Examine heart and vascular system. Optic discs. See **Hæmaturia,** with description of urine. **Renal Calculus.**

Causation.—It is independent of any known structural change in the kidneys. Supposed to be connected with ague, rheumatism, exposure to cold; certainly such exposure may excite the paroxysms. It almost always occurs in males, usually adults. There is sometimes oxaluria.

BRIGHT'S DISEASE, ACUTE.

Signs and symptoms.—Anasarca. Suppression of urine, more or less complete. Skin harsh. Tendency to somnolence, head-pain, vomiting, coma. **Uræmia.** Usually after exposure to cold or scarlet fever. It may resolve or terminate in a large white kidney.

Urine.—Smoky; very albuminous; blood discs and large epithelial casts abundant. In quantity, scanty. Blood casts.

GRANULAR CONTRACTED KIDNEYS.

Signs and symptoms.—If any œdema it is slight and transient. Heart hypertrophied; pulse of high tension. Liability to epistaxis and hæmorrhages from mucous membranes. Albuminuric retinitis. Tendency to uræmia. Commonest in advanced life. Often there is coincident cirrhosis of the liver.

Urine.—Clear, with little deposit; quantity large; albumen, a trace. Small granular and hyaline casts. Sp. gr. low.

FATTY KIDNEYS.

Signs and symptoms.—Usually anasarca. Face pale and puffy. Has a fatal tendency. May result from acute Bright's disease. Not uncommon in phthisis.

Urine.—Fairly copious; albumen much. Fatty casts; fatty cells. Sp. gr. rather low.

AMYLOID KIDNEYS.

Signs and symptoms.—Anasarca moderate. Pasty anæmic look. Emaciation and signs of amyloid disease of other organs: spleen, liver, intestines.

Urine.—Urine copious. Sp. gr. various. Much albumen; a few hyaline casts.

LARGE WHITE KIDNEYS.

Signs and symptoms.—Anasarca. Anæmia. Results from acute Bright's disease. Liability to intercurrent acute attacks, with increase of the symptoms.

Urine.—Scanty; pale. Casts, hyaline or granular. During exacerbations blood in urine. Albumen.

BRIGHT'S DISEASE, ACUTE.

Kidney enlarged and congested, the whole structure of the organ being involved. Cortex much swollen, pyramids very dark and congested; glomeruli large and congested. Epithelium swollen and cloudy. Veins of the surface dilated.

GRANULAR CONTRACTED KIDNEYS.

Kidney small; capsule adherent; surface granular and reddish. Frequent cysts in cortex. Much wasting of cortex. Arteries thickened.

FATTY KIDNEYS.

Kidney large, yellow, pale, soft, easily broken down.

AMYLOID KIDNEYS.

Kidney large and pale; surface smooth; cortex thick; glomeruli and vessels stain with iodine.

LARGE WHITE KIDNEYS.

Kidney large, smooth, white. Cortex much swollen from over-development of epithelium in convoluted tubes; but little change in Malpighian tufts.

BRIGHT'S DISEASE.

	ACUTE.	CHRONIC.
Causation.	Cold. Scarlet fever.	Alcoholism. Gout. Senile degeneration.
Anasarca.	Present.	Present with fatty, amyloid, and large white kidney; usually absent with granular kidney.
Heart and pulse.	No hypertrophy. There may be palpitation in uræmia.	Hypertrophy; pulse hard.
Ophthalmoscopic appearances.	Usually no changes.	May be hæmorrhages or retinitis albuminurica.
Urine.	Smoky colour. Casts, with large granular epithelium and blood.	Hyaline casts, large and small; granular casts; fatty casts.
Duration of albuminuria.	Short period.	Many months.

BLADDER, DISEASES OF.

Disease of the bladder and genito-urinary excretory apparatus may be indicated by—

1. *Urine.*—Thick, with deposit of mucus, pus, phosphates, blood, etc.; reaction alkaline; smell offensive. Such urine is passed with cystitis.

2. *Micturition difficult.*—This may be from stricture of the urethra, a bladder paralysed with retention, or overflow or complete incontinence. This may arise from disease of the **Spinal Cord** or **Brain Disease, Meningitis**, or **Hysteria**.

3. Hypogastric pain and tenderness with fever.

Cystitis may be acute or chronic. It may result from paralysis or atony of the bladder, calculus, cancer, villous growth. Much mucus renders the urine alkaline by causing the breaking up of the urea into ammonia salts; phosphates are then precipitated. Cystitis is a common and grave complication of **Disease of the Cord**; in such cases it is usually painless.

RENAL CALCULUS.

A chronic condition; liability to acute attacks.

Chronic course.—Aching continuous pain in one lumbar region, shooting downwards. Occasional passage of blood-stained urine, pus, gravel, epithelial débris. **Hæmaturia**, especially after jolting exercise. There may be tenderness in the loin. Occasional attacks of renal colic. Bladder: there may be signs of stone in the bladder, or **Cystitis.**

Enquire for history of attacks of renal colic, **Gout, Uræmia,** signs of disease of bladder.

Complications.—Stone in the bladder. Nephritic or perinephritic abscess. Suppression of urine from impaction of calculus in ureter on each side.

RENAL CALCULUS.

Urine.—Varying on different occasions. It may be mixed with blood, usually not forming clots. **Albuminuria** usually proportioned to the amount of blood unless the kidneys are degenerated; then albuminuria may occur in degree over and above the albumen due to the blood. There may be crystals of oxalates or uric acid, etc. Usually no casts.

Renal Colic.—Attacks may come on without any previous symptoms of calculus. In the attack paroxysmal pain in one lumbar region, severe, causing collapse, vomiting, and sometimes suppression of urine. The attack may cease suddenly; then the next urine passed may be bloody, and may bring away the calculus per urethram. Such paroxysms especially occur after exertion; they may last days or weeks. There is often retraction of the testicle on the side of pain (irritation of the genito-crural nerve); the pain shoots down the inner side of the thigh, and is accompanied by frequent desire to micturate.

URINE, DESCRIPTION OF.

Quantity.—In healthy adult forty to sixty ounces per diem.

Colour.—Light or dark sherry; colourless; smoky; blood-coloured.

Reaction.—Acid (normal); neutral; alkaline.

Sp. gr.—Normal, 1015—1025.

Urea.—Normal, 400—600 grains per diem; 1·5 per cent. to 4·0 per cent.

Albumen.—Abnormal. See **Albuminuria.**

Sugar.—Abnormal. See **Diabetes.**

Deposit.—Bulk in proportion to urine; colour; light or heavy.

CHEMICAL EXAMINATION OF THE DEPOSIT.

Phosphates.—Soluble in nitric acid; insoluble in liq. potassæ. Urine usually alkaline.

Lithates.—Soluble in liq. potassæ or on warming deposit. Urine when warm as passed is clear.

Uric acid.—Soluble in liq. potassæ, and precipitated from that solution by hydrochloric acid. See **Murexide Test.**

Mucus.—Coagulated by boiling with liq. potassæ.

MICROSCOPICAL EXAMINATION OF THE DEPOSIT.

1. *Casts.*—Large, small, hyaline, granular, epithelial, containing large swollen epithelium; blood casts.
2. *Crystals.*—(*a*) Triple phosphate: Triangular prisms, often large; when very short they may be mistaken for octahedral oxalates. (*b*) Uric acid: Usually coloured; crystals regular, lozenge-shaped or square, elongated or acicular. (*c*) Oxalates: Octahedra with bright centres. Dumb-bells. (*d*) Cystine: Hexagonal plates.
3. *Epithelium.*—Glandular; squamous from vagina or bladder.
4. *Pus.*—

URINE, DESCRIPTION OF.

Quantity.—Increased in **Diabetes.**

Colour.—May indicate **Jaundice**; **Hæmaturia**; greenish in diabetes.

Reaction.—In alkaline urine usually a deposit of phosphates.

Sp. gr.—Dense in **Diabetes**, or if much urea, etc. Low in **Granular Contracted Kidneys.**

Urea.—Usually a large percentage if sp. gr. is high without sugar.

Albumen.—May be a transient ingredient, therefore look for it repeatedly.

Sugar.—Occasionally present in **Brain Disease.**

Deposit.—Give general, chemical, and microscopical characters.

CLINICAL INDICATIONS OF THE DEPOSIT.

Phosphates.—Common in hot weather, when urine ferments readily. Abundant when there is much mucus or pus.

Lithates.—Copious deposit in febrile conditions and in **Passive Congestion** of kidneys; also usually in healthy scanty urine.

Uric acid.—Like grains of cayenne pepper. May indicate gouty tendency or calculus formation. Deranged liver.

Mucus.—Copious in cystitis.

CLINICAL INDICATIONS OF THE DEPOSIT.

1. *Casts.*—Coming from uriniferous tubes indicate their condition. Numerous in acute **Bright's Disease**; common in other cases of albuminuria.
2. *Crystals.*—(*a*) Triple phosphates are common in alkaline urine in cystitis, and in urine that has decomposed. (*b*) Uric acid: Deposited in the gouty diathesis. (*c*) Oxalates: Dyspepsia may produce oxaluria, so anæmia. (*d*) Cystine may form calculi.
3. *Epithelium.*—Common in Bright's disease.
4. *Pus.*—Copious in renal abscess, and in cystitis.

NORMAL CONSTITUENTS OF URINE.

Chlorides.—A few drops of nitric acid, then an excess of solution of *nitrate of silver*; white precipitate of chloride of silver thrown down. (N.B.—Nitric acid prevents phosphate being precipitated.) Wash precipitate and prove its solubility in ammonia.

Phosphoric Acid.—(*a*) Solution of *nitrate of silver* gives a white precipitate of phosphate of silver, soluble in nitric acid, but insoluble in ammonia. (*b*) To urine tested as below for sulphuric acid, and thus deprived of sulphates, add excess of ammonia; phosphate of baryta is thrown down.

Sulphuric Acid.—Add a few drops of nitric acid, then *chloride of barium*, which gives a white precipitate of the sulphate.

Urea.—If the sp. gr. of the urine be from 1023—1030 it usually crystallizes with an equal bulk of nitric acid, the solution being cooled. Beautiful crystals of *nitrate of urea* are formed. See quantitative examination.

Uric Acid.—Precipitated from urine by *hydrochloric acid*, and waiting twenty-four hours. Soluble in liq. potassæ. See **Murexide Test.**

ABNORMAL CONSTITUENTS OF URINE.

Albumen.—1. Heat urine, and when boiled add nitric acid; a precipitate indicates albumen.

2. Float in test tube on nitric acid; a non-crystalline cloud at the junction of the two fluids indicates albumen.

Sugar: *Moore's test.*—Mix urine with half its volume of liq. potassæ and boil; a brownish colour shows sugar.

Traumer's test.—Add to urine one or two drops of solution of sulphate of copper, then about half as much liq. potassæ as urine. If sugar be present, the precipitate at first produced dissolves, producing a blue solution. Now boil this solution; sugar causes decomposition, and the brown oxide of copper is precipitated.

Fehling's test.—Cupric sulphate, 40 grammes; potass. tartrat, 160 grammes; liq. sodæ (sp. gr. 1·12), 750 grammes; distilled water to 1,154·5 c.c. Boil some of this solution; then add urine, a few drops at first, and if it be saccharine the red suboxide of copper precipitates at once.

Bile: *Pettenkofer's test.*—Dissolve a grain or two of white sugar in a drachm of urine; then add, drop by drop, strong sulphuric acid. A characteristic violet-red colour will be produced if bile be present.

Leucine.—A morbid product, crystallizes as small spherials which are composed of acicular crystals which radiate from a common centre.

Tyrosine.—Crystallizes in long white needles.

URINARY CALCULI.*

Heat a specimen on platinum foil over spirit flame; afterwards with blowpipe.

I. It *burns away*, leaving only a minute trace of ash, probably either **Uric Acid**, **Urate of Ammonia**, or **Cystine**. Proceed to test calculus with (*a*) liq. potassæ; soluble. See **Uric Acid**. (*b*) Soluble in hot water or with liq. potassæ, evolving ammonia = urate of ammonia. (*c*) Insoluble in hot water, but readily soluble in ammonia, the solution on evaporation giving hexagonal plates = **Cystine.**

II. It proves *incombustible* before the blow-pipe. (*a*) Soluble in dilute hydrochloric acid = **Phosphate of Lime.** Ammonia added to such solution gives an amorphous precipitate. (*b*) *Fusible* before blow-pipe and soluble in hydrochloric acid = **Triple Phosphate.** The precipitate produced by ammonia from the solution is crystalline. (*c*) Before ignition soluble without effervescence in hydrochloric acid, this acid solution giving a white precipitate with ammonia. After ignition soluble with effervescence in hydrochloric acid, this solution giving no precipitate with ammonia = **Oxalate of Lime.**

* See Bowman's "Medical Chemistry."

URINARY CALCULI.

Uric acid and phosphatic calculi the most common.

Murexide Test for Uric Acid.—Dissolve substance to be tested in nitric acid, and gently warm; when cold touch residue with liq. potassæ; a beautiful purple solution indicates uric acid.

INDEX.

Pardon and Sons, Printers, Paternoster Row, London.

LONDON, *October*, 1880.

J. & A. CHURCHILL'S

MEDICAL CLASS BOOKS.

ANATOMY.

BRAUNE.—An Atlas of Topographical Anatomy, after Plane Sections of Frozen Bodies. By WILHELM BRAUNE, Professor of Anatomy in the University of Leipzig. Translated by EDWARD BELLAMY, F.R.C.S., and Member of the Board of Examiners; Surgeon to Charing Cross Hospital, and Lecturer on Anatomy in its School. With 34 Photo-lithographic Plates and 46 Woodcuts. Large imp. 8vo, 40s.

FLOWER.—Diagrams of the Nerves of the Human Body, exhibiting their Origin, Divisions, and Connexions, with their Distribution to the various Regions of the Cutaneous Surface, and to all the Muscles. By WILLIAM H. FLOWER, F.R.C.S., F.R.S., Conservator of the Museum of the Royal College of Surgeons. Second Edition, containing 6 Plates. Royal 4to, 12s.

GODLEE.—An Atlas of Human Anatomy: illustrating most of the ordinary Dissections; and many not usually practised by the Student. By RICKMAN J. GODLEE, M.S., F.R.C.S., Assistant-Surgeon to University College Hospital, and Senior Demonstrator of Anatomy in University College. With 48 Imp. 4to Coloured Plates, containing 112 Figures, and a Volume of Explanatory Text, with many Engravings, 8vo, £4 14s. 6d.

HEATH.—Practical Anatomy: a Manual of Dissections. By CHRISTOPHER HEATH, F.R.C.S., Holme Professor of Clinical Surgery in University College and Surgeon to the Hospital. Fourth Edition. With 16 Coloured Plates and 264 Engravings. Crown 8vo, 14s.

CHEMISTRY—*continued.*

CLOWES.—**Practical Chemistry and Qualitative Inorganic Analysis.** An Elementary Treatise, specially adapted for use in the Laboratories of Schools and Colleges, and by Beginners. By FRANK CLOWES, D.Sc., Senior Science Master at the High School, Newcastle-under-Lyme. Third Edition. With 47 Engravings. Post 8vo, 7s. 6d.

FOWNES AND WATTS.—**Physical and Inorganic Chemistry.** Twelfth Edition. By GEORGE FOWNES, F.R.S., and HENRY WATTS, B.A., F.R.S. With 154 Engravings, and Coloured Plate of Spectra. Crown 8vo, 8s. 6d.

By the same Authors.

Chemistry of Carbon-Compounds, or Organic Chemistry. Twelfth Edition. With Engravings. Crown 8vo, 10s.

LUFF.—**An Introduction to the Study of Chemistry.** Specially designed for Medical and Pharmaceutical Students. By A. P. LUFF, F.I.C., F.C.S., Lecturer on Chemistry in the Central School of Chemistry and Pharmacy. Crown 8vo, 2s. 6d.

TIDY.—**A Handbook of Modern Chemistry, Inorganic and Organic.** By C. MEYMOTT TIDY, M.B., Professor of Chemistry and Medical Jurisprudence at the London Hospital. 8vo, 16s.

VACHER.—**A Primer of Chemistry, including Analysis.** By ARTHUR VACHER. 18mo, 1s.

VALENTIN.—**Introduction to Inorganic Chemistry.** By WILLIAM G. VALENTIN, F.C.S. Third Edition. With 82 Engravings. 8vo, 6s. 6d.

By the same Author.

A Course of Qualitative Chemical Analysis. Fifth Edition by W. R. HODGKINSON, Ph.D. (Würzburg), Demonstrator of Practical Chemistry in the Science Training Schools. With Engravings. 8vo, 7s. 6d.

ALSO,

Chemical Tables for the Lecture-room and Laboratory. In Five large Sheets, 5s. 6d.

CHILDREN, DISEASES OF.

ELLIS.—A Practical Manual of the Diseases of Children. By Edward Ellis, M.D., late Senior Physician to the Victoria Hospital for Sick Children. With a Formulary. Fourth Edition. Crown 8vo. [*In preparation.*

SMITH.—Clinical Studies of Disease in Children. By Eustace Smith, M.D., F.R.C.P., Physician to H.M. the King of the Belgians, and to the East London Hospital for Children. Post 8vo, 7s. 6d.

By the same Author.

On the Wasting Diseases of Infants and Children. Third Edition. Post 8vo, 8s. 6d.

STEINER.—Compendium of Children's Diseases; a Handbook for Practitioners and Students. By Johann Steiner, M.D. Translated by Lawson Tait, F.R.C.S., Surgeon to the Birmingham Hospital for Women, &c., 8vo, 12s. 6d.

DENTISTRY.

SEWILL.—The Student's Guide to Dental Anatomy and Surgery. By Henry E. Sewill, M.R.C.S., L.D.S., late Dental Surgeon to the West London Hospital. With 77 Engravings. Fcap. 8vo, 5s. 6d.

SMITH.—Handbook of Dental Anatomy and Surgery. For the Use of Students and Practitioners. By John Smith, M.D., F.R.S.E., Dental Surgeon to the Royal Infirmary, Edinburgh. Second Edition. Fcap. 8vo, 4s. 6d.

STOCKEN.—Elements of Dental Materia Medica and Therapeutics, with Pharmacopœia. By James Stocken, L.D.S.R.C.S., late Lecturer on Dental Materia Medica and Therapeutics and Dental Surgeon to the National Dental Hospital. Second Edition. Fcap. 8vo, 6s. 6d.

DENTISTRY—*continued.*

TAFT.—**A Practical Treatise on Operative** Dentistry. By JONATHAN TAFT, D.D.S., Professor of Operative Surgery in the Ohio College of Dental Surgery. Third Edition. With 134 Engravings. 8vo, 18s.

TOMES (C. S.).—**Manual of Dental Anatomy,** Human and Comparative. By CHARLES S. TOMES, M.A., M.R.C.S., Lecturer on Anatomy and Physiology at the Dental Hospital of London. With 179 Engravings. Crown 8vo, 10s. 6d.

TOMES (J. and C. S.).—**A Manual of Dental** Surgery. By JOHN TOMES, M.R.C.S., F.R.S., and CHARLES S. TOMES, M.A., M.R.C.S. Second Edition. With 262 Engravings. Fcap. 8vo, 14s.

EAR, DISEASES OF.

BURNETT.—**The Ear: its Anatomy, Physiology,** and Diseases. A Practical Treatise for the Use of Medical Students and Practitioners. By CHARLES H. BURNETT, M.D., Aural Surgeon to the Presbyterian Hospital, Philadelphia. With 87 Engravings. 8vo, 18s.

DALBY.—**On Diseases and Injuries of the Ear.** By WILLIAM B. DALBY, F.R.C.S., Aural Surgeon to, and Lecturer on Aural Surgery at, St. George's Hospital. Second Edition. With Engravings. Fcap. 8vo, 6s. 6d.

JONES.—**A Practical Treatise on Aural Surgery.** By H. MACNAUGHTON JONES, M.D., Professor of the Queen's University in Ireland, Surgeon to the Cork Ophthalmic and Aural Hospital. With 46 Engravings. Crown 8vo, 5s.

By the same Author.

Atlas of the Diseases of the Membrana Tympani. In Coloured Plates, containing 59 Figures. With Explanatory Text. Crown 4to, 21s.

FORENSIC MEDICINE.

OGSTON.—Lectures on Medical Jurisprudence. By Francis Ogston, M.D., Professor of Medical Jurisprudence and Medical Logic in the University of Aberdeen. Edited by Francis Ogston, Jun., M.D., Assistant to the Professor of Medical Jurisprudence and Lecturer on Practical Toxicology in the University of Aberdeen. With 12 Plates. 8vo, 18s.

TAYLOR.—The Principles and Practice of Medical Jurisprudence. By Alfred S. Taylor, M.D., F.R.S., late Professor of Medical Jurisprudence to Guy's Hospital. Second Edition. With 189 Engravings. 2 Vols. 8vo, 31s. 6d.

By the same Author.

A Manual of Medical Jurisprudence. Tenth Edition. With 55 Engravings. Crown 8vo, 14s.

ALSO,

On Poisons, in relation to Medical Jurisprudence and Medicine. Third Edition. With 104 Engravings. Crown 8vo, 16s.

WOODMAN AND TIDY.—A Handy-Book of Forensic Medicine and Toxicology. By W. Bathurst Woodman, M.D., F.R.C.P.; and C. Meymott Tidy, M.B. With 8 Lithographic Plates and 116 Wood Engravings. 8vo, 31s. 6d.

HYGIENE.

WILSON.—A Handbook of Hygiene and Sanitary Science. By George Wilson, M.A., M.D., Medical Officer of Health for Mid Warwickshire. Fourth Edition. With Engravings. Crown 8vo, 10s. 6d.

HYGIENE—*continued.*

PARKES.—A Manual of Practical Hygiene. By EDMUND A. PARKES, M.D., F.R.S. Fifth Edition by F. DE CHAUMONT, M.D., F.R.S., Professor of Military Hygiene in the Army Medical School. With 9 Plates and 112 Engravings. 8vo, 18s.

By the same Author.

Public Health: being a Concise Sketch of the Sanitary Considerations connected with the Land, with Cities, Villages, Houses, and Individuals. Revised by Professor WILLIAM AITKEN, M.D., F.R.S. Crown 8vo, 2s. 6d.

MATERIA MEDICA AND THERAPEUTICS.

BINZ AND SPARKS.—The Elements of Therapeutics: a Clinical Guide to the Action of Medicines. By C. BINZ, M.D., Professor of Pharmacology in the University of Bonn. Translated and Edited with Additions, in conformity with the British and American Pharmacopœias, by EDWARD I. SPARKS, M.A., M.B., F.R.C.P. Lond. Crown 8vo, 8s. 6d.

OWEN.—Tables of Materia Medica; comprising the Contents, Doses, Composition, and Manufacture of Pharmacopœial Preparations. By ISAMBARD OWEN, B.A., M.R.C.P., Medical Registrar and Lecturer on Botany to St. George's Hospital. Fourth Edition. Crown 8vo, 2s. 6d.

ROYLE AND HARLEY.—A Manual of Materia Medica and Therapeutics. By J. FORBES ROYLE, M.D., F.R.S., and JOHN HARLEY, M.D., F.R.C.P., Physician to, and Joint Lecturer on Clinical Medicine at, St. Thomas's Hospital. Sixth Edition. With 139 Engravings. Crown 8vo, 15s.

THOROWGOOD.—The Student's Guide to Materia Medica. By JOHN C. THOROWGOOD, M.D., F.R.C.P., Lecturer on Materia Medica at the Middlesex Hospital. With Engravings. Fcap. 8vo, 6s. 6d.

WARING.—A Manual of Practical Therapeutics. By EDWARD J. WARING, M.D., F.R.C.P. Third Edition. Fcap. 8vo, 12s. 6d.

MEDICINE.

BARCLAY.—A Manual of Medical Diagnosis.

By A. Whyte Barclay, M.D., F.R.C.P., Physician to, and Lecturer on Medicine at, St. George's Hospital. Third Edition. Fcap. 8vo, 10s. 6d.

CHARTERIS.—The Student's Guide to the Practice of Medicine. By Matthew Charteris, M.D., Professor of Materia Medica, University of Glasgow; Physician to the Royal Infirmary. With Engravings on Copper and Wood. Second Edition. Fcap. 8vo, 6s. 6d.

FENWICK.—The Student's Guide to Medical Diagnosis. By Samuel Fenwick, M.D., F.R.C.P., Physician to the London Hospital. Fourth Edition. With 106 Engravings. Fcap. 8vo, 6s. 6d.

By the same Author.

The Student's Outlines of Medical Treatment. Fcap. 8vo, 7s.

FLINT.—Clinical Medicine: a Systematic Treatise on the Diagnosis and Treatment of Disease. By Austin Flint, M.D., Professor of the Principles and Practice of Medicine, &c., in Bellevue Hospital Medical College. 8vo, 20s.

By the same Author.

A Manual of Percussion and Auscultation; of the Physical Diagnosis of Diseases of the Lungs and Heart, and of Thoracic Aneurism. Post 8vo, 6s. 6d.

HALL.—Synopsis of the Diseases of the Larynx, Lungs, and Heart: comprising Dr. Edwards' Tables on the Examination of the Chest. With Alterations and Additions. By F. De Havilland Hall, M.D., Assistant-Physician to the Westminster Hospital. Royal 8vo, 2s. 6d.

WHITTAKER.—Students' Primer on the Urine. By J. Travis Whittaker, M.D., Clinical Demonstrator at the Royal Infirmary, Glasgow. With Illustrations, and 16 Plates etched on Copper. Post 8vo, 4s. 6d.

MIDWIFERY.

BARNES.—**Lectures on Obstetric Operations,** including the Treatment of Hæmorrhage, and forming a Guide to the Management of Difficult Labour. By ROBERT BARNES, M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Diseases of Women, &c., at St. George's Hospital. Third Edition. With 124 Engravings. 8vo, 18s.

CLAY.—**The Complete Handbook of Obstetric** Surgery; or, Short Rules of Practice in every Emergency, from the Simplest to the most formidable Operations connected with the Science of Obstetricy. By CHARLES CLAY, M.D., late Senior Surgeon to, and Lecturer on Midwifery at, St. Mary's Hospital, Manchester. Third Edition. With 91 Engravings. Fcap. 8vo, 6s. 6d.

RAMSBOTHAM.—**The Principles and Practice** of Obstetric Medicine and Surgery. By FRANCIS H. RAMSBOTHAM, M.D., formerly Obstetric Physician to the London Hospital. Fifth Edition. with 120 Plates, forming one thick handsome volume. 8vo, 22s.

ROBERTS.—**The Student's Guide to the Practice** of Midwifery. By D. LLOYD ROBERTS, M.D., F.R.C.P., Physician to St. Mary's Hospital, Manchester. Second Edition. With 111 Engravings. Fcap. 8vo, 7s.

SCHROEDER.—**A Manual of Midwifery; including** the Pathology of Pregnancy and the Puerperal State. By KARL SCHROEDER, M.D., Professor of Midwifery in the University of Erlangen. Translated by CHARLES H. CARTER, M.D. With Engravings. 8vo, 12s. 6d.

SWAYNE.—**Obstetric Aphorisms for the Use of** Students commencing Midwifery Practice. By JOSEPH G. SWAYNE, M.D., Lecturer on Midwifery at the Bristol School of Medicine. Seventh Edition. With Engravings. Fcap. 8vo, 3s. 6d.

MICROSCOPY.

CARPENTER.—The Microscope and its Revelations. By William B. Carpenter, C.B., M.D., F.R.S. Sixth Edition. With more than 500 Engravings. Crown 8vo. [*In preparation.*

MARSH.—Section-Cutting: a Practical Guide to the Preparation and Mounting of Sections for the Microscope, special prominence being given to the subject of Animal Sections. By Dr. Sylvester Marsh. With Engravings. Fcap. 8vo, 2s. 6d.

MARTIN.—A Manual of Microscopic Mounting. By John H. Martin, Member of the Society of Public Analysts, &c. Second Edition. With several Plates and 144 Engravings. 8vo, 7s. 6d.

WYTHE.—The Microscopist: a Manual of Microscopy and Compendium of the Microscopic Sciences, Micro-Mineralogy, Micro-Chemistry, Biology, Histology, and Pathological Histology. By J. H. Wythe, A.M., M.D., Professor of Microscopy and Biology in the San Francisco Medical College. Third Edition. With 205 Illustrations. Royal 8vo, 18s.

OPHTHALMOLOGY.

HIGGENS.—Hints on Ophthalmic Out-Patient Practice. By Charles Higgens, F.R.C.S., Ophthalmic Assistant-Surgeon to, and Lecturer on Ophthalmology at, Guy's Hospital. Second Edition. Fcap. 8vo, 3s.

JONES.—A Manual of the Principles and Practice of Ophthalmic Medicine and Surgery. By T. Wharton Jones, F.R.C.S., F.R.S., Ophthalmic Surgeon and Professor of Ophthalmology to University College Hospital. Third Edition. With 9 Coloured Plates and 173 Engravings. Fcap. 8vo, 12s. 6d.

MACNAMARA.—A Manual of the Diseases of the Eye. By Charles Macnamara, F.R.C.S., Surgeon to Westminster Hospital. Third Edition. With 7 Coloured Plates and 52 Engravings. Fcap. 8vo, 12s. 6d.

OPHTHALMOLOGY—*continued.*

NETTLESHIP.—**The Student's Guide to Diseases** of the Eye. By Edward Nettleship, F.R.C.S., Ophthalmic Surgeon to, and Lecturer on Ophthalmic Surgery at, St. Thomas's Hospital. With 48 Engravings. Fcap. 8vo, 7s. 6d.

PATHOLOGY.

JONES AND SIEVEKING.—**A Manual of Pathological Anatomy.** By C. Handfield Jones, M.B., F.R.S., and Edward H. Sieveking, M.D., F.R.C.P. Second Edition. Edited, with considerable enlargement, by J. F. Payne, M.B., Assistant-Physician and Lecturer on General Pathology at St. Thomas's Hospital. With 195 Engravings. Crown 8vo 16s.

VIRCHOW. — **Post-Mortem Examinations: a** Description and Explanation of the Method of Performing them, with especial reference to Medico-Legal Practice. By Professor Rudolph Virchow, Berlin Charité Hospital. Translated by Dr. T. B. Smith. Second Edition, with 4 Plates. Fcap. 8vo, 3s. 6d.

WILKS AND MOXON.—**Lectures on Pathological Anatomy.** By Samuel Wilks, M.D., F.R.S., Physician to, and Lecturer on Medicine at, Guy's Hospital; and Walter Moxon, M.D., F.R.C.P., Physician to, and Lecturer on Clinical Medicine at, Guy's Hospital. Second Edition. With 7 Steel Plates. 8vo, 18s.

PSYCHOLOGY.

BUCKNILL AND TUKE.—**A Manual of Psychological Medicine:** containing the Lunacy Laws, Nosology, Ætiology, Statistics, Description, Diagnosis, Pathology, and Treatment of Insanity, with an Appendix of Cases. By John C. Bucknill, M.D., F.R.S., and D. Hack Tuke, M.D., F.R.C.P. Fourth Edition, with 12 Plates (30 Figures). 8vo, 25s.

PHYSIOLOGY.

CARPENTER.—**Principles of Human Physiology.** With Steel Plates and nearly 400 Engravings. By WILLIAM B. CARPENTER, C.B., M.D., F.R.S. Ninth Edition. Edited by Mr. Henry Power. 8vo. [*Nearly ready.*

By the same Author.

A Manual of Physiology. With upwards of 250 Illustrations. Fifth Edition. Crown 8vo. [*In preparation.*

DALTON.—**A Treatise on Human Physiology:** designed for the use of Students and Practitioners of Medicine. By JOHN C. DALTON, M.D., Professor of Physiology and Hygiene in the College of Physicians and Surgeons, New York. Sixth Edition. With 316 Engravings. Royal 8vo, 20s.

FREY.—**The Histology and Histo-Chemistry of Man.** A Treatise on the Elements of Composition and Structure of the Human Body. By HEINRICH FREY, Professor of Medicine in Zurich. Translated by ARTHUR E. BARKER, Assistant-Surgeon to the University College Hospital. With 608 Engavings. 8vo, 21s.

FULTON.—**A Text-Book of Physiology, including Histology.** By J. FULTON, M.D., Professor of Physiology and Sanitary Science in Trinity Medical College, Toronto; Surgeon to the Toronto General Hospital. Second Edition, with 151 Engravings. 8vo, 15s.

RUTHERFORD.—**Outlines of Practical Histology.** By WILLIAM RUTHERFORD, M.D., F.R.S., Professor of the Institutes of Medicine in the University of Edinburgh; Examiner in Physiology in the University of London. Second Edition. With 63 Engravings. Crown 8vo (with additional leaves for Notes), 6s.

SANDERSON.—**Handbook for the Physiological Laboratory:** containing an Exposition of the fundamental facts of the Science, with explicit Directions for their demonstration. By J. BURDON SANDERSON, M.D., F.R.S., Jodrell Professor of Physiology in University College; E. KLEIN, M.D., F.R.S., Assistant-Professor in the Brown Institution; MICHAEL FOSTER, M.D., F.R.S., Prælector of Physiology at Trinity College, Cambridge; and T. LAUDER BRUNTON, M.D., F.R.S., Lecturer on Materia Medica at St. Bartholomew's Hospital Medical College. 2 Vols., with 123 Plates. 8vo, 24s.

SURGERY.

BRYANT.—A Manual for the Practice of Surgery. By Thomas Bryant, F.R.C.S., Surgeon to, and Lecturer on Surgery at, Guy's Hospital. Third Edition. With 672 Engravings (nearly all original, many being coloured). 2 vols. Crown 8vo, 28s.

BELLAMY.—The Student's Guide to Surgical Anatomy; a Description of the more important Surgical Regions of the Human Body, and an Introduction to Operative Surgery. By Edward Bellamy, F.R.C.S., and Member of the Board of Examiners; Surgeon to, and Lecturer on Anatomy at, Charing Cross Hospital. Second Edition. With 76 Engravings. Fcap. 8vo, 7s.

CLARK AND WAGSTAFFE.—Outlines of Surgery and Surgical Pathology. By F. Le Gros Clark, F.R.C.S., F.R.S., Consulting Surgeon to St. Thomas's Hospital. Second Edition. Revised and expanded by the Author, assisted by W. W. Wagstaffe, F.R.C.S., Assistant-Surgeon to St. Thomas's Hospital. 8vo, 10s. 6d.

DRUITT.—The Surgeon's Vade-Mecum; a Manual of Modern Surgery. By Robert Druitt, F.R.C.S. Eleventh Edition. With 369 Engravings. Fcap. 8vo, 14s.

FERGUSSON.—A System of Practical Surgery. By Sir William Fergusson, Bart., F.R.C.S., F.R.S., late Surgeon and Professor of Clinical Surgery to King's College Hospital. With 463 Engravings. Fifth Edition. 8vo, 21s.

HEATH.—A Manual of Minor Surgery and Bandaging, for the use of House-Surgeons, Dressers, and Junior Practitioners. By Christopher Heath, F.R.C.S., Holme Professor of Clinical Surgery in University College and Surgeon to the Hospital. Sixth Edition. With 115 Engravings. Fcap. 8vo. 5s. 6d.

By the same Author.

A Course of Operative Surgery: with Twenty Plates drawn from Nature by M. Léveillé, and Coloured by hand under his direction. Large 8vo, 40s.

ALSO,

The Student's Guide to Surgical Diagnosis. Fcap. 8vo, 6s. 6d.

SURGERY—*continued.*

MAUNDER.—Operative Surgery. By Charles F. Maunder, F.R.C.S., late Surgeon to, and Lecturer on Surgery at, the London Hospital. Second Edition. With 164 Engravings. Post 8vo, 6s.

PIRRIE.—The Principles and Practice of Surgery. By William Pirrie, F.R.S.E., Professor of Surgery in the University of Aberdeen. Third Edition. With 490 Engravings. 8vo, 28s.

TERMINOLOGY.

DUNGLISON.—Medical Lexicon: a Dictionary of Medical Science, containing a concise Explanation of its various Subjects and Terms, with Accentuation, Etymology, Synonymes, &c. By Robley Dunglison, M.D. New Edition, thoroughly revised by Richard J. Dunglison, M.D. Royal 8vo, 28s.

MAYNE.—A Medical Vocabulary: being an Explanation of all Terms and Phrases used in the various Departments of Medical Science and Practice, giving their Derivation, Meaning, Application, and Pronunciation. By Robert G. Mayne, M.D., LL.D., and John Mayne, M.D., L.R.C.S.E. Fourth Edition. Fcap. 8vo, 10s.

WOMEN, DISEASES OF.

BARNES.—A Clinical History of the Medical and Surgical Diseases of Women. By Robert Barnes, M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Diseases of Women, &c., at, St. George's Hospital. Second Edition. With 181 Engravings. 8vo, 28s.

DUNCAN.—Clinical Lectures on the Diseases of Women. By J. Matthews Duncan, M.D., Obstetric Physician to St. Bartholomew's Hospital. 8vo, 8s.

EMMET.—The Principles and Practice of Gynæcology. By Thomas Addis Emmet, M.D., Surgeon to the Woman's Hospital of the State of New York. With 130 Engravings. Royal 8vo, 24s.

WOMEN, DISEASES OF—*continued.*

GALABIN.—**The Student's Guide to the Diseases of Women.** By Alfred L. Galabin, M.D., F.R.C.P., Assistant Obstetric Physician and Joint Lecturer on Obstetric Medicine at Guy's Hospital. With 63 Engravings. Fcap. 8vo, 7s. 6d.

REYNOLDS.—**Notes on Diseases of Women.** Specially designed for Students preparing for Examination. By J. J. Reynolds, M.R.C S. Fcap. 8vo, 2s. 6d.

SMITH.—**Practical Gynæcology: a Handbook** of the Diseases of Women. By Heywood Smith, M.D., Physician to the Hospital for Women and to the British Lying-in Hospital. With Engravings. Crown 8vo, 5s. 6d.

WEST AND DUNCAN.—**Lectures on the Diseases of Women.** By Charles West, M.D., F.R.C.P. Fourth Edition. Revised and in part re-written by the Author, with numerous additions, by J. Matthews Duncan, M.D., Obstetric Physician to St. Bartholomew's Hospital. 8vo, 16s.

ZOOLOGY.

BRADLEY.—**Manual of Comparative Anatomy** and Physiology. By S. Messenger Bradley, F.R.C.S., late Lecturer on Practical Surgery in Owen's College, Manchester. Third Edition. With 61 Engravings. Post 8vo, 6s. 6d.

CHAUVEAU AND FLEMING.—**The Comparative Anatomy of the Domesticated Animals.** By A. Chauveau, Professor at the Lyons Veterinary School; and George Fleming, Veterinary Surgeon, Royal Engineers. With 450 Engravings. 8vo, 31s. 6d.

HUXLEY.—**Manual of the Anatomy of Invertebrated Animals.** By Thomas H. Huxley, LL.D., F.R.S. With 156 Engravings. Fcap. 8vo, 16s.

By the same Author.

Manual of the Anatomy of Vertebrated Animals. With 110 Engravings. Post 8vo, 12s.

WILSON.—**The Student's Guide to Zoology:** a Manual of the Principles of Zoological Science. By Andrew Wilson, Lecturer on Natural History, Edinburgh. With Engravings. Fcap. 8vo, 6s. 6d.


STUDENTS GUIDE
SERIES