A SYSTEM FOR CASE-TAKING

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A SYSTEM FOR CASE-TAKING

WITH EXPLANATORY NOTES

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AUTHORIZED FOR USE IN THE FACULTY OF MEDICINE
UNIVERSITY OF TORONTO

TORONTO: THE MACMILLAN COMPANY
OF CANADA, LTD., AT ST. MARTIN'S HOUSE
MCMXVI

PREFACE

We have long felt, in the Department of Medicine in the University of Toronto, that a guide to case-taking would be of material service to our students. I have carefully gone over this method of Doctor Ross and Doctor Loudon, and thoroughly approve of it. I feel that it will help us in this important branch of medical training, and trust that others will also find it of service.

ALEXANDER MCPHEDRAN,
Professor of Medicine,
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EXPLANATORY NOTES

II. The "Complaint" is the statement of the patient concerning what he believes is troubling him. It includes the symptoms which have determined him to consult his physician. The onset, duration, and nature of each symptom should be so carefully and exactly investigated that the record will be one of undoubted fact. No such belief that he has "rheumatism", or any other-named affection should be accepted, but what were the occurrences that led him to this conclusion.

The minute consideration of each symptom should be made under "Present Illness", and the "Interrogation Concerning Special Systems".

III. If the illness be acute the symptoms will likely be accurately noted by the patient, and should be very helpful to the physician in reaching a diagnosis, *e.g.*, the pain of pleurisy. If, however, the disorder has been of some duration, the earliest disturbances may be obscured by the later, and these alone are often communicated to the physician. As it is always important to discover the earliest symptoms or signs of a departure from normal health, we should make some such enquiry as "When last were you quite yourself?" Having fixed this date, further interrogation will usually elicit the earliest symptoms of the disease, *e.g.*, good health may be succeeded by insidious weakness and wasting, whilst only later do the more definite symptoms, such as cough and expectoration assert themselves, as in pulmonary tuberculosis. Was the apparent onset preceded by slight ailments, such as "cold", sore throat, etc.?

The student is usually advised to avoid asking "leading questions", by which is meant a direct enquiry concerning a certain symptom. For example, the puffy eye-lids of a middle-aged man might suggest interstitial nephritis (Bright's disease); a leading question would be, "How much urine are you passing each day?"

A detailed consideration of the symptoms complained of should be reserved for the interrogation of the particular system involved. For example, cough, and when it began, might be recorded under "Present Illness", but its character, time of occurrence, etc., should be noted under the "Interrogation of the Respiratory System".

A System for Case-Taking

I. **GENERAL REGISTRATION.**

Visiting Physician
House Physician
Clinical Clerk
Date of taking history
Person from whom history was taken.
Patient:—
Name
Postal address
Age
Sex
Nationality
Religion
Occupation
Single, Married, Widow, Widower.
Date of admission to Hospital
Former admissions to Hospital
Date of discharge from Hospital
Result:—cured, improved, in statu quo, worse, death, etc.

II. **COMPLAINT.**

III. **PRESENT ILLNESS.**

Record the symptoms in sequence from the time the patient was last quite well up to the present time. This record should be written concisely and with careful attention to literary style.

IV. Concerning "Past Illnesses", the statements of patients should be critically examined, for example, he may say that he has had "rheumatism". This may only mean painful points to him, and may be of no importance whatever, but if he has had "acute inflammatory rheumatism" he has likely been confined to bed for a week or two at least, with fever, painful and swollen joints, etc. In the male a history of gonorrhœa may be obtained without difficulty, but syphilis may have occurred with such slight and transitory manifestations as to have escaped the patient's observation or memory. It may, therefore, be necessary to rehearse with him the various primary and secondary signs of the disease, or perhaps do a Wassermann reaction.

Concerning environment, note particularly the home surroundings. Are they sanitary? Are there family worries from sickness or other causes? While at work is the environment healthful? Is he over-worked or exposed to gases, fumes, dust, etc.? On account of social intercourse, is he up too late at night, or does he consume too much food, drink (alcohol, tea, coffee), tobacco, etc.?

Determine as nearly as possible the actual amount of tea, coffee, alcohol, and tobacco used.

IV. **PERSONAL HISTORY.**

This should include everything which might bear upon the present illness.

1. **Past Illnesses**—such as (*a*) a similar attack to the present, and when? (*b*) Other illnesses or operations, and when? The most important of these are usually scarlet fever, diphtheria, typhoid fever, recurrent tonsillitis, "quinsy", "ulcerated tooth", "gum boil", acute inflammatory rheumatism, "growing pains", chorea, severe abdominal pain, pleurisy, syphilis, gonorrhœa, and tropical diseases. Has there been slow recovery from or poor health following any past illness? Have there been "bilious" attacks, and if so, what was the character? When were the first and last pregnancies, and what were their durations? (*c*) Disorders of menstruation—amenorrhœa, dysmenorrhœa, menorrhagia, metrorrhagia, and irregular menstruation.
2. **Environment, whilst,**
   (*a*) at home,
   (*b*) at work,
   (*c*) socially.
3. **Habits**—How much sleep, exercise, and food does the patient get? How much tea, coffee, alcohol, and tobacco does he consume? Is he worried about himself, his family, his business, his finances, etc.?

V. The family history may exhibit certain tendencies, such as physical, psychical, and metabolic faults, or a proclivity to chronic infection. Some diseases are hereditary through the father or the mother, and it may be advisable to try to trace the disease in past or present generations. Other diseases are contagious, and then the state of health or cause of death in the other members of the family may be important. In some other cases several members of a family may have become infected from a common source. This should be sought.

VI. The importance of a careful observation of the patient cannot be overestimated. It should comprise all those facts which may become known to us through our senses of sight, hearing, or smell, as the patient stands, sits, or lies before us. We have endeavoured to indicate the most important points on the opposite page. All these may be noted without disturbing the patient, except to engage him in conversation. The student should train himself not only to observe the presence of abnormalities, but also to note their absence, *e.g.*, loss of weight, or the contrary, etc.

It should be remembered that every patient who comes for advice is ill, or thinks he is ill, or is thought to be ill, or wishes to know if he is sound, or is malingering. Except in the last case, it is the truth that he seeks. As a rule, though by no means always, he will freely open his mind and give every opportunity for a thorough investigation, particularly if one gains his confidence.

1. Has the patient a vigorous, average, or feeble constitution?

2. By personality, we mean the individual, apart from disease, and this is gauged by the exercise of those faculties which enable a layman to estimate the essential qualities of an individual—mental, temperamental, etc. Every person has a personality or individuality peculiar to himself—a mental complex dependent upon heredity, previous disease, education, home training, association with other minds ,etc. In most illnesses this personality is but slightly changed or masked, *e.g.*, the restlessness of slight fever in so-called "grippe". At times certain of his characteristics may be accentuated, *e.g.*, in states of mental stress nervous individuals may exhibit greater nervousness. In severe illnesses or serious accidents the personality may be almost or completely changed or obliterated, *e.g.*, in the typhoid state, coma, delirium, etc. Along with personality, the character of the dress may be noted. Does it conform to his probable or supposed status in the community?

V. **FAMILY HISTORY.**

Father; if living, is he well, or suffering from any disease? What is his age? If dead, of what did he die, and at what age?

Mother; ask the same questions as those concerning the father.

Brothers; how many living and well? How many dead, and of what diseases?

Sisters; ask the same questions as those concerning the brothers.

Have there been any miscarriages or premature births in the family? If a woman, has she had any children or miscarriages?

VI. **INITIAL OBSERVATION.**

1. **Constitution**

2. **Personality**

3. Expression is the outward manifestation of the feelings of the individual towards his environment, and is dependent upon the set and movement of muscles under conscious or unconscious control of the nervous system. The face will help us most, but we should also carefully observe the form and movements of the body as a whole.

The following are some of the more important: the degree of intelligence (intelligent, dull, stupid, apathetic, etc.); worry, and anxiety; looking "sick" or "well"; pain or physical discomfort. Certain diseases have peculiar appearances, such as exophthalmic goitre, acromegaly, cretinism, acute nephritis, paralysis agitans, pernicious anæmia, etc.

5. The attitude or position in which the patient lies in bed is called the decubitus, and we should note whether the patient lies by preference on his back or on the right or left side. Is he compelled to sit up in bed, or how many pillows does he require? Are the legs drawn up or extended? Is the head held backwards, forwards, or sideways?

If the patient can walk, observe the gait and posture.

6. What is the colour of the skin? Is there any pigmentation? Are there eruptions? Is there evidence of ulcers, scars, or gangrene? Is œdema present?

What are the situations of any abnormalities observed?

Examine the hair and the nails; prominence of the superficial lymphatic glands, the thyroid, and salivary glands should be noted.

7. Wasting may involve any or all tissues, but in most diseases it is first seen in the loss of subcutaneous tissue. Thus prominences and depressions become more marked.

8. Increase of substance, likewise may involve any or all tissues, but is most commonly confined to the subcutaneous tissue. This is usually nothing more than an increased deposit of fat, and shows itself in a manner opposite to loss of subcutaneous tissue, viz., prominences and depressions are less marked.

3. **Expression**

4. **Apparent age**

5. **Attitude**

6. **Skin and subcutaneous tissues**

7. **Loss of tissue (wasting)**

8. **Increase of tissue**

9. At this point one may conveniently proceed with one's observations, working downwards from the head.

Note any prominence of the eyes (exophthalmos), and undue sinking (enophthalmos). Observe the circumorbital areolar tissue, (*e.g.*, dark rings, œdema, etc.), the angular artery, the palpebral margins and glands, ptosis of the upper lids, the canthi, the orbital conjunctiva (œdema, subconjunctival hæmorrhage), the sclerotics, cornea, iris, and pupils (equality, size, and shape). The expression about the eyes may guide us, as to character, pain, anxiety, worry, sleeplessness, etc.

About the cheeks may be noted the malar flushing and cyanosis of mitral disease, fulness due to antrum diseases and alveolar abscess, and swelling of the parotid glands.

The bridge of the nose may be sunken in congenital syphilis, and the nose red from exposure to the weather, indigestion, alcoholism, or mitral regurgitation. Note also the movements of the alæ nasi. Is there nasal discharge, and what is its character?

The lips may be large, or pale in anæmia, cyanosed in conditions of deficient æration of the blood. Is there any eruption about the lips?

Concerning the ears, note the size, shape, colour, abnormal swellings, or deposits. Is there aural discharge?

Is the auricle-temporal artery visible?

If there is swelling of the neck, is it general or local? Is there visible pulsation? Does the neck seem to be unduly short, and the muscles unusually prominent?

10. Chest symptoms or signs may often be heard or seen, *e.g.*, cough, expectoration, dyspnœa, whooping, respiratory grunts, aphonia, and stridor.

Note the character of the voice.

11. The hands should always be carefully examined. What is their size and configuration? Are there any obvious deformities? What is their colour—usually pale ,red, blue, or bronzed? Does the skin possess its normal elasticity? Is there evidence of wasting of skin, subcutaneous tissue, or muscle? Are callosities present, and where? Is there undue moisture? Are the hands warm or cold? Are there localized swellings in connection with tendon sheaths (ganglia), bones (chronic hypertrophic infective arthritis), joints (chronic atrophic infective arthritis), subcutaneous tissue or skin (gouty deposits)? Examine the tips of the fingers. Is there evidence of clubbing or whitlows? What is the condition of the nails? Are there abnormal movements, *e.g.*, tremors and athetosis?

12. Odours about the body may be due to habits, race, or certain diseases. Bronchiectasis, diabetes, typhoid fever, and many other affections have distinctive odours.

9. **Observation of head and neck**

10. **Chest symptoms and signs**

11. Observation of hands

12. **Body odours.**

VII. The general examination comprises certain general points which should be investigated and noted.

1. What does the patient consider to be his normal weight? What was the highest known weight? The patient should be weighed for the purpose of comparison. If the clothes fit more loosely than ordinarily, there has probably been loss of flesh.

2. Note the number of hours of sleep required or taken, and whether it is natural, continuous, or disturbed, *e.g.*, by dreams, urination, etc. Also whether difficulty is experienced in getting to sleep, and if the patient is refreshed on waking.

3. The initial observation of the eyes should be supplemented by examination of the palpebral conjunctivæ and the pupils, especially their reaction to light and accommodation to distance.

4. The state of the tongue should be carefully noted. Is the surface natural or coated, and if coated, what is the character of the coating as to distribution, colour, consistency? Are the papillæ visible through the coating? Is the tongue rough, smooth, or glazed? Can lumps, ulcers, or fissures be seen? Is it protruded in the middle line? Is there any evidence of wasting or increase in size? Is there tremour on protrusion?

Note the floor of the mouth, and especially look for calculi in Wharton's ducts, and for protrusion of enlarged submaxillary salivary glands. Is the mouth dry, or is there excess of salivary secretion?

What is the colour of the gums? Are they the normal pink, pale, red, bluish (cyanotic), or pigmented? What is their consistency—normal or spongy? Is there evidence of an eruption, of white patches, of a lump (neoplasm or abscess), or ulceration? Is the free margin of the gums normal, or is there loss or retraction of tissue (pyorrhœa alveolaris)? Does pus escape from beneath the free margin on pressing the gums? Are the gums painful or tender?

Is the buccal mucous membrane natural, or are there eruptions, ulcers, patches, etc.? Note similarly the mucous membrane covering the hard palate, and if there is any evidence of perforation.

The mucous membrane covering the pillars of the fauces, soft palate, pharynx, and the surface of the tonsils should be carefully observed for eruptions, "membrane", growths, ulcers, perforation, etc. The size of the tonsils, the presence of foreign matter in the tonsillar follicles, and any evidence of peritonsillar abscess ("quinsy") should be noted. Also, are the tonsils adherent to the pillars? (Note: the anterior pillars should be retracted for a thorough examination of the tonsils). The pharyngeal and lingual tonsillar tissue are not visible by direct observation.

VII. GENERAL EXAMINATION.

1. Weight

2. Sleep

3. Eyes

4. Buccal cavity—teeth, gums, tongue tonsils, and pharynx

The size of the pharynx should be noted; also the colour of the mucous membrane, eruptions, "membranes", deposits of sticky mucous, muco-pus, or blood, the calibre of the pharyngeal vessels; the presence of enlarged lymphoid glands of the mucous membrane; ulceration; and new growths. Is there forward bulging or tension of the posterior pharyngeal wall (retro-pharyngeal abscess, new growth, etc.)?

How many teeth are there? Especially note whether sufficient grinding surface exists. Are the grinding teeth healthy? Which are carious? Is there evidence of an alveolar abscess? Are there stumps? Have crowns and bridges been correctly placed? Have artificial dentures been properly moulded, so as to reach the alveolar margins without painful pressure?

5. Investigate carefully the size, consistence, relation to surrounding tissues (peri-adenitis), fluctuations and tenderness of the superficial lymphatic glands, *e.g.*, pre-auricular, sub-occipital, cervical, inguinal, and saphenous. Examine especially the lymphatic glands which drain any area of disease?

6. Oedema of the skin and subcutaneous tissues may be general (anasarca), or local. The latter may occur unilaterally (as a rule, angioneurotic œdema), or bilaterally (circum-palpebral in nephritis; in the feet in failure of cardiac compensation, and in nephritis). The penis and scrotum, or the labia, may also be markedly œdematous in nephritis or cardiac failure.

7. The umbilical, inguinal, and femoral sites should be examined for possible herniæ.

8. The anus may show prolapse, hæmorrhoids, condylomata, fissures, and various eruptions. Examine the penis for eruptions, such as herpes, scabies, etc.; by exposing the glands and under surface of the prepuce a urethral discharge, a chancre, a chancroid, or venereal warts may be seen. In the female a superficial examination of the genitals may reveal swelling of the labia, a urethral caruncle, a chancre, venereal warts, a discharge, a cystocele, a rectocele, a prolapsed uterus, etc.

9. Appetite may be absent (anorexia), or less or greater than normal, or capricious, or stimulated by unusual articles of food. Mastication may be too hurried; it may be incomplete, due to haste, insufficient grinding surface of the teeth, faulty dentures, pain, lack of salivary secretion, excess of fluid with food, etc.

10. The bowels may be natural, or constipated, or too free. (Note: as long as the bowels move freely each day or on alternate days, according to individual habit, constipation may be absent). Is the patient satisfied that evacuation is complete? Is the movement painless?

11. 12. 13. The rate and rhythm of the pulse, the rate and character of the respiration, and the body temperature should be noted.

5. **Superficial glands**

6. **Oedema**

7. **Hernial sites**

8. **Anus and external genitalia**

9. **Appetite and mastication**

10. **Bowels**

11. **Pulse**

12. **Respiration**

13. **Temperature**

1. (c) Most of the sensations experienced bear some relation to the ingestion of food. Especially inquire whether discomfort or pain is better or worse or unaffected by food. How long after eating does the "heartburn" occur? Is the belching of gas associated with "air-swallowing"? Is the vomiting preceded or not by nausea? Ascertain the characters of the vomit, *e.g.*, copious or scanty, black, green, yellow, bloody, viscid, forthy, sour-smelling, fæcal odour.

(d) When was the last movement of the bowels? How often do they move? Is there any relationship to meals? Is the movement associated with pain, and if so what is its character and situation? Ascertain the characters of the fæces, *e.g.*, copious, or scanty, black, brown, bright or dark red, green, light or dark yellow, clay-coloured, sour-smelling, offensive, dry, hard, watery, slimy, flattened in shape, ribbon-like, furrowed longitudinally. Do the fæces contain abnormal ingredients, such as undigested food, or parasites?

(e) Is the pain diffuse or localized, continuous or intermittent? Is it severe, paroxysmal, and griping? Is there deep or superficial tenderness, and if so, what is its location and area? Has there been pain between the shoulders or over the right shoulder? Is there nausea or vomiting, or both? Has there been jaundice and clay-coloured stools? Is there a history of typhoid fever, malaria, syphilis, amœbic dysentery, "chronic indigestion", or alternating constipation and diarrhœa, with perhaps passing of blood by the bowel?

2. If there is pain radiating down the left arm, what relation does it bear to exertion? Is it accompanied by superficial tenderness? Is there a gripping sensation in the chest? Is it accompanied by fear of impending death? Is it worse at night? At what time do the feet swell? Note the character of the sleep, and whether it is accompanied with dreams. Are there illusions, hallucinations, delusions, etc.? What is the nature and situation of the headache? Is it accompanied by superficial tenderness of the scalp?

It should be remembered that often no definite separation of symptoms due to the heart or blood vessels can be made, although at other times one or other group of symptoms may predominate.

VIII. INTERROGATION CONCERNING SPECIAL SYSTEMS.

(The system which seems to be chiefly affected should be first investigated).

1. **Alimentary System and Abdomen.**

Certain sensations are referred by the patient to:

(*a*) the mouth, teeth, tongue, etc., *e.g.*, dryness of mouth, toothache, soreness of tongue,

(*b*) the pharynx and œsophagus, *e.g.*, difficulty in swallowing, obstruction to the passage of food with or without pain, regurgitation of food,

(*c*) the stomach, *e.g.*, hunger, early satisfaction of hunger, nausea, tightness, fulness, sense of pressure, discomfort, heart-burn, pain, acid eructations, belching of gas, vomiting, "goneness", "sinking" before meals,

(*d*) the intestines, *e.g.*, tightness, fulness, sense of pressure, pain, diarrhœa, passing of flature, constipation,

(*e*) the liver, *e.g.*, dull aching or pain over the liver.

2. **Cardio-vascular System.**

Certain sensations are referred by the patient to disorder of the heart or blood vessels, *e.g.*, "shortness of breath", præcordial pain or distress, a sense of præcordial construction, palpitation, general weakness, uncomfortable pulsations of the heart or vessels, irregularity of the pulse, *e.g.*, dropped beats, very slow or very fast pulsation of the heart or vessels, faintness.

Certain symptoms are due to disorder in the heart, the vessels, or both; and, because they are often overlooked by the patient, should be enquired for especially.

3. Note whether the pallor and weakness have been constant, intermittent, or progressive. (Pallor may be modified by a lemon-yellow tint, sallowness, or a red flush, etc. The terms pallor and anæmia are not interchangeable.)

Is there a family history of serious bleeding from a slight cause?

Those which may be due to heart disease are:—

(*a*) epistaxis, hæmoptysis, cough, and expectoration,

(*b*) pain and tenderness over the liver, swelling of the abdomen, "indigestion", acute abdominal pain, hæmatemesis, melæna,

(*c*) lessened excretion of urine,

(*d*) pain radiating down the left arm,

(*e*) swelling of the feet,

(*f*) mental change, disordered sleep, headache,

(*g*) chills, fever, wasting, anæmia, evidences of embolism.

Those usually due to disease of the large vessels are chiefly the symptoms of aortic aneurysm—abnormal pulsations and pain in the chest or back, swelling of the neck, cough, hæmoptysis, change in the voice.

Those due to disease of the smaller vessels are chiefly the symptoms of arteriosclerosis:—

(*a*) giddiness, faintness, fainting, headache, flashes before the eyes, transient paresis, mental disturbance, sleeplessness, drowsiness, fulness of the head,

(*b*) excess of urine, or at times marked diminution,

(*c*) hæmoptysis,

(*d*) muscle-cramp,

(*e*) wasting.

3. **Haemopoetic System.**

Certain sensations or occurrences are referred by the patient to disorder of the hæmopoetic system—pallor, weakness, giddiness, and faintness. Further enquiry should be made concerning. breathlessness, swelling of the feet, pigmentation of the skin, headache, gastro-intestinal disturbances, hæmorrhage from any possible source, numbness and tingling in the hands and feet.

4. Are the disorders of the nose constant, or only associated with "colds", etc.? (Note: concomitant disease of the antrum of Highmore, frontal sinuses, etc., should be kept in mind). Describe in detail any so-called asthmatic attacks. Describe the character of the cough—paroxysmal, explosive, short, prolonged, loud, husky, stridulous, resonant, brassy. Is is accompanied with wheezing, expectoration, pain, nausea, whooping, crowing, aphonia, hawking, etc.? What is the character of the pain? When is it most severe, and is its severity increased by deep breathing, coughing, position, etc.? Is there superficial tenderness, and if so, what is its area? What is the quantity and character of the sputum? Is the sputum brought up in a large quantity at any particular time? What is its consistency, colour, transparency, and odour? Is it frothy or airless? Is it homogeneous, or does it settle in layers?

5. Is the pain in the back bilateral or unilateral, affected by movement, associated with tenderness, or with nausea, vomiting, burning or painful micturition? What is its intensity, and is it referred to the groin, bladder, end of the penis, etc.?

Ascertain the characters of the urine. Is it light or dark amber, almost colourless, dark yellow, red, smoky, milky, greenish, opalescent? Is there any peculiarity of odour? What is the character of the precipitate? Are there "threads" in suspension immediately after passing?

4. **Respiratory System.**

Certain sensations are referred by the patient to this system:—

(*a*) nasal irritation, nasal discharge, dryness, discomfort, and pain in the nostrils, blocking of the nasal passages, alteration or loss of the sense of smell, offensive breath,

(*b*) post-nasal discharge,

(*c*) cough, with or without expectoration, painful throat, alteration or loss of voice,

(*d*) difficult inspiration or expiration, or both, pain over the sternum or between the shoulder blades, asthmatic attacks,

(*e*) rapid breathing, with or without difficulty or pain.

Certain symptoms may or may not be referred to this system:—

(*a*) cyanosis,

(*b*) loss of weight,

(*c*) night sweats,

(*d*) hæmoptysis.

5. **Urinary System.**

A. Certain sensations or occurrences are referred by the patient to the kidneys, bladder, or urinary tract:—

(*a*) Pain and tenderness in the back, painful micturition.

(*b*) Frequency of micturition. Does he have to get up at night?

(*c*) Scalding on micturition.

(*d*) Difficulty in micturition (dysuria).

(*e*) Difficulty in retaining urine (dribbling).

(*f*) Alteration in the appearance of the urine.

(*g*) Alteration in the amount of urine.

(*h*) Urethral discharge.

6. What is the character of the discharge, and is the possibility of a venereal origin admitted? Does it follow micturition, or is it more or less constant?

B. Certain symptoms may be due to urinary disease, but not referred to this by the patient:—

(*a*) Acute abdominal pain shooting into the groin, testicles, or penis.

(*b*) Puffiness of the face, especially in the mornings.

(*c*) Headache.

(*d*) Vomiting.

(*e*) Dyspnœa.

(*f*) Drowsiness, paralysis, fits (convulsions), dimness of vision.

6. **Genital System.**

Certain sensations or occurrences may be referred by the patient to the genital organs.

A. **Male**—

(*a*) nocturnal emissions,

(*b*) loss, diminution, or increase of the sexual function,

(*c*) painful coitus,

(*d*) sterility,

(*e*) testicular or scrotal pain, with tenderness or discomfort,

(*f*) sores, eruptions, or growths about the external genitals. How long were these in healing?

(*g*) urethral discharges or threads in the urine,

(*h*) masturbation.

B. **Female**—

(*a*) loss, diminution, or increase of sexual function,

(*b*) painful coitus,

(*c*) sterility,

(*d*) sores, eruptions, or growths about external genitals,

(*e*) discharges.

8. Enquire especially concerning pain. Is it dependent upon or independent of movement? Is it worse at night? Is it affected by weather or the ingestion of certain foods? Is anything known that alleviates or increases it? Does it flit about from joint to joint?

(*f*) masturbation,
(*g*) altered menstrual function,
(*h*) "ovarian" pain,
(*i*) prolapse of uterus or bladder,
(*j*) pain in back,
(*k*) miscarriages.

7. **Cutaneous System.**

Concerning the cutaneous system, enquire with respect to:—the patient's habits, food, bodily cleanliness, clothing, and occupation. Has he been taking drugs lately, and what? Has he been in contact with anyone afflicted with "skin-trouble"? If a member of a family, how many are affected? Is there a history of syphilis? Does he attribute his eruption to any special occurrence? Is the general bodily health affected? When and where did the eruption first appear? Did it come out all at once, or in successive crops? Did it spread, and if so, how? What were the characters of the initial and subsequent stages? Are there or have there been any abnormal sensations, such as itching, formication, burning, loss of sensation, etc.? Are these worse by day or night, or for any special reason?

8. **Arthritic and Osseous System.**

Certain sensations are referred by the patient to one or more joints. These are, stiffness, limitation of movement, or undue freedom of movement, pain (slight, moderate, or severe), grating, swelling, in or about a joint, tenderness on pressure, sudden "catching" or partial "locking", dislocation.

Certain sensations are referred to bones, *e.g.*, pain, tenderness, swelling.

An illusion is a sensation caused by an external stimulus, but modified so as to lead to an erroneous perception, *e.g.*, the noise of guns may be mistaken for thunder, a post may be mistaken for a person, the shaking of a building from passing traffic may be mistaken for an earthquake.

A hallucination is the perception of objects which have no reality, or of sensations which have no external cause, *e.g.*, thunder may be heard when there is no sound, a person may be seen when there is no external object, earthquakes may be felt when there is no shaking.

By appealing to reason the subjects of illusions or hallucinations, can always be persuaded of the fallacy of their perceptions. If they cannot then, the illusions and hallucinations become delusions, or false beliefs.

Enquire concerning a family history of gout, "rheumatism", and tuberculosis, or a personal history of injury, tuberculosis (in any form), "rheumatism", gout, syphilis, gonorrhœa, pyogenic infection, tonsillitis, "quinsy", alveolar abscess, blood infection of any sort; and recent or remote injury.

9. **Nervous System.**

A. Certain sensations or occurrences may be referred by the patient to the nervous system.

(*a*) Sleeplessness, drowsiness, faintness, giddiness, nervousness, restlessness,

(*b*) Loss of memory,

(*c*) Loss of will power,

(*d*) Illusions and hallucinations,

(*e*) Sensory changes, headache, pain, tingling, numbness,

(*f*) Weakness and paralysis,

(*g*) Tremors, twitching, cramps,

(*h*) Convulsions.

B. Certain symptoms not often referred to the nervous system should be inquired for or investigated.

(*a*) Alteration in sight, hearing, taste, and smell,

(*b*) Delusions,

(*c*) Vomiting,

(*d*) Alteration in speech,

(*e*) Rectal and bladder disturbance,

(*f*) Peculiarity of posture and gait,

(*g*) Deformities—kyphosis, scoliosis, lordosis,

(*h*) Trophic changes—arthropathies, "whitlows", ulcerations.

IX. Investigation of Special Systems.

The Alimentary System.

I. **PHYSICAL EXAMINATION:**

(Note:—Inspection, palpation, percussion, and auscultation will be referred to as "the ordinary methods of examination" throughout the text).

1. **Mouth** (see General Examination).
2. **Abdomen**, by "the ordinary methods of examination".
3. **The Regions of Various Organs.**
   (*a*) *The Stomach* (by "the ordinary methods of examination", and ausculatory-percussion).
   (*b*) *The Intestines* (by "the ordinary methods of examination", and (1) Rectal examination, (2) Vaginal examination.
   (*c*) *The Liver, Gall Bladder, and Spleen* (by "the ordinary methods of examination", and auscultatory-percussion.)

II. **INSTRUMENTAL EXAMINATION.**

1. **Pharynx**, by indirect illumination.
2. **Oesophagus**, (*a*) by œsophagoscope, (*b*) by sounds.
3. **Stomach**, (*a*) by inflation with air by means of stomach tube and bulb (for delimitation of its boundaries); (*b*) by gastroscope.
4. **Rectum** and **Sigmoid Flexure**,—by rectal speculum, proctoscope, and sigmoidoscope.

III. **CHEMICAL and MICROSCOPIC EXAMINATION**, (including bacteriological) of stomach contents, stools, the fluids or tissues obtained by paracentesis or exploratory incision, and by a complete examination of the blood.

(Note: The general observation of the patient is exceedingly important in cardio-vascular disorder.)

1. Pulse (commonly observed at the radial artery, but if desired at the facial, temporal, carotid, femoral, etc.) The arterial pulse registers only the wave propagated by contraction of the left ventricle and guides the experienced physician's estimate of the "power for work" which this chamber possesses at any time.

Digital examination of arterial pressure is apt to be erroneous and should be replaced by instrumental when possible.

2. Note the site of any pulsations seen, and their characters. Some of these are—single or double (jugulo-cartoid), localized or diffuse, heaving, short (sharp), or prolonged, expansible.

Palpation supplements observation with respect to pulsations by defining more accurately their individual characteristics. It also notes the occurrence and sites of tenderenss.

The exact position of the clinical apex beat should be noted (the point of pulsation farthest outwards and downwards).

If a "thrill" is felt, note its position in the cardiac cycle.

The area of præcordial or other diminished resonance, whether normal or abnormal, should be carefully noted with resepect to landmarks on the bony-skeleton. Auscultation of heart sounds should be systematic, passing from one area to another until all have been covered. In each area note: the rate and rhythm of the heart's action (particularly extrasystole and "dropped beat"); is the first sound present or absent; if present, is it a single or a double sound; what is its intensity and duration; and similarly with the second sound? If an adventitious sound (or sounds) is heard note: where it is best heard, its position in the cardiac cycle, its quality (soft, blowing, harsh, musical, etc.), and if propagated, where? Is it constantly heard or not? Is it affected by respiration? Does it vary in any way from time to time?

So far as auscultation over blood-vessels is concerned, the venous hum of anæmia, the "pistol-shot" sound of aortic regurgition, or the sounds and murmurs produced in or near sacculated aneurysms may be heard.

IV. **"X"-RAY EXAMINATION**:

(*a*) of the roots of teeth (by skiagram).

(*b*) of the œsophagus (by fluoroscope or skiagram, with bismuth or barium meal.)

(*c*) of the stomach and intestines (by fluoroscope and skiagrams, with bismuth or barium meals, after varying intervals.)

V. **SURGICAL EXAMINATION**:

(*a*) by paracentesis of peritoneal cavity.

(*b*) by abdominal exploratory incision.

The Cardio-Vascular System.

I. **PHYSICAL EXAMINATION.**

1. **The Pulse**: Note its rate, rhythm, character of a wave, if regular and of waves if irregular (their rise, maintenance, and fall), and the presence or absence of secondary waves; the apparent pressure during and between beats, and the state of the artery wall.
2. **The Chest, Neck, and Epigastrium**: Inspection may reveal:
   (*a*) Fulness of the præcordia.
   (*b*) Pulsations—præcordial, thoracic, epigastric, and cervical.
   (*c*) Enlargement of superficial vessels.
3. **Palpation** aids in noting—the site, extent, and character of pulsations and the presence or absence of "thrills" and areas of tenderness.
4. **Percussion** serves to delimitate the præcordia, alteration of resonance above the base of the heart or between the scapulæ (aneurysm, etc.), and the area of the præcordia uncovered by the lung.
5. **Auscultation** reveals the presence or absence of normal or abnormal sounds associated with pulsation of the heart, in the chest, neck, or peripheral vessels.

II. **INSTRUMENTAL EXAMINATION.**

1. By **manometer**, for the purpose of registering the systolic and diastolic blood-pressure.
2. By **polygraph**, whose tracings enable one to study the simultaneous happenings in the right auricle and left ventricle, etc., and facilitate a proper understanding of many cardiac phenomena, particularly arrhythmia.
3. By **electro-cardiograph**. This is the most delicate of all instrumental methods yet devised for the registration and study of the vital activities of the heart.

III. **SURGICAL EXAMINATION.**

By paracentesis or other exploration of the pericardial sac.

IV. **EXAMINATION OF THE BLOOD.**

(See the Hæmopoetic System).

V. **"X"-RAY EXAMINATION.**

By fluroscope and skiagram, particularly in suspected aneurysm.

The Haemopoetic System.

I. **MICROSCOPICAL EXAMINATION.**

Estimate the number of red and white blood corpuscles and percentage of hæmoglobin.

By means of film preparations, appropriately stained note: changes in size and shape of red blood corpuscles and the presence of nucleated forms and their size; the percentage of the various varieties of white blood corpuscles, normal and abnormal.

II. **BACTERIOLOGICAL EXAMINATION.**

It may be desirable to determine by appropriate culture methods whether or not micro-organisms are circulating in the blood stream.

III. **EXAMINATION BY MEANS OF CERTAIN BIOLOGICAL REACTIONS.**

This is to estimate whether there exists in the blood fluids a normal or abnormal amount of: specific opsonin, bacteriolytic or bactericidal substance, or agglutinin (typhoid fever), or amboceptor (the so-called "Wassermann reaction").

The coagulability, viscosity, and alkalinity may also be measured.

The Respiratory System.

I. **PHYSICAL EXAMINATION.**

1. By **inspection** we may note the presence or absence of nasal discharge, the state of the anterior nares, movements of the alæ nasi and laryngeal box, the form of the chest, and its movements (rate, rhythm, and type), and, finally, the presence or absence of extra-cardiac pulsation.
2. **Palpation** checks these observations, and in addition localizes tenderness, determines the character of pulsations and the degree of vocal fremitus.
3. By **percussion** we can discover any departure from the known character of resonance at any of the lungs' borders, or over them, from which observations often follow important inferences respecting the state of the respiratory tissue and the pleura or pleural cavity.
4. **Auscultation** reveals the sounds due to respiratory movements, whether these originate in the glottis, trachea, bronchi, bronchioles, parenchyma, or pleuræ. The sounds heard may be normal to a particular area, or abnormal.

II. **INSTRUMENTAL EXAMINATION.**

(Note: The upper respiratory air-passages require the special instruments devised for the nose, naso-pharynx, larynx, trachea, and primary bronchi. These have their proper place in the hands of those especially trained to use them.)

1. **Mensuration.**
2. **By spirometer.**

III. **SURGICAL INVESTIGATION.**

1. **Paracentesis or other exploration of the pleural cavity.**
2. **Lung puncture.**

IV. **MICROSCOPICAL and CHEMICAL EXAMINATION is concerned with sputum and exudates.**

V. **"X"-RAYS:** by fluoroscope and skiagram.

The Urinary System.

I. **EXAMINATION OF THE KIDNEY BY "THE ORDINARY METHODS."**

Can any prominence be seen in the kidney region?

Does the size of the mass vary from time to time?

Does it move on respiration?

Can any mass be felt in the kidney region?

If so, what is its shape, size, consistence, and mobility?

Does it tend to recede from the anterior abdominal wall?

Can its attachment be located?

Can it be grasped between the hands?

Can it be held during the respiratory act?

Is there any space between the posterior border of the mass and erector spinæ?

What is the percussion note over the mass?

Does the colon cross the mass from the outside? (Inflate colon if necessary).

II. **EXAMINATION OF THE BLADDER BY "THE ORDINARY METHODS."**

Can any mass be seen or felt in the hypogastrium?
What is its size, shape, consistence, and mobility?
Is there tenderness over it?
Is there any change after micturition or catheterization?

III. **EXAMINATION OF THE URINE.**

Quantity, colour, transparency, odour, reaction, specific gravity, precipitate.
Albumen (quantitative, if necessary).
Blood.
Sugar (quantitative if necessary).
Acetone.
Diacetic acid.
Bile.
Quantitative estimation of urea.
Microscopic character of deposit (centrifuge if necessary).

Tests for Renal Adequacy:

Measure the amount, specific gravity, and urea, and note the colour over a period of about ten days.
Is there a persistent paleness, polyuria, and low specific gravity?
Is the urea excretion reduced?
Phenol-sulphone-phthalein test.

IV **INSTRUMENTAL EXAMINATION.**

1. **By sounds**; this may indicate the presence or absense of urethral stricture, a vesical calculus, and the character of the vesical mucous membrane.
2. **By urethroscope**; the urethral mucous membrane, prostate, verumontanum, sinus pocularis, and orifices of Cowper's glands may be seen.
3. **By catheters**; Amount of residual urine.

4. **By cystoscope**; the vesical mucous membrane, the orifices of the ureters, the trigone, and the presence or absence of calculi and tumours may be seen. From the cystoscope fine catheters may be passed upwards in either ureter to the pelvis of the kidney. In this way obstructions in the ureters and the amount and character of urine excreted by each kidney may be discovered.

V. **X-RAY EXAMINATION**.

Calculi and sometimes tumours and abscesses in the kidneys, bladder, and urinary tract: obstructions in the ureters by the photograph of ureteral catheters in position; dilatations and obstructions in the ureters and pelves of the kidneys by the photographing of collargol solution introduced through ureteral catheters.

Genital System.

I. **MALE**.

1. **Penis**; prepuce, frænum, meatus, sores, swellings, etc.
2. **Scrotum**; swelling, fluctuation, transillumination, impulse on coughing, etc.
3. **Spermatic cord**; thickening, etc.
4. **Testes and epididymes**; enlargement, atrophy, displacement, consistency, sensation, etc.
5. **Prostate and vesiculae seminales.**

II. **FEMALE**.

1. **Abdominal Examination**; condition of skin, size, shape, condition of umbilicus, symmetry, resistance, tenderness, resonance or dulness, and whether altered by change of position, etc.

The various pathological changes in the skin are known by certain terms: a macule, a papule, a vesicle, a bulla (bleb or blister), a pustule, a wheal, scales, crusts or scabs, excoriations, fissures, ulcers, scars, tumours, erythema.

2. **Examination of an abdominal mass**; size, shape, position, movement on respiration, consistence, fluctuation, smooth or nodular, apparent origin, range of movement, alternate contraction and relaxation, fœtal parts and movements, souffle, fœtal heart.
3. **Vaginal and bimanual examination**; vaginal walls, cervix, fornices, external os, uterine body, swellings.
4. **Examination with speculum.**
5. **Examination with sound.**
6. **Examination of external genitals.**
7. **Rectal examination**; digital and bimanual.
8. **Examination of breasts.**

Cutaneous System.

I. **INSPECTION.**

Exact situation, colour, and character of eruption.
Is it symmetrical?
Are the lesions discrete or confluent?
What were their order of evolution?
Secondary lesions, *e.g.*, excoriations, fissures, desquamation, infiltration, ulceration, pigmentation, cicatrices, etc.

II. **PALPATION.**

Thickness, texture, elasticity, and moisture of skin.
Character of subcutaneous tissue.

III. Also examine the condition of the mucous membranes, and the state of the superficial lymphatic glands. If indicated, make a microscopic examination of a scraping from the lesions, and of hairs, **etc.**

The following diseases should be enquired for in the past illnesses of the patient, or in any illness of blood relations:—Insanity, epilepsy, hysteria, neurasthenia, asthma, alcoholism, syphilis, myxœdema, exophthalmic goitre, diabetes, specific fevers, enuresis, night terrors, somnambulism, nasal and aural discharges, tuberculosis, heart disease, kidney disease, apoplexy.

Occupations involving the use of lead, mercury, phosphorus, arsenic, and copper may be responsible for nervous disorders.

Arthritic and Osseous System.

(Note,—Always compare the part with that of the opposite side, if possible).

I. **JOINTS.**

Appearance and temperature of overlying surface.
Increase or diminution in size of joint.
Presence or absence of nodes or fringes.
Presence or absence of fluctuation.
Position which affected limb assumes.
Condition of muscles governing movements of joint.
Amount of active or voluntary movement.
Amount of passive movement.
Pain on movement.
Crepitus on movement.
Apparent or real change in length of limb.
Alteration in posture of body.
X-ray examination.

II. **BONES.**

Appearance and temperature of overlying surface.
Increase or diminution in size.
Irregularities and nodes on bones.
Fluctuation in diseased portion.
Pain on manipulation or otherwise.
General changes in shape.
Crepitus, preternatural mobility, "eggshell crackling".
X-ray examination.

The Nervous System.

I. **SPECIAL ILLNESSES AND OCCUPATIONS.**

II. **GENERAL APPEARANCE AND EXPRESSION.**

Peculiarities in clothing.
Does he look mentally deficient?
Is he quiet, restless, or in a state of stupor, delirium, catalepsy, automatism, or coma?

Does he appear melancholic or cheerful?

Size and shape of head.

Stigmata of degeneration—high palate, cleft palate, large or small ears, pointed ears, hair in abnormal sites.

III. **POSTURE AND GAIT.**

Pose of the head—retraction, tilting sideways, or forwards.

Position of arms and legs in standing, lying, and walking.

Alterations in shape of body—kyphosis, scoliosis, protruding abdomen, lordosis.

Does the shape of the body change from the lying to the standing or sitting position?

Manner of rising from lying to standing position.

Character of gait—reeling, staggering, ataxic, spastic, steppage, scissors, waddling.

In what direction does the patient tend to fall?

IV. **MENTAL STATE.**

1. **General interrogation:**

Age of walking and talking.

Was he like other children?

What was his nickname at school?

What class was he in on leaving school?

Can he read and write?

Can he earn his living?

What is his special aptitude?

Does he sleep?

Somnambulism.

Does he recognize intellectual decadence?

Is the speech modified by the mental state?

2. **Conduct:**
   - Does he converse freely?
   - Is he uncleanly in his habits, from inattention or otherwise?
   - Acts of misdemeanour—masturbation, stripping himself, etc.
   - Can he dress himself?
   - Carelessness, destructiveness, etc.
3. **Emotional State:**
   - Exaltation—sense of well-being, singing, shouting.
   - Depression—sense of ill-being, crying, moaning.
   - Eroticism—statements reflecting an excessively amorous or erotic feeling.
   - Religiosity—statements reflecting an extravagantly religious feeling.
   - Fear.
   - Anger.
   - Pity.
4. **Volition:**
   - Has he the faculty of deciding to do or not to do?
   - Morbid impulses, imperative ideas, or obsessions beyond or almost beyond the control of the will, *e.g.*, suicidal, homocidal, epileptiform.
5. **Memory:**
   - Memory for recent events. (Does he forget what he has recently done or said? Does he misplace things?)
   - Memory of intention. (Does he forget what he wishes to do or say?)
   - Memory for remote events.

7. Ideation is an act of the mind by which objects of sense are apprehended and retained as objects of thought.

8. By those who advocate psycho-analysis as a method for treatment and elucidation of symptoms, many normal and abnormal mental states are regarded as depending upon internal conflicts and past experiences which may have been long forgotten or experienced only by the subconscious mind. The object of the method is to investigate the trains of thought which have produced any given morbid disturbance. Memories of past events or emotions caused by them are called "complexes", and when these are forgotten or have existed only in the subconscious mind they are are called "buried complexes". Repressed desires are said to have been "sublimated" when they have been diverted into healthy channels and when the energies have found an outlet in active work. When no outlet has been found, the "buried complex" (or the repressed desires) becomes a centre of internal stress and "substitution" (or mental symptoms) appear.

6. **Perception:**

Illusions and hallucinations of sight, hearing, taste, smell, and other sensations.

7. **Ideation:**

(*a*) Orientation; (Does he know where he is? Can he correctly identify those about him? Does he realize the year, month, and day of the week? Does he know his age, and the year in which he was born?)

(*b*) Association of Ideas; (Rambling, incoherence, recognition of identity of ideas, *e.g.*, $7 \times 9 = 9 \times 7$).

(*c*) Delusions; (Grandeur, persecution, suspicion, concerning health, etc).

8. **Methods of Psycho-analysis:**

(*a*) Free Association; (Encourage the patient to express every thought that comes into his mind. Hesitancy, delay, or distress may indicate a buried "complex", *i.e.* a forgotten subconscious memory or emotion.)

(*b*) Word Association; (Enunciate a series of selected words and ask patient to state what each suggests. Note time of response. Call over again and note any difference of response. Delay may be traced to a repressed train of thought.)

(*c*) Dream Analysis; (Endeavour to trace a connection between dream pictures and underlying past experiences.)

1. The peripheral mechanism for speech production includes pontine and medullary nuclei, and the nerves connecting these with the peripheral organs of speech, viz., larynx, vocal cords, pharynx, tongue, and lips.

2. The cortico-bulbar mechanism includes the cortical speech centres, and their connections with pontine and medullary nuclei, and with one another. The auditory word centre is the first to functionate, and in it are stored the association of sounds with objects. The motor speech centre stores the memories of sensations which accompany the muscular efforts of producing certain sounds. The visual word centre stores the association of symbols with sounds. The writing centre stores the memories of the movements of the arm in writing. Note if the patient is right- or left-handed. Was there any previous defect in hearing? Was there any previous defect in sight? Examine the eyes. Is there any weakness of the arm with which he writes?

V. **EXAMINATION OF THE SPEECH.**

Is there any defect in phonation, *e.g.* aphonia, tremulous speech, hesitating speech?

Is there any defect in articulation, *e.g.* slurring, scanning, stammering, syllable-stumbling, articulative ties? (Test with such words as "Royal Artillery" and "British constitution".)

Is there any defect in quality, *e.g.*, nasal?

1. **Peripheral mechanism for speech production:**

Change in muscles of face, lips, tongue, pharynx, or larynx.

Is there perforation of the palate?

Laryngoscopic examination of vocal cords.

Is there any disease in the bulbar nuclei, or any peripheral nerve disturbance, *e.g.*, pressure from aortic aneurysm, post-diphtheritic neuritis?

2. **Cortico-bulbar mechanism of speech:**

If there is aphasia or loss of memory for vocal or written signs, while the patient is still intelligent, test as follows:

(*a*) Auditory word centre—can he understand spoken words?

(*b*) Motor speech centre—can he speak intelligently?

(*c*) A.W.C. to M.S.C.—can he repeat words?

(*d*) Visual word centre—can he understand written words?

(*e*) Writing centre—can he write spontaneously?

(*f*) V.W.C. to W.C.—can he copy?

(*g*) A.W.C. to V.W.C. to W.C.—Can he write to dictation?

(*h*) V.W.C. to A.W.C. to M.S.C.—can he read aloud?

3. Some speech defects are dependent on the mental processes of the patient, and not upon disease in the cortico-bulbar or peripheral speech mechanism. Some of these abnormal mental states are found in cases of dementia, idiocy, hysterical aphonia, articulative tic, stammering, syllable-stumbling, etc.

VII. By abnormal movements are meant such conditions as tremors, fibrillary twitching, choreic movements, tetany, athetosis, tic, and intermittent claudication.

(*i*) A.W.C. to V.W.C.—Can he pick out objects, the names of which he hears?

3. **Higher intellectual functions of speech:**

These processes are at fault in many cerebral conditions, and may mask disease in the special mechanism of speech production.

VI. **FITS.**

Dates of first and last attacks.
Frequency of attacks.
Similarity or dissimilarity of attacks.
Occurrence during day or night.
Occurrence in presence or absence of others.
Assigned cause.

Investigate further as follows:—

1. **Aura** (or symptoms preceding the convulsion). Character and duration.
2. **Convulsion:**
   Character of onset.
   Character, point of origin, and spread of movements.
   Colour of face.
   Eyes—open or closed, conjunctival reflex, direction, movements, size, and reaction of pupils.
   Biting of tongue.
   Micturition and defæcation.
   Frothing at mouth.
   Injuries in falling.
   Duration.
3. **After-effects:**
   Mental disturbance.
   Sleep.
   Exhaustion.
   Automatism.
   Weakness or paralysis.

VIII. One should discriminate between the unsteadiness of tremor and the abnormal movements above mentioned, and that due to ineo-ordination or ataxia. The irregularity of ataxia is due to a loss of voluntary control over the muscles, usually in consequence of loss of the sense of position, and is brought out only on performing some act, such as standing or walking.

Changes in reflexes (See XIII.)
Changes in speech (See V.)
Headache.
Vomiting.
Micturition and examination of urine.

VII. **ABNORMAL MOVEMENTS.**

Muscles involved.
Rate of movements.
Character—irregular, spasmodic, purposive, repetative, fine, coarse.
Effect of exertion or exercise.
Effect of observation.
Effect of emotion.
Intervals of freedom.
Influence of sleep.

VIII. **CO-ORDINATION.**

Character of gait (See III.)
Ability to find the tip of the nose with the index finger when the eyes are closed.
Rombergism—can he stand with the eyes closed and the feet close together?
Can he turn quickly on the word of command?
Character of writing and ability to draw a straight line.

IX **TROPHIC FUNCTIONS.**

Skin—pigmentation, glossiness, herpes, perforating ulcers, painless "whitlows", bed-sores, gangrene, falling hair, brittle nails.
Muscles—hypertrophy, pseudo-hypertrophy, atrophy. Measure the circumference of the limbs.
Bones and joints—pes cavus, effusions into joints, enlargement and atrophy of articular surfaces of bones, spontaneous fractures.

X **CRANIAL NERVES.**

1. **Olfactory**—test sense of smell in each nostril with peppermint, oil of cloves, or asafetida; examine interior of nostrils.
2. **Optic**—examine fundi with ophthalmoscope; fields of vision; colour sense; visual acuity. Ask for subjective sensations (muscæ volitantes, flashes of light, and fortification spectra).
3. **Oculo-motor**; 4. **Trochlear**; **and** 6. **Abducent**—Ocular movements; squint; nystagmus; position, size, shape, and reaction of pupils to light and distance; diplopia.
5. **Trigeminal**—test sensations on face, conjunctiva, and nasal and buccal mucous membranes; test effect of ammonia fumes; test power of masseters, pterygoids, and temporals; test taste over anterior two-thirds of tongue with sugar, salt, or quinine.
7. **Facial**—asymmetry of face; test facial muscles by asking patient to show the teeth, blow, whistle, close the eyes, raise the eyebrows, etc.; test the platysma; test emotional movements such as laughing, smiling, and crying.
8. **Auditory**—tinnitus; vertigo; deafness; examination of ear; effect of the rotation, and caloric, and galvanic tests on nystagmus.
9. **Glossopharyngeal**; 10. **Vagus**; **and** 11. **Spinal Accessory** (bulbar portion). Taste over posterior one-third of tongue and palate; sensation of back of tongue and pharynx; deglutition; change in voice; movement of uvula; vomiting; rate and rhythm of respiration and pulse; hunger, thirst, hiccough; laryngoscopic examination.

10. **Hypoglossal**—movement of tongue; atrophy of tongue; tremor and twitching of tongue.

XI. **EXAMINATION OF MUSCLES.**

Spasticity and Rigidity—distribution; Kernig's sign. Can it be overcome by pressure? Does it relax during sleep?

Flaccidity—distribution; contraction in the unopposed muscles.

Atrophy.

Hypertrophy.

Pseudo-hypertrophy.

Power and movements:

If there is loss of power to elevate the shoulder, does the upper part of the trapezius still act as a respiratory muscle?

If the latissimus dorsi is powerless as an abductor of the arm, does it contract on coughing and sneezing?

In cases of hemiplegia observe whether the weak leg is raised from the bed or not when the patient voluntarily raises the shoulders from the bed.

XII. **EXAMINATION OF SENSATIONS.**

1. **Subjective**—tingling, numbness, heat, coldness, tightness, pressure, "pins and needles", "ants", pain (area, superficial or deep, effect of pressure, character, duration, severity), headache (prodromal symptoms, area, superficial or deep tenderness, effect of posture, time and duration, character, vomiting, blood pressure, urine, eyes, ears, nasal cavities, adenoids, constipation, fever, anæmia).
2. **Objective**—test loss, modification, and delay as follows:

   Tactile sensibility with cotton wool.
   Cutaneous localization.
   Appreciation of size (*e.g.*, head from point of pin).
   Tactile discrimination with compass points.
   Appreciation of intermediate temperatures (68 to 113 F.)
   Cutaneous pain by pin prick.
   Sensation to cold by ice in a test tube.
   Sensation to heat by hot water in a test tube.
   Sense of passive position and movement.
   Sense of deep pain on pressure.
   Appreciation of pressure and weights.
   Appreciation of shapes when primary forms of sensibilities are retained.

XIII. **REFLEXES.**

1. **Superficial**—pharyngeal, palatal, scapular, epigastric, abdominal, cremasteric, bulbo-cavernous, superficial anal, Oppenheim's, Gordon's, plantar.
2. **Deep**—jaw-jerk, triceps-jerk, biceps-jerk, supinator-jerk, wrist-jerk, knee-clonus, knee-jerk, ankle-clonus, Achillis-jerk.

XIV. **AUTONOMIC OR SYMPATHETIC SYSTEM.**

Pupils—action to cocaine drops (See also X.)
Pseudo-ptosis of eyelids.
Exophthalmos and enophthalmos.
Diminished or increased excretion of sweat.
Dermographism.
Pigmentations.
Contraction or dilatation of capillaries.
"Goose skin".
Rate of pulse and respiration.
Movements of stomach and intestines.
Reflexes—defæcation, micturition, cilio-spinal, scrotal, pilomotor, swallowing.

XV. **EXAMINATION OF SKULL AND VERTEBRAL COLUMN.**

X-ray, if necessary.

XVI. **ELECTRICAL REACTIONS OF MUSCLES.**

Action to faradism and galvanism.

XVII. **CEREBROSPINAL FLUID.**

Measure pressure.
Physical and chemical examination.
Cellular and bacteriological examination.
Wassermann reaction.

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