

the gums, ptyalism, foetid breath, and loss of co-ordination, besides a history of exposure to the vapour of mercury.

Vertigo is a symptom of many affections, requiring—like convulsions—an exhaustive examination before regarding it as a substantive morbid condition. It is present in Meniere's disease, and in ear diseases in general. Cardiac, cerebral, and stomachal vertigo should be noted. Stomachal vertigo may not be associated with any very pronounced symptoms of gastric disorder, and it is, therefore, apt to be overlooked and mistaken for cerebral disease—especially as it occurs most frequently in the aged.

With reference to the various forms of paralysis, there are still three diseases—described elsewhere—which have to be kept in view in relation to the diagnosis—viz., chronic plumbism, or lead poisoning; diphtheria (post-diphtheritic paralysis); and general paralysis of the insane. The latter disease has not been treated in this work, as it belongs to the domain of Insanity. In practice, however, it is met with very frequently, especially in the early stages, and as often the delusions of grandeur, &c., are absent, or concealed at the beginning of the disease, mistakes are frequently made. If the mental condition do not at once strike one, then the trembling of the lips, the slow and difficult speech, and the staggering gait—especially when asked to turn suddenly—should suggest the disease; and the testing of the memory, intelligence, and the moral state, will usually clear up the matter. Cerebellar tumours, bulbar paralysis, cerebral syphilis, and alcoholism, may sometimes have symptoms resembling general paralysis in some respects; but a careful consideration of the other symptoms which characterise these diseases will generally admit of a correct diagnosis being made by exclusion.

CHAPTER XII.

DISEASES OF THE HÆMOPOIETIC SYSTEM.

Contents.—Diseases of the spleen—Diseases of the lymphatic glands—Hodgkin's disease—Myxcedema—Leucocythæmia—Anæmia; chlorosis; progressive pernicious anæmia; splenic anæmia; parasitic anæmia—Method of examining the blood with Gower's hæmacytometer—Addison's disease—Scorbutus—Purpura—Hæmophilia.

The Spleen.—This organ may be attacked by acute inflammation which may ultimately lead to the development of an abscess. Blows or injuries may excite such inflammations; but more commonly they arise from infarctions, caused by emboli blocking the vessels.

Infarctions may be *simple*, or *infective*—and then due to pyogenetic micro-organisms. In bacterial infections and fevers there is a marked tendency to accumulation of organisms within the spleen, which becomes hyperæmic and enlarged on account of the morbid products developed within the organ. The spleen is often displaced by pleuritic effusions, &c., and it is sometimes *movable*, like a "floating kidney." It is often affected by waxy degeneration, along with waxy disease of other organs. Hydatid cysts are rare.

Some of these affections are only of pathological interest. Others, as enlargement, are important in relation to other diseases. The *symptoms* of inflammation are often very obscure; but the seat of the pain, rigors, and, in the later stages, the evidence yielded by palpation and percussion, may enable a correct diagnosis to be made. A sudden pain in the region of the spleen in a case of heart valvular disease points to embolism. *Infective endocarditis* is the commonest cause; but *pain* may be due to old adhesions (*Capsulitis*). The *prognosis* in abscess is unfavourable. The *treatment* should consist of turpentine stupes locally, or hot poultices. Quinine, in large doses, is indicated. The aspirator may be used when suppuration has occurred.

The Lymphatic Glands.—Simple inflammation and tubercular disease of the glands (when they are external) are more properly considered in surgical works. A *progressive diffused* form of tubercular disease is described by Fagge, in which nearly all the glands of the body are affected. To the physician, diseases of the internal glands—as the bronchial and mesenteric—are of importance, and they have already been alluded to. Large masses may form tumours (Lymphomata), which, in the thorax, may give rise to the signs of consolidation, and be accompanied by *pressure* symptoms. The glands may also be affected by cancer or syphilis, the differential diagnosis resting chiefly upon the age and the differences between the tubercular diathesis, the cancerous cachexia, and the history of syphilis, &c.

Adenia, Lymphadenoma, or Hodgkin's disease, is a special disease affecting the glands, spleen, and the blood. The causes are not known. The glands enlarge, and may be firm or soft. They are not painful to the touch. The disease affects the whole body, beginning generally with the cervical, and extending to the axillary, inguinal, bronchial, mediastinal, and mesenteric glands. In most cases there is fever. The white blood corpuscles are not always increased, but when there is leucocytosis it is due to an increased number of "lymphocytes." The red corpuscles are diminished—hence *anæmia* is a prominent symptom. In some cases the red blood corpuscles are numerous but small (microcytes), or irregular in form (poikilocytes). The spleen is enlarged. The glandular enlargements excite pressure symptoms. In the thorax, there may be the usual signs of pressure—as dysphagia, dyspnoea, and the effects of pressure upon the nerves, as in other intrathoracic tumours. The *treatment* consists of the administration of arsenic,

iron tonics, and cod-liver oil. Iodide of potassium may be tried. The *duration* is apt to be very chronic; and death may ultimately result from exhaustion, or from intercurrent diseases, as pneumonia, phthisis, &c. Some cases recover. Early local cases may be treated surgically.

Disease of the Thyroid Gland.—Myxœdema.—In this disease, there is general deep-seated œdema, and great increase of the connective tissue throughout the body; and in the skin, mucous membranes, glands, nervous matter, &c., there is excess of mucin deposited or formed. The thyroid gland atrophies, and may finally disappear, and this seems to be the primary cause of the affection. The etiology, however, is still obscure. It is far more frequent in females—especially about middle life—although cases are met with in children. Prolonged lactation, worry, &c., are blamed as exciting causes. The disease seems to be related to adult *cretinism*, and myxœdema has followed the removal of the thyroid gland, both in man and in animals (*Horsley*).

The symptoms.—The face is pale, puffed up, and heavy looking. The expression is stupid. The lips are thick and protruding, and the eyelids appear dropsical, as in kidney disease. Sometimes the distention of the lower eyelids is such as to present the appearance of little bladders; but acupuncture of these does not yield serum. The nose is enlarged. The skin is dry and scaly, and there is absence of perspiration. The hands are thickened, broad, and “spade-like,” the fingers being somewhat clubbed. There is thinning of the hair of the scalp and eyebrows. The speech is slow, and hesitating or drawling. The memory is impaired, and the mind weak. The movements are sluggishly or stiffly carried out; and the patient becomes very easily fatigued, and soon breathless. The pulse is slow. The appetite and digestive functions are poor. The urine is often increased in quantity, and in the later stages *sometimes* contains albumen. The temperature is often slightly subnormal, and the patient complains of feeling cold. The thyroid gland is much smaller, and may have entirely disappeared. The progress of the disease is very slow—uncomplicated cases lasting about six years. Death may occur from exhaustion, uræmic poisoning, or from cerebral coma. In the **treatment**, arsenic, iron, massage, galvanism, and faradism, are usually tried, but all have given place, to the remarkable effects of injection, or feeding, with the juice of the thyroid gland of the sheep. An extract may be used, but the glands themselves may be eaten—the dose being about a half to a whole thyroid daily. The colloid matter of the thyroid, and thyro-iodine, are therapeutically effective. Improvement follows within a few days. Excessive exertion should be avoided while taking the thyroids.*

* *Acromegaly*—a rare affection associated with disease of the pituitary body—seems to be allied to myxœdema and cretinism. There is general enlargement of the bones, &c.

The Blood.—Leucocythæmia.—This disease affects the spleen, lymphatic glands, bone marrow, and the blood. Two forms are described, viz. :—the *spleno-medullary*, which is the commoner variety, and is that which is associated with enlarged spleen, and *large* uninucleated cells and eosinophile corpuscles in the blood; and the *lymphatic* form in which the spleen is not much enlarged, the leucocytes are *small* (lymphocytes) and the lymphatic glands usually enlarged. The hypothesis that excessive proliferation of the cells in the bone marrow is the cause of the pathological conditions found, is the one most in favour. The white blood corpuscles are enormously increased in number, both absolutely and relatively, while the red blood corpuscles are diminished. The relations may be from one (white) to six (red), or even fewer red corpuscles. The colour of the blood is pale, the specific gravity is reduced from 1,055 to 1,040 or less, and it is alkaline in re-action. The other organs, as the liver and kidneys, &c., often suffer as well from “lymphoid” enlargement.

The **symptoms** begin with gradually increasing weakness and anæmia. Vertigo, *tinnitus aurium*, palpitation, and breathlessness are early symptoms, which gradually get more and more marked. The vision is often affected, and bleeding from the nose is very common. As the anæmia progresses, there occur œdema of the ankles, swelling of the eyelids, and other dropsical conditions. An anæmic murmur is heard at the base of the heart. The pale appearance of the blood when compared with a drop of normal blood upon a handkerchief, is very striking. The hæmacytometer will reveal the abnormal changes. The lymphatic glands become enlarged, and the spleen, in the spleno-medullary form, is found by palpation and percussion to be increased in size and density. In extreme cases of splenic enlargement the abdomen is prominent, and the mesenteric glands may be felt to be enlarged, and firmer. The thymus is sometimes enlarged. Constipation and diarrhoea alternate. The urine has a specific gravity of 1,020 to 1,030. The urea is diminished; but uric acid and the xanthin bases are increased.

The *course* of leucocythæmia is chronic, the average duration being probably two years. An *acute* form, however, is described. The case may terminate by exhaustion, or by some intercurrent disease, as pneumonia, œdema of the lungs, phthisis, &c.

The *diagnosis* is not difficult; but in the early stages leucocythæmia cannot be differentiated from simple anæmia or chlorosis.

The *treatment* consists in the administration of iron, arsenic, and quinine. Tabloids of bone marrow may be tried. No specific treatment is known. The diet should consist of fresh meat, fish, eggs, and milk.

Anæmia; Chlorosis; Progressive Pernicious Anæmia; Splenic Anæmia; Parasitic Anæmia.—In all the forms of anæmia there is, more or less, a diminution in the number of the red blood corpuscles. The blood is thinner in quality, and does not so readily coagulate. The organs are paler and dryer, and fatty de-

generation of the heart, and other organs, is very frequently found. In *chlorosis* the aorta is sometimes found to be narrow in its calibre. The blood itself is bright red, and the specific gravity is reduced; but the specific gravity of the blood *plasma* may be increased—constituting a difference from *simple* anæmia (Lloyd Jones). In *pernicious* anæmia there is a great diminution in the number of red blood corpuscles (oligocythæmia), but not so marked a *proportionate* reduction of the hæmoglobin. The corpuscles show great variety in size and shape, some being larger (megalocytes) and some smaller and spherical (microcytes). Some are nucleated. The marrow of the long bones is sometimes found to be of the foetal type of red marrow. Minute hæmorrhages occur in the skin, mucous membranes, and other organs. An ophthalmoscopic examination often reveals these hæmorrhages in the retina.

Any cause which interferes with the natural physiological and hygienic laws of health—such as insufficient food, air, light, and exercise—will tend to produce anæmia. Disorders of digestion, prolonged lactation, over-fatigue, menorrhagia and other hæmorrhages, sexual excesses, malaria, syphilis, and malignant or exhaustive diseases, are primary affections which are soon followed by anæmia and debility. Chronic albuminuria (Bright's disease) is always associated with a peculiar pallor and a "pasty-looking" complexion. Stockman considers chlorosis to be due to the demands of puberty during the establishment of menstruation. He has disproved Bunge's "sulphide" hypothesis. According to W. Hunter *pernicious* anæmia is "a special form of blood destruction, or hæmolysis, induced by toxic agents absorbed from the gastro-intestinal tract." In view of the changes found in the bone marrow (Pepper and Cohnheim) there may be also a "disordered hæmogenesis"; while again, Professor Stockman believes that by the long continued anæmia producing fatty changes within the blood-vessels, leading ultimately to hæmorrhages, a simple anæmia may become pernicious.

The symptoms of simple anæmia begin with languor and weakness, and gradually increasing pallor. The face, lips, gums, and conjunctivæ lose their natural colour and become paler and unhealthy looking; but sometimes the face has a good colour. The conjunctival membrane covering the lower eyelid, appears sodden or hydræmic in advanced cases. The heart is irritable and feeble, and *systolic* murmurs may be readily heard in all the cardiac areas. The "venous hum" is heard at the root of the neck, and in other places, when the stethoscope is placed over the large veins. The pulse is weak, rapid, and often irregular. The breathing is embarrassed, and palpitation is complained of upon making the slightest exertion. Syncopal attacks are frequent, and a hæmorrhagic tendency is sometimes developed. Edema of the ankles or eyelids is very commonly present, and it is due to the diminished quantity of albumen, and the increased quantity of water in the blood (*hypalbuminosis* and *hydræmia*). The appetite is poor, and constipation is the rule, until the later stages, when diarrhœa often becomes rather troublesome. The urine is neutral or alkaline,

pale in colour, and the specific gravity is low. The mental faculties are weakened, inasmuch as mental effort soon exhausts the brain. Hysterical seizures are frequent. Strong light and noises are disagreeable to the patient. Hyperæsthesia and hyperalgesia are often present; and neuralgia is a very common affection in the anæmic. In extreme cases of anæmia affecting the brain, the head symptoms become more marked, and mild delirium is present, or acute mania may supervene (see Anæmia of the Brain.) Epileptiform convulsions frequently occur. There is amenorrhœa in the female, and loss of sexual power in the male. The muscles become flabby and weak; but in some cases the body appears well nourished, and the amount of fat deposited in the tissues may even be increased.

The course of anæmia depends much upon the cause. Edema of the lungs, or pneumonia, may supervene and may prove fatal. A perforating ulcer of the stomach is an occasional complication. If associated with a curable disorder the blood may be improved in the course of six weeks, and recovery may take place within three months if the case be a simple and uncomplicated one. The *chlorotic* form is the "green-sickness" which so frequently occurs in girls at the age of puberty. It is invariably associated with amenorrhœa, and there is no edema of the ankles as a rule. The body appears fairly well nourished, and the other symptoms are the same as in simple anæmia. Hysteria is common. Recovery, or partial recovery, may be expected under treatment; but some cases may take an unfavourable course and terminate in pericarditis, endocarditis, perforating ulcer of the stomach, or other intercurrent malady.

The *pernicious* form is only known from the simple anæmia in the later stages, when the rapidly increasing debility and pallor, epistaxis, or hæmorrhages into the skin and retina, feverish attacks, and the utter inefficacy of the iron tonics prescribed at the beginning of the disease, indicate the hopeless character of the case. The edema is often general and is always present. There is occasionally excess of pigments ("pathological urobilin") found in the urine. The fatal termination occurs within two to four months.

[*Splenic Anæmia*, in the early stages, runs a course similar to the simple form. In the later stages the spleen is enlarged and painful, the anæmia becomes very marked, and there is progressive asthenia, with, sometimes, severe attacks of epistaxis before death.]

Parasitic Anæmia is a form of anæmia caused by nematode worms in the small intestine (*Anchylostomum duodenale*). They feed upon the blood. The disease is common in Egypt, and in other hot countries, where the drinking water is impure. It is rapidly fatal if not treated. The treatment consists of fifteen to thirty grains of thymol, frequently repeated, but with due precautions against poisoning.]

Method of Examining the Blood with Gower's Hæmacytometer.—A solution of sulphate of soda containing 104 grains to four ounces of distilled water, to which 60 minims of strong acetic acid have been added, is first prepared. The thicker pipette is now used to draw some of this solution up to the mark (995 c. mm.), and it is then blown gently into the

mixing jar. The finger of the patient is now pricked, and a drop of blood exudes. *The finger must not be squeezed.* The smaller pipette is now used to draw blood from the wound up to the mark (5 c.mm.), and after carefully wiping the pipette, this is also transferred to the jar, and mixed thoroughly. A drop is then placed upon the centre of the hollowed slide, and a cover-glass placed upon it. The slide is placed upon the stage of the microscope, and after a few minutes the counting of the corpuscles may begin. The number of red corpuscles in ten squares, multiplied by ten thousand = the number in a cubic millimetre. The normal number is five millions. The average number of white corpuscles, as compared with the red, is *one* white to about five hundred red, but it varies very much, the white corpuscles being increased after meals.

Addison's disease is a peculiar affection, consisting of alterations in the supra-renal capsules interfering with their functional activity (inadequate secretion). The connected nerves and the solar plexus are involved. Pigment is deposited in the skin and mucous membrane, and there is great anæmia. The *causes* are unknown. The *symptoms* begin very gradually. There is first great weakness, and the digestion is much impaired. Later, the gastric symptoms become prominent, and along with the extreme pallor which now develops, there are pains in the stomach, nausea, vomiting, and diarrhoea. The symptoms peculiar to the anæmic state are now marked, and then the characteristic deposits in the skin and mucous membranes begin to appear. These consist of patches of dusky pigment, which become ultimately bronze or copper-coloured. The mucous membrane of the mouth becomes affected, and then the skin at the armpits, and later the chest. It spreads over the whole body; but the skin of the palms and the soles of the feet remain free. There is febrile disturbance in the acute cases; but the course is usually chronic, and a fatal termination takes place in about a year or eighteen months.

In the *diagnosis*, *pityriasis versicolor* should be noted; and soap and water may require to be used in some cases, before expressing an opinion as to the nature of the disorder. Before pigmentation occurs, the extreme *asthenia* and pallor may suggest the disease, but at this stage the diagnosis can only be conjectural.

Scorbutus.—Scurvy is produced by abstinence from fresh meat and vegetables. Bad hygienic conditions favour its development, and individuals weakened by syphilis or other constitutional disease, are more liable to suffer, when placed in circumstances which compel them to live on salt meat and fish. *Infantile scurvy*, *vide* Elder and Fowler's *Diseases of Children*.

The *symptoms* begin with anæmia, and then gradually all the symptoms associated with that affection make their appearance. Muscular rheumatism is often present. The characteristic symptoms of scurvy appear later, and consist of inflammation and putrid ulceration of the gums, which bleed easily; extravasation of blood into the muscles, or under the skin; ulcerations of the skin itself, especially of the lower extremities; and often hæmorrhages into the intestine, or from the nose, stomach, or kidneys. The breath is

fœtid, and the mouth is very painful as the decomposing sloughs separate and leave raw surfaces. The extravasations into the muscles give rise to indurated lumps which can be felt. The spleen is enlarged; and the urine is diminished in quantity, and contains albumen. In very bad cases, the bones, periosteum, and joints are affected. Deformities may result from the extravasations, and death may be due to endocarditis, pleurisy, peritonitis, pneumonia, or exhaustion after hæmorrhage.

Purpura.—*Purpura simplex* is the form characterised by small petechial extravasations under the skin without hæmorrhages elsewhere. *Purpura hæmorrhagica* is a much more serious form, in which occur not only petechial extravasations, but severe hæmorrhages under the skin, and into other organs. *Henoch's purpura* is a form associated with vomiting, colic, and intestinal hæmorrhage. *Purpura rheumatica*—a form of purpura occurring with true articular rheumatism.

The simple form begins with languor and anæmic debility, or with sudden epistaxis. Blue-red spots soon appear, especially affecting the lower extremities and the body. They vary in size from a pin's head to a pea and they gradually change in colour—green, brown, and yellow. They occur in crops, and slight injuries produce echymoses readily. Hæmorrhage from the mucous surface is common; but there is no sloughing of the gums as appears in scurvy. The hæmorrhagic form is characterised by extensive extravasations and bleedings which increase the anæmia and produce its train of symptoms. Syncope may be the result of a large internal hæmorrhage. Fever is not present as a rule.

An ordinary case lasts three weeks or more, and it may extend to several months. Most cases recover; but the severe hæmorrhagic form may prove fatal. A cautious prognosis should always be given as simple forms sometimes become hæmorrhagic.

In the *diagnosis* *scorbutus*, *hæmophilia*, *progressive pernicious anæmia*, *iodism*, and *leucocythæmia* should be noted and excluded.

Hæmophilia is a congenital, inherited, constitutional condition, in which there is great liability to hæmorrhage. The victims of this affection are known as *bleeders* (see Surgical Works). In some cases the bleeding arises spontaneously. It may be internal, and may give rise to urgent symptoms; and if slow and chronic, anæmia results from these repeated attacks of hæmorrhage.

As the diseases of the blood-forming organs are all managed upon the same lines, it has been found convenient to defer the treatment until the diseases were themselves considered. The blood-tonics—iron, arsenic, quinine, manganese, and cod-liver oil—are indicated. Before commencing a course, attention must first be given to the digestive functions. If gastric catarrh be present, R 40 may be given for a short time. If digestion be weak, a mineral acid and bitter, or pepsin may be prescribed (see the treatment of stomacal affections). The diet should be carefully regulated, beginning with

light milk food, fish, chicken, and beef juice, if necessary; and the sooner that a good generous diet of fresh meat, eggs, vegetables and fruit can be borne, the better. Fresh air, light, and gentle regular exercise are highly important. Stimulants, as wine or whisky, may in some cases be necessary, but these will be ordered with due care in relation to the possibility of developing a taste for alcoholic beverages. The saccharated carbonate of iron is usually well borne. Freshly-made Bland's pills (R 56)—two or three, thrice daily, after food—is a favourite form of prescribing iron. The tincture of perchloride of iron is highly recommended, care being taken to instruct the patient to watch its action upon the teeth. It should be taken through a glass tube, and the mouth and teeth should be carefully cleansed after each dose. Chemical food is useful, and easily taken. Fellows' and Churchill's syrups of the hypophosphites, and Easton's syrup, are much prescribed. The syrups of the phosphates, and lacto-phosphates of iron and of lime—the latter especially when iron does not agree—are much used. "Ferro-Maleski" is a preparation of iron with a vegetable compound, which has been proved highly serviceable. Denayer's peptonate of iron is useful when the digestion is weak. The combination of iron and arsenic sometimes produces wonderful results (R 1). A purgative at frequent intervals is often required during a course of iron treatment. R 57 may be ordered. In extreme cases of anæmia, Weir Mitchell's massage treatment, with forced feeding, may be necessary. In *purpura* and *scurvy*, turpentine is indicated for the hæmorrhages. The treatment of scorbutic conditions consists of the ingestion of fresh meat and vegetables, and the administration of lime juice. Arsenic may be tried in progressive pernicious anæmia and in Addison's disease. Supra-renal gland preparations are used, with varying benefit, in the latter disease. For pernicious forms of anæmia, an *antiseptic* treatment has been suggested by Hunter. Two grains of β -naphthol are given (in a pill) thrice daily. Good results of this treatment are recorded by Gibson.

CHAPTER XIII.

"CONSTITUTIONAL," AND SOME
GENERAL DISEASES.

Contents.—Gout; *Lithæmia*—Arthritis deformans—Acute and chronic rheumatism—Rachitis—Osteo-malacia—Syphilis—Chronic alcoholism; *Delirium tremens*—Trichinosis—Anthrax—Lead and mercurial poisoning.

Gout.—*Lithæmia*.—Gout may be *acute* or *chronic*. The chief pathological condition is the enlargement of the joints—especially the smaller joints—and the deposition therein of biurate of soda. The bursæ are often affected. A section of the joint shows the articular surface to be covered with an incrustation of white acicular crystals. Ordinary inflammation, thickening, and deformity are the results of this deposit, and the chalk-like accretions (tophi) of biurate of soda are mixed with the inflammatory products. They are often found in the external ear, and generally in or near the helix. Suppuration may take place round the tophi, but never in the joints themselves. The kidneys are frequently cirrhotic (gouty kidney), and the heart hypertrophied.

Gout is a diathetic condition, hereditary or acquired, in which there is accumulation of urates in the blood (urataemia) and deposition of urates within the tissues (uratosi). Normally, uric acid circulates in the blood and is excreted in the urine as a quadriurate. In the gouty, the quadriurates in excess in the blood give rise to the *lithæmic* condition, and the so-called "irregular, latent or suppressed" forms of gout.* In acute gout the re-action of the quadriurates with the sodium carbonate of the blood, or with the tissues rich in sodium salts, produce the more insoluble and stable *biurates* of sodium, which are precipitated within these tissues and act as mechanical irritants—and probably also act as foci for the formation of clots (thrombosis)—(*Roberts*). During an attack of acute gout the excretion of uric acid in the urine is diminished, and is only increased as the attack subsides. In chronic gouty conditions, the uric acid excreted is below the average (*Garrod*).

Gouty subjects are liable to eczema, psoriasis, and other skin eruptions. Affections of the eyes—as conjunctivitis, iritis, scleritis, &c.—are common.

* *Garrod's Method of Detecting Uric Acid in the Blood.*—Two drachms of blood serum are put in a large watch-glass and acidified with acetic acid. A linen fibre is placed in the fluid until the evaporation leaves a gelatinous mass. The fibre is then examined with a pocket-lens for the characteristic uric acid crystals.