

In chronic meningitis the membranes are much thickened, and adherent to the brain, and the cranial nerves are often involved. These conditions are frequent in old cases of mania and dementia. Injuries to the head and chronic alcoholism are supposed causes. The symptoms are often associated with mental disorder. Headache, vertigo, double vision, ringing in the ears, rigidity of the neck, and neuralgia of the face, or spasms of the ocular or facial muscles, are common. In the later stages, there is mental weakness; and paresis or paralysis of groups of muscles, with irregular breathing, and a weak pulse, may ultimately follow.

**Pachymeningitis—Hæmatoma of the dura mater.**—In this disease there is first hyperæmia of the meninges, with an exudation which develops into a new membranous formation. Hæmorrhages take place, from the rupture of the thin walls of the blood-vessels in the new membrane, and ultimately the new formation has the appearance of a cyst containing fibrinous matter and broken down blood-clots. The causes are blows and injuries to the head, caries of petrous bone and ethmoid; and chronic alcoholism, Bright's disease, and heart disease, are said to be predisposing conditions. The symptoms are not characteristic, and the diagnosis from cerebral hæmorrhage and embolism, &c., is the chief consideration and difficulty. There is headache, vertigo, and *tinnitus aurium*, and the pupils are often much contracted. These symptoms are often followed by apoplexy, from which the patient may not recover, and the condition may be (clinically) indistinguishable from cerebral hæmorrhage, &c. Should the patient recover from the comatose state, there is still headache and somnolence, and if the lesion be on one side there is paresis or convulsive movements in the limbs of the opposite side of the body, and possibly contraction of one pupil only. Hemiplegia may ultimately result. Sometimes there is fever; and the pulse is usually weak and rapid. The first stage may last a few days, or longer, and if death do not take place with the apoplexy, the secondary changes may run a course of a few weeks—rarely a few months. There is always mental weakness left. The treatment is the same as in cerebral congestion and hæmorrhage; or surgical procedures may be necessary.

**The Treatment of Meningitis.**—The head should be raised, and an ice-cap should be used after the head has been shaved. Leeches may be applied to the mastoids, in the severe acute forms. A quick purgative should be administered. Tincture of aconite in small doses (one minim, well diluted, frequently repeated) may be useful in robust patients with increased arterial tension. Quinine is indicated, in large doses, if an antipyretic be required. A cold pack-sheet may be used when the temperature is high. Bromide of potassium, in doses according to the age, is the drug most generally used. Some authors prescribe small doses of mercury; iodoform is recommended (six grs. daily). Small doses of opium are recommended when the bromide fails to soothe. Iodide of potassium may be combined with the bromide in the tubercular forms. The bromide and iodide should be continued for a time. Mustard may be applied

to the neck. The room should be kept cool, quiet, and dark. The nourishment can only be fluid, and should consist largely of milk and beef-tea.

**Cerebral Congestion and Anæmia.**—Cerebral Congestion may be caused by sunstroke; long continued mental work with sleeplessness; alcoholic excesses; and by the use of certain drugs—as belladonna, opium, &c. A *passive* form of congestion may be the result of heart disease, or of obstruction to the blood-vessels by tumours—intrathoracic or cervical.

The symptoms in mild cases, consist of headache aggravated by light and noise; singing in the ears; sleeplessness; irritability of temper; and often there is stomach disorder with nausea and vomiting. The pulse is quick and irregular.

The severer forms have these symptoms intensified, and they are accompanied by hallucinations and illusions, and sometimes by mild delirium. Neuralgia is common, and tingling and numbness in the lower limbs may be complained of. The head feels hot, and the eyes are suffused. An *apoplectic* form is described, in which the patient loses consciousness and presents all the appearances of apoplexy. Sometimes there is only a temporary confusion of mind, without unconsciousness. The symptoms of the *passive* form are not so pronounced. An ophthalmoscopic examination reveals the retinal veins enlarged, and swelling of the optic disc. The membrana tympani is congested. Surface thermometers reveal a slight rise in the temperature of the scalp.

The *duration* of the mild cases is very short; and under treatment both the mild and severe types are generally cured in from three days to a fortnight. Sometimes, however, the severe type is apt to recur, and a radical change in the occupation of the patient, or a prolonged rest from all mental work becomes necessary. The *apoplectic* form may usher in cerebral hæmorrhage; and it is only known from this disease by the fact that recovery takes place very soon without hemiplegia, &c. The *passive* forms vary in their duration and course with their causes.

Cerebral anæmia may result from severe hæmorrhages, fright, chronic wasting diseases, and heart disease affecting the circulation.

The symptoms of acute anæmia are such as characterise an attack of *syncope*. Convulsions may be superadded. In the slow *chronic* form the symptoms are similar to those of congestion; but the history of the causes, the presence of anæmia, the low temperature of the scalp, and the ophthalmoscopic and otoscopic examinations revealing the absence of hyperæmia—will serve to differentiate the two conditions. The course and duration depend upon the cause. Simple anæmic cases recover under treatment.

The treatment of cerebral congestion consists of raising the head high, and applying ice. The feet should be kept warm. Leeches may be applied to the mastoid processes. A brisk purgative should be given. Tincture of aconite, and bromide of potassium are the best remedies. The diet should be light, and all stimulants, includ-



ing tea and coffee, should be forbidden. The *cause* should be removed. The substitution of light manual labour for the mental work is highly beneficial. In *cerebral anæmia* the treatment of the syncope has already been indicated. In the chronic forms, iron, arsenic, and strychnine are useful. Morphia may be required for sleeplessness and delirium.

**Sunstroke or Heatstroke.**—The only pathological change found is general congestion of the viscera. *Meningitis* may sometimes follow sunstroke. The *symptoms* vary in different cases. A "cardiac" form is described, in which sudden syncope, dimness of vision, vertigo, and continued prostration, are the prominent symptoms. The face is pale, and nausea and vomiting are frequent. The pulse is feeble and often slow. Death may occur as a sudden result of this form of sunstroke; but many cases recover.

The attack may begin in another way—*i.e.*, giddiness, headache and general *malaise*—then delirium and convulsions, and gradually coma, supervene. The temperature is often very high (106° or 107° F.), and the pulse rapid. These cases are generally fatal—death taking place within a few hours. In the cases which recover, there is, generally, a great liability to headache; and sometimes mental weakness, and epilepsy, are direct results of sunstroke.

The *treatment* consists of the application of ice to the head and cold douches to the neck and chest. Quinine should be prescribed. In failure of the circulation brandy must be allowed. Bromides are indicated for the headaches.

**Chronic Hydrocephalus.**—The causes of chronic hydrocephalus are obscure. The rachitic constitution is an important factor in its development; and a chronic inflammation of the ependyma, or a closure of the foramen of Magendie, or a mechanical compression of the straight sinus, or vein of Galen, may cause effusion. The fluid is straw-coloured and may amount to as much as sixteen ounces, or more in extreme cases. The ventricles of the brain are much distended, and the motor centres are depressed and flattened. The condition is often *congenital*.

The *symptoms* are generally marked. The immense size of the head—which is held up only with difficulty—the large forehead with the drooping eyes, and the apparent lack of intelligence, at once make the case obvious. The fontanelles are large, and often pulsating. The appetite is often voracious. There is usually paralysis with rigidity of the lower limbs. Epileptiform fits are common. The *duration* is variable; but many cases die in one year, while others, again, survive for fifteen and twenty years, or even longer. Convulsions and coma usually terminate the case ultimately. The *treatment* consists of supporting the strength. Iodide of potassium may be tried; and *tapping* sometimes gives good results.

**Epilepsy.**—In idiopathic epilepsy there is degeneration of the cortical cells, and increase of neuroglia tissue in special areas of the

cortex. Tumours of the brain, thickening of the membranes, and changes in the shape and contour of the cranial bones, are frequently found; but these are accidental alterations. Jacksonian epilepsy is a form of "symptomatic epilepsy"—the periodic convulsions affecting only certain groups of muscles, and there is no unconsciousness. Nothing is known of the causes of epilepsy beyond the fact that it is hereditary, and that it occurs in families in which the neurotic diathesis is strongly marked. Irritation of peripheral nerves, dentition, alcoholism, sexual excesses, strong emotions, reflex causes, and injuries to the head—are exciting causes. The physical condition of epileptics often presents marks of degeneration. The greatest number of cases develop at puberty.

The *symptoms* depend upon the form. Two forms are described: *epilepsia gravior*, the severe epilepsy with convulsions (*le grand mal*); and *epilepsia mitior*, the mild epilepsy (*le petit mal*). The first form is the common epilepsy, and the convulsions may occur with, or without warning. In many cases there is a marked *aura*, such as a sensation of heat or cold stealing up the arm or leg, and sometimes the attack may be warded off by grasping the limb tightly. At other times the *aura* consists of strange smells, illusions, and hallucinations, or of spasms in a limb. Headache, or giddiness, or indefinite pains referred to the stomach, with despondency and irritability, are common a few hours before the seizure. When the attack occurs, there is loss of consciousness, sometimes a sudden cry, and the patient falls in the convulsion. There is at first great pallor, and the muscles are in a state of *tetanic rigidity*. The reflex functions are abolished. Respiration is suspended, and the head and neck are held stiffly; the jaws are closed and the limbs are extended. The face becomes blue, in consequence of the venous stasis. In a minute or so, the *clonic spasms* begin. The face, lips, larynx, &c., twitch, and the eyes roll about. Sometimes the tongue is severely bitten, and the froth at the mouth may be bloody from this cause. Hæmorrhages may occur into the conjunctivæ and eyelids, and sometimes severe bruises, and even fractures may result from the violent convulsions. The presence of these conditions in an early case, without other symptoms, should suggest *nocturnal attacks*, sometimes. The clonic stage lasts for a few minutes, and then generally the patient passes into a state of somnolence, for a few hours, from which he can only be partially aroused. The pupils, formerly dilated, are now contracted. Sometimes consciousness returns at once, and the patient looks around with a dazed look—quite unaware of what has happened. Sometimes the epileptic fit is followed by a state of excitement, in which the patient is violent and quarrelsome, and during which he may even commit homicidal acts. One attack may be succeeded by another, or by several; but more usually there is only one seizure. An *apoplectic* form is described by Jaccoud, which is characterised by the greater length of the comatose stage, and by temporary—sometimes more permanent—paralysis.

The mild form of epilepsy—*le petit mal*—is not associated with



convulsions, but it is characterised by very short attacks of *absence*, or complete forgetfulness. The attack comes on suddenly with pallor of the face and dilatation of the pupils. It may be so slight as to attract little attention, and the patient is quite unconscious of any defect. Sometimes, instead of *absence*, there is a sharp attack of vertigo, with loss of consciousness for a second or two, and generally some mild convulsive movements. Jackson does not consider *unconsciousness* to be necessary to constitute a case of epilepsy. Local convulsions may take place without unconsciousness. "Masked" epilepsies are described, in which attacks of neuralgia, or transient delirium, with "insane impulse," take the place of, or alternate with the convulsions.

The *course* of epilepsy is very chronic, and it may terminate in a state of complete dementia. The attacks may be prevented, in many cases, by avoiding the exciting causes. *Le petit mal* is said to affect the mind more quickly than the common epilepsy—loss of memory occurring early in the mild form. The removal of a reflex cause does not always cure the epilepsy even when due primarily to reflex irritation. A *status epilepticus* may be induced.

*Hystero-epilepsy* is a combination which is frequently met with in practice. The patient is generally an epileptic, primarily, and the hysterical condition has developed later.

In the treatment of epilepsy, nothing can be done for the seizure beyond loosening the clothes at the neck, introducing a soft roll of cloth between the teeth to prevent biting of the tongue, and seeing that the patient is in a position to prevent his injuring himself. In some cases, when the *aura* starts in the arm the patient may prevent a fit by tightly grasping the limb. Bromide of potassium is the best remedy for epilepsy. It may be given in large doses (from thirty to sixty grains or more in the day). Anæsthesia of the fauces should be produced, and the dose should be graduated so as to reach this point. The drug should be continued with a gradually diminishing dose, for a long period—perhaps one or even two years. A few drops of liquor arsenicalis may be given daily to prevent *bromism*. Inhalation of nitrite of amyl may sometimes avert an attack. A dose of chloral at night may likewise be useful in averting nocturnal seizures. The diet should be regulated, and tea, coffee, alcohol, and tobacco should be forbidden. In all cases of epilepsy a careful search should be made for cicatrices, or marks of injury to the head. In the latter case trephining may be of the utmost service to the patient. Cicatrices involving a nerve, and the source of an *aura*, should be dissected out. Reflex causes, as worms, &c., should be searched for, and treated. Mercury, arsenic, and potassium iodide are prescribed. Water should be drunk freely.

**Hysteria. Catalepsy. Hypochondriasis.**—This group, in a work of this kind, may be dismissed with a few words, although, in practice, the first and last of these affections are very common. They are all functional disorders, and hysteria is characterised by motor and sensory disturbances of the most varied and irregular description.

Hysteria occurs most frequently in females; but sometimes in males. The age at which it appears is commonly about puberty, and it may exist, more or less, up to the climacteric period. It is not necessarily associated with disorders of the sexual organs. It should be regarded as a *neurosis*, in which there is an unstable condition of the nervous matter. An hysterical attack consists of noisy and vehement excitement in which tears and laughter alternate. The patient is at one moment sad and at another joyful. Sensations of cold and heat, numbness and tingling, palpitations and "globus hystericus," with flatulence and other stomachic symptoms, are only a few of the many possible subjective sensations. A severe form of headache—*clavus hystericus*—is a common complaint, and is described as like a nail being driven into the head. Flashes of light, ringing in the ears, and strange smells; spots of anæsthesia, hyperæsthesia and analgesia; tremors; hysterical joints, contractures, coccydynia, &c.—are common hysterical affections. All sorts of paralyses are simulated, and dysphagia, aphonia, hemiplegia, and especially paraplegia, are often very perplexing. The urine is pale and watery, and paralysis of the bladder with retention is a very common hysterical disorder. The hysterical fit consists of a very brief stage of tonic rigidity followed by clonic spasms. There is screaming and no loss of consciousness; and the reflexes are not abolished. The patient may pass into a state of *ecstasy* without fits. The important diagnostic points in hysteria are considered later, with other nervous diseases, at the end of the section.

In catalepsy there is a paralysis of the cerebral functions apparently, but no actual unconsciousness. It occurs in young hysterical subjects, and consists of rigidity of the limbs, for hours or days, in all sorts of odd positions. The mind is in abeyance and the muscular system—the whole or in part—is in a state of spasm. The face is pale and the eyes open and staring. The breathing is shallow, and the pulse small and weak. Sometimes tactile sensation, pain, and reflex action are diminished or abolished. The attack generally passes away, but relapses are common.

In hypochondriasis the patient believes, without cause, that he is suffering from bodily disease. The pains which arise in such an individual always seem to be of the most agonising description. Cancer, heart disease, phthisis, and especially diseases of the genital organs, are a few examples of the many disorders which hypochondriacal patients appear continually to dread. Some slight pain or symptom arises, and at once his mind is concentrated upon himself, and he fears the worst. A careful examination should be made in all such cases, as organic disease may be present. The mental condition is one of great misery and depression, leading ultimately to permanent melancholia, and insanity in extreme cases, if the patient should not succeed in throwing out of his mind the habit of watching his health.

The treatment of hysteria is often very difficult. In the young, prophylactic measures should be carried out by the parents whenever the neurotic temperament is manifest. Regular hours, exer-



cise, and feeding, should be inculcated, and the habit of self-control exercised from the beginning. The moral sense must be trained, and all improper literature must be carefully withheld. In the treatment of hysterical fits, a calm and apparently unsympathetic manner, may do much to restore the patient's self-possession. A large dose of bromide of potassium may be useful, and it should be continued, in smaller doses, should the patient be markedly hysterical. Guarana, coca, as well as bromides, are useful for hysterical headaches. In anæmic girls, iron, arsenic, and the phosphates, or cod-liver oil—are indicated. In some women asafoetida or valerian may be used when there is much flatulence, or when attacked with "globus hystericus." An inhalation of chloroform may be used in severe cases, and morphia may be injected hypodermically. Electricity is of value for the various forms of paralysis; and combined with Mitchell's massage treatment, good and permanent effects are produced, in suitable cases. The *cataleptic* condition may, if protracted, require forced feeding. *Hypochondriasis* must be treated as a mental disorder.

**Chorea**, or St. Vitus' dance, is due to irritation of the grey matter of the cortex, basal ganglia, and spinal cord. In acute cases there is hyperæmia with small hæmorrhages, softening, and signs of vascular irritation. There is probably an infective micro-organism. It is often associated with acute rheumatism. The age at which it is common is during the period of the second dentition, and at puberty. In mild cases, only one group of muscles may be affected, and sometimes the jerking or twitching is not obvious until the patient is directed to make some movement. When asked to show the tongue it is projected suddenly, and as suddenly withdrawn. At other times there is continual "fidgets." Chorea may begin gradually, and it may arise from imitation of some peculiar movement observed in other children. Sometimes, and especially when caused by a sudden fright, it begins suddenly. In severe cases, all the voluntary muscles are involved. The limbs are thrown about continually, the face is contorted, the eyes roll and squint, and the fingers are twisted into every conceivable shape. The skin becomes excoriated, and the limbs are often bruised; the breathing is sighing and spasmodic; the heart's action is tumultuous, and a mitral murmur is usually present. The pulse is exceedingly rapid, irregular, and weak. There is often tenderness of the spine, and hyperæsthesia of the skin. The reflexes are increased. When the spasmodic movements are limited to one side, it is known as *hemichorea*. The *course* of the mild cases is very chronic, but ultimately there is recovery. The severely acute form is generally fatal. *Maniacal, paralytic, hereditary*, and *senile* forms are described.

The exciting causes are worms, sexual abuses, frights and strong emotions, and pregnancy; while anæmia and amenorrhœa, &c., are favourable conditions for the development of chorea. The cases which occur during pregnancy are more dangerous, and the chorea—if recovered from—is apt to recur in subsequent conceptions.

The treatment consists of the removal of all exciting causes and reflexes, when possible. Absolute rest and quiet, with a well-regulated light diet—afterwards increased to a full generous diet—will often cure a mild case of chorea without other remedies. Arsenic, however, is of the highest value in chorea. The neural sedatives may be required, and bromide of potassium, succus conii, chloral and opium are all used. In the severe cases, inhalations of chloroform often become necessary. Large doses of morphia are sometimes given. Trousseau advocates the use of large doses of strychnine. The anæmic patients should be prescribed iron, phosphates, and cod-liver oil.

**Writer's cramp**, and other allied affections, need only be shortly noticed. These disorders are brought about by over-use of the muscles. There is no paralysis, and the fingers may be used for all other work. Fatigue and pain are felt in the fingers and forearm. Sometimes the attempt to write produces a tonic spasm. Again, there is loss of power or weakness, with fibrillary trembling. *Pianist's cramp* may involve both hands. The treatment in these affections is to order prolonged rest. Galvanism and massage are the best remedies. Easton's syrup, hypophosphites, or cod-liver oil should be prescribed, if the system have run down.

Athetosis is a chronic condition sometimes associated with old standing paralysis. There is constant movement of the fingers or toes. The patient is unable to keep a finger still in any position in which it may be placed.

Singultus, or hiccough, is generally caused by indigestion. Sometimes it is a very formidable affection to treat, and it ushers in a fatal termination in many cases of severe organic disease. Bartholow recommends a sudden, strong faradic shock through the diaphragm, just as the spasm is about to occur. Inhalation of ether or chloroform, and the injection of morphia, hypodermically, should be tried.

*Spasmodic tic* (spasms of certain groups of muscles), *convulsive tremor* (involving the trunk and limbs), *saltatory spasm* (convulsive movements when the feet are brought to the ground), *Thomsen's disease* (tonic cramps when voluntary movement is attempted), and *pain palsy* are *functional* nervous disorders, some of them very rare.

**Meniere's disease** is an auditory vertigo, with deafness produced by local disease of the labyrinth. The attacks may at first be short, but ultimately they become more or less constant, with exacerbations. The giddiness is often extreme, and it consists of a sensation of whirling to the *right or left—or vertically*—and sometimes it is likened to sea-sickness, and accompanied by nausea and vomiting. Noises in the ears are almost always complained of. Some cases seem to improve, and are free for long intervals. Quinine seems to be the best treatment.

**Hemicrania**, migraine, or sick headache, is believed to be due



to changes in the circulation. There is paroxysmal unilateral headache, which seems to be sometimes periodic, and accompanied by nausea and vomiting. The supraorbital region is the part most affected. The sight is disordered in a peculiar way. It may only be dim; but frequently a zig-zagged outline or patch appears to obstruct the vision. The face is sometimes pale and sometimes flushed during an attack. Strong light and noise aggravate the pain. There is often tenderness upon pressure over the cervical ganglia. The paroxysms may last for a few hours or a day or two. The disease is more common in women than in men. The *treatment* consists in regulating the diet. Arsenic, caffeine, and bromide of potassium are useful remedies. Galvanism is sometime used, with good results.

**Tetanus** consists of violent paroxysmal and tonic contractions of the muscles of the body, and it is produced by an increased excitability of the reflex function of the spinal cord, due to the infective poison of a specific bacillus. The disease is *idiopathic* when no open wound is found.

*Cold* appears, sometimes, to be an exciting cause. *Strychnine* poisoning produces symptoms similar to tetanus.

[Tetany is a separate affection, occurring in rachitic children frequently. The tonic spasms are generally confined to the distal parts of the extremities. Deficiency in the secretion of the thyroid gland is a cause, and cases of cure by thyroid extraction are reported.]

The *symptoms* of tetanus consist of sudden and paroxysmal contraction of the muscles, the jaws being first affected (*trismus*). The lips are retracted (*risus sardonicus*). *Opisthotonos*, *emprosthotonos* or *pleurosthotonos*, are conditions arising from the muscular contraction. The first is the commonest, and it occurs when the spinal muscles are firmly contracted so as to arch the back, and the body rests upon the head and the heels. *Emprosthotonos* is the opposite condition—*i.e.*, the body is bent forward; and *pleurosthotonos* is lateral inclination. The two lateral conditions are rare. The paroxysms are excited by movements and by noise, and a slight touch may produce a seizure. There is often difficulty in swallowing. Feverish symptoms develop later; and at the beginning the wound looks irritable.

If very acute, death may result from interference with the respiratory muscles. In milder forms, rest and nourishment may be taken between the attacks. The *prognosis* may be favourable if the spasms be not severe, and if the intervals between them get gradually longer. The *treatment* consists of removing any cause of reflex irritation. Wounds and cicatrices must be searched or opened for splinters and foreign bodies. A lacerated nerve should be divided. Bromide of potassium should be given in large doses. A tetanus antitoxin may be tried. Warm baths are soothing; and a spinal ice-bag is beneficial.

**Hydrophobia** is due to the inoculation of animal poison—

especially that contained in the saliva of the dog. The pathological changes found are merely those of general congestion of the viscera with fluidity of the blood. Importance is attached to various congestions of the central nervous system.

The *symptoms*, after a stage of incubation which averages from one to two months, begin with irritation in the wound or cicatrix caused by the bite of the dog. The wound becomes livid in appearance and very painful, and the lymphatics may be sometimes seen to be inflamed. At this stage there is great apprehension and depression. Feverish symptoms soon develop, and after this stage has lasted twenty-four to forty-eight hours, the violent symptoms supervene. The breathing is at first sighing and jerking, but soon it is interfered with by the tetanic spasms. The throat feels constricted, and there is intense thirst, but any attempt to swallow brings on a severe suffocative seizure. Violent hawking—not unlike the barking of a dog—is often present. The mind generally wanders. The slightest touch excites the spasms, which are very similar to those seen in tetanus. The whole acute stage may only last one or two days; death being the usual result from exhaustion, asphyxia, or general convulsions. The *treatment* should consist of cauterising every wound, early if possible, with nitrate of silver. Pasteur's inoculative treatment is the only treatment which can offer any hope to the patient. All other therapeutic agents have failed.

**The Diagnosis of Brain Diseases.**—In the first group, it has already been pointed out how far it is possible to differentiate the conditions which give rise to apoplexy, hemiplegia, and aphasia. There remains, however, the consideration of apoplexy in relation to other diseases, a subject of the greatest importance practically. Frequently such cases come before the physician without any history; and it is often difficult, and sometimes impossible, to give any positive opinion—at least for a few hours. Great caution must be exercised in the diagnosis of cerebral hæmorrhage (and its allied affections) from *injuries to the brain*, and from *narcotic and alcoholic poisoning*. The apoplectic symptoms are not distinguishable, and it is only by the *history and surroundings* that the diagnosis may sometimes be inferred. The rule is never to give a confident opinion in such cases as are found in the street, &c.; but to order the patient to be put to bed and to be carefully watched. Mistakes are frequently made by forgetting the possibility of there being two conditions present. An alcoholic case may readily have a cerebral hæmorrhage; or the odour of brandy may be the result of kindly, but ignorant interference in the way of treatment. A fracture of the cranium may also be a result of a fall, *after* the shock; and any suspicion of foul play must be carefully noted at the time.

Other conditions which must be differentiated are *uræmia* (serous apoplexy), *organic diseases* of the brain and membranes, as *tumour*, *abscess*, or *meningitis*; and the apoplectic form of *epilepsy*. The presence of albumen in the urine, with the history of kidney disease, will suggest uræmia, and the subsequent course of the case may



confirm the diagnosis; but it should be remembered that kidney disease and cerebral hæmorrhage are often associated. The organic diseases of the brain should have a history of early symptoms, and some of the conditions mentioned under the localisation of tumours and abscesses may be present. Epilepsy is known by the comparatively rapid recovery from the apoplectic state, and, possibly, a history of a previous seizure and recovery. Pachymeningitis may be the cause of the comatose state, but this is not so important from a clinical point of view. In simple *congestion of the brain* (apoplectic form) the reflexes are normal, and there is rapid recovery without hemiplegia.

In all cases of apoplexy, it is important to know if the attack was *sudden* or *gradual*. The presence of hemiplegia or rigidity, convulsions, inequality of the pupils, or the "conjugate deviation," is important, as these symptoms point to cerebral hæmorrhage.

With regard to *intra-cranial tumour* and *abscess*, the diagnosis in most cases rests upon the balance of the probabilities. In relation to the preceding group it may be said that tumour appears at any age, while *thrombosis* is a disease of the aged. The headache in tumour is very intense, and epileptiform convulsions are more common than in apoplexy. The cranial nerves are affected by tumours, and the symptoms develop slowly. From tumour, a cerebral abscess is distinguished by quicker development, fever, and the presence of a causal affection. The different forms of tumour can only be inferred. Tubercular growths occur in the young; aneurisms occur in adults and in older people, who otherwise appear to be in good health. Tubercular growths are generally deeply situated, and they do not, as a rule, affect the cranial nerves. Hydatids generally produce numerous epileptiform convulsions. Syphilis—the most important to diagnose—has already been specially mentioned. (See pp. 244 and 247.)

The differentiation of *acute* from *tubercular meningitis* has already been discussed. *Meningitis* may sometimes require to be distinguished from fevers, tumour and abscess of the brain, cerebral congestion, disease of the inner ear, and from uræmia. Fevers are excluded by the presence of convulsions, paralysis, or retinal changes; and by the non-development of diarrhoea, or rashes, &c. Meningitis is quicker in development, and the symptoms are diffused, and there is fever; an abscess can only—in the absence of causal disease—be distinguished from meningitis by having a period of latency after symptoms of acute inflammation, and by the presence of "localising symptoms," already discussed under *intra-cranial tumours*. From *cerebral congestion* meningitis differs in being accompanied by high fever, in being longer in duration, and followed by greater depression. In ear disease, the early history is important. In uræmia, the examination of the urine, and the history of dropsy, &c., will generally clear up the case.

Cerebral congestion and anæmia have already been compared. The symptoms come on without fever, and the attacks are generally short. Sometimes the congestive seizures may resemble

*delirium tremens*, *epilepsy*, *stomachal vertigo*, or any disease in which there is mild *delirium*.

Convulsive seizures or "fits" occur as a symptom in a vast number of diseases. To enumerate these would be but to repeat what has already been stated in its proper place throughout this work. No opinion should be expressed as to the nature of an "epileptiform" attack until the whole of the systems have been carefully examined. In *children*, teething, worms, solid particles of undigested food, pneumonia, tubercular meningitis, hydrocephalus, and, indeed, the onset of almost any acute disease with fever, are only a few of the common conditions in which convulsions may be present. In *adults*, cardiac and renal disease (uræmia), many diseases of the brain and spinal cord (and injuries), puerperal eclampsia, very acute painful diseases (as gall-stones and renal colic), anæmia (emboli), poisons, hysteria, *alcoholism*, syphilis, caries of the teeth (rarely), and other reflex causes, have all to be excluded before *epilepsy* can be stated with confidence to be the substantive disease. The differentiation of epilepsy from simple hysteria and malingering is not usually difficult. In epilepsy the reflexes are absent, especially the conjunctival reflex; the eyes are open and staring, the face is pallid, the skin is cold, and the spasms are often at first *tonic*, then followed by the *clonic*. The pupils are dilated, the tongue is often bitten, and there is insensibility to pain. The thumbs may be doubled in, and when forcibly withdrawn, they *remain* extended. In malingering, or in hysteria, these conditions may be absent or reversed. As hystero-epilepsy is a combination of the two states it is sometimes more difficult to be sure of the prevailing one. The patient may have learned to imitate her epileptic fit very well. *Le petit mal* requires to be differentiated from syncopal attacks and vertigo from other causes. The paralytic affections which are so frequently met with in the hysterical, are differentiated by the history, the non-development of trophic changes, and the preservation of electro-contractility, &c. There is never facial paralysis in hysterical hemiplegia, nor any history of antecedent apoplexy.

The diseases of the nervous system in which *tremors* occur as a prominent symptom, are paralysis agitans, chorea, multiple or disseminated sclerosis, and mercurial poisoning, &c. In *paralysis agitans* the movements are continuous, although they may sometimes be controlled by an effort of the will. In simple "senile trembling" the head is chiefly affected, and there are no other symptoms, such as paresis or paralysis, or backward propulsion, as occur in the true paralysis agitans. In *chorea*, the well developed cases have no resemblance to the others. The extremities are "flung" about, and the grimaces are characteristic. In the mild cases, which are only called forth by directing a muscular effort to be made, it is more an irregular "jactitation" than a tremor. In *multiple sclerosis*, the tremors are only present when muscular efforts are made, while the speech is affected, and there is nystagmus. In *mercurial poisoning* the tremors are seen only when movements are attempted; and there will be defects of vision, a grey-blue line on



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,