

The sexual functions are always disturbed. In the male there is a decline in the vigor of the erections, and not unfrequently functional impotence results. This topic becomes the predominant idea, and the individual is haunted with a thousand fancies, of which "a loss of manhood" is always the end of the series. In women, the menstrual function is perverted. Sometimes there is amenorrhœa; sometimes menorrhagia. Some disease of the uterus is often the predominant idea with the female subjects of neurasthenia.

**Course, Duration, and Termination.**—The author's view of the development and course of neurasthenia is as follows: A man, originally possessed of the neurotic type of constitution, has his nervous system rendered additionally impressible by the influences surrounding him. Under the circumstances of this increased excitability of the nervous matter, its elements respond with abnormal readiness to the action of all stimuli, just as a motor or sensory nerve when in an irritable state is functionally readily responsive to stimulation. In a great preponderance of cases the initial disturbance is in the digestive organs, and thence reflex influences proceed to all parts of the nervous system. Sensations which in a normal mind would excite little attention, are in the case of these nervous subjects exaggerated into serious disturbances. The mental condition, after the gastrointestinal disturbance, is the chief element in the morbid complexus. In no part of the complex of symptoms is the influence of the hysterical or hypochondriacal condition more conspicuous than in the sexual state. The functional impotence, which is a constant symptom, arises for the most part out of the morbid fear of failure. The hebetude of mind and inaptitude for all kinds of mental work are largely dependent on the same morbid apprehension. The various cerebral symptoms which belong to dyspepsia awake in them the acutest apprehension of mental disease. The notion of such disease once started in the mind, every reflex sensation assumes the gravest proportions, and memory, and the power of attention, are apparently much impaired, because the mind, absorbed in the study of the interminable bodily sensations, takes no cognizance of other impressions. Thus, gradually, in one of these nervous subjects, is the condition called neurasthenia evolved, from, it may be, the simplest kind of peripheric irritation, until no function remains undisturbed. In women a similar course of evolution is observed. If we substitute for the worries of business and pecuniary cares, the follies of fashion and the interminable annoyances of housekeeping, we find that women of the neurotic type undergo the same kind of disturbances as men, and these result in them in a similar morbidity. Of course, the peculiarities of their sexual relations determine the direction taken by the morbid phenomena. In what mode it has developed, or whatever form the vagaries have assumed, the course of these cases is protracted. The condition of functional depression of the nervous system recognized, these

patients are subjected to the usual routine of tonics, stimulants, and nutrients. They are plied with iron, strychnine, good food, and outdoor air and exercise is enjoined, but to little purpose. Shut up in darkened rooms, with some slave of mother or sister, these wretched invalids pursue their monotonous lives, content, in the midst of their fancies and their sufferings, with those attentions which feed their selfish invalidism. The male neurasthenic, hypochondriacal and yet hopeful of relief, abandons himself to the indulgence of his woes or occupies himself in the fruitless search for a cure which will accord with his own notions.

**Treatment.**—Moral management and hygienic influences are very important. So long as the female neurasthenic is kept at home, the object of the solicitous attentions and suggestions of some slave of a mother or sister, little can be accomplished. Removed from the home influences, and subjected to an entirely new set of impressions, the first steps toward cure can then be taken. No real change in the mental state of these subjects can be effected until the nutrition is put on a satisfactory footing. Systematic feeding is first to be attempted. One of two methods may be pursued. If hyperæsthesia of the stomach is a pronounced feature, it is necessary to begin with a small amount of aliment at short intervals. It is under these circumstances that the milk-cure proves so valuable. If, however, the stomach permits the reception of suitable aliment, it is only necessary to carry out a proper system of diet, regulated by the nature of the digestive derangements. Next in importance to a proper dietetic management is systematized exercise. It is almost certain that the best mode of resting the brain and mind is to divert the surplus blood into the muscular system. Walking is the best form of exercise, and this must be systematically carried out until the patient thus occupies a large part of his waking movements. It is impossible to exaggerate the value of this expedient in ordinary cases of neurasthenia. Mitchell's plan of treatment, referred to under the preceding article, is well adapted to the cure of these cases. It is probable, however, that a considerable proportion relapse when returned to the influence of their former surroundings.

General faradization, central galvanization, the electric bath, and sparks drawn from various parts, are of great value. The electrical treatment may be advantageously combined with massage, frictions of the whole surface with some animal fat, and regulated exercise. The methods of hydrotherapy, especially residence in some judiciously managed establishment in a mountainous region, is to be commended. Of the medicinal management, cod-liver oil and iron of the nutrient class and strychnine and picrotoxine of the spinal stimulant class may be advised. Arsenic and nux vomica are valuable as special remedies for feeble digestion. Phosphites and phosphates as nerve tonics are useful. It should not be forgotten that medicinal is strictly subordinated to the moral and hygienic management.

## CATALEPSY.

**Definition.**—*Catalepsy* is applied to a state with or without loss of consciousness, in which the cerebral functions are in a state of suspension, and the voluntary muscular system in a position of fixed rigidity.

**Pathogeny and Symptoms.**—Catalepsy rarely occurs as an independent affection, and is usually associated with certain kinds of mental disorder—with ecstasy, hysteria, and somnambulism. Young, impressionable, and nervous subjects are particularly liable to it. The attacks occur suddenly, and are not indicated beforehand by striking phenomena. It is true that prodromes may occur; there may be changes in the feelings—sadness, unexpected gaiety, a state of apprehension—or actual pain, headache, and general muscular soreness may be felt, or vertigo, yawning, gaping, a condition of unrest, may come on; but these sensations are neither necessary nor constant. The patient is attacked, in what position soever at the time, as if petrified, but there is no muscular relaxation; on the contrary, there is a state of tonic rigidity, the antagonistic muscular groups acting with equal tension. The consciousness is abolished in the sense that all exterior objects have vanished, and, although impressions may be received, they produce no reactions. While the mind is in abeyance, the muscular system is in a condition of tonic spasm, resisting passive motion and over which no voluntary control is exerted, and the muscles are suddenly fixed in the position in which they were when the seizure came on, as if set in stone. Although the muscles are not acted on by the will, they afterward submit to passive motion, and remain in any position in which they are placed. But little resistance is then opposed to passive motion; the members are perfectly flexible, and yet when fixed in a certain position remain immobile, and without trembling or vibrating. The limbs may be put into the most odd and uncomfortable attitudes, and maintain them against gravity for some time, but the muscles at length begin to tremble and ultimately yield according to gravity. The appearance of the patient is very peculiar, sitting or standing immobile in a fixed attitude, staring straight forward and upward, the countenance pale and rigid, breathing scarcely perceptible, the pulse small and weak. On touching the conjunctiva, there are faint movements of the eyelids; and, if articles of food are placed well back into the pharynx, swallowing is induced, but the organic like the voluntary movements are performed imperfectly. There may be entire abolition of the sensation of touch, of pain, and of reflex movements; but in other cases the patients have a partial knowledge of events transpiring during the seizures, and in a few instances hyperæsthesia has been noticed. During the attack, the surface is cold, and the temperature falls. When the paroxysm ends, the patient suddenly rouses, takes a

deep, sighing inspiration, yawns widely, and gapes loudly, as if waking from a profound and protracted sleep.

**Course, Duration, and Termination.**—The attacks of catalepsy vary in frequency and severity. They may last a few minutes, several hours, or for days. There is no regularity in the appearance of the attacks, and in the interval the patient may have good health, but usually suffers from hysteria. After the first attacks, the patient may at once resume her ordinary occupation, but repeated recurrences set up a pathological condition of the nervous system, exhibited in the various phenomena of neurasthenia. As catalepsy is associated with certain forms of mental derangement, it is probable that its appearance may sometimes indicate the occurrence of such mental disorder.

**Treatment.**—Only the protracted cases require attention during the paroxysm. Those cases which continue for days require alimentation by forced measures. The food may be placed well back into the pharynx, or liquids may be introduced through an œsophageal tube passed by the nares. A few minims of amyl nitrite inhaled may suffice to stop the paroxysm, and the hypodermatic injection of morphine may be equally as effective. The usual antispasmodics—as asafœtida, valerian, camphor, turpentine—may be employed by the stomach or rectum. The most important measures are the prophylactic, to prevent the return of the seizures by improving the tone of the nervous system. In anæmic cases, iron, the phosphates, and quinine, are the most appropriate remedies. Change of scene, agreeable variety, occupation affording the mind entertaining employment, are very conducive to the mental and moral stamina of such subjects. Electricity may be employed for the double purpose of arousing patients from the cataleptic state and for improving the tone of the nervous system. The methods of treatment applicable in hysteria are also useful in catalepsy.

## PARALYSIS AGITANS.

**Definition.**—*Paralysis agitans*, or *shaking palsy*, is muscular tremor occurring with loss of power, the subject of the disease being advanced in life.

**Causes.**—Although rarely seen under forty years of age, it does occur earlier, Duchenne having met with a well-marked example in a man of twenty. The two sexes are about equally affected. Heredity is apparently not concerned in its propagation. The principal causes, besides, probably, a peculiar state of the nervous system, are strong emotion, fright, grief, anxiety and similar moral impressions. Exposure to cold and dampness for a lengthened period, injury to peripheral nerves of an irritative kind, are supposed to cause the disease sometimes. It is said to be more frequent in the Anglo-Saxon race (Charcot).

**Pathological Anatomy.**—In a certain proportion of cases, not definite, however, no lesions of any kind have been discovered on *post-mortem* examination. In other cases, induration (sclerosis) of the pons, medulla, tubercula quadrigemina, and lateral columns of the cervical cord, has been discovered, but Charcot, with justice, doubts the relation of the lesions to the symptoms. In a third group, the lesions of disseminated sclerosis have been confounded with those of paralysis agitans. A consideration of these facts renders it evident that this disease is a neurosis, a functional disorder.

**Symptoms.**—In the largest number of cases, paralysis agitans comes on slowly, a slight jerking occurring in a thumb, hand, or foot—in flexion of the thumb and finger, pronation and supination of the forearm. Any effort of the will, as grasping, writing, or walking, will stop the irregular motions. The trembling follows a certain order in its progress from the point of beginning. If, for example, the right hand is first attacked by trembling, after some months or years, the right foot will become affected, then the left hand, next the left foot. Rarely is the middle line crossed, but sometimes this occurs: the right hand first attacked, the next is the left foot. The tremors are often confined to one side of the body for a long time—hemiplegic type; less frequently to both lower extremities—paraplegic type. In some exceptional cases, a feeling of fatigue, or neuralgic pains, precede for some time the trembling, and are experienced in the same limb, which is subsequently attacked by tremors. Sometimes the disease sets in abruptly, in consequence of some sudden shock, and may then affect one member or attack them all simultaneously. In what way soever the disease began, the symptoms of this initial period continue from one to three years, and then pass into the period of fixed intensity. When complete in its development, all the members invaded, the trembling becomes almost incessant, but it is not equally severe at all times. Mental emotion and exercise increase the trembling, and there are periods of exacerbation without any apparent reason, and sleep and chloroform narcosis suspend it. The trembling consists in successive jerks—muscular contraction and relaxation; and in the hand sometimes the thumb and fingers assume a position and movement like the rolling of a pill-mass. The head and neck are not affected, as a rule, but there are exceptions. The muscles of the face are motionless, the countenance fixed and stolid, the muscles of the jaws are unaffected, and there is no nystagmus or oscillations of the eyes. The tongue is somewhat trembling, the lips are compressed, and speech is slow, deliberate, and jerky, as if the pronunciation of each word required a great effort. The muscles of the hand and of the neck, body and extremities, assume a position of characteristic rigidity, preceded by pains and cramp, usually supposed to be rheumatic. The flexors are first and most severely affected. The patient assumes a characteristic

attitude, the body bent forward, the neck rigid, making the vertebra prominens still more prominent, the hands flexed and deformed, especially in the fingers, and the whole presenting a strong similarity to the joint troubles of chronic rheumatism. Similar deformations occur in the lower extremities. It occasionally happens that rigidity and deformity occur with the first appearance of the trembling. Notwithstanding the trembling, the motor acts can be performed; they are retarded rather than feeble (Charcot). The muscles are easily tired and the least effort causes a strong sense of fatigue. As a result of the peculiar disability of the muscles, the subjects of paralysis agitans have a peculiar gait. They rise slowly and are deliberate in starting, but, when under way, they go in a dog-trot with the head and body directed forward. Sometimes retropulsion occurs. Given a little jerk backward, they run backward until they fall. Besides the feeling of fatigue just mentioned, these patients suffer from a variety of evil sensations. One of the most distressing is the "fidgets," a feeling of unrest in the limbs associated with the impression of an irresistible necessity for movement. Sensations of pain, touch, and temperature are normal, but a subjective sensation of heat is often felt (Charcot).

**Course, Duration, and Termination.**—This is a disease of very long duration—it may be thirty years. The first or formative stage lasts from one to three or four years; the period of maximum intensity continues from two or three to twenty years. During this long time there is a progressive increase in the symptoms, until finally the patients are quite disabled, confined to the chair or to the couch. The muscles undergo more or less fatty change, and waste a good deal. At the terminal period very considerable prostration comes on, the urine and feces are passed involuntarily, and the mind becomes cloudy and wanders. Just before death the trembling may cease entirely.

**Diagnosis.**—Paralysis agitans and disseminated sclerosis were confounded together, until Charcot pointed out the difference between them, showing that the tremors of the former are always present, while in the latter they occur only when purposive movements are undertaken. In senile trembling the head is chiefly affected, and the movement is merely that of trembling without the peculiar jerking of paralysis agitans; in the former there are not paresis of the muscles, stiffness, deformity of the extremities, and the impulse to forward propulsion and to retropulsion, characteristic of the latter. Mercurial tremor occurs in those who are engaged in some occupation requiring exposure to the vapor of mercury, and it differs from paralysis agitans in being purposive, accompanied by troubles of coordination, defects of vision, by a grayish-blue line along the margin of the gums, by a fetid breath, and sometimes ptialism.

**Treatment.**—There are several remedies that moderate the trembling—hyoscyamine, according to Charcot, is the best, and in the author's observation no remedy has acted so efficiently as this. Gelsemium sometimes is quite beneficial, but it must be given in quantity that will make an impression. To lessen the retrograde changes, the best results are obtained from the chloride of gold and sodium, with or without corrosive sublimate in small doses, given persistently, oxide or nitrate of silver and the lactophosphate of lime with arsenic, continued steadily for months at a time. Eulenberg has had good results from the hypodermatic injection of arsenic, and Ogle from extract of physostigma. Monobromide of camphor has appeared useful in some cases. The milder applications of hydrotherapy have done good in a few instances. From the variety and diversity of the remedies recommended, it is apparent that no plan of treatment has been satisfactory. There is a general agreement that the galvanic current is useless. Eulenberg\* says he has seen no good results from it; Erb's and Rosenthal's experience is the same.

#### CHOREA.

**Definition.**—By *chorea* is meant a functional nervous disorder, characterized by defects of voluntary coördination, and by irregular spasmodic movements in certain groups of muscles.

**Causes.**—A peculiar mobility and impressionability of the centers of coördination are, doubtless, transmitted by inheritance. The mode of life, education, and training may induce this unnatural mobility. The disease usually makes its appearance about the second dentition, or at the period of puberty. When the predisposition exists, various causes may excite the morbid complexus. Among the most important of the causative influences is rheumatism, or rheumatic endo- and exocarditis. The closeness of the relation is variously stated. Professor Sée is at one extreme, for he finds in one hundred and twenty-eight cases of chorea sixty-four cases of acute rheumatism. Steiner, of Prague, is at the other extreme, for, in a series of two hundred and fifty cases of chorea, only four resulted from acute rheumatism. It is impossible to harmonize these observations. According to the author's experience, the proportion of rheumatism to chorea is about one to eight—much more than Steiner's, and less than Sée's. Intestinal worms, sexual abuses, amenorrhœa, anæmia, and strong moral emotions, are frequent exciting causes, and to these must be added pregnancy.

**Pathological Anatomy.**—There are no constant changes in the anatomical elements. As a large proportion of cases recover, it is probable that the derangements are functional. As so many cases are com-

\* "Lehrbuch der funktionellen Nervenkrankheiten," *op. cit.*, p. 711.

plicated by endocardial alterations, embolic obstruction of the minute vessels of the corpus striatum, or optic thalamus, has been proposed to account for the morbid phenomena. Hughlings Jackson has especially supported this view. As emboli have been discovered in some cases, it seems probable that this explanation is occasionally true. But various changes have been discovered: thus Meynert found changes in the cerebral cortex, and Elischer has recently detected nuclear proliferation, thickening of the adventitia of the minute vessels, and hyperplasia of the neuroglia in the corpus striatum.\* Localized softenings in various parts of the cerebro-spinal axis have been noticed, but no relation can be traced between such softenings and chorea, except those situated in the corpus striatum.

**Symptoms.**—A sudden terror has produced a fully developed chorea in an extremely nervous child, but usually the onset of the disease is gradual. At first the child appears to have adopted some trick or a grimace, or an ugly motion of the shoulder or arm. Then irregular jactitations become more common in the face and upper extremities. The choreic movements may be limited to one side of the body, when it is known as hemi-chorea, or to the upper or lower extremities. In a severe case all of the voluntary muscles of the body are engaged in choreic movements; the muscles of the face are distorted into endless grimaces; the eyes roll (nystagmus), and, the muscles acting unequally, there is strabismus; the tongue is jerked about the mouth, so that speech is difficult or unintelligible, and is sucked into the throat with an audible smack; the arms are troubled by endless jactitations, the fingers are twisted into all conceivable shapes, and writing, using the knife and fork, and holding any object are impossible; walking is irregular, the legs catch each other or trip over objects; breathing is spasmodic and sighing; the heart's action is tumultuous, irregular, and apparently also choreic; a soft-blowing murmur may be audible at the base, or a loud, churning systolic murmur, heard with greatest intensity in the mitral area. In the severest cases the patient can not remain in any position, but all the voluntary muscles are simultaneously engaged in the most violent and disorderly movements. The features are swollen and bloated; blood is seen about the teeth; the extremities are bruised and bleeding by the continual knocking of bony prominences against the wall, the bed, or the floor. In the mild cases the jactitations are occasional and not severe, and cease during the night, permitting quiet repose. In the severe cases only snatches of sleep are obtained, the jerking of the muscles coming on after very short periods of quiet. In the severest cases the jactitations are incessant, and sleep is impossible. In all cases of chorea sleep is apt to be disturbed by unpleasant dreams, and somnambu-

\* "Ueber die Veränderungen in den peripheren Nerven und in Rückenmark bei Chorea Minor," Virchow's "Archiv," lxi, p. 485.

lism is by no means uncommon. There is general exaltation of the senses of touch and pain, and the reflexes are increased. Tenderness of the spine, especially of the cervical and upper dorsal regions, is a constant symptom. Weakness or perversion of mind is observed in all decided cases, but usually impaired memory, stupidity, irritability, and morbid impulses have been observed.

**Course, Duration, and Termination.**—The course of chorea is chronic and continuous, and the duration of ordinary cases is from one to three months. Although regarded as self-limited and tending to spontaneous recovery in two or three weeks by some authorities, it is really much influenced as to its course and duration by appropriate treatment. It may continue for a number of months, for years in fact, but this is excessively rare. Exacerbations and relapses are very common. Those having attacks at about seven years of age are apt to experience seizures up to puberty. If occurring in the first pregnancy, it is apt to occur in subsequent pregnancies. The most intractable cases, according to the author's experience, have been those of the first pregnancy. Although the termination is usually in health, death may result from the exhaustion due to the incessant jactitations, want of food, and loss of sleep. The existence of pregnancy is a serious complication, for, besides the danger of miscarriage, the severity of the disease induces rapid exhaustion. Jaccoud collected thirty-one cases of the chorea of pregnancy, and of these four died. After delivery the convulsions cease, but very rarely before delivery.

**Diagnosis.**—Chorea is accompanied by such pronounced symptoms that it can hardly be mistaken for any other disease as it occurs in children. It may be confounded with disseminated sclerosis which appears in young subjects, and which has for a prominent symptom muscular tremor, but the tremors are perceived only on intentional movements, and cease when the muscles are at rest. Furthermore, this disease is accompanied by pareses of the muscles and the rigidity of extension, and often sets in with an apoplectic attack and other formidable symptoms; and its course and behavior are so different in all other respects from the tremor, that the least attention ought to prevent error. Paralysis agitans differs from chorea in the age of the subject, the deformity of the hands, the muscular rigidity, the shape assumed by the spine, and the character of the gait, and in the subsequent course and termination.

**Treatment.**—Excellent results have been obtained by a simple hygienic treatment—by confinement to bed in a darkened and quiet room, and careful but generous alimentation. As moral causes, excitement and bad hygiene, are very influential in causing the disease, supplying the patients with the opposite conditions ought to effect improvement. Treated in this way, it was ascertained at Guy's Hospital that chorea has a tendency to spontaneous cure in two or three weeks.

It is important to give to choreic subjects sound sleep—to suspend the jactitations during ten hours. This is best accomplished by the combined use of morphine and chloral. A generous diet should be directed, and the utmost quiet and repose enjoined. Any eccentric irritation, as worms in the intestines, impacted fæces, elongated prepuce, or sexual excess, should be corrected. Anæmia requires the free administration of iron, lactophosphate of lime, and strychnine. The remedies to stop the choreic movements consist of the mineral tonic group—arsenic, the zinc preparations, ammoniated copper, and iron; of the vegetable paralyzant group, as succus conii, gelsemium, physostigma; and the anodyne group, as opium, chloroform, chloral, bromide of potassium. Of the mineral tonic remedies the best results are obtained from arsenic, of which very large doses are easily borne. In some obstinate cases the hypodermatic injection of arsenic has achieved successes. In the most violent cases, chloroform may be indispensable to give even a few minutes' repose. In these violent cases, enormous, almost incredible doses of morphine were given by Trousseau with advantage. Mild cases are benefited by ether-spray directed against the spine for a few minutes every day. Galvanization is also serviceable. A stable current, not too strong, should be applied to the spine and to the principal bundles of spinal nerves. Hydrotherapy, in the form of a wet pack, and douche to the spine, has been useful in many cases.

#### WRITER'S CRAMP.

**Definition.**—*Writer's cramp* is a faulty term, but no really better designation has been proposed. It is intended to express the idea of a muscular disability produced by overuse in a strained position of certain muscles. It is called *writer's cramp* because so many cases have arisen from this employment. The same disability occurs to pianists, to seamstresses, and some other employments requiring the continuous use of the same group of muscles.

**Pathogeny and Symptoms.**—There is not an actual condition of cramp; the affected muscles are not paralyzed, and are equal to all other work, except the particular duty in which they acquired the disability. Duchenne well expresses it when he says there is an impotence in respect to the particular position and movements involved in writing. There is no disorder of intelligence, no lack of ideas, and the motorial apparatus is intact, but the muscles, so long and constantly employed in the prehension of the pen, the poisoning of the hand and forearm, and in the movement of the pen (Poore\*), become unequal to the task. The growth of the disability is slow. Fatigue in the much used muscles, pain in the forearm, in the wrist, and in the hand, are

\* "The Practitioner" (London), 1879.