

lessened resistance be carried too far, there is an increase and irregular discharge of nerve energy, which gives rise to spasm and disordered movement. According to this view, the muscular weakness is explained by an impairment of nutrition accompanying that of function, and the diminished faradic excitability by the nutritional disturbance descending the motor nerves." (Gay.)

**Symptoms.**—These may be described under five heads (Lewis).

(a) *Cramp* or *Spasm*.—This is often an early symptom and most commonly affects the forefinger and thumb; or there may be a combined movement of flexion and adduction of the thumb, so that the pen may be twisted from the grasp and thrown to some distance. Weir Mitchell has described a lock-spasm, in which the fingers become so firmly contracted upon the pen that it cannot be removed.

(b) *Paresis* and *Paralysis*.—This may occur with the spasm or alone. The patient feels a sense of weakness and debility in the muscles of the hand and arm and holds the pen feebly. Yet in these circumstances the grasp of the hand may be strong and there may be no paralysis for ordinary acts.

(c) *Tremor*.—This is most commonly seen in the forefinger and may be a premonitory symptom of atrophy. It is not an important symptom, and is rarely sufficient to produce disability.

(d) *Pain*.—Abnormal sensations, particularly a tired feeling in the muscles, are very constantly present. Actual pain is rare, but there may be irregular shooting pains in the arm. Numbness or soreness may exist. If, as sometimes happens, a subacute neuritis develops, there may be pain over the nerves and numbness or tingling in the fingers.

(e) *Vasomotor Disturbances*.—These may occur in severe cases. There may be hyperæsthesia. Occasionally the skin becomes glossy, or there is a condition of local asphyxia resembling chilblains. In attempting to write, the hand and arm may become flushed and hot and the veins increased in size. Early in the disease the electrical reactions are normal, but in advanced cases there may be diminution of faradic and sometimes increase in the galvanic irritability.

**Diagnosis.**—A well-marked case of writer's cramp or palsy could scarcely be mistaken for any other affection. Care must be taken to exclude the existence of any cerebro-spinal disease, such as progressive muscular atrophy or hemiplegia. The physician is sometimes consulted by nervous persons who fancy they are becoming subject to the disease and complain of stiffness or weakness without displaying any characteristic features.

**Prognosis.**—The course of the disease is usually chronic. If taken in time and if the hand is allowed perfect rest, the condition may improve rapidly, but too often there is a strong tendency to recurrence. The patient may learn to write with the left hand, but this also may after a time be attacked.

**Treatment.**—Various prophylactic measures have been advised. As mentioned, it is important that a proper method of writing be adopted. Gowers suggests that if all persons wrote from the shoulder writer's cramp would practically not occur. Various devices have been invented for relieving the fatigue, but none of them are very satisfactory. The use of the type-writer has diminished very much the frequency of scrivener's palsy. Rest is essential. No measures are of value without this. Massage and manipulation, when combined with systematic gymnastics, give the best results. Poore recommends the galvanic current applied to the muscles, which are at the same time rhythmically exercised.

The nutrition of the patients is apt to be much impaired, and cod-liver oil, strychnia, and other tonics will be found advantageous. Local applications are of little benefit. Tenotomy and nerve-stretching have been abandoned.

## X. TETANY.

**Definition.**—An affection characterized by peculiar tonic spasms, either paroxysmal or continued, of the extremities.

**Etiology.**—The disease occurs under very different conditions. Four varieties may be recognized.

(a) Epidemic tetany, also known as rheumatic tetany. In certain parts of the continent of Europe the disease has prevailed widely, particularly in the winter season. Von Jaksch, who has described an epidemic form occurring in young men of the working classes, sometimes with slight fever, regards the disease as infectious. This form is acute, lasting only two or three weeks and rarely proving fatal.

(b) A majority of the cases are found in association with debility following lactation and chronic diarrhœa, or in the malnutrition of rickets. From its occurrence in nursing women Trousseau called it nurse's contracture. It may also occur during pregnancy. It has been found as a sequence of the acute fevers, and in some typhoid epidemics many cases have occurred.

(c) Tetany may follow removal of the thyroid gland. Thirteen cases, for example, followed seventy-eight operations on enlarged thyroid in Billroth's clinic, and six of them proved fatal. James Stewart has reported an instance in which with the tetany there were symptoms of myxœdema, and no trace of the thyroid gland. Removal of the thyroid in dogs has also been followed by tetany.

(d) And, lastly, there is a form of fatal tetany which is associated with dilatation of the stomach, particularly after the organ has been washed out. A case has been reported in this country by F. T. Miles.

On this continent tetany is an extremely rare disease. In the discussion on Stewart's case at the Association of American Physicians, Washington, 1889, Weir Mitchell stated that he had seen but two instances in



his long and varied experience, while Pepper had seen but one case, and that was in a child.

The nature of the disease is unknown, but it probably depends upon the action of some toxic agent on the motor-nerve cells.

**Symptoms.**—In cases associated with general debility or in children with rickets the spasm is limited to the hands and feet. The fingers are bent at the metacarpo-phalangeal joint, extended at the terminal joints, pressed close together, and the thumb is contracted in the palm of the hand. The wrist is flexed, the elbows are bent, and the arms are folded over the chest. In the lower limbs the feet are extended and the toes adducted. The muscles of the face and neck are less commonly involved, but in severe cases there may be trismus, and the angles of the mouth are drawn out. The skin of the hands and feet is sometimes tense and cedematous. The spasms are usually paroxysmal and last for a variable time. In children the attack may pass off in a few hours. In some of the severer chronic cases in adults the stiffness and contracture may continue or even increase for many days, and the attack may last as long as two weeks. In the acute cases the temperature may be elevated and the pulse quickened. In the severe paroxysms there may be involvement of the muscles of the back and of the thorax, inducing dyspnoea and cyanosis. Two additional features, valuable in diagnosis, are present. The irritability of the nerves is enormously increased both during the period of tetany and subsequently. Thus a minimal strength of current necessary to produce a contracture during the quiescent period is sufficient during the attack to cause a distinct tetanic contraction. The second point is the so-called Trousseau's phenomenon: pressure on the larger arteries, sometimes on the nerve trunk, will excite the spasm, which continues while the pressure is kept up.

**Diagnosis.**—The disease is readily recognized. It is a mistake to call instances of carpo-pedal spasm of children true tetany. It is common to find in rickety children or in cases of severe gastro-intestinal catarrh a transient spasm of the fingers or even of the arms. By many authors these are considered cases of mild tetany, and there are all grades in rickety children between the simple carpo-pedal spasm and the condition in which the four extremities are involved; but it is well, I think, to limit the term tetany to the severer affection.

With true tetanus the disease is scarcely ever confounded, as the commencement of the spasm in the extremities, the attitude of the hands, and the etiological factors are very different. Hysterical contractures are usually unilateral.

Except in the cases associated with dilated stomach and those which follow thyroidectomy the prospect of recovery is good.

**Treatment.**—In the case of children the condition with which the tetany is associated should be treated. Baths and cold sponging are recommended and often relieve the spasm as promptly as in child-crowing.

Bromide of potassium may be tried. In severe cases chloroform inhalations may be given. Massage, electricity, and the spinal ice-bag have also been used with success. Cases, however, may resist all treatment, and the spasms recur for many years.

## XI. HYSTERIA.

**Definition.**—A state in which ideas control the body and produce morbid changes in its functions (Möbius).

**Etiology.**—The affection is most common in women, and usually appears first about the time of puberty, but the manifestations may continue until the menopause, or even until old age. Men and boys, however, are by no means exempt, and of late years hysteria in the male has attracted much attention. It occurs in all races, but is much more prevalent, particularly in its severer forms, in members of the Latin race. In this country the milder grades are common, but the graver forms are rare in comparison with the frequency with which they are seen in France.

Of predisposing causes, two are important—heredity and education. The former acts by endowing the child with a mobile, abnormally sensitive nervous organization. We see cases most frequently in families with marked neuropathic tendencies, the members of which have suffered from neuroses of various sorts. Education at home too often fails to inculcate habits of self-control. A child grows to girlhood with an entirely erroneous idea of her relations to others, and accustomed to have every whim gratified and abundant sympathy lavished on every woe, however trifling, she reaches womanhood with a moral organization unfitted to withstand the cares and worries of every-day life. At school, between the ages of twelve and fifteen, the most important period in her life, when the vital energies are absorbed in the rapid development of the body, she is often cramming for examinations and cooped in close school-rooms for six or eight hours daily. The result too frequently is an active, bright mind in an enfeebled body, ill adapted to subserve the functions for which it was framed, easily disordered, and prone to react abnormally to the ordinary stimuli of life. Among the more direct influences are emotions of various kinds, fright occasionally, more frequently love affairs, grief, and domestic worries. Physical causes less often bring on hysterical outbreaks, but they may follow directly upon an injury or develop during the convalescence from an acute illness or be associated with disease of the generative organs. The name *hysteria* indicates how important was believed to be the part played by the uterus in the causation of the disease. Opinions differ a good deal on this question, but undoubtedly in many cases there are ovarian and uterine disorders the rectification of which sometimes cures the disease. Sexual excess, particularly masturbation, is an important factor, both in girls and boys.