Otto Hähnel.
A Thess.

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1853

Mechanics rather peculiar to us.
General paralytic rubbish.

M vague & indefinite.
On Paralyses.

There is perhaps no subject in the whole of Medicine surrounded with greater difficulties, and at the same time there is none more interesting or important in its results than a proper study or understanding of the Diseases of the Nervous System; and this not only because it is an organ the most essential to the animal economy, but also on account of the remarkable influence it exercises upon other functions of the human body and which do not remain long unaffected, if anything occurs to interfere with a due supply of nervous energy.
It is not my intention in this essay to enter into such a vast field of inquiry as that presented by a consideration of the functions and diseases of the Nervous System, but I propose to limit myself to a description of the causes and symptoms of the different forms of Paralysis as met with in the human body.

The word Paralysis, meaning a loss of sensibility or of motion, or of both combined, may not be considered sufficiently comprehensive in its signification, as it may be held to designate only a mere group of symptoms, and not the disease itself, which we doubt depends upon some lesion or structural change in one or more of the Central Nervous Masses, or their ramifications. Still as the term is so extensively used, I have placed it at the top of these remarks, as a convenient heading under which may be...
grouped the few observations I have to make on the subject.

Paralysis may be divided according to the character and extent of the disease into perfect or complete when the sensibility and the power of motion are both lost; and into imperfect or incomplete when one or other only is lost or impaired. When the power of motion is lost, it is called Anæsthesia, when sensibility, it is termed Anæsthesia. Then there is a further subdivision of the imperfect or partial paralysis: Hemiplegia, when one side or lateral half of the body only is affected; Paraplegia when the disease is confined to the lower half of the body; and Local when portions of the body of less extent are involved.

Then we have paralysis arising from the use of metallic poisons as Mercury and Lead; and in addition there are the diseases known as the Walking Palsy and Paralysis agitans or Shaking Palsy, all
of which will be considered in the order men-
tioned.

Amongst the most marked
symptoms of Paralysis are those affecting the
muscular and contractile tissues generally.
The loss of tension is sometimes very con-
dspicuous in a muscle, and rendered more
to of course by the contraction of the one
on the healthy side—a very familiar
example of which is beheld in facial
paralysis. In Paralysis, the functions of
the secreting cells remain unaltered,
are altogether lost, or receive an ab-
normal increase in activity.

We are probably not acquainted with
all the causes of this disease. It is
believed that hereditary tendency has per-
haps less influence in this than in
The chronic complaint. The Rheuma-
tic diathesis is peculiarly favorable
to the production of Paralytic affections, not
only from its immediate consequences, but
also from the alterations produced in the fibrous tissues surrounding or contiguous to the nervous centres. Lesions and hypertrophies are supposed to act also upon the bone and membranous envelopes by inducing Paralysis. Then again external injuries contribute greatly to their disease in some of its varieties, either directly by concussion, compression, or rupture. Sometimes within the brain or spinal cord, or indirectly by effects subsequently induced. As a rule the outcome of all paralytic cases is that of persistence and they are generally long drawn in their nature, recovery being seldom if ever complete.

General Paralysis. If we hold to the strict definition of this term, namely, the complete loss of sensation and motion of the whole system, it is evident that few cases will present themselves for
treatment as life under such conditions cannot be long sustained. In the usual signification of the phrase however are generally included three very severe cases of Palsy in which the four extremities and trunk are involved, with the voluntary motion, sometimes also of general sensibility and in rare instances the special sense. Commonly the affection extends no higher than the upper extremities, depending in such cases upon injury or disease of the spinal cord below the origin of the pneumogastric. In cases where the special senses are involved the lesion as might be expected is generally situated within the brain. The condition known as general paralysis is not infrequently the result of congestion of the brain, especially in very severe cases of injury. There is then loss of motion, sensation and
consciousness, but so long as the breathing and circulation of the blood go on, there is a chance of a possible recovery taking place, or Hemiplegia at least some other form of partial paralysis may result. Apoplexy is also known to be a fruitful source of Paralysis. In such cases however there is generally at first only loss of power on one side, but which is usually sudden in its commencement remaining entire. In those in which no improvement is manifested at an early period the Hemiplegia gradually but gradually passes into general palsy. The great number of these cases is the result of softening of the brain, and it consequently, perhaps accompanied with extravasation of blood—the softening occurring first in a portion of one of the Hemispheres and by and by when the Paralysis has become complete affects the other Hemisphere also. This softening is no doubt caused by deficient nutrition, owing to all pro-
Sagacity to gouty degeneration of the cerebral arteries.

General Paralysis resulting from some injury to the spinal cord, such as laceration, haemorrhage, and dislocation of the cervical vertebrae comes on for the most part suddenly, whilst from disease of the cord or its membranes, the symptoms develop themselves much more slowly. Amongst the diseases put down as inducing general palsy, Caries of one or more of the cervical vertebrae is no doubt not an inconsiderable cause. This however seldom takes place until after a great deal of thickening and effusion of lymph resulting from chronic in

flammation of the membranes of the cord. In softening of the cord situated at or above the 4th or 5th cervical vertebra the Paralysis is always general. As a rule there
is generally sufficient indication after death to show the nature of the lesion existing during life, still cases do occur where no apparent change can be detected.

Hemiplegia is the most common of all the forms of Palsy and affects exactly one half of the body (more frequently the left than the right side) the median line being the boundary. It is seldom however that the whole of one side is completely paralysed and when only one limb is so this generally the arm. When the palsy extends to the face the mouth is drawn upwards and to the sound side, because the muscles on that side are no longer contracting in those on the palsied
side. The tongue is generally affected and when put out points its tip to the sound side, because the sound half is pushed further out than the other, but not meeting with any resistance from the affected half. This rule is not an invariable one however, as there is an old naval Pensioner under my care in Greenwich Hospital at present also became suddenly hemiplegic on the left side in August last without loss of consciousness and whose tongue when protruded always points to the sound side.

With regard to the difficulty or inability that suffers from this complaint often have from forgetfulness of language to express their ideas, I may mention the particulars of a case in the same ward with the man just alluded to. It is that of a tailor act. 23.
two years ago had a fall from aloft on Joseph St. Onslow, whereby he received a severe injury of the hand just above the right eye. Since then he has been completely paralyzed in the right arm and partially in the right leg. The tongue comes out pretty straight, although the right half appears a little smaller than the left. What seems to point out is that although this man's memory appears to be pretty good and he is very intelligent, he is only able to articulate the single word "yes". Thus when he means "yes" he speaks the word simply. When he means "no" he says yes with a shake of the head.

Hemiplegia may occur from various causes, but most commonly...
from some organic lesion of the brain, and the lesion is most frequently seen in the corona radiata or area of the thalamus. In more cases, in which the disease comes on gradually, it usually commences in the fingers or toes, and after a time extends itself slowly towards the nervous centres, implicating one half of the body when the hemispheric is complete. Another method by which it makes its appearance and which is common amongst the aged is after some chronic cerebral symptoms have existed for some time, the speech becomes affected, the face is drawn to one side and rapid hemisphæria is the result. Then the disease may occur without any previous indication whatever. We see it very frequently.
in connection with Apoplexy, either making its ap-
pearance simultaneously with it, or immediately
following; in such cases, the hemorrhage
within the Cranium has taken place.

An interesting fact in connection
with Hemiplegia is, that the lesion is for
the most part found on the side of the
Brain opposite to that of the body affected with
the paralysis; and this, is explained by the de-
censation of the fibers of the Anterior pyramids at
the junction of the Medulla oblongata and the
Medulla spinalis. If the lesion occurs to one
half of the Spinal cord just below this de-
censation, the paralysis will of course be
on the same side. Some writers affirm
that the diagnosis between Hemiplegia
dependent upon disease of the Brain it-
alone and that from affections of
the Spinal cord may be made
with comparatively little difficulty.}
being in the former an increase of irritability and reflex action, whilst in the latter they are diminished. Other writers deny this and state that no such distinctions can be made, for that the degree of irritability of the muscles depending upon spinal paralysis does not differ in any respect from that found of it due to central disease alone.

We now pass on to the next division of our subject—namely, Paraplegia. In the consideration of the diseases of the spinal cord it is important to bear in mind the different effects produced by the same extent of lesion situated at the different points of that organ. If complete interruption takes place at a point above the origin of the Penic ane, life is cut short very quickly from inability to carry on the functions...
respiration, and the patient dies suppurated. When the interruption is below the origin of the thymus, but above that of the pul- 

coecals life is also destroyed, although not so rapidly, because the breathing is carried on in a thin current by the 

trachea. When the lesion is situated below the dorsal vertebral, or the giving out of the intercostal nerves, we 
have all the symptoms of what is generally called paraplegia, or para-
plegia of motion and sometimes loss of 

sensation in the inferior half of the body. 

A great variety of causes enter into the production of paraplegia, some of which (as those from injury where the symptoms develop themselves rapidly) are of course apparent at once. In a great number of cases however the causes are not at first sight so evident, as
The disease progresses and proceeds very slowly and insidiously; without any pain either in the extremities or in the spine. There is tingling perhaps or numbness of the toes, and a feeling as if a number of ants were crawling over the skin; and there is great weakness of the lower limbs which gradually extends upwards until the paraplegia is complete. That which is most frequently observed in these cases is after death is softening of some part of the spinal cord.

The most frequent characteristic of paraplegia has been noticed to be paraplegia of motion, affecting the muscles supplied into nerves from the part of the spinal cord at or below the injury or disease. This loss of power, sensibility is sometimes affected to a greater or less degree in cases of concussion or other severe injury of the cord, it is generally entirely lost, and in the rare cases of recovery...
The power of sensation has been noticed to return
the lowest.

Although voluntary motion
may be completely gone, involuntary or
spontaneous movement are by no means
uncommon, taking place independent of
desire or of the consciousness of
the patient, and it is a curious per-
cumstance that the more complete
the influence of the brain is cut off,
the more readily are these involuntary
movement excited. They are consequently
much more rarely met with in cases of
demiplegia, where the influence of
the periphery is not so completely
disconnected. The other causes of
demiplegia which we have not
referred to, are hematomas extending
to the spinal cord, the presence of tumors
and disease of the bones and cartilages
of the vertebral column, the importance
of the effect of which will depend more or less as before stated upon the particular part of the spinal cord affected by the disease, and upon the extent of the lesion as well as upon the rapidity of its development.

A fact of great practical importance to be remembered in cases of paraplegia is the influence that this disease has upon the urinary organs. The parts of the bladder become diseased from the loss of the nervous power pouring out the healthy urine, which mingling with the urine as it accumulates in the bladder contaminates it and renders it alkaline. From the researches of Dr. Bence Jones it would appear that the urine when first secreted is healthy, becoming alkaline in the manner just stated, this condition being due to the presence of carbonate...
Amenorrhea arising from the decomposition of urine by altered processes.

The term local is generally applied to that condition of Paralysis in which there is loss of motion or of sensibility or of both, in some part of the body more limited than any we have yet considered. This very frequently the commencement of a more extended form of the disease. The most striking example of it is to be met with in Paralysis of the Facial muscles which is commonly produced by injury or disease of the posterior part of the 7th and 8th cranial nerves. When combined with a part of Syphilis, the prognosis is of course so much more unfavorable.
as there will in all probability be other parts of the nervous system seriously involved. In cases of the last description, however, the deformity is not distinctly so great as the orbicular, palpableam generally attain its power, the motor branches of the 5th only being affected.

Paralysis from Poisons is most frequently produced by the operation of lead and of Mercury on the system. That form of it due to the effects of the former mineral usually occurs at Plumber, Painter's & and generally after these having suffered from the disease known as Colica Pictoria or Lead Colic. The symptoms of palsy resulting from lead poisoning are very peculiar and affect chiefly the extensor muscles of the forearm and hand, which
are generally much emaciated and unable to perform their functions. The patients in such cases being incapable of raising their hands. A characteristic symptom of the presence of lead in the system is a bluish line around the margin of the gums — the so-called lead hand.

In the affection it is believed that the disease first commences in the muscles and nerves and afterward extends to the nervous centres.

Mineral Poison, or paralysis from the operation of Mercury mildly takes place in miners, gilders, and others exposed to the fumes of this mineral. It consists of a sort of agitation of the voluntary muscles, and generally comes on gradually, extending more or less with the continued use of the mineral.
It is most readily brought on in the cases of persons who are obliged to inhale the vapour of mercury. In some cases the general health is much affected, there being loss of appetite, nausea, &c., and the tatte become black. It is however not a fatal disorder and appears to be amenable to treatment. There is no doubt that although the disease appears to affect the muscles principally, the poison really affects the nervous centres causing interruption to their natural influence.

In wasting valley the power of sensibility is not at all impaired and the intelligence affected. But it appears to attack chiefly the voluntary muscles causing...
degeneration and loss of bulk. It generally begins with a feeling of weakness or lassitude and although there is some slight quivering there is no distinct tremulous agitation as in the Shaking Palsy (presently to be considered). The general health may not be affected, but when it does terminate fatally, death is usually produced from the disease involving the Diaphragm and intercostal muscles, reducing suffocation.

This brings us to the last division of our subject namely, the Shaking Palsy, or Paralytic Agitation, the symptoms of which are a continued tremulous shaking, which is involuntary, with a loss of muscular power and a constant tendency to bend the
Trunk forward; there is no injury to the senses or intellect. At first beginning is very obscure, and is generally attended with a sense of weakness and tinitus commencing in the head or ears, and to which the disease may confine itself for a considerable period, when the lower extremities become affected, causing great difficulty in walking, and then being a constant tendency to fall forwards a running pace is obliged to be adopted. In the more advanced stage the tremulous motions do not cease even during sleep. The patient is unable to find himself. Inattention and delirium are im-
paired, he becomes exhausted from the constant and vehement agitation.
Going on. The face and urine are passed involuntarily, and the patient dies presently.

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March 1833