LETTSONIAN LECTURES

ON

SYPHILIS AS A CAUSE OF DISEASE OF THE NERVOUS SYSTEM.

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LECTURE I.—*Concluded.*

THE fact that, in a large proportion of cases in which the nervous system is affected with disease arising out of syphilis, the secondary stage has been brief, or imperfectly represented, or absent, and that very rarely is the history of syphilis prominent, renders it very important to make out, if this be possible, such a distinctive character in syphilitic affections of the nervous system, as will of itself serve to determine the diagnosis as confidently as in the case of a node or gummy tumour. We shall see later how far this is attainable; and an intermediate step towards the elucidation of the problem is the consideration of the pathology of syphilitic changes occurring in the nervous structures.

The symptoms to which any disease of the nervous system gives rise will arise primarily from derangement of function of the parts affected; but the kind and degree of such disturbance will be greatly influenced by the nature of the morbid process and by its rate of progress. It will make a great difference, for example, whether a tumour, at a given situation in the brain or cord, have its starting-point on the surface or in the substance; whether it increase rapidly or slowly; whether it grow at the expense of the nervous structure, causing no actual increase of volume, or add to the contents of the cavities and displace and compress the nervous matter. In considering, therefore, the morbid conditions to which syphilis gives rise, we have to take into account not only the morbid anatomy, but the general habits of the disease.

There are very large materials from which I might draw the account to be placed before you of the morbid changes produced by syphilis in the nervous structures, but I shall avail myself almost exclusively of the labours of Drs. Wilks and Moxon, whose contributions are at once simple, clear, and comprehensive; indeed, I know nothing in pathology more admirable than their descriptions of syphilitic disease in the *Guy's Hospital Reports*.

According to Dr. Wilks (*Guy's Hospital Reports* for 1863), in syphilis, there is a disposition to the effusion of a low form of lymph, or fibro-plastic material, in nearly every tissue of the body. When this exudation comes to be examined after death, it has generally had a long existence in the organ in which it is found, and it presents under the microscope fibro-plastic elements, small nuclei, fatty granules, and some amorphous matter. As a rule, the deposits are hard and fibrous, and not soft, as suggested by the term gummy or gummatous usually applied to them; but they may undergo secondary softening. There is nothing specific in the individual elements, and, indeed, the notion of a specific structural element in any disease is now generally abandoned; but characteristic peculiarities exist, which have been more exactly described by Dr. Moxon, who says:—"If one looks over a series of syphilitic changes, and compares these with any other forms of change, one finds that the syphilitic cases have characters by which they are practically easily distinguished. These characters I will attempt to state.

"1. Generally, a small part of the organ is attacked, and the remainder is left quite free. The disease is strictly localised in the spot it affects. 2. Its outer part is composed of fibrous tissue, which can be seen to represent the natural fibrous supporting elements of the part in a state of augmentation, while the functioning elements of the part have dwindled away. It is a local sclerosis. 3. Its central part shows the now celebrated caseous or gummatous faint yellowish matter of more and more elastic consistence, and less and less friability and curdiness, generally rather sharply distinguished from the fibrous outer part, and sometimes softening down or calcifying. 4. There are signs of more acute inflammation in the immediate neighbourhood, showing lymph, etc., or adhesions to the parts around; (3 and 4 may be absent). Such patches, sharply contrasting with more healthy tissue immediately about them, and (5) distributed more or less widely in a variety of organs, but especially in the testes and liver, are not a general thing that could be passed over as a common accident. Their characters attract attention. A syphilitic gumma in muscle or brain is so unlike anything else, that, if seen for the first time by one who knows the rest of the common run of pathological changes, it demands from him some

recognition of its peculiarities. In short, it is not common, but specific in the strict sense of the word. I mean, that we are not to suppose that these syphilitic changes are of a kind that are otherwise recognised as non-syphilitic, or in any sense of a 'common' kind. It is not so. They are quite peculiar, and strike the eye and the mind as peculiar. Allow that they have characters like the verbal stock descriptions of 'inflammation generally' (a thing which has no existence; the commonest inflammation has its common peculiarities), these characters of common inflammation are not the characters that we rely on to know them by; the five characters I have above enumerated do not belong to any other change, and amply suffice to distinguish practically the syphilitic from all other changes." (On Syphilitic Disease of the Spinal Cord. By W. Moxon, M.D.—*Guy's Hospital Reports*, vol. xvi, 1871.)

As affecting the nervous system, and quoting first Dr. Moxon, as to "the habits of locality and rates of progress" of the disease, "syphilis attacks the surface of the brain and its membranes; it attacks them in limited spots, and it spreads slowly."

The morbid changes are, on the one hand, adhesions of the membranes to each other and to the surface of the brain by means of an adventitious material of firm consistence and yellow colour, which may be called lymph, but is harder, tougher, and more opaque than lymph as commonly seen. This exudation may be found at any part of the surface; it invades and destroys the surface grey matter, interferes with the supply of blood, and, when it occupies the membranes at the base of the brain, surrounds and involves the nerves in the intracranial part of their course.

On the other hand, the syphilitic deposit may take the form of a distinct tumour of fleshy aspect, very vascular externally, but presenting at its centre the well-known gummatous character; or the deposit may be small and circumscribed, but multiple, firm and hard as to consistence, and yellow in colour. Around the foreign bodies may be more or less inflammation or softening. In the spinal cord, while the general characters are similar, there are differences of detail which will be described later.

But all these deposits of lymph, whether diffused or circumscribed, are met with in the tertiary stage of syphilis. Dr. Wilks, it is true, considers the disease to be characterised throughout by a tendency to effusion of lymph, and makes no distinction in this respect between secondary and tertiary syphilis; explaining the fact that the deposits are found only in the tertiary stage, by saying that it is only in this stage that sufferers die from syphilis, and that the *post mortem* appearances may date from the secondary period. But, if people do not die from secondary syphilis, they die during this stage from accident and other diseases, and there ought to be abundant evidence of the presence of the deposits described. But, as I have already said, the differences in the clinical history of secondary and tertiary syphilis, and in the treatment required by these two stages of the disease, are such that nothing short of the overwhelming evidence we possess would convince us that they are only two periods of the same affection, and we may well look for differences in morbid anatomy. The differences found are, moreover, such as would be explained by considering secondary syphilis as the fever of which the lesions of tertiary syphilis are the sequelæ. Looking upon inflammation as the result of a disturbance of the relations between the blood and tissues; in the one, we have this relation disturbed by a morbid condition of the blood; in the other, by a deteriorated state of the tissue-elements. In secondary syphilis, the pathological conditions noted are chiefly evidences of meningitis, old or recent, or of congestion, and very frequently no appreciable lesions have been discovered—the conditions produced by other blood-poisons; in tertiary syphilis, the localised changes described.

In addition to the morbid changes in the nervous structures proper and the vascular meninges, the brain or cord may be invaded by gummatous tumours springing from the dura mater or bones, or affected by extension of inflammation from carious bone. Or again, the blood-supply may be cut off by obstruction of the artery from syphilitic disease of its walls.

The scheme which I have laid down for myself in these lectures is to describe successively the effects of syphilitic disease on the nerves, spinal cord, and the different parts of the encephalon. I am not aware that this has yet been systematically attempted; but, though it would have been easier and, perhaps, safer for me to have followed the beaten track, and speak of symptoms or groups of symptoms of affections of sensation, motion, or intelligence, of painful, convulsive, and paralytic forms of affection of the nervous system, without referring them to any definite seat and form of lesion, I have preferred to try to make use of our increasing power of localising and defining morbid conditions from the symptoms to which they give rise, and to make the organic changes the basis of my classification. I come first, then, to syphilitic

affections of nerves, which will comprise neuralgia and local paralysis. Of the pure neuralgias I have little to say. I do not think they are very common; they do not differ materially from the ordinary forms of neuralgia. The fifth, cervico-occipital, cervico-brachial, sciatic, and some visceral nerves, have been found to be affected much in the same proportion as when no specific influence is in operation, and Dr. Anstie has given a clue to the occurrence of neuralgia in syphilis. It is, that the subjects are constitutionally neurotic, and syphilis is one among the many causes which may bring out the tendency. It is more common in the secondary than in the tertiary stage, and may even precede the first cutaneous eruption. If recognised, the most successful treatment will be that appropriate for the stage of syphilis in which they occur, though sometimes treatment of the neuralgia as such will succeed, as we sometimes see in other cases in which neuralgia is suppressed, in spite of the continued existence of an exciting cause, by operating against the predisposing condition of the system.

A form of nerve-pain differing from ordinary neuralgia—more dull, aching, and continuous—may be caused, in the tertiary stage, by neuro-mata (extremely rare), by pressure from a node or gummy tumour, or by the conditions giving rise to sensory and motor paralysis, which I shall now proceed to consider.

We may have local paralyses from syphilitic affections of either cranial or spinal nerves. With the exception of transient loss of power, sometimes seen in the ocular muscles, paralysis of individual nerves is almost invariably a tertiary phenomenon. It may be produced in various ways—by a neuroma, by the inclusion of the nerve in a gummy tumour, very rare occurrences, of which I have seen no distinct example; but usually the question of causation lies between periostitis about the orifice of exit of the nerve from the cranium or spinal canal, and meningeal exudation involving the nerve during the intracranial or intraspinal part of its course. The latter is by far the more common cause, as will be seen from a consideration of the cases.

Cranial Nerves.—Any of the cranial nerves may be paralysed from the consequences of syphilitic disease, but some much more commonly than others. I shall not here speak of affections of the special senses—loss of sense of smell, blindness, or deafness. These would alone form a subject large enough for a course of lectures. To speak only of vision, it may be impaired or lost in consequence of syphilitic inflammation of the choroid or retina, or from double optic neuritis, consequent upon a syphilitic tumour in any part of the brain, or from pressure upon the optic tract. Deafness, again, which is common in early syphilis, may be due to affections of the auditory mechanism or auditory nerve. The cranial nerve most frequently affected is the third. Sometimes the only effect is mydriasis, from loss of accommodation and dilatation of the pupil, or ptosis of the eyelid; but more commonly the entire nerve suffers, and, in addition to ptosis and dilatation of the pupil, we have external strabismus and immobility of the globe of the eye. The twofold fact that the third nerve is the nerve most frequently affected, and often the only nerve paralysed, and, again, that portions of the nerve may suffer before the others, is explained by the habit of locality of syphilitic exudation, of which the interpeduncular space at the base of the brain, traversed by the third nerve on its way to the cavernous sinus, is a favourite seat, and is conclusive evidence that the paralysis is not due to periostitis of the orifice of exit. This nerve has also been found compressed by a gummatus tumour of the sella Turcica of the spheroid bone. I shall give as illustration an example in which both third nerves were affected, which is not a frequent event.

Paralysis of the sixth nerve, the evidence of which is internal strabismus, is next in frequency. Paralysis of the fourth nerve, the remaining motor nerve of the eye, is not common. It is shown by double vision without obvious squint, the two images being obliquely placed with respect to each other and receding when the patient looks down (since this brings the superior oblique muscles into action), and approximating each other, and finally coalescing as the eyes are raised, so that vision is single when the patient looks up.

Paralysis of the seventh nerve, unlike oculo-motor paralysis, is more frequently caused by pathological conditions which are not of syphilitic origin; the features it presents are too familiar to need description, as are also those of paralysis of the fifth nerve. Paralysis of the ninth nerve is seen in the tongue and in the sterno-hyoid and thyroid muscles; of the eighth, in difficulty of deglutition.

CASE I. Paralysis of Left Third Nerve, Slight Right Hemiplegia, and ultimately Paralysis of Right Third Nerve.—A plasterer, aged 37, came under my care as out-patient at St. Mary's Hospital on September 16th, 1867. He was then complaining simply of weakness and giddiness. He presented well-marked syphilitic cachexia, and he stated that he had contracted syphilis sixteen years before, and had suffered from various manifestations since. He had had two fits within three or four months of his application at the hospital, but he made no mention

of these at first. Iodide of potassium was given in small doses—three grains three times a day. A pustular eruption broke out on the lips and again disappeared; and about the same time, November 25th, the first symptoms of paralysis of the left third nerve became apparent in indistinctness of vision, arising, no doubt, from loss or impairment of accommodation and dilatation of the pupil. He seemed to improve for a short time; but, on December 19th, there were not only dilatation of the left pupil and want of parallelism between the two eyes, but also slight paralysis of the right side of the face and weakness in the right leg, while his speech was indistinct, and he felt giddy and drowsy. There was thus apparently mischief about the left crus cerebri, involving the origin of the left third nerve and the motor tract of the right side of the body and face, probably syphilitic exudation in the pia mater of the left side of the interpeduncular space.

The dose of iodide of potassium was doubled; and, on December 30th, he felt better, but still had ptosis of the left eye-lid, impaired mobility of the globe of the eye, and especially inability to carry it inwards beyond the median plane, with dilatation of the pupil. The right half of the face was also weak; in trying to whistle, air escaped at the right side of the mouth, and the left side of the upper lip was drawn up more readily.

January 2nd.—The paralysis of the left third nerve was complete. He had slight pain behind the left eye. A blister was applied to the left temple. The pain extended gradually to the temple and the whole left side of the head, becoming more severe. It usually set in about midnight, and prevented sleep for the rest of the night. The dose of iodide of potassium was increased to eight, twelve, and sixteen grains three times a day. Cod-liver oil and iron were given, and blisters were applied to the temple. On January 23rd, the pain was no longer complained of, but the left third nerve remained paralysed, and the right hemiplegia, which at one time had disappeared, was again to be detected both in face, arm, and leg. Ten days later, the loss of power in the right limbs was no longer evident; but, on February 6th, paralysis of the right third nerve had come on, so that both eyelids had dropped and both eyes were immovable, or nearly so, and squinting divergently; the right pupil, however, was not very large. He complained also of a humming noise in the right ear, and that he could not sleep after 1 A.M., though early in the night he slept well.

Considerable improvement in the condition of the right third nerve took place; but the patient attended very irregularly, and the paralysis recurred to a certain extent. He disappeared about the middle of March, both third nerves being considerably paralysed; so that, to see under the drooping eyelids, he had to make use of the occipito-frontalis to raise them somewhat, and throw back the head greatly. He had taken the iodide for a short time in twenty-four-grain doses.

My interpretation of the simultaneous affection of the two great motor nerves of the eyes is, that a syphilitic inflammation with gummatus deposit had invaded the pia mater of the interpeduncular space, involving the two third nerves, and at one time threatening to invade the left crus cerebri.

CASE II. Paralysis of the First and Second Divisions of the Right Fifth Nerve, of the Fourth Nerve, and of the Palpebral Branch of the Third Nerve of the Same Side.—A farrier, aged 41, on May 9th, 1870, when he came under observation, had been complaining of nocturnal pain in the head for eight months, and of loss of sensation in the right half of the face above the mouth and double vision for four months. He denied having suffered at any time from syphilis; but he had a tubercular eruption over the inner end of the right eyebrow, which was clearly of a tertiary character, and a discharge of offensive and bloody matter from the right nostril. His complexion also had the sallow earthy appearance seen in tertiary syphilis, and his wife had had five or six miscarriages and no living children. On testing the sensibility of the right half of the face and scalp, it was found that the forehead on this side and the scalp, as far back as the occipito-parietal suture, the ear, cheek, nose, and upper lip were almost absolutely insensible to all kinds of impressions. A patch of skin over the malar bone was not so insensible as the rest of the cheek, and there was no diminution of sensation in the chin, lower lip, or tongue. The right eye was closed, but the lid could be raised to a certain extent by the action of the occipito-frontalis, the forehead being wrinkled and the eyebrow drawn up. The eye, however, was movable in all directions, and the pupil on this side of the same size as in the other eye, and equally sensitive, so that the branch for the levator palpebræ was the only part of the third nerve affected. When both eyes were open, there were double vision and vertigo; but the double vision was not explained by any obvious want of parallelism between the two eyes, and it was found, on testing, that the eyes moved equally well in every direction; no paralysis, therefore, of the sixth or third nerve existed on either side. It was further found that the two images were not on the same level; one window, he said, was

before him, the other—the pseudo-image—on the floor, to the right; he saw two shadows if he walked in the sun with both eyes open; and, with the right only open, and in the absence of the confusion arising from a double image, he staggered, and would have fallen—which I have never seen in so marked a degree in paralysis of the third or sixth nerve only.

The position of the pseudo-image below and to the right of the real visual image, and the facts made out on further examination, namely, that the two images receded one from the other when the eyes were directed downwards, approached and eventually coalesced when they were directed upwards, and changed in their relative position as the patient looked to the right or left, showed that the right superior oblique muscle, and therefore the right fourth nerve, were paralysed.

The nerves affected were thus the two upper divisions of the fifth, the fourth, and the palpebral branch of the third; and it was scarcely open to question that the nature of the disease was syphilitic. Iodide of potassium was given in doses, rapidly increased, from six to twenty grains three times a day. First, the nocturnal pain was removed, the eyelid could next be raised, and, very soon afterwards, sensation gradually returned, and the double vision ceased to be troublesome. The cachexia became less marked, and the discharge, for which a weak carbolio lotion had been ordered, diminished. The patient was under treatment only from May 9th to July 2nd. He had previously been under the care of a medical man for the whole of the eight months during which he had suffered from pain in the head.

No single lesion would account satisfactorily for the paralysis of the different nerves involved. The superior maxillary division of the fifth has but a very short independent course within the cranium from the Casserian ganglion to the foramen rotundum, and it may be concluded that a lesion, involving the two divisions of the fifth, was situated near the apex of the petrous bone. This might embrace the fourth nerve, which runs over this part to enter the cavernous sinus; but it could scarcely include the palpebral branch of the third, leaving every other portion intact, unless the branch were given off unusually early. Of the two suppositions, a double lesion or an abnormal distribution of the third nerve, the former is the more probable, since occasionally the branch to the levator palpebræ is alone affected, and it recovered here independently of the fourth and fifth nerves.

CASE III. *Paralysis of Right Seventh Nerve, with Partial Implication of Ninth in 1865; Paralysis of Left Sixth and Eighth in 1866, and of the Right Sixth in 1868: Recovery.*—An embroideress, aged 47, came as out-patient to St. Mary's Hospital April 27th, 1865. She had for six days been suffering severe pain in the right side of the head and face, with partial paralysis of the right portio dura, attributed to a mental shock. The principal seat of the pain was behind the right ear, but it extended upwards upon the side of the head, and downwards along the back of the neck to the shoulder. It was always worst at night. The facial paralysis presented the usual feature of paralysis of the seventh nerve, as distinguished from facial hemiplegia, but was incomplete. The mouth was drawn to the left, the muscular markings of the right face and forehead were smoothed out, the right eye did not close in the reflex winking movements, though it could still be closed by an effort. The patient thought she did not feel properly on the right side of the face, or see well with the right eye, and the right pupil was smaller than the left, though both acted well. On May 1st, the paralysis of the right portio dura was complete, the eye unclosing, the face expressionless, and looking as if swollen. There was, moreover, some little difficulty in protruding the tongue. The pain was very severe in the right side of the head and down behind the ear to the shoulder, not, however, following distinctly the course of the muscles, or corresponding closely with the distribution of any nerve; it was most severe about the ear and at the mastoid process, where there was also tenderness on pressure. There was not much pain about the cheek or mouth.

I ought to have suspected syphilis as the source of the mischief, although the disease was not acknowledged, from the nocturnal exacerbation of the pain, and from the partial implication of other nerves besides the seventh; but I allowed myself to be diverted from this idea by the comparative rarity of syphilitic affections of the seventh nerve, and by the symptoms of inflammation in the mastoid and petrous portion of the temporal bone, although this local inflammation would not explain the extent of the pain, which was clearly due to a more extended inflammation of the dura mater.

I treated the case by repeated blisters, dressed, after a time, with savin ointment, administering first quinine in rather large doses, and later quinine and iron. Six months were required for the cure.

In August, 1866, this patient came to me, complaining of palpitation of the heart and flatulent dyspepsia, and, while under treatment for this, she began to squint and have double vision. On September 17th, this

had lasted a week, and she stated that she had had something of the same kind, for a week, in March, after a peculiar convulsive feeling in the chest, which passed upwards with a hot flush from the chest to the head, when the sight went; but she did not lose consciousness or fall. The squint and double vision were found to be due to paralysis of the left sixth nerve. The right eye followed an object equally well in all directions, but the left could not be carried outwards beyond the median-plane of the orbit. She saw double wherever an object was placed and a curious fact was that, while objects appeared of a natural size to the right eye, she became giddy whenever it was opened, whether alone or together with the left eye, so that she was compelled to keep this eye closed, and to employ, for ordinary vision, the eye which had its external rectus muscle paralysed; and, when told to open the right eye, there was an appearance of ptosis, respecting which it was difficult to be sure whether it arose entirely from an unwillingness, or partly from an inability to raise the lid. It is not improbable that the right fourth nerve was paralysed, giving rise to this giddiness; but the detection of this paralysis was prevented by the paralysis of the opposite sixth. With the left eye, she saw objects of a smaller size than natural; but she used this eye both at her work as an embroideress and in the streets.

On September 23rd, she had one of the attacks mentioned above as having preceded the double vision in March, described as a convulsive feeling in the chest, a hot flush mounting to the head, and temporary loss of sight. On October 4th, she was suffering from severe nocturnal pain in the right side of the head.

October 8th.—She was unable to swallow solids. The only food she was able to take was bread in small quantities, well-softened, and washed down by fluid swallowed very gently. This difficulty of deglutition could only be said to have been removed on November 22nd, having thus lasted six weeks. I had not even now recognised the nature of the disease, and the treatment again consisted in the administration of quinine and iron, and, when the dysphagia came on, strychnine, with occasional aperients. She was under my care on this occasion for five months.

In January, 1868, she again came under my care, this time with paralysis of the right sixth nerve. There was obvious syphilitic cachexia; marks were seen in the throat. Iodide of potassium was given in doses of five grains, together with cod-liver oil and steel wine. She was all but well in five weeks, saw quite well near at hand, but a little indistinctly at a distance. A fortnight later, she was quite well.

In another case, which came under my observation in January, 1871, that of a woman aged 39, paralysis of the left portio dura, preceded by pain in the forehead, and accompanied by pain and tenderness in the mastoid process, was recovered from, under the influence of iodide of potassium, in little more than a month, the pain, however, persisting after the paralysis had gone.

Nerves of the Upper Extremity.—Several cases, in which the nerves of the upper extremity have suffered, directly or indirectly, from syphilitic disease, have come under my notice.

CASE I.—In November, 1864, a sempstress, aged 42, who had lived an irregular life, and had a syphilitic look, though she did not acknowledge syphilis, came under my observation. She had begun to suffer a month previously from pain in the nape of the neck, down the right arm to the forefinger; this had continued ever since, but was worse in bed at night, so that she had slept for some time in the sitting posture. The arm was also very weak, and could not be raised. The neck was stiff, and could not be bent or turned in any direction without pain. There was tenderness and fulness along the right side of the cervical spine, from the third to the seventh vertebræ, tenderness also on the cords of the brachial plexus, in the posterior triangle of the neck, and pressure sent a pain down to the fingers. I attributed the pain to syphilitic periostitis or inflammation of the fibrous structures of the cervical spine, involving the nerve-roots in the foramina. Speedy relief and, in no long time, complete cure was obtained by giving iodide of potassium, and applying one or two blisters. I saw her subsequently with a node on the femur.

CASE II.—In another case, almost complete loss of power in the left hand and arm, with great waste of the affected parts, and severe nocturnal pain, with tenderness over the left side of the cervical spine, was relieved in a single week by six grains of the iodide of potassium, the muscular power returning before the pain was entirely removed. The patient (a woman aged 27, who had had one child, which died in infancy) had been ailing for a year, and had a sallow, anæmic, syphilitic look.

CASE III.—In this case, a woman aged 43, there was paralysis of the thumb and first two fingers of the left hand, without loss of sensation.

She had at the time a node on the sternum, and a well-marked syphilitic appearance. Of four children, one daughter only was living, and she, at the age of 23, had been hemiplegic on the right side for four years.

CASE IV.—A painter, aged 44, first seen on September 9th, 1867, had had gonorrhoea, but, according to his own account, no sore or cutaneous eruption; he had, moreover, suffered from colic, and presented a well-marked blue line on the gums. The paralysis, therefore, from which he suffered in the right forearm might be attributable to lead-poisoning, but it differed altogether from the usual form of lead-paralysis, and it was accompanied by severe pain and well-marked cutaneous gummata, and signs of ancient nodes on the ulna, in adhesions binding the skin and other structures to this bone. The little and the ring-fingers were alone affected, and the affection consisted in impaired sensation and loss of power, with contraction, the contraction being most marked in the little finger. The fingers could be straightened by me without difficulty, and by the patient with effort. The fingers, however, spread out where this was done, so as to give the hand a claw-like appearance.

Under treatment, the pain was relieved, and the gummata disappeared very speedily; but the condition of the paralysed fingers was not greatly improved. The ulnar nerve had, no doubt, been implicated in one of the nodes, of which traces remained, and become permanently damaged. This case, with perhaps the last, is one of those in which the nerve is affected after leaving the spinal canal.

Nerves of the Lower Extremity. CASE I.—*Paralysis of Flexor Muscles of Thigh, and of the Muscles generally of the Leg and Foot; Loss of Sensation over the Front of the Thigh and along the Inner Aspect of the Leg.*—A bricklayer, aged 30, came under my observation, among the out-patients of St. Mary's Hospital, August 20th, 1868. He was complaining of loss of power and sensation in the left lower extremity. He had been twice married, and had one child; had had no previous illness, and denied that he had ever had syphilis. A perfectly characteristic syphilitic eruption was, however, present on both legs, in the form of a gyrate psoriasis, and there were spots of psoriasis on the abdomen and chest; the inguinal glands also were enlarged and matted together. The loss of power in the limb had existed for a month, and had begun with an inability to move the foot. When made to walk, this leg remained straight, and was swung from the hip, the knee was not bent, and there was no movement of the ankle. If the knee became bent, as in going down stairs, it straightened itself out suddenly with a jerk when liberated from contact with the ground or step. On examination, it was found that he was unable to move the foot at all, or to resist motion at the ankle-joint. He could bend and straighten the knee; could resist flexion powerfully, but extension not at all. The flexors at the back of the thigh were thus greatly weakened; the muscles of the leg and foot almost completely paralysed. The motor paralysis, therefore, was in the distribution of the sciatic nerve. Numbness and loss of sensation were also complained of, and it was found that sensation was greatly impaired all down the front of the thigh and leg, and in the foot and toes; not in the gluteal region, or down the back, or along the inner or outer aspect of the thigh; below the knee, the region of impaired sensibility occupied the inner side of the calf. Sensation was also imperfect over the left half of the lower part of the abdomen. The loss of sensation consequently did not correspond anatomically with the loss of motion, *i.e.*, did not affect those parts of the surface moved by the muscles paralysed. The motor paralysis was in the sciatic area of distribution, the sensory mainly, though not exclusively, in the anterior crural area. The paralysed muscles were wasting, and the left limb was decidedly smaller than the right. It was found, on a later visit, that the psoas and iliacus muscles were weak. Iodide of potassium was given in doses of six grains. In four days, sensation was said to be returning. In ten days, it was re-established in every part of the limb, and the foot could be feebly moved.

On September 14th, he could walk well, but still kicked out the foot. The spots were fast disappearing. We saw the last of him on October 22nd, when he was apparently well.

In this case, the only evidence of syphilis was the eruption, which was accepted as conclusive in the face of the patient's statement, that he had never suffered from syphilis.

The paralysis was clearly not spinal, since it (1) affected one leg only, and (2) was both sensory and motor in the same limb, while unilateral mischief in the cord is known to give rise to motor paralysis in one limb (that on the same side as the injury), sensory paralysis in the other, while (3) its distribution was in the areas of different nerves. Finally, the muscular wasting indicated a severance of the nerves from the cord by the morbid change. I take the lesion to have been syphilitic

inflammation and deposit in the left side of the cauda equina, involving the nerves given off from the lower end of the cord.

In another case, a fortnight's treatment, by twelve and sixteen-grain doses of iodide of potassium, made a distinct impression upon a motor paralysis of the lower extremity of twelve months' duration; but no results were obtained, in consequence of the patient's ceasing to attend. The case is, however, interesting as an example of an unusual result of syphilis.

CASE II.—The patient was a tailor, aged 38, had had syphilis ten years, during which various manifestations had appeared, and, when seen, he represented a syphilitic eruption. Twelve months before he came under observation, he had, in the course of three or four days, gradually lost the use of the right leg, suffering also at the time from a burning pain in the hip, knee, and back. The limb was quite useless; he could not support his weight on it, could not move a toe, or the foot, as a whole, upon the leg. He could not oppose the least resistance to extension or flexion of the knee-joint, or resist flexion of the thigh upon the abdomen; he could, however, when the thigh was drawn up, prevent its extension. The limb was wasted, but still presented a moderate mass of soft, flabby muscle on the thigh and calf. The only muscles acting at all were the psoas and iliacus, and the adductors. Iodide of potassium was given in doses, first of twelve grains, then of sixteen grains; and, although there was not time for any marked effects, there was improvement, as the foot could be raised well from the ground, and the leg was swung when the patient was seated, whereas at first the leg fell by its own weight.

REVIEW OF DR. CUNINGHAM'S REPORT OF THE EPIDEMIC CHOLERA OF 1872.*

By JOHN MURRAY, M.D.,
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As I have had much experience of cholera during the last forty years, and have devoted especial attention to its study in India, I have been requested to review the Report of the Cholera Epidemic in Northern India of 1872, which has been presented to the Society by the Sanitary Commissioner with the Government of India, Dr. Cunningham. I am glad to see him present this evening, and I trust he will favour us by replying to any objections I may raise to his views. I also hope that the interest of this meeting may be increased by our being favoured with the views of those of our members who have given their attention to this subject.

This Report gives a useful topographical account of the chief military cantonments, with tables showing the previous severe attacks since 1826; also tables showing the daily course of the disease among different classes, during its presence; and very valuable monthly returns of the mortality from cholera during this epidemic, amounting to 165,458 over the whole of our possessions in India and Burmah. This report contributes a valuable addition to the History of Cholera, from a knowledge of which, alone, the true nature of the disease can be established. We look in vain for similar reports from the Governments of those countries in Europe, where the disease appears now to have taken up its abode as firmly as in India. These statistical tables are an important supplement to the series which appear in the Annual Reports of the Sanitary Commissioner, and reflect great credit on the ability and zeal with which they are collected by Dr. Bryden.

Dr. Cunningham gives many valuable opinions and suggestions regarding the sanitary condition of the various stations and the improvements required, especially regarding the water-supply, which in many instances is not only bad in quality, but deficient in quantity. This scarcity of water renders the system of flushing drains, employed in Europe, inapplicable to India, where, in many parts, there are intervals of months without a shower. The report before us is a history of one of the severest epidemics that have attacked India since 1817. In judging of the nature of the disease from this history, Dr. Cunningham appears to have arrived at conclusions on certain points from imperfect and insufficient data. He deviates from the ordinary canons of criticism in considering negative evidence as important as positive; and he attaches no value to the opinions of others who have devoted much attention to the subject.

There is a marked coincidence in the period and progress of all epidemics. The disease progresses chiefly in a north-westerly direction, and appears in the same months. The only exception is in the epidemic of 1845, when the disease attacked Umballa in the months of

* Read before the Epidemiological Society.