Discussion on the affections of the nervous system occurring in the early (secondary) stages of syphilis / discussion opened by Jonathan Hutchinson ; speakers W.R. Gowers [and others].

PROCEEDINGS

OF THE

ROYAL MEDICAL & CHIRURGICAL SOCIETY

OF LONDON

3.

DISCUSSION ON THE

AFFECTIONS OF THE NERVOUS SYSTEM

OCCURRING IN THE

EARLY (SECONDARY) STAGES OF SYPHILIS

DISCUSSION OPENED BY

JONATHAN HUTCHINSON, F.R.S.

SPEAKERS:

DR. W. R. GOWERS, DR. ALTHAUS, SIR W. BROADBENT, BART., DR. FERRIER, DR. GEORGE OGILVIE, MR. EDWARD COTTERELL, DR. FREDERICK J. SMITH, DR. MOTT AND DR. F. PARKES WEBER

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MEDICAL AND CHIRURGICAL SOCIETY

OF LONDON.

Tuesday, February 26th, 1895.

JONATHAN HUTCHINSON, F.R.S., President, and afterwards THOMAS PICKERING PICK, Vice-President, in the Chair.

J. MITCHELL BRUCE, M.D., RICKMAN J. GODLEE, M.S., } Hon. Secs.

Present—49 Fellows and 22 visitors.

The minutes of the last meeting were read and confirmed.

The following gifts were announced, and votes of thanks awarded to the donors:

Modern Developments of Harvey's Work (the Harveian Oration, 1894); by T. Lauder Brunton, M.D., F.R.S.: presented by the Author. On the Effects of the Kneading of Muscles upon the Circulation; by T. Lauder Brunton, M.D., F.R.S., and F. W. Tunnicliffe, M.D.: presented by Dr. T. Lauder Brunton. Course of Elementary Practical Bacteriology, including Bacteriological Analysis and Chemistry; by A. A. Kanthack, M.D., and J. H. Drysdale, M.D.: presented by the Authors. The Difficulties of Diagnosis in Insanity; by Henry Sutherland, M.A., M.D.: presented by the Author. Three Note-books of Edinburgh Students—one containing notes of Dr. Jas. Gregory's Lectures: presented by Dr. Norman Moore. De l'insertion vicieuse du placenta; par Berta Dylion: presented by Dr. Alfred S. Gubb. The Action of Snake Venom on the Blood; by George Britton Halford: presented by the Medical Society of Victoria. Army Medical Department Report for the year 1893: presented by the Director-General of the Army Medical Department.

Reginald L. Langdon-Down, M.B., B.C., M.R.C.P., and Sydney Russell Wells, M.B., Fellows elect, were admitted by the President and signed the Obligation.

The PRESIDENT opened a DISCUSSION on—

AFFECTIONS OF THE NERVOUS SYSTEM OCCURRING IN THE EARLY (SECONDARY) STAGES OF SYPHILIS.

By the term "early" I intend to comprise the first two years.

I shall ask your attention to the following topics:

1. The general differences between affections of the nervous system in late and in early stages of syphilis.

2. The state of general diminution of sensation which has been alleged (Fournier) to attend the exanthem stage of syphilis.

3. Certain rare cases of general paresis of both motion and sensation which are met with in secondary syphilis, and from which complete recovery may take place.

4. The early occurrence of arterial disease which may influence the nervous system secondarily: (*a*) in reference to the brain; (*b*) in reference to the spinal cord.

5. A group of not very infrequent cases, in which a rapidly developed form of paraplegia occurs early in syphilis, and from which, although it may be for a time almost complete, partial recovery usually takes place.

6. The occasional occurrence of paralysis of single nerves (unsymmetrically).

7. The influence of syphilis in producing recurring herpes.

8. The parallelism between certain affections of the brain and spinal cord in secondary syphilis with acute inflammation of the eye and ear occurring in the same stage.

9. The parallelism between these syphilitic affections of the nervous system and those of somewhat similar character which have been observed after the acute exanthemata.

I. On the Distinction of Stages.

The distinction of the stages of syphilis, or the division of syphilis into the primary, secondary, and tertiary periods, although involving to some extent arbitrary limitations, is, in the main, founded upon perfectly natural differences. The old idea that the chief difference between the secondary and tertiary stage was as to the special tissues and structures affected has, I think, been generally abandoned. We now recognise that in secondary syphilis the state of the blood affects all parts of the body; and that although the most conspicuous phenomena occur on the skin and mucous membranes, they are by no means the whole. The bones, the viscera, the arterial system, and the organs of special sense may all in turn suffer in the most definite manner; and from this statement we by no means exempt the nervous system. The

real difference between the secondary and tertiary stages is to be found not in the structures involved, but in the character of the inflammatory action which ensues. In the secondary stage we have inflammations which develop rapidly, and sometimes with acute disturbance of the general health. They often also subside rapidly. They are usually symmetrical in distribution, and above all they are in the most remarkable manner amenable to the influence of mercury. When once the disorders incident to this stage have completely passed away, it is exceptional to see them repeated in the same forms. In the tertiary stage the type of the inflammatory process is chronic, and often local. It is also aggressive, and but seldom shows any tendency to spontaneous subsidence. It is curable also by a different class of remedies, notably by the iodide of potassium. During the secondary stage the patient's blood and all inflammatory secretions contain the syphilitic virus, and are capable of originating a chancre, whilst in the tertiary one they are not so. Although these distinctions are broad and definite, and may be easily applied in the great majority of cases, it is to be freely admitted that not a few cases occur which deviate from rule. Thus the secondary stage, which probably in the majority of cases does not last more than six months or a year, may be protracted over two years or perhaps even longer. The interval between the secondary and the tertiary phenomena is indefinite, and whilst, in most cases, one of several years at least, may in some cases be very short, or even scarcely appreciable. These differences, which add greatly to the complexity and difficulty of the subject, may be in part at least due to differences in the treatment employed in the early stages.

During the last quarter of a century the diseases of the nervous system which occur in connection with syphilis have attracted a great deal of attention, both from pathologists and physicians. It has been rather hastily assumed, however, that these affections belong almost wholly to the tertiary period, and but little attempt has been made to discriminate between the stages, or to determine whether there are any affections which conform to the type of the secondary class. It is the object of the present discussion to elicit the experience of the Fellows of the Royal Medical and Chirurgical Society upon this point. If there are such, *i. e.* if there are any forms of nervous disturbance due to the general poisoning of the blood which occurs in the secondary stage of syphilis, we should expect them to be sym-

metrical, or even general, acute in their development, and, unless destructive in their nature, of only transitory duration.

It may be convenient, perhaps, here to ask attention to the fact that certain acute inflammations of the sense-capsules, the eye and the ear, end-organs of the nervous system, have long been well recognised as liable to occur in the secondary stage of syphilis. They vary greatly in severity in different cases. In some they amount to little more than a mere threatening of inflammation, whilst in others they may entirely destroy the organ. They require very active mercurial treatment, and are usually amenable to it. They but seldom, after having been once well cured, show any tendency to relapse. Their severity is very usually in relation with the early period of their development; and the more severe forms of iritis, of ophthalmitis, and otitis are met with at about an average of six months after the primary symptoms. It is probably at much the same period, and under similar circumstances, that most of the examples of the other secondary affections of the nervous system are to be expected. The course of the affections just referred to is often remarkably rapid. Thus a patient may in the course of ten days become absolutely deaf, and unless very prompt treatment be resorted to may remain so permanently. The tissue involved in these secondary inflammations of the eye and ear is probably the connective elements, through the infiltration of which damage accrues to the proper nerve elements. This suggestion, however, must by no means be held to cover the whole ground, though it may help us to understand what may happen in connection with other parts of the nervous system. It must be recognised that in syphilis changes of the nature of inflammation may attack any structure whatever.

II. On General Analgesia in the Secondary Stage.

Professor Alfred Fournier many years ago drew attention to a remarkable series of cases which he had observed in which general analgesia was developed in the early stages of syphilis. His patients were usually, if not always, women, but he insisted strongly that they were not examples of hysteria, and that the condition was of quite temporary duration. In some instances anæsthesia was present also, and in some the inability to distinguish between heat and cold was such

that the patient might burn herself unwittingly. The defect was usually symmetrical, but not always so. The condition might last several weeks or even months.

I have myself seen examples of this condition in Fournier's wards, the patients permitting pins to be thrust deeply into the skin without evincing any sensation. I am not aware that this symptom has attracted much attention in England. My own practice has not afforded many opportunities for investigating it, since it appears to occur only in young women of feeble circulation. It is possible that it is in some relation with the treatment adopted; since it is attended by no subjective symptoms, and consequently leads to no complaint, it may be very easily overlooked. M. Fournier speaks of having recognised 100 cases in the course of three years.

The observation is perhaps chiefly of importance as indicating that in the secondary stage the poison of syphilis may exercise a wide influence on the peripheral nervous system.

III. Cases of Acute Multiple Neuritis.

Under this heading it is wished to place certain cases, somewhat difficult of interpretation, in which the subjects of syphilis become affected with more or less general paralysis, but with symptoms which appear to exclude the supposition that the central organs are primarily involved. Cerebral symptoms may be present or absent. The most plausible hypothesis in most of these seems to be that there is a condition of multiple neuritis.

In illustrating this subject, I find recorded by Dr. Alexander W. Stein* the case of a man aged forty-eight who had passed through the usual stages of primary and secondary syphilis without specific treatment. When the eruption was fully out, and he had insomnia and elevations of temperature, he was, for the first time, treated by specifics; these he took but inefficiently. The chancre was contracted in the end of January, the treatment was commenced in the middle of May, and in the end of August his nervous symptoms set in, at which time he still had the stains of his eruption. After suffering for three days from pain in his back, there was developed almost simultaneously impairment of sensation and motion in all his extre-

* 'Journal of Cutaneous and Genito-urinary Diseases,' October, 1894, p. 443.

mities. In the course of two days he was unable to walk without assistance. There was insomnia, restlessness, some headache, and diplopia. The patellar reflexes were entirely absent. He was transferred to a hospital, at which the suggestion of syphilis was either unknown or ignored, and no specifics were used. He had hallucinations, and was very noisy. On September 12th, a fortnight after the beginning of his severe illness, he began to complain of sensations of choking, and was unable to expectorate; and he died on September 15th. During the last few days his respirations were increased to 24 and even 44 in the minute, the heart's action being rapid and irregular. The temperature had not been higher than 100° till the day of his death, when it was 101°. Dr. Stein writes, "The bilateralism of the anæsthesia, separated by an area in which there remained normal sensitiveness, makes it more than probable that the patient suffered from a toxic polyneuritis rather than a disorder of the central nervous system." It is unfortunate that no record in this case is preserved of the state of the sphincters or of the condition of the skin of the trunk, and, yet more so, that there was no autopsy. The case may have been one of ascending myelitis.

Two cases which have occurred in my own practice are to a considerable extent parallel with the one just quoted. In one of these, a man of about sixty, in whom the secondary stage of syphilis had been permitted to develop to a condition of great severity, and who had been with difficulty cured by the combined use of mercury and arsenic, developed subsequently a condition of general paresis. It was in the fourteenth month from the commencement of his syphilis. He was for some days confined to bed with general numbness and total inability to use his limbs. I believe he had no paralysis of the bladder or rectum. He was at this time at a great distance from town, and I was consulted only by letter. I urged the more vigorous use of specifics; and under these, in the course of a few weeks, he made a complete recovery.

My second case was a yet more severe one. Its subject was a young man whom I had myself treated for secondary syphilis. From this he had almost wholly recovered, and the treatment had been interrupted, when he began to lose strength and become apathetic. Suddenly an acute illness developed. He had ptosis, first on one side, then on the other. There was strabismus, almost complete loss of use of all the limbs, and paralysis of the sphincters. His mental

condition was such that he would only answer in monosyllables, and at times could scarcely be got to put out his tongue. From this condition, under the very liberal use of mercury, both internally and by inunction, he entirely recovered, and has since remained well. His nerve illness occurred eighteen months after his primary disease.

Many cases of neuritis of single nerves in the course of syphilis have been recorded, and in a few the affection occurred in early periods of the disease. Our knowledge of the subject, however, is as yet very indefinite. Dr. Fordyce, of New York, in an article on this topic well remarks that typical multiple neuritis resembling that which follows the acute infectious diseases, when met with in syphilis, ought to be in the early period of the disease. He has recorded a case of his own, in which a man in the third or fourth month after syphilis had such weakness of his legs that he was unable to stand. He was able, however, in bed to move his legs quite freely. His muscles were tender, and his feet more or less numb. The patellar reflexes were lost. The case was differentiated from paraplegia by the circumstance that the functions of the bladder and rectum were unimpaired. The attack occurred whilst the secondary eruption was still fully out, and the recovery under specific treatment was complete.

Dr. Buzzard has recorded a somewhat similar case which was attended with double facial paralysis, and in which complete recovery ensued under treatment for syphilis. In this case all the extremities were affected, and even the muscles of respiration. Cutaneous anæsthesia was more or less general, but the sphincters retained their power.

This case, with another, is related under the head of the "rapid and almost universal paralysis" to which Dr. Buzzard has devoted his eighteenth lecture, and of which he well remarks that we have yet to learn the true pathology. In Dr. Buzzard's two cases the supposed interval was sixteen years in one, and twenty in the other. In both the conditions present were probably those of multiple neuritis. In both the lesions were symmetrical, sensation and motion were both involved; in one the bladder was affected, and in the other not. It may be fairly remarked respecting these cases, that such conditions of acute and symmetrical, and yet transitory disease are wholly out of line with what we know of other tertiary syphilitic affections. Amongst the possible fallacies are that the patients may have had more recent syphilis than that to which they confessed; or, secondly,

that the cases were due to alcohol or some other cause, rather than to syphilis. It is to be noted that in neither case was the history of the bygone syphilis conclusive, for neither of the patients had suffered from secondary symptoms. We must remember, in dealing with such cases, that it is not very infrequent to have syphilis twice, and that, under such circumstances, the patient will usually refer us back to the attack which occurred in his early life.

Sir W. Gull has recorded* a case of paralysis of both seventh nerves which occurred in a surgeon aged fifty-nine, without obvious cause. It was very like those just mentioned, excepting in the result. There was nearly complete paraplegia of both lower extremities and weakness of the upper ones. Death occurred on the ninth day of an acute illness. Recent inflammatory changes were detected in the substance of the medulla oblongata. In this instance it is to be specially noted that there was no deafness. Presumably all history of syphilis was absent, but as nothing is said on that point, and the case reads like one of acute ascending myelitis, suspicion is unavoidable.

IV. On the Early Occurrence of Disease of Arteries.

The most important difficulty which attends our investigation of the nature of the nervous symptoms which occur in secondary syphilis concerns the implication of the arterial system. It is now well known that the arterial coats may be very extensively affected at early periods of syphilis, and that there may result therefrom great deficiency in local blood-supply, or a more or less sudden complet earrest of it. A considerable group of cases in which the nervous system is involved must in all probability find its explanation in this manner, but there are many others to which I think the theory of arterial obstruction, so far as we at present understand it, can scarcely be allowed to extend.

I suppose it may be assumed that when a sudden attack of hemiplegia occurs in the course of syphilis, it is probably due to arterial thrombosis. A not inconsiderable proportion of such attacks occurs within the first two years of syphilis. The statistics collected by Dr. Gowers confirm this statement. I have notes before me of several in which the attack occurred within the first year. In the

* 'Collection of Published Writings, Medical Papers' (New Sydenham Soc., vol. cxlvii), 1894, Case 20 in 'Cases of Paraplegia,' p. 221.

majority of these, under efficient treatment, recovery with more or less permanent damage ensued, and with no tendency to relapse. It seems not improbable that the forms of arterial disease which are acute, multiple, and inflammatory, are most of them incident to the secondary stage, and are curable usually without relapse, just as other secondary symptoms are. By the term 'curable' it is not meant that the results of the disease are wholly removed, but that there is no further tendency to fresh developments. Atheroma, aneurisms, and the results of narrowing of diseased vessels may be encountered at any stage of syphilis; but the notion that the primary arteritis which leads to such changes is usually tertiary is probably a misconception. Dr. Oliver's recent researches on the state of the pulse in the subjects of syphilis appear to throw new light on this question.

Dr. Sharkey has recorded in the 'Pathological Transactions' a case in which a man died from disease of the cerebral arteries in the seventh month of syphilis, and whilst he was still covered with the secondary eruption. The arterial disease was quite symmetrical, affecting the middle cerebral on both sides. He had suffered from headache, and suddenly became semi-comatose with convulsions in all the limbs.

Dr. Bristowe, to whose labours in reference to syphilitic disease of the arteries we are very greatly indebted, has published in the 'Lancet' of 1883 two cases of great importance in reference to our present subject.

The first of these is that of a young man who died exactly six months after his chancre, and was the subject of syphilitic psoriasis at the time his fatal illness seized him. Occipital headache and sickness were his first symptoms, but a fortnight before his death he began to ramble and to be troublesome, and it was observed that the pupils were contracted, the conjunctivæ congested, and that the left eyelid drooped. Five days later he had left hemiplegia, and a little later still it was found that nearly all the muscles of the right eyeball were paralysed. He became more drowsy and stupid, and in spite of syphilitic treatment he died on the fourth day after the right ophthalmoplegia was observed, and about a month from the first commencement of headache. The post-mortem examination revealed thickening with obstruction of the right posterior cerebral artery, and consequent softening with disintegration in patches of the right crus. Some thickening of the membranes at the base of the brain was also observed. The partial paralysis of the left third nerve was conjectured to be due to some special but concurrent lesion of it.

In another case, in which at the post-mortem Dr. Bristowe found syphilitic disease of the posterior cerebral and some smaller arteries, it is stated that the patient was a young man "who had somewhat recently contracted syphilis," but who gave no history of secondary symptoms. His fatal illness had been of nearly five weeks' duration, and had been attended by headache, sickness, and left hemiplegia.

Dr. Wilks, in the 'Guy's Hospital Reports,' has recorded the case of a young man who about one year after syphilis became nervous and had two epileptic fits. After that he became so weak that he could scarcely walk, and had pains in all his limbs. He recovered under mercury and iodides, but six months later had severe cerebral symptoms. He became lethargic, and had double vision and some numbness of his face. There was great pain in his head. He again recovered under large doses of iodide of potassium, but subsequently again relapsed and had more epileptic fits.

In another case, recorded also by Dr. Wilks, a young man had temporary right hemiplegia with much pain in the head, chiefly on the left side. His symptoms began one year after syphilis.

In both these cases we may assume that the symptoms were due to arterial disease.

V. Cases of Acute Paraplegia

(*Transverse Dorsal Myelitis*).

The only important contribution of facts which I am myself able to make concerns a group of cases of what may be called acute spinal paralysis. Examples of this affection I have found recorded in my note-books to the number of more than thirty. If it be asked how so large a number have fallen to the lot of one observer, whilst only a few single examples have been recorded by others, I must explain that I have been interested in the subject for many years, and have carefully collected all the evidence that I could get. Many of my patients came under care long after the attack of paraplegia, and on account of other symptoms of tertiary syphilis, or possibly for some wholly independent ailment. In these the previous occurrence of the paraplegia was recognised by the gait, and the history of the long past illness was obtained either from the patient himself or from his surgeon. These cases, although less trustworthy than those under

personal observation as regards the early symptoms, are of especial value in reference to prognosis, and as illustrating the kind and degree of recovery which ensues. Briefly to describe this form of paraplegia, it may be said that its first symptom is usually pain in the lumbar region of the spine. Very quickly numbness of the feet follows, and, with but little delay, paralysis of the bladder and rectum. The paraplegia may be complete, or almost so, as regards both sensation and motion, in the course of a week or ten days. At this stage the patellar reflex may be lost. If specifics are very promptly and efficiently used, indications of tendency to recovery are soon observed, and after an illness of two or three months the patient is again able to walk, and enjoys fair control over the pelvic viscera. The recovery, however, in severe cases is never complete, and although improvement may continue during several years he is often to some extent dependent upon the assistance of sticks, and almost always the peculiar manner in which he throws his legs about in walking betrays the malady from which he has suffered. During all the later stages of the malady the patellar reflexes are greatly exaggerated, and there is seldom perfect control over the sphincters. A very remarkable feature of the disease is that, when once recovery has taken place, there is no tendency to relapse.

The invariable implication of the sphincters, the usual limitation of the paralysis to the lower half of the body, and the rapid development of increased patellar reflex, distinguish these cases from those of symmetrical and multiple neuritis described in Section III.

Although in the above sentences I have endeavoured to sketch the more typical form of this paraplegia, it must be admitted that it is liable to great variations in degree of severity. The group of symptoms is, however, I think, tolerably constant. In some cases the attack may be only threatened, and never approach completeness; whilst in others the paralysis may be so absolute that it may be followed by bedsores or other complications, and end in death. A few cases, although not ending quickly in death, may show no tendency to recover. As might be expected, the more severe the symptoms, and the more absolute the paralysis, the less is the hopefulness. The degree of recovery, however, is usually, considering the severity of the symptoms, very surprising. As regards the stage of syphilis in which these attacks occur, it may be said to vary from the fifth month to the end of the second year, and a few cases will be observed even later. The most severe

cases, however, are usually observed within the first year. The later in the course of syphilis it is that the spinal symptoms are developed, the more likely is the paraplegia to be slow in progress, and to evince aggressive tendencies. In a few of the cases described the upper extremities have been to some extent involved, but, as a rule, it will appear that the morbid changes are strictly limited to a definite part in the dorsal region of the cord, and show no tendency to extension. In very few indeed of my cases was there any complication with head symptoms. In no single instance have I had an opportunity of making a post-mortem. I shall not trouble the Society with any detailed notes of cases, but the following headings may afford fair criteria of their nature, and should details of any individual case be desired I am prepared to give them.

The case headings to follow are arranged according to the length of the interval between the primary syphilis and the paraplegia. In the first three this interval was about six months; in 4, 5, 6, 7, 8, and 9 it was between six and twelve months; in 10, 11, 12, and 13 it was between twelve and eighteen months; whilst in 14 and 15 it was just within the two years. In Cases 1 and 4 I do not know anything as to the ultimate result, having seen the patients only during the acute state of the paraplegia. None of the cases ended fatally, and, with the exception of the two mentioned as not followed up, all the patients made a more or less complete recovery. In none could the recovery be said to be complete, whilst in several the patient only just regained the power to walk, and still continued to suffer from inconvenience as regards the bladder and rectum. With one exception no tendency to relapse was observed, and my notes in most of the cases extend over several years after the attack. In the exceptional case (No. 11) a relapse of paralysis occurred eight months after partial recovery, but again partial recovery resulted. This case had the peculiarity that sensation was not materially affected. It was one of those in which the paraplegia did not commence till eighteen months after the syphilis. Most of the cases were uncomplicated by other lesions, but in Case 2 there was deafness of one ear, and the upper extremities were threatened. In Case 8 also the upper extremities were threatened. In Case 14 there was numbness in one ulnar nerve region. With these exceptions, it is to be understood that the cases were much alike in being attended by loss of both sensation and motion with fair symmetry in both limbs, and with paralysis of the bladder

and rectum. In all the cases when the condition was advanced the patellar reflex became much exaggerated. I cannot speak definitely as to this symptom in the early stage, but in the more acute class I believe it was for a short time almost lost. With scarcely an exception the patient had suffered from definite and even severe secondary symptoms, and the treatment had been more or less inadequate. It is to be admitted, however, that several or perhaps most of them were actually under treatment by specifics at the time the myelitis set in, and that but few were at the time the subjects of any severe affection of the skin or mucous membranes.

Case 1.—*Syphilis at age of thirty—almost absolute paraplegia as regards sensation and motion five months later—sphincters affected—no record of result.*

Case 2.—*Syphilis in a man of forty-eight—paraplegia six months later with deafness of one ear—almost complete loss of motion in one lower limb—great anæmia—upper limbs threatened—almost complete recovery under mercury.*

Case 3.—*Syphilis in a man—complete paraplegia six months later—symptoms severe and persisting for five months—partial recovery under prolonged treatment.*

Case 4.—*Syphilis in a man—paraplegia seven months later—complete loss of motion in legs with great exaggeration of reflexes—anæsthesia—incontinence of urine—sequel not known.*

Case 5.—*Syphilis in a man of twenty-two—premonitory symptoms of paraplegia eight months later—sudden development to completeness—anæsthesia of legs—paralysis of bladder and rectum—symptoms persistent for eight months—gradual improvement up to a certain point—power of walking not regained, and unable to dispense with the catheter.*

Case 6.—*Syphilis in a married woman aged thirty—nine months later paraplegia, both as regards sensation and movement of lower extremities—sphincters affected—recovery, but walking power remaining feeble.*

Case 7.—*Syphilis—inefficient treatment—marriage at end of tenth month—paraplegia two months after marriage—right lower extremity more severely affected than left—exaggerated reflexes—recovery under specifics (man of forty-five).*

Case 8.—*Syphilis—treatment by diet only—long persistence of erup-*

tion—paraplegic symptoms in the eleventh month—loss of sensation and inability to stand—incontinence of urine—upper extremities threatened —improvement under specifics, but report incomplete (man of twenty-seven).

CASE 9.—*Syphilis in a man—followed by paraplegia at the end of twelve months—pain in back—weakness and numbness of legs, especially the left—recovery fairly complete.*

CASE 10.—*Syphilis in a man of twenty-six—at end of sixteen months paraplegia—absolute loss of sensation, partial loss of motion in the lower extremities—sphincter paralysis—recovery almost perfect.*

CASE 11.—*Syphilis in a man of thirty-nine—paraplegia eighteen months later—partial recovery—relapse eight months later with very severe pain in the back—paralysis of bladder and rectum—sensation not materially affected—partial recovery.*

CASE 12.—*Syphilis in a married woman aged thirty-eight—eighteen months later sudden onset of paraplegia, involving sphincters and lower extremities—recovery enough to walk a few steps with the aid of sticks —sphincters left weak.*

CASE 13.—*Man of twenty-nine—paraplegia eighteen months after primary syphilis, preceded by pain in the back and bladder symptoms —partial recovery.*

CASE 14.—*Syphilis in a man of twenty-six—treatment delayed until secondary stage was fully developed, and subsequently inadequate— spinal symptoms in twenty-second month, whilst still taking mercury— pain in back, and numbness of both lower extremities—numbness in one ulnar nerve region—gradual recovery.*

CASE 15.—*Syphilis in a man of fifty-four—slowly developed paraplegia with incontinence of urine in twenty-fourth month.*

Although for the purposes of the present discussion no cases are included which occurred later than two years after the primary disease, and although I wish to be allowed to record distinctly the opinion that a large majority of the more typical cases are met with within this period, yet it is to be admitted that a few which present very similar symptoms are met with much later. In two of which I have notes the period was two and a half years; and in one, a severe case which yet resulted in almost complete recovery, it was as much as three and a half years.

The cases are mentioned as illustrations, not in any sense as statis-

tics. I have had other cases which are not here included. In more than one I know that death occurred.

One of the circumstances which may give us most confidence in the belief that this form of acute paraplegia is a definite clinical malady, is the remarkable similarity of the isolated cases which have been recorded by various authors. They are all almost exactly alike, and fit very closely with the description given above. This remark applies to the detailed records of cases, and not to the general statements of authors unaccompanied by facts. Whilst the general evidence of symptoms—the sudden acute onset, the definite local limitation, and the severity of the paralysis—all seem to give support to the belief that the process is a myelitis, and not merely a change secondary to disease of the blood-vessels, it is yet to be admitted that in most of the carefully performed autopsies the latter condition has been found. More facts are needed before we can feel sure of our ground in this matter. In the meantime I think we may provisionally adopt the phraseology of Erb, who speaks of it as a "myelitis transversa dorsalis."

I have found but little information in our systematic works concerning syphilitic affections of the spinal cord in early periods. Dr. Hilton Fagge and Dr. Buzzard are the chief exceptions. The latter, in his excellent clinical lectures, has devoted one to Syphilitic Paraplegia. One of the cases there related coincides in all its details with those to which I now refer. A coachman aged twenty-five, who had contracted syphilis only eighteen months previously, became paraplegic in the course of nine days. He had severe pain in his back. Sensation was so far lost that he could not recognise the prick of a pin, whilst the reflexes were exaggerated. The power of motion in the right leg was almost wholly lost, but the left was less affected.

During the first four days the temperature was slightly increased, but never higher than 100°. Iodide of potassium was given, and the inunction of mercury pushed to ptyalism. On the thirty-sixth day the patient could get up and walk; and on the fiftieth he was discharged, and returned to his occupation. Dr. Buzzard records in the same lecture another case, in which a married woman aged twenty-nine recovered from paraplegia, of three months' duration, under iodide of potassium. In this case there were the remains of disseminated choroiditis, but no facts were obtained as to syphilis. The upper extremities were affected as well as the lower. Details of

the recovery are not very full, and there is no note of progress after she left the hospital.

Dr. Hilton Fagge had recorded a case in 1876, which also occurred very early, before the patient was rid of his secondary eruption, and which was rendered especially valuable by the circumstance that a post-mortem examination was obtained. This case is recorded in the first volume of his 'Practice of Medicine,' p. 398. A young man of twenty died after two months' paraplegia from syphilis. He was actually under treatment by Mr. Davies-Colley for his secondary syphilis when the paraplegia occurred.

In the mid-dorsal region for a length of about an inch and a half the cord was found flattened and soft, its antero-lateral columns with their grey matter being especially affected. To the naked eye there was no obvious change in the pia mater, but when a portion of it was placed on glass and examined with the lens the walls of the arteries were at once seen to be enormously thickened and degenerated.

On referring to my own little monograph on Syphilis I find that I then wrote (1886), "I have seen a great many cases of syphilitic paraplegia. . . . My impression is strong that many of them are due to central changes of the nature of myelitis." I also wrote at that date that the bladder and rectum were usually involved, that most of the cases resulted in partial recovery, and that such recovery was usually permanent. Thus almost all the statements made now were made then, but I do not find any indication that my mind was then so strongly impressed with the belief that this form of paraplegia usually occurs early as the present summary of facts seems to indicate.

Quite recently (in 1892) Professor Erb has published a short but excellent paper on Syphilitic Spinal Paralysis, in which he mentions having seen upwards of twenty-two cases. Many of Erb's statements agree closely with those which I have made, but in some important respects they do not. Our differences are, I think, to be chiefly explained by the fact that he included many cases which began much later in syphilis than those which I now adduce. Thirteen out of twenty-two cases on his record occurred within the first three years of the syphilitic infection, eighteen were within the first six years, whilst four were as late as the ninth to the twentieth year. It is probably the inclusion of these late cases, in which the malady showed a somewhat different course, which leads Erb to state that the onset is generally gradual and seldom rapid; and further that the affection of sensa-

tion, although constant, is only slight. Erb's paper has excited much attention on the Continent, and has been followed by others—by Kuh, Oppenheim, and Lamy, which have, in the main, corroborated his statements.

It cannot probably be too clearly understood that the facts collected by different observers will vary in character with the peculiarities of the sphere of observation of each. The hospital physician and private consultant sees the acute cases; to the specialist the chronic cases flock.

Cases of Acute Syphilitic Paraplegia in which Autopsies were obtained.

One of the cases recorded by Sir W. Gull as an example of paraplegia associated with gonorrhœa and stricture of the urethra reads to me exactly like a syphilitic case. A young man of twenty contracted gonorrhœa and a chancre at the same time. After the chancre had healed it reopened, and he remained under treatment for six months. Eight months from the beginning he was admitted into Guy's Hospital with pain in the neck and occiput and weakness of the legs. These symptoms increased, and were attended by loss of sensation in the feet and incontinence of urine. There was subsequently much suffering from violent spasmodic contractions of the legs, although the anæsthesia was complete. Bedsores formed, and he died rather suddenly four months from the beginning of his nervous symptoms. Microscopic examination of the cord, which to the naked eye looked healthy, revealed extensive inflammatory disorganisation in the middle of the dorsal region.*

I am obliged to think it not at all improbable that several others of Sir W. Gull's cases, attributed to gonorrhœa or gleet, were really of syphilitic origin, for no negative evidence as regards syphilis is recorded, and the symptoms very closely resembled those of the group under consideration. These cases were all fatal, and in all of them softening of the cord was recorded. The same remark applies to cases recorded by other observers, and it will be seen that a very important fallacy underlies the whole hypothesis as to paraplegia from gonorrhœa and stricture. Almost all the subjects of those narratives

* See paper read before this Society, March, 1856 ('Medico-Chirurgical Transactions,' vol. xxxix, 1856, p. 195).

were young men of irregular lives who had had gonorrhœa repeatedly. It is obviously very probable that they had had syphilis also.

Dr. Déjerine records the two following cases in the 'Revue de Médecine of January, 1884, and they are quoted in the 'Lancet' of February 9th, 1884.

The first was that of a coachman aged fifty-one, who had contracted syphilis thirteen months before, "having had no other manifestations beyond the primary chancre, which ulcerated anew five months after its cicatrisation." On each occasion mercury was taken for two months. The nervous symptoms commenced with headache and irritability of the bladder, followed by weakness of the legs, lightning pains, and cramps. In a few days complete paraplegia ensued, the absolute loss of power occurring suddenly. There was absolute anæsthesia from the umbilicus downwards, incontinence of urine, headache, commencing sloughs over the buttocks, as well as complete loss of motion. The course of the case was rapid, and twenty-eight days from the onset death occurred as the result of pulmonary œdema. The autopsy revealed "acute central myelitis from the lower part of the cervical to the lower part of the lumbar region, with commencing ascending degeneration traceable to the medulla." There were marked degenerative changes in the anterior nerve-roots, but the posterior roots were intact.

The second case was that of a man aged thirty-eight, who a year previously had contracted syphilis, followed by secondary lesions, rapidly disappearing under specific treatment. Pain in the spine was the first symptom noticed, and about a week later paraplegia ensued with a "girdle pain" round the abdomen and lower part of the chest. The onset was rapid; total paraplegia, both as regards motion and sensation, occurred, the reflexes were abolished, and there was paralysis of the sphincters. Bedsores appeared on the sacrum, and death ensued eight days after the onset of the paralysis (fourteen days from the beginning). At the post-mortem myelitic changes were found involving the grey matter of the lower half of the dorsal, and upper half of the lumbar region, with degenerative changes in the corresponding anterior nerve-roots, but none in the posterior.

A case is recorded in the 'Lancet' of June, 1889, which was under the care of Mr. Bernard Walker, of Rotherham, which is valuable because a post-mortem was obtained. The notes were written by Mr. H. Cropley. A man æt. 34 had syphilis seventeen months

before his paraplegia. His early treatment was neglected, and he had an eruption followed by iritis. Whilst using specifics for the latter, paraplegia set in, and was complete in ten days. Sensation was not abolished, but the patellar reflexes were lost. The catheter was needed, and cystitis and bedsores followed. Death occurred one month from the beginning of the symptoms. The cord and its membranes looked healthy, but its lowest part was somewhat softened and the white columns were crowded with leucocytes. The arteries of the pia mater over the softened part were occluded by thickening, chiefly of the internal coat.

A remarkable point in this narrative was that sensation was not materially affected, yet bedsores caused death.

If we may count Sir William Gull's case as the first in which pathological appearances were noticed, we have in it the record of inflammatory changes in the cord which were appreciable only to the microscope. In Dr. Hilton Fagge's case there was in addition to these a most remarkable condition of occlusion of the small arteries of the pia mater.

In a case recorded by Lamy, in which a man died of paraplegia one year after contracting syphilis, to the naked eye the cord appeared normal, but microscopic examination revealed diffuse gummatous arachnitis and lepto-meningitis. The infiltration was most marked about the veins, and the spinal arteries were almost unaffected. There was softening of the cord in the upper dorsal region.

In another case by Lamy the paraplegia set in one year after the syphilis, and was complete in seven days. Death from bedsores, etc., occurred eighteen months after the onset of the paralysis. The autopsy revealed lepto-meningo-myelitis, with implication of the nutrient vessels of the cord (periarteritis and periphlebitis).

Dr. Arthur Fox, of Bath, has recorded in 'Brain,' part vii (vol. ii, 1880, p. 418), the case of a prostitute who had suffered from syphilis, and who died after a fortnight's illness with symptoms of ascending myelitis. Her illness began with pains in the legs and loins, and was followed by incontinence of urine and loss of power both in upper and lower extremities. Very slight changes were detected on microscopic examination of sections of the cord, but they were believed to indicate an early stage of diffuse myelitis.

VI. The Paralysis of Single Nerves.

Dr. Fordyce, of New York, has recorded a case in which left facial paralysis, without loss of hearing, occurred four months after syphilis. It disappeared in ten days under specific treatment.

Steenberg has recorded another case in which facial paralysis was coincident with an early secondary eruption. Many others have been published.

Cases have been recorded by Dr. Ehrmann, in which single nerves were affected in the early stages of syphilis. In one of these, eight months after the syphilis, the man had tenderness over the trunks of the ulnar and median nerves of his left arm, with formication, paræsthesia, but no definite muscular paralysis.*

A Peculiar Form of Partial Hemianæsthesia.

There is a peculiar form of incomplete hemianæsthesia which occurs to the subjects of syphilis, respecting the pathology of which I have no explanation to offer. The patients become quite suddenly numb in one half of the face, limbs, and trunk. The anæsthesia is incomplete, and is better described as subjective numbness than real loss of sensation. The skin is sometimes more or less tender when touched. Some of the best examples of this which I have seen were in the early periods of syphilis. In one, a woman of forty-five was just recovering from iritis and an eruption, and was still under treatment, when she was attacked by partial deafness in both ears. A little later she had a seizure whilst dressing, and in the course of a minute one half of her head and both limbs on the same side had become quite numb. She recovered under treatment. In another case, which in other respects is very similar, the interval between the syphilis and the attack was much longer, amounting to six years.

In a third case, very like the preceding, a man had complete syphilis before any treatment was adopted. He then took mercury, and whilst everything seemed progressing satisfactorily under its use, he

* As a rule, however, we may believe that the affection of single nerves belongs to the tertiary rather than the secondary period. Whatever occurs during the latter will probably be multiple, and show some tendency to symmetry.

suddenly found one morning that the whole of his left side—face, limbs, and trunk—was numb. The sensation was that of numbness and coldness, and he had great difficulty in standing. This numbness under increased doses of iodides, etc., passed off in about a week; but a month later the opposite side was affected in a similar manner, and three months later still the same symptoms returned on the left side. When I saw him, three months after these attacks, his patellar reflex was much exaggerated, he was emotional, had numbness of his hands and general defect of sensation. Under prolonged treatment by mercury he almost completely recovered. There was a tendency in his limbs to become stiff when he was excited.*

Absence of Relapses.

Although many facts might be recorded in proof that the affections of the nervous system occurring in early periods of syphilis, whether affecting the nerve-tissues primarily, or being secondary to disease of the blood-vessels, do not, when once cured, tend to relapse, yet there is no sort of certainty that the same patients may not in the tertiary stage become the subjects of other forms of disease. It is a remarkable experience that, although I have seen at least thirty examples of paraplegia, either threatened or complete, during the first two years of syphilis, and that in many of them a period of many years has elapsed since the first observation, I do not know of a single one in which tabes has subsequently supervened. It may possibly be that the entire suspension of the sexual function, consequent upon the attack of paraplegia, has something to do with this immunity. In cases in which patients had in early periods of syphilis suffered from sudden hemiplegia, consequent, no doubt, on arterial thrombosis, I have several who are now, after a lapse of years, tabetic. The following case seems worth mention as affording an instance of spinal paraplegia at an early period, and of the occurrence long afterwards of degenerative changes which probably had no connection with it. In the second volume of his work on the diseases of the nervous system Dr. Ross has mentioned a case in which "the symptoms of acute spinal paralysis had occurred in a man aged twenty-three, while he was suffering from secondary symptoms." Dr. Ross did not himself see this patient until

* For details see 'Archives of Surgery,' vol. vi, No. 21.

he was forty-seven years of age, when he had ophthalmoplegia of the right eye, right hemiatrophy of the tongue, and complete paralysis of all the muscles that produce dorsal flexion of the foot. There was no defect of sensation.

Necessity for the Full Use of Mercury.

In at least four of my own cases in which nervous symptoms supervened in the course of secondary syphilis, the patient had previously passed into a state of extreme anæmia and debility. In all of these cases specifics had been more or less pushed, and it was feared they had disagreed. The patients were so ill that the condition almost resembled that of pernicious anæmia, and a fatal result was apprehended. In three of these, more definite symptoms having supervened, it became obviously necessary to push mercury, and all these three recovered perfectly. In the fourth, the patient, having no definite symptoms excepting his debility, was sent to the sea-side, and the treatment was suspended. Whilst there he had a succession of attacks of loss of consciousness, and after a few days' illness died. The autopsy showed extensive and multiple disease of the arteries at the base of the brain without definite foci of softening.

The following is the heading of one of these four cases, the details of which will be found at p. 180 of my book on Syphilis :—"Case illustrating the occurrence of anæsthesia of the lower extremities in the secondary stage of syphilis ; Menière's phenomena, giddiness and reeling gait, extreme anæmia and debility, inability to write, doubt as to whether the symptoms were really due to syphilis ; mercury supposed to have been injurious ; complete recovery under inunction treatment."

Conclusions.

The facts which have been brought forward seem to me to justify the following conclusions, which I venture to offer as the basis for discussion.

1st. The nervous system may suffer in very various ways during the secondary period of syphilis, and it is very important to recognise this fact since the affections are usually acute and destructive unless prompt treatment be adopted.

2nd. It is very exceptional that any disease of the nervous system occurs earlier than the sixth month.

3rd. Many, perhaps most, of the affections of the nervous system in the secondary period are secondary to disease of the blood-vessels. Under this head we may be permitted to include extensive implications of the minute arteries of the pia mater, whether of the brain or cord.

4th. Amongst the diseases which are probably primarily of the nerve-structures themselves we may recognise (1) acute affections of the eye and ear, of the latter sometimes attended by paralysis of the portio dura; (2) acute forms of polyneuritis, usually symmetrical and transitory; (3) a peculiar and very definite form of paraplegia due to transverse myelitis; (4) certain rare and peculiar forms of hemianæsthesia.

5th. It it not disputed that at much later periods in the course of syphilis affections closely similar to the above may occur, but it is believed that when they do so they are much slower in onset, less severe and more chronic in progress, and less amenable to specific treatment.

6th. The prognosis of these affections is good up to a certain point if efficient treatment be commenced early.

7th. It is believed that these early affections of the nervous system in syphilis occur almost invariably to those in whom the treatment in the early stages of the disease has been more or less neglected.

Dr. Gowers.—I speak under the difficulty of considerable obscurity, not due to any lack of lucidity on the part of our President in the admirable address, in which he has combined the results of long and careful observation, of careful thought and ripe experience. In that address he has given us many facts and many thoughts to digest and to endeavour to combine. The consciousness of obscurity to which I have alluded may perhaps be due to impending influenza, but I fancy that it is due to the subject. I may say at once that of secondary syphilis in the strict sense of the word, as far as the nervous system is concerned, I know nothing,—that is, with the definite knowledge which our President's address seems to desire. It has been my fate for years to look at syphilis only from the side of the nervous system. The secondary stage is opposed on the one hand to the "primary" stage, and on the other to the "tertiary" stage. The opposition to the "primary" stage scarcely enters into the problem of syphilis of the nervous system, and of two distinguishable forms of constitutional syphilis in the nervous system I know nothing. By this I mean that I cannot discern two forms of lesion presenting the tissue-elements

which we are accustomed to associate with syphilis, or as demonstrably the sequel of syphilis, and yet certainly amenable to iodide of potassium or mercury. Foremost, as regards the nervous system, stand the arterial diseases, and, personally, I have only met with disease of the larger arteries of the brain. Of disease of the arteries of the spinal cord I have never seen anything that could be called syphilitic, nor have I met with the record of unquestionable evidence. Of disease of the smaller arteries of the brain I am personally ignorant, but one observation by Dr. Barlow establishes the fact that there may be a syphilitic disease of the minute arteries disseminated throughout the whole substance of the brain, similar in nature to that of the larger arteries, but as different in its clinical effects as in its distribution from that to which we are accustomed. This disease of the arteries of the brain we meet with even within the first year of infection, and from that to the twentieth or even the twenty-fifth year, but most frequently during the first seven or eight years. It is absolutely identical in its characters and effects and distribution, from first to last affecting the larger arteries—the middle cerebral and basilar by preference. We cannot distinguish it in any case as secondary or as tertiary by naked-eye aspect or microscopical evidence. It is important, however, to remember that its aspect is materially changed when the patient has been subjected to a course of anti-syphilitic treatment. That which has been changed in aspect by treatment may co-exist, moreover, with fresh disease, developed even during the continuance of a long course of treatment. One fact of practical importance with which I have been much impressed is that such a dose of iodide of potassium as is usually given, say fifteen grains three times a day, after two or three months may cease to influence the disease, and the morbid process which was at first absolutely checked may again become aggressive.

I ought, perhaps to have emphasised the fact that, although the organism of syphilis has not yet been discovered, we must, if we are to obtain a real grasp of the disease, conceive it to be due to a specific micro-organism. This conception is justified by everything we know of other diseases that are communicable in a similar manner, which run through a stage during which the blood is capable of conveying the infection. Our President has wisely avoided trenching upon theory, but I think we cannot grasp the facts of syphilis in relation to the nervous or any other system without taking our stand upon the organismal theory of the disease. Nor can we expectantly grasp the facts without keeping in view the very important discoveries that have been made regarding the secondary effects of other organisms.

Besides the arterial disease there is the familiar gumma, the range of which is about the same, although gummata are certainly less frequent after twelve years from the primary infection than is the arterial disease. I believe, moreover, that the absolute frequency of gummata is very much less than that of arterial disease. For one case of gumma of the central nervous system, three or four cases of arterial disease are produced by syphilis. But gummata are probably almost as frequent in the spinal cord as in the brain. In addition

there is the well-known gummatous inflammation. One of the most remarkable facts about gummata is that they always spring from the membranes, never from the brain substance or the substance of the spinal cord. When present in the cerebral substance they can always be traced to some fold of the pia mater. That is an important fact, because it is related to the local inflammation of the membranes,—subacute or chronic inflammation with which more or less of the gummatous tissue is associated, diffusely or in aggregated forms.

We are familiar with similar gummata within the spinal cord, and have a meagre pathological knowledge of a similar local meningitis, supplemented by more extensive clinical indications. It is probable that a similar inflammation is the origin of the indurated form of pachymeningitis. Small gummata upon the cranial nerves occur, of which one of the most remarkable examples is that of the perfectly symmetrical gummata upon the sixth nerve recorded by Dr. Barlow, whose wealth of practical knowledge of the facts of syphilis will, I trust, be placed at our disposal. In addition, inflammation of the nerve, perineuritis or interstitial neuritis, is sometimes found to present the syphilitic tissue, and often its symptoms yield to treatment. This exhausts my knowledge of syphilitic disease of the nervous system, so far as pathological and therapeutical evidence is combined.

Other processes are related to syphilis, in which the pathological evidence is not distinct, and the therapeutic evidence is equivocal or absent. Of the late affections, besides some focal organic processes, locomotor ataxy is a sequel of syphilis in such a vast proportion of cases that there must be a causal relationship. But we all know that locomotor ataxy cannot be cured by antisyphilitic treatment. Locomotor ataxy may depend only on changes in the peripheral nerves. It is instructive to compare the phenomena presented by that disease with those presented by the effects of alcohol upon the nerves, or by other chemical poisons, such as arsenic, and to remember that these can also be brought about by the diphtheritic poison. If we view these facts in the light of the epoch-making researches of Dr. Sidney Martin on the manner in which diphtheritic palsy and diphtheritic ataxy are due to a chemical poison, generated by the action of a ferment which the organisms produce, we cannot doubt that locomotor ataxy is the result of a chemical poison produced by the syphilitic organisms.

Among the early effects of syphilis acute inflammation is met with. You, Mr. President, have alluded to the occurrence of acute inflammation of the spinal cord. I have referred to the cases of cerebral meningitis in which there is the production of the characteristic tissue. In this there is often extensive inflammation—extending as apparently simple inflammation far beyond the gummatous thickening. The gradation is so well marked that it is easy to conceive that there may be cases in which there is no gummatous tissue, but only acute inflammation.

We meet with cases of acute cerebral meningitis that run a most rapid course, which are sometimes checked by mercury. These cases bring before us very prominently the question of the relation of inflammation itself to syphilis. When there are both tissue-production

and inflammation, the more acute the condition, the more does inflammation preponderate. This inflammation without tissue-production we cannot distinguish in its features from simple inflammation. I need not dwell upon this point, because I have discussed it at some length in the first lecture in "Syphilis and the Nervous System."

The question is, however, brought before us by the cases of acute spinal myelitis in syphilitic subjects, to which the President referred. I have little to say of these beyond the statements made in those lectures; but I cannot help feeling that the subject illustrates the slowness of the advance of medical knowledge. If you will allow me, I should like to read a sentence from "The Diagnosis of Diseases of the Spinal Cord," published in 1880: "Syphilitic disease of the vessels may *probably* lead to acute softening similar to that in the brain. Syphilitic subjects may suddenly become paraplegic, and it is probable that it is by this mechanism, although the fact does not at present rest on any post-mortem evidence." I read that sentence with a sense of shame, for it is fifteen years since it was written, and not only am I unable to say any more, but I cannot even say so much as I then said, in agreement with the remarks of the President. I doubt more than I did then whether syphilitic arterial disease plays any part in the production of this acute myelitis. The fact that acute transverse myelitis is frequent in the subjects of constitutional syphilis must be taken in conjunction with the fact—a fact true also of all cases in which acute inflammation preponderates over tissue-production—that, in proportion as this is the case, antisyphilitic treatment fails. I said just now that cases of acute meningitis were saved from death by treatment, and you may think that this savours of contradiction; but those who have kept in touch with the therapeutics of the past can scarcely doubt the influence of mercury upon simple inflammation, including that of the membranes of the brain. Who is there who can place any confidence whatever in the effect of mercury as a test of the syphilitic nature of acute inflammation? But it is not so in the acute transverse myelitis. Treat these cases as energetically as possible, and as promptly as you may, they run a course absolutely indistinguishable from that of cases of transverse myelitis in which syphilis can be absolutely excluded. These cases seem to follow syphilis too frequently for the sequence to be accidental (although it has not been shown by statistics to be causal), and yet I cannot but recognise the fact that it is impossible, looking at the matter impartially, to discern any proof of syphilitic influence because the cases, syphilitic and non-syphilitic, slight and severe, run respectively a parallel course. It would seem that in proportion as inflammation, even when due to syphilis, is acute, it is simple in aspect, and produces damage which is the same as that which any inflammation of similar acuteness would cause. The result resembles that of arterial disease of the brain. The result on which the symptoms depend is absolutely beyond the influence of treatment. Hence the secondary effects preclude therapeutical evidence. In slight forms of myelitis it is only in the cases of less acute inflammation, in which there is not the tendency to recovery which all acute

processes involve, that we can place any confidence whatever in the significance of the effect of antisyphilitic treatment.

Regarding the possible influence of syphilitic disease of the arteries in causing myelitis, I can only add that the arteries of the spinal cord are smaller than those in which the disease usually occurs in the brain; that the disease of minute arteries, to judge from the meagre facts known regarding this disease in the brain, should be wide-spread, and give rise to a disseminated and not a transverse myelitis; that I do not think it would be possible to identify such diseases in a focus of inflammation; and that during the last fifteen years no trustworthy evidence of the mechanism has been adduced. We have learned from diphtheria and tetanus how rapidly the organisms of disease may produce a chemical poison acting on the nervous system. As far as we can discern the causes of acute myelitis and of all acute symmetrical inflammations of the nervous system, the facts suggest the action of an organic chemical poison, such as we know organisms may produce. Is it not possible that the organisms of syphilis, as they seem to cause a late poison, may also cause an early one, which is the cause of the simple acute inflammation?

In this connection the question of myelitis after gonorrhœa is instructive. The President has suggested that gonorrhœal myelitis may be the result of syphilis. Only a few cases of post-gonorrhœal myelitis are on record. One is a case which I described last summer in a lecture published in the 'Clinical Journal.' The patient acquired gonorrhœa in his first and only lapse from virtue. There was no suspicion of syphilis, nor was there time for it. Just at the stage when the patient might have developed the gonorrhœal rheumatism (which suggests a chemical poison) he developed ascending myelitis, and died within three or four days. An immediate and most careful investigation by Dr. Arkle showed that there were no organisms in the cord. Does not this observation add to the probability that myelitis after syphilis may be due to a chemical poison produced by the organisms of the disease?

I remember the case of a patient who had indurated cellulitis on the spine some fifteen years after having contracted syphilis from her husband. It caused pain, and a palsy which resembled Erb's form. She was treated for some months with full doses of iodide of potassium, which she had not been taking previously, without the slightest benefit. I consulted a surgical colleague about the case, and he suggested giving mercury. This I did, and within a fortnight the swelling and pain were rapidly subsiding. Nothing could be more striking than the prompt and thorough recovery of the patient under mercury. I learned from that case how useful surgeons sometimes are, but I did not learn from it that the effect of mercury enables us to distinguish a secondary from a tertiary manifestation.

On the motion of Sir William Broadbent, seconded by Dr. Althaus, it was unanimously resolved to adjourn the discussion till Tuesday, March 12th.

PROCEEDINGS

OF

THE ROYAL

MEDICAL AND CHIRURGICAL SOCIETY

OF LONDON.

Tuesday, March 12th, 1895.

JONATHAN HUTCHINSON, F.R.S., President, and afterwards JOHN LANGTON, Vice-President, in the Chair.

J. MITCHELL BRUCE, M.D., ROBERT WILLIAM PARKER, } Hon. Secs.

Present—65 Fellows and 24 visitors.

Percy Furnivall, M.R.C.S., L.R.C.P., a Fellow elect, signed the Obligation, and was admitted by the President.

ADJOURNED DISCUSSION ON AFFECTIONS OF THE NERVOUS SYSTEM OCCURRING IN THE EARLY (SECONDARY) STAGES OF SYPHILIS.

Mr. JONATHAN HUTCHINSON.—I am enabled to show you on a larger scale some admirable illustrations published by Dr. Lamy of Paris in the 'Iconographie de la Salpêtrière' which display very clearly the nature of the changes found in the blood-vessels of the spinal cord in a case of typical syphilitic paraplegia. You will observe that the veins are more markedly implicated than the arteries, although the changes are also noticeable in the latter. I have collected notes of a good many other cases of acute paraplegia in syphilitic patients which bear out my view that in nearly all such cases this form of nervous affection occurs within a year of the date of contracting syphilis. I have also collected from my own note-books cases to compare with the myelitis of the early stages, the affection in these cases having come on at a much later period. I have been able to collect but very few of such cases,—nothing at all to be compared with the large group occurring within the year after infection; and they are almost all not typical, complicated, or slow. The points brought forward in my paper are that it is desirable to collect statistics and clinical material, and to collect and compare cases, in order to see whether the effects on the nervous system in connection with syphilis ought not to be arranged as dermatologists arrange the skin symptoms, according to the period in which they occur.

Dr. Althaus.—I think the Society is much indebted to its President for having brought this subject forward for discussion. That Mr. Hutchinson would do so in a most able and suggestive manner was, I might say, a foregone conclusion. A great paper like this, dealing in such a broad and comprehensive spirit, not with isolated facts, but with whole series of important and interesting clinical phenomena, was evidently very much wanted, because it is the fact that the possibility of the occurrence of these nerve-troubles from syphilis at such an early stage of the distemper is not yet thoroughly realised by the profession. Several cases have come under my notice in which an erroneous diagnosis had been made in the belief that specific nerve-lesions did not occur until about four or five years had elapsed after the primary affection.

One of these cases was that of a young man aged twenty-eight, who was taken with symptoms of gradually developing left hemiplegia eight months after infection. It began in the left foot, gradually crept up to the left hand and arm, and eventually to the portio dura. There had been no apoplexy, but the patient became very much depressed, and frequently burst out crying. This led to the diagnosis of hysterical paralysis, and he was treated with iron, phosphorus, and shower-baths. The paralysis gradually became more pronounced, and when I saw him he was losing his memory, and his intellect was becoming clouded. I looked upon the case as one of specific disease of the cerebral arteries, and resorted to mercurial treatment. The result confirmed the view I had taken of the nature of the case, for the patient improved rapidly, and eventually made a very fair recovery.

I remember bringing a case of early brain syphilis before a sister Society a good many years ago, when, in the discussion which followed, exception was taken to the specific nature of the case, on the ground that sufficient time had not elapsed after infection to warrant the case to be one of brain syphilis. At that time two years was mentioned as the *earliest* period after infection when specific brain lesions could become developed.

Mr. Hutchinson states in his paper that it is very exceptional for specific brain disease to occur earlier than the sixth month. I have seen a case in which a characteristic form of headache became developed three months after infection, and was presently followed by convulsive seizures and hemiplegia. In a somewhat similar case which has been described by Kahler a post-mortem was obtained. In that case left hemiplegia appeared three months after the primary sore, and a great many other nerve troubles followed. After death there was found extensive disease of the arteries at the base of the brain, with a large focus of softening in the pons Varolii, neuritis of several of the cranial nerves, thickening of the membranes of the cord, and disease of its blood-vessels, as well as sclerosis of the lateral columns of the cord. It is therefore seen that lesions which are generally believed to be tertiary, and only to occur years after infection, may occur at a very early period indeed.

Dr. Gowers has given us a very able contribution to the morbid anatomy of nerve syphilis, but has said little or nothing about most

of the clinical points which have been raised in Mr. Hutchinson's paper, and I take it that the value of that paper is chiefly clinical. I will therefore refer very briefly to some of these points. I have seen several examples of analgesia in the secondary stage, and these would probably be more frequently found if they were only looked for. One of these cases was that of a young woman who consulted me for paralysis of the left portio dura. On examining her mouth I found condylomata, and inquiry elicited the fact that she had been infected five months before. She had, in addition to the facial palsy, paresis of the left rectus externus, a papular rash on the arms, enlarged glands in the neck, and analgesia in the left side of the face and in both arms, more especially on the back of the hands, where the prick of a pin could not be distinguished.

Acute multiple neuritis is, no doubt, sometimes the cause of the more or less general paresis with anæsthesia which may be seen in the secondary stage, but acute encephalitis and myelitis are also met with. I cannot give any post-mortem records, but the clinical symptoms have appeared to me unmistakable. A man aged twenty-eight was, eight months after the primary sore, suddenly taken with giddiness, confusion of thought, and pain in the head. This was presentlp followed by delirium and a degree of aphasia; he became paralysed and anæsthetic, and passed the excreta in bed. When I saw him, a week after the beginning of that illness, he had recovered consciousness, but was still somewhat aphasic, and had general paresis and incomplete anæsthesia. The tendon reflexes were greatly exaggerated. I looked upon the case as one of acute specific encephalitis. Under antisyphilitic treatment the patient recovered his language as well as the use of his limbs in four months. Some difficulty of articulation and undue nervous excitability remained, but he was able to resume his occupation as clerk in a bank.

A case which I looked upon as one of acute ascending myelitis was that of a man who developed symptoms of paresis of motion and sensation ten months after infection. To this was gradually added paralysis of the bladder and rectum, of the upper extremities, and of the phrenic nerve. Death by failure of respiration occurred on the fourteenth day.

Another case was evidently one of acute polio-myelitis. A young man aged twenty-one became completely paraplegic within twenty-four hours, nine months after infection, and while still covered with a syphilitic rash. Sensibility and the action of the bladder and the bowels remained normal. When I saw him about twelve months afterwards, the muscular tissue of both lower extremities had almost entirely disappeared. The legs were mere sticks. No other symptoms had become developed, and sensibility in the paralysed limbs was perfect.

I have also seen a case of tabes which became developed early, viz. seven months after infection. The patient had shooting pains in the lower limbs, an ataxic gait, and difficulty with the action of the bladder and the bowels, had lost the knee-jerk, and was subject to gastric crises. He made a very fair recovery under specific treatment.

Early neuritis of single nerves does not seem uncommon. I have

seen in the early stage chiefly cases of paralysis of the portio dura, while in the tertiary stage the third nerve is more frequently affected. I have also seen cases of neuritis of the sixth and of the ulnar nerve four and six months after infection.

Are there any predisposing or exciting causes leading to the occurrence of early nerve syphilis? On this point Mr. Hutchinson's paper is silent. He only says that it occurs almost invariably in those in whom treatment in the early stages has been neglected. I have, however, seen it in cases which had been carefully treated from the very beginning. A man aged twenty-eight, who had had severe symptoms in the skin and mucous membranes, which did not appear to be much influenced by mercury, was taken with symptoms of tabes ten months after infection, and passed into a state of general paralysis in the sixteenth month. In other cases the primary and secondary symptoms have been usually mild, and a greater or lesser degree of virulence of the initial symptoms does not therefore seem to be of much influence. It is, however, the fact that in apparently mild cases treatment is apt to be unduly neglected. Youth has appeared to me to be a predisposing cause, most of my cases having occurred in young people between eighteen and twenty-five, and after thirty early nerve syphilis seems rare. Another cause is undoubtedly injury to the head, occurring either before or after infection. If before, it seems to create a peculiar vulnerability of the brain, diminishing its power of resistance, just as we see it after sunstroke; and if it occurs after infection, syphilitic lesions causing convulsive attacks, hemiplegia, etc., may become rapidly developed. Other predisposing causes are neurotic inheritance, sexual and alcoholic excesses, and undue strain on the mind.

The chief differences between early and late nerve syphilis appear to me to lie, not so much in the seat or the pathological nature of the lesions, as in the course which such affections assume. Arteritis and syphiloma occur both early and late, and no portion of the nervous system seems to be safe from the inroads of the virus at either period. But early nerve troubles are generally acute in their mode of appearance, while in the tertiary stage their course is slow and insidious. Early lesions are also more amenable to specific treatment, while the late ones have greater tendency to steady deterioration, and frequently end in general paralysis, even where the initial symptoms have been very slight.

Comparing early nerve syphilis with those nervous affections which come on after the *acute exanthemata*, I have found the latter coming on earlier still. Thus paralysis owing to neuritis occurs sometimes in scarlet fever before defervescence has set in, and the delirium of collapse or inanition, which is such a peculiar sequence of eruptive fevers, generally occurs almost at once after the temperature has gone down. Indeed, in the acute exanthemata any considerable interval between the cessation of the fever and the appearance of nerve troubles is exceptional.

Influenza stands very much in the same line with the eruptive fevers in this respect. I have seen a few cases of what I might call tertiary or late nerve troubles after influenza, but these are very exceptional

when compared with the abundant crops of early nervous sequels. Thus insanity, general paralysis, encephalitis, myelitis, and neuritis may follow the feverish attack of influenza at a very short notice. The longest interval which I have seen has been six months, while we all know that in nerve syphilis it may extend to twenty years and more.

In conclusion I would express my entire concurrence with Mr. Hutchinson about the necessity of the full use of mercury in cases of early nerve syphilis. As far as the mode of administering the metal is concerned, I prefer the hypodermic use of it, and have for some time past injected the soluble perchloride in acute and threatening cases, and the insoluble metal rubbed up with carbolic oil and lanoline where the course of the disease is more protracted. The perchloride, which is readily absorbed by elimination, may be injected daily, while the insoluble preparation, which is very slowly absorbed, need only be injected once a week, which in certain cases constitutes an advantage. No other remedy can be relied upon with such confidence in the gravest emergencies of this kind which may come under our notice, although even mercury is not infallible.

Sir William Broadbent.—Dr. Gowers greatly enlarged the scope of the discussion by the general consideration of syphilis as a morbid process, and he has opened up many new issues. I think none of us who heard that speech will regret that it was delivered. It will constitute an important part of this discussion, and if, therefore, I do not attempt to follow it, it is in no wise from any lack of appreciation. I think our President did well, in entering upon this discussion, to rehearse the important clinical and therapeutical facts that syphilis is divisible into these three stages, that secondary syphilis is amenable to treatment by mercury, and tertiary manifestations to iodide of potassium. The extremely varied effects of syphilis in its different stages are important clinical data. I do not think morbid anatomy would ever have convinced us that the effects of the three stages belonged to the same disease, or that they are produced by the same poison. When we extend these effects to the production of locomotor ataxy and general paralysis of the insane, in the ætiology of which syphilis plays so important a part, pathological anatomy would have been still more at fault. The clue to these diversities, as was pointed out by Dr. Gowers, will, I believe, be found in investigations relating to microbes and their toxines. Our President years ago pointed out some fundamental differences between secondary and tertiary syphilis, viz. that the manifestations of secondary syphilis were usually symmetrical, whilst in tertiary syphilis anything like symmetry in the manifestations was quite lost. In the one we had evidence of disturbance of nutrition, disturbances as between the blood and the tissues due to the state of the blood; whereas in the other the evidence was all on the side of some tissue change, no doubt initiated by the antecedent blood-change, but which had ceased to have any immediate relation to it.

I think the effect of mercury and iodide of potassium are one of the most important of therapeutical effects, which is destined ultimately to be explained in the same way, viz. by reference to the effects of the microbe itself, and of its toxines to which it gives rise. At present, in

therapeutics, we have to rely upon observed facts rather than on any knowledge of the mode of action of our remedies. This order is gradually being reversed. We are beginning to see our way by interpreting morbid processes, and gradually to know more about the mode of action. We are beginning to reason from that end, and to apply remedies not from experience, but from this knowledge; and in proportion as we do that we are bringing medicine into the range of the sciences. We are arriving at that mainly by explanation of definite therapeutic facts, such as those of mercury and iodide of potassium in the different stages of syphilis; and the action of quinine in malarial fever has at length received biological explanation. Turning from these general ideas to the main object of the paper, which is to elicit all the effects of syphilis in its secondary stage on the nervous system, I am greatly indebted to our President for the light he has been instrumental in throwing on the subject. From my early work and from reading I had come to the conclusion that the effects of secondary syphilis were manifested mainly upon the blood-vessels, and were seldom of a destructive character, while the tertiary lesions, apart from the usual manifestations, were those which mainly affected the deep-seated viscera; the late manifestations of syphilis being attributed either to damage of vessels, presumably during the secondary period, or to gummatous changes. When one came across these cases of paraplegia occurring within the first two years of syphilis, one was apt without due reflection to attribute such effects to precocious tertiary manifestations, and one supposed that precisely the same pathological process was at work in these early cases as in the tertiary. I have had two cases which it may be worth while bringing before you. One was the case of a patient aged twenty-four, whom I saw at St. Mary's Hospital on October 10th, 1894. He had contracted chancre in September, 1893, which was followed by sore throat and a rash. In April, 1894, *i. e.* six months after the original lesion, he noticed that he was apt to pass water when walking and when asleep. Then weakness of the legs supervened, and difficulty of walking. He remained in bed some time, and thought he was improving, but he came into the hospital with definite paraplegia along with this incontinence of urine. He was still able more or less to support himself on his legs, but they crossed each other, and the toes of the left foot dragged. The reflexes were exaggerated and there was ankle-clonus. The other case was that of a man aged forty, who was admitted on July 23rd, 1894. The date of infection was July, 1893, and it was followed by sore throat and a rash. Five weeks before admission he complained of pain in the shoulder and retention of urine for twenty hours; then one morning on getting out of bed he found he could not stand. At present there is difficulty in retaining his water and fæces. These are illustrations of the cases in which I was guilty of misinterpretation of the nature of the attack. They were clearly the effects of secondary syphilis upon the spinal cord, thus corroborating the immense array of facts brought forward by our President in his paper. In these cases I think it is really a syphilitic myelitis and not a primary affection of the vessels. I am quite conscious of having applied a similar reasoning to acute cerebral affections which I have seen in the early stages of syphilis of an unusually severe

and often fatal type, though one did recover under mercury and iodide of potassium. Among the effects attributed to the secondary stage of syphilis is epilepsy, in my experience not uncommon, though it usually yielded to treatment, and I know of one case in which no recurrence of the fits or other nervous manifestations occurred within twenty years. Certain cases of spinal meningitis I have attributed to secondary syphilis. In these cases of paraplegia, one instance of spinal meningitis recalled to my mind the appearance of a patient whom I saw a few months ago. In one, together with pain, there was a peculiar manifestation in the legs with well-marked ataxic gait. There was rapid wasting of the arm muscles, attributable, as I thought, to the effects of syphilis on the nerve-roots, by an inflammation of the meninges affecting mainly the posterior part of the cord in its lower portion and the anterior part above, involving its anterior and posterior roots respectively. I have recently seen two curious examples of zones of anæsthesia affecting the upper chest and upper abdomen, one in a man of sixty who had acquired syphilis in the interval between the death of his wife and his re-marriage. The trouble did not go further, but it was not absolutely removed by treatment.

Dr. FERRIER.—I think all neurologists will agree in looking upon syphilis as a most important factor in the production of diseases of the nervous system, whether cerebral, spinal, or peripheral. Venus is, in fact, the patron saint of neurologists. Affections of the nervous system may occur at any time in the course of syphilis. Those I see, however, occur more often in the later stages. I am not prepared to admit that, from a symptomatological point of view, diseases of the nervous system due to syphilis differ so from similar affections due to other causes as to justify their being placed in a separate nosological group. Jacksonian epilepsy, for instance, is frequently caused by syphilis, but I do not know how to distinguish Jacksonian epilepsy due to syphilis from that caused by any other irritative lesion of the cortex. Nor can I distinguish syphilitic hemiplegia from that caused by any other form of vascular occlusion. Nor do I know anything that distinguishes Bell's paralysis due to syphilis from that due to cold or any of the other recognised causes. And so it is with syphilitic paraplegic affections, which have been recently erected into a distinct group by Erb. These cases are, in my opinion, neither so constant or uniform in their origin, development, or results, nor do they differ so characteristically from those due to other causes, as to necessitate our placing them in a category apart. The whole thing is a matter of the localisation and extent of the primary lesion, and of the residual or degenerative effects. These differ so much that the clinical picture differs greatly in individual cases. I have had considerable experience of spinal lesions occurring in syphilitic patients, and I cannot agree with our President in regarding the slow or Erb type of paraplegia as occurring only in the late stages of syphilis, or the acute only in the early stages. In illustration, I may mention a few of the cases I have seen during the last few years:

Many of them conform to the type described by Erb, both as to their gradual development and their general symptoms. Case 1.—A man æt. 35, sent to me in 1892 by Dr. Knapp, of Boston.

Three years before, *i. e.* two years after syphilitic infection, he began to be impotent and to have some difficulty in micturition. This was followed, in August, 1891, by distinct weakness in the legs, with slight cramps and a good deal of paræsthesia. The gait was somewhat spastic. In September he could walk only a short distance, and had much difficulty in passing water, and at times there was a little incontinence. The knee-jerks were increased, he had ankle-clonus, and he could not stand well with his eyes closed. The temperature sense was diminished about the anus, the buttocks, the back, and upper part of the right thigh. There was a little loss of control over the sphincter ani, but no other sensory disturbances. He improved very much under iodide of potassium (gr. xxx—xlv, t. s. d.), mercury biniodide (gr. $\frac{1}{16}$, t. s. d.), and tincture of belladonna (♏iij —v, t. d. s.). He can walk a mile or two without difficulty. The sexual power has not returned, but he has much better control over the bladder. Sensibility is nearly normal, but the knee-jerks are still increased. In Case 2 the symptoms were essentially the same as in the last case, the patient being a man aged forty-four. I saw him fifteen years after the onset of the disease, which occurred within a year after the primary lesion, for which he underwent a course of treatment at Aix. Case 3, also a man aged forty-four. The symptoms began gradually, as in Erb's type—ten years after infection. In Case 4, F. D—, æt. 44.—The symptoms began within six months of the primary affection in essentially the same gradual manner, first with numbness in the feet, and within a year weakness of the legs with retention and occasional incontinence of urine and fæces. This gradually improved, so that all that remained was slight spastic gait, increased tendon reflexes, the bladder having practically recovered. In Case 5, G. H—, aged 41, the symptoms began thirteen years after the primary sore.

These are five cases in which, at periods ranging from six months to ten or more years after the primary infection, the symptoms developed for the most part gradually, according to the type described by Erb.

I will now pass on to a group in which the symptoms set in suddenly with more or less complete paraplegia and affection of sphincters. In Case 1, F. D. M—, æt. 25, the symptoms set in within six months of the primary sore. Two years later he presented only slight spastic gait, increased knee-jerks, and slight tendency to incontinence. Case 2, L. W—, æt. 25, was recently under my care at King's College Hospital. Eighteen months after the primary infection he became unable to pass water, and the next day became completely paralysed as to motion, and largely as to sensation in his legs. This continued for two months, after which he gradually regained power in his legs, with some incontinence of urine. Then he came under my care, and continued gradually improving, until he can now walk three or four miles. He still has exaggerated reflexes, ankle-clonus, and slight weakness of the sphincters.

In Case 3, A. C—, æt. 30, the symptoms came on eight years after the primary sore, beginning with acute paraplegia of the complete type, following on a chill in a Turkish bath. This continued, necessi-

tating the use of the catheter for four months. He gradually improved, and when I saw him over a year afterwards there was just a slight trace of spastic gait and increased reflexes.

In Case 4, T. J—, æt. 32, the symptoms came on two years after primary infection, when he became entirely paraplegic within a few hours, the symptoms beginning first in one leg and then the other, with loss of sensation and loss of control over the sphincters. He remained several months under my care, and gradually developed incurable rigidity of both legs, with almost complete paralysis of motion and of the bladder. This case, therefore, proved to be incurable.

In Case 5, W. A—, æt. 29, three years after infection the patient within a fortnight, became quite paraplegic with perversion of sensation and retention of urine. The limbs became subject to tetanic flexor and extensor spasms, and spinal epilepsy was readily developed by dorsal flexion of the foot. During the course of treatment (KI and Hg) he developed paralysis of both oculo-motor nerves, especially of the internal recti which, however, rapidly disappeared, and he gradually recovered with very greatly exaggerated reflexes, and a tendency to saltatory spasm on walking and some incontinence of urine.

These are cases of more or less acute paraplegia occurring in syphilitic patients. If we compare them with three other cases in which I failed on careful inquiry to discover any evidence of syphilis, the clinical picture is not very different. In Case 1, E. H—, æt. 40, a clergyman, who denied ever having had syphilis, had first some difficulty of urination, followed by numbness in the feet and the gradual development of a spastic gait for which he came under my care. In Case 2, W. S—, æt. 33, with no evidence of syphilis, the symptoms began with slight weakness of the legs, difficulty in micturition, and ultimately complete paraplegia. From this he gradually recovered, but never completely, and when I saw him eighteen months afterwards he exhibited symptoms of spastic paraplegia, and was obliged to use the catheter twice or thrice a day. In Case 3, J. B—, æt. 61, the symptoms began with incontinence of urine and fæces, and paretic condition of the legs with diminished sensibility from the umbilicus downwards and some tenderness over the spine. He gradually recovered, and was able to walk well, though he still had increased knee-jerk in the course of two months. If these cases were syphilitic I could certainly obtain no evidence thereof. We must not assume that every spinal lesion occurring in a syphilitic subject is necessarily of a syphilitic character. I have lately had under my care two cases of sudden paraplegia occurring in syphilitic subjects and supposed to be syphilitic, but which the subsequent history proved to be only an early stage in the development of disseminated sclerosis, not a syphilitic affection. Case 1, A. C—, æt. 30.—Symptoms of paraplegia came on ten years after specific infection. There was, however, no affection of the sphincters. Under antisyphilitic treatment considerable recovery took place, but later other symptoms supervened, and the patient is now, as regards optic atrophy, staccato speech, tremors, &c., a typical case of disseminated sclerosis. Case 2, Dr. M—, æt. 38.—This patient two and a half years before

had become partially paraplegic with symptoms of myelitis. The exact state as of sensation, however, and of the sphincters I was not able to ascertain. Other symptoms gradually supervened, and the patient is now as regards vision, speech, tremors, &c., a typical case of disseminated sclerosis. Similar cases of the onset of disseminated sclerosis with acute paraplegia simulating transverse myelitis have been described by Pitres.

Dr. George Ogilvie.—The fifteen cases of syphilitic spinal paralysis reported by Mr. Hutchinson are a valuable addition to a long list of cases of the same nature which have been brought forward since the attention of the profession was drawn to this condition by Erb. Erb alone saw about thirty-five cases within ten years. Muchin reports twenty-seven, and so on. All observers agree that the disease in the majority of cases has a tendency to improvement, if not to recovery, although exceptional cases are recorded of a progressive character, which proved incurable, and even ended fatally. All authors also agree that the disease, as a rule, appears not long after the infection, and that it belongs to the early manifestations of the dyscrasia. In this respect the disease stands by no means alone amongst nervous affections, as the frequency of the participation of the nervous system in early syphilis has long been established. I therefore cannot agree with Mr. Hutchinson's statement that during the last quarter of a century it has been rather hastily assumed that the affections of the nervous system belong almost wholly to the tertiary period. In fact, it is about a quarter of a century ago that from different parts attention was drawn to the affections of the nervous system in secondary syphilis; and anyhow, during the first half of the last twenty-five years, their frequency was demonstrated by valuable statistics. It is not my intention to try the patience of this meeting by enumerating what has been written on this subject, but still I might be allowed to state a few facts.

Single cases of severe nervous affections occurring during the first months of the disease can be traced as far back as thirty-five years ago, and even further. I only need to quote Griesinger's case published in 1860. It is one of syphilitic meningitis occurring during the sixth month, and ending in death. The autopsy showed extensive changes in the cerebral arteries. Zambaco's case published in 1862 is one of paraplegia with paralysis of the bladder occurring during the acute eruptive stage, and terminating fatally.

These single cases might be, and have been, regarded as rare exceptions, and as the expression of what might be termed a precocious form of the disease, which anticipates symptoms usually appearing late, but conclusive information can only be obtained from collective investigations, of which I will quote the following:

Braus reports, in 1873, that in one hundred cases of brain syphilis which he examined it was possible to trace the onset in 92, and in this number 44 per cent. appeared in the first year after the infection.

Mauriac, in 1877, collected a series of 168 cases of cerebro-spinal syphilis. He found that in 53 the first symptoms appeared during the first year after the infection, and in 72 after the first two years, making a percentage of 43 for the first two years.

When Lang of Vienna, in 1880, wrote on the *frequency* of early syphilitic affections of the nervous system, he remarked that his extensive summary of the literature of the subject might be considerably increased without difficulty.

Rumpf found amongst fifty-two cases of syphilitic disease of the brain and the membranes of the cord, observed by himself, twelve in which the onset was within the first year. In the case, however, of syphilitic infiltrations of the cord, including transverse myelitis, the time of appearance was any time between the sixth month and the seventeenth year.

According to Naunyn the syphilitic affections of the nervous system appear, as a rule, not long after the infection; their frequency decreases with time, and is greatest during the first year.

Fournier, in 3429 cases of *so-called* tertiary syphilis, found their relative frequency considerably increasing from the first to the third year, reaching its height in the third year, and decreasing continuously and rather rapidly from the fourth to the eleventh year. Amongst these cases the nervous system was more frequently affected than any other,—in fact, in 1085 cases.

Goldflam, amongst eighteen cases of syphilis of the spinal cord, found thirteen during the first two years.

These quotations may suffice to show that during the interval mentioned by Mr. Hutchinson the early nervous manifestations of syphilis, so far from being hastily overlooked, have, on the contrary, been carefully and systematically pointed out; that, in fact, the specific transverse dorsal myelitis of Erb, of which Mr. Hutchinson's cases are illustrations, is only one of the early manifestations of syphilis. Cases of exactly the same nature, indistinguishable from the early ones in any way, occur late in syphilis. They are only more common during the early stage, like other nervous affections in this disease.

Mr. Hutchinson further says that if such forms of nervous disturbance occur in the secondary stage of syphilis, we should expect them to be symmetrical, and he finds this expectation fulfilled by the symmetrical character of Erb's spinal paralysis. The symmetry in these cases cannot, however, be regarded as characteristic of early syphilis, but must rather be looked upon as due to the seat of the disease. This disease is symmetrical because it is spinal, and not because it appears during the second stage of syphilis. That *symmetry* in itself is no characteristic feature of the secondary stage is best shown by the other nervous affections appearing during this period, such as affections of the brain and single nerves, which show no tendency to a symmetrical arrangement.

Amongst the nervous affections of the secondary stage of syphilis reference has been made only to those of a graver and more or less permanent character. I should now like to draw attention to two early nervous symptoms, which are perhaps the most frequent, always transitory, and easily overlooked, because they do not inconvenience the patient.

1. The increased irritability of the superficial and deep reflexes.
2. Hyperæmia of the optic disc.

Before and at the time of the appearance of the eruption con-

siderable increase of skin and tendon reflex is to be found. In some cases, after a time the normal condition of reflex irritability is gradually reached. As a rule, however, the increase is soon followed by a decrease of the reflex irritability, often much under the normal, and in some cases even by total abolition. After this the reflex irritability returns only slowly and gradually to its normal state, which it only reaches several weeks after the disappearance of the eruption. If on the top, or after a general eruption, a fresh eruption appears, every such relapse is introduced by a quick increase in the reflex irritability. This is independent of treatment, and is much more pronounced in men than in women. This observation was first made by Finger of Vienna, and has been confirmed by Jarrisch, Lechner, Bergh, Kaposi, and others.

At the same period of the disease a hyperæmic condition of the optic disc has been observed as a symptom of great frequency. Ole Bull of Christiania, repeating Schnabel's investigations, examined 1000 syphilitic patients with the ophthalmoscope. Of 400 cases most accurate notes were taken, and hyperæmia of the optic disc, more or less resembling inflammatory mischief, was found in more than 30 per cent. The period of the disease at which this hyperæmia most frequently occurs is the secondary. It may appear, however, before the skin and mucous membranes are affected, and unless complicated with cerebral disease it is never found later than two years after the infection. Amongst all eye affections it is the most frequent manifestation of the dyscrasia.

Both the symptoms referred to, viz. the increased reflex irritability and the hyperæmia of the optic disc, are always transitory, and I think one might explain the reflex irritability by some alteration in the blood-supply of the nervous system similar to that seen by the ophthalmoscope in the optic disc.

Whether the analgesia described by Fournier can be considered as a symptom of syphilis seems to me more than doubtful. The distinguishing points which he gives between the so-called syphilitic analgesia and hysterical analgesia are not of sufficient prominence to justify the differentiation into two distinct clinical forms. On the other hand, the prominent part which syphilis plays in France as *agent provocateur* of hysteria has been repeatedly pointed out by Charcot and his school. It therefore seems more plausible that the analgesia is an hysterical symptom, of which syphilis, in the same way as any other disease, might be the exciting cause, and which will therefore be most frequently met with amongst a population of an hysterical disposition.

Mr. Edward Cotterell.—As far as I have been able to gather, there has not been very much stress laid in this discussion upon that class of cases in which the disease of the nervous system is undoubtedly due to some syphilitic lesion, but where the history of the primary infection and of the secondary symptoms is by no means clear.

Very often indeed, in spite of the most rigid cross-examination, the former existence of any syphilitic symptoms is denied, and upon a close examination of the patient we are unable to find any evidence

of their ever having been present, although we are sure that they must have been there at some time or another, but they have been of such a mild type that they have escaped notice, and as a consequence no antisyphilitic remedies have been given.

Let me illustrate these few remarks by a short recital of a case which recently came under my notice. A gentleman aged twenty-seven was sent to me in June, 1894, with the following history. He had always enjoyed most excellent health until 1890, and strongly denied ever having had venereal disease of any kind; moreover the gentleman who sent him to me stated that he had known him for some years, and as far as he knew the patient had not had a primary sore or any skin manifestations. In 1890 the patient had nodes on his clavicles, and these were the only secondary manifestations noticed. A little later on he complained of intense pain on the right side of the head; the pain was markedly increased at night, and there was pain also in the left arm when the headache was severe. The patient had been treated principally with fairly large doses of iodide, which gave a certain amount of relief to his headache; but from 1890 until I saw him in 1894 he was very subject to these attacks of head pain. The fundi were normal, and nothing else was found.

He was advised to go on with the iodide treatment, and this was supplemented with intra-muscular injections of sozoiodol of mercury. I saw the patient again a few days ago (March, 1895), and found that in November, 1894, he had had an epileptic fit, but as no medical man saw him convulsed I could not learn how the fit commenced. About last Christmas he noticed that the pain on the right side of the head had much decreased, but that there was a very tender and painful spot on the corresponding region on the left side. There is also marked blurring of the edges of the left disc, and the patient complains that at times his right leg gives way owing to a feeling that he is walking on air with that foot. The knee-jerks are slightly exaggerated. There is no anæsthesia. This is only one of many cases of syphilitic nervous disease where the previous history of infection is very obscure. Perhaps the cases where this want of history is most marked are those where syphilis plays an important part in the production of the disease, but where no true syphilitic lesions are found in the nervous system, such as in locomotor ataxy. If I may be allowed, I would suggest that this class of disease, viz. locomotor ataxy, general paralysis of the insane, etc., when due to syphilis, not being truly tertiary, might be grouped together for convenience as a *fourth* stage of the disease.

Dr. Frederick J. Smith.—Perhaps I may be permitted to place on record a single observation of my own. It is that of a man who had syphilis rather more than eighteen months ago. Last July he was pitched out of a cart, and though he seemed to suffer no effects at the time, three weeks later he began to complain of loss of power in his legs, and his case went on through the usual routine, with loss of power, anæsthesia, loss of control over the sphincters,—in fact, typical paraplegia. The symptoms came on in an ingravescent form. This is in my experience a solitary case, and when talking of it in the wards it struck me as it has to-night—indeed, it has always been my teaching—

that syphilis in the secondary stage was characterised more by an indiscriminate infiltration of any particular tissue by small round cells, whereas the tertiary stage was characterised by the consolidation, as it were, of this inflammatory material into a gumma. It was always explained to me that the enlargement of the testicle, of the liver, and of organs in general in secondary syphilis was due to this diffuse infiltration of the tissues with leucocytes. In speaking of this case, which was shown at the Hunterian Society, I discussed the possible causes of the paraplegia. I pointed out that there were three possible changes,—one vascular, one gummatous, and one of diffuse infiltration. The first I dismissed because the symptoms were not sufficiently sudden; the second because they were too sudden; and I adopted the third as best adapted to explain the ingravescent character of the onset. Those drawings now before us are far and away the most important fact hitherto brought to our knowledge, because they explain in a particularly satisfactory manner, not only the origin of these acute paraplegias, but what is more important, the precise relationship which syphilis bears to tabes and all sclerotic processes in the nervous system. Dr. Ferrier's cases of disseminated sclerosis are absolutely typical, but I should say they were typical cases of syphilis affecting the nervous system. We know that these nutritive disturbances occur in the vessels, and they must somehow lead to an interference with the area normally supplied by such vessels. They probably do recover to a certain extent, and perhaps over whole areas, but in parts these changes have utterly gone beyond the reach of mercury or iodide of potassium to cure. At the same time they have not killed the nervous structure, but in the course of time nutrition becomes gradually worse, until ultimately the process of degeneration follows. With that degeneration all the place of the nervous tissue is taken by fibrous tissue, which we see under the microscope in sections of these cases of chronic sclerosis of the cord. In these drawings we have really the explanation of the whole matter under discussion.

Dr. Mott.—I may, perhaps, even at this late hour of the evening be allowed to relate a few details concerning a fatal case of syphilitic paraplegia which occurred in Charing Cross Hospital six years ago, under the late Dr. Pollock.

An Italian waiter, aged twenty-four, was admitted for paraplegia and inability to pass water. He gave no history of chill or exposure, but less than two years previously he had contracted syphilis, the scar of the primary sore still being visible. He had had sore throat and rash, but it seems that he had not been properly treated. The disease came on somewhat suddenly with difficulty in passing water, constipation, and numbness and weakness in the legs. On examination two days after, he was found to have complete paralysis of the lower extremities, but retention of sensibility, except in the upper part of the front of the thigh, where there was some anæsthesia. There was *exaggeration of the knee-jerks* and all the muscles responded normally to the electrical stimulation. There was a girdle sensation round the waist, at the level of the eighth rib cartilage. The case was diagnosed as a gumma, on account of the obvious evidence of a

transverse focal myelitis, and he was put on vigorous anti-syphilitic treatment. The bladder had to be relieved by a catheter, and cystitis, even though precautions against it were taken, soon set in.

The *loss of sensation* increased until the lower limbs became quite insensitive, and a bedsore in consequence developed over the sacral region. Next, there was evidence of the myelitis extending upwards in the cord, for he had numbness and weakness in the right arm. He died in six weeks from complications arising out of the bladder troubles and bedsore.

I made the post-mortem, and found a softening of the dorsal region of the cord, with slight thickening of the meninges and great congestion of the vessels. I hand round sections of the spinal cord at different levels.

It will be noticed with the naked eye that irregular patches of sclerosis following no definite tract can be seen in the antero-lateral and posterior columns. With the exception of the mid-dorsal region where the cord was softened, the grey matter is unaffected. Microscopically there is no evidence pointing to syphilitic disease of the arteries, only signs of chronic inflammation. Around the small vessels, the perivascular lymphatic sheaths are seen distended and filled with leucocytes. The meninges are somewhat thickened and infiltrated with leucocytes, especially around the veins, which are gorged with blood; in fact, the sections show very much the same characters as the diagrams which the President has exhibited. I must confess that I saw nothing in the sections characteristic of syphilis, but the clinical symptoms entirely agree with the cases brought forward by Mr. Hutchinson, and which Erb has so strongly insisted are of syphilitic origin. Moreover, the myelitis was diffuse, limited for the most part to the white matter, and could be attributed to no other cause than syphilis.

Dr. F. Parkes Weber.—I had hoped to be able to show to-night microscopic preparations taken from various parts of the spinal cord in a case where fatal paraplegia occurred one year after primary syphilis. Unfortunately the sections have not yet been cut. Since, however, the notes of the case are short, I will venture to read them to-night, hoping at a later time to add the results of the microscopic examination.

R. W—, æt. 42, was admitted into the German Hospital in September, 1894. Patient had had a chancre and skin eruption a year before admission, in September of 1893. He had infected his wife with syphilis, who was suffering from secondary symptoms at the time of patient's admission to the German Hospital. There was, therefore, no doubt as to the correctness of the history of syphilis. Six weeks before admission patient began to have difficulty in micturition, and some loss of power in lower extremities gradually showed itself. Three days before admission he suddenly became completely paralysed in the left leg. On admission there was complete paralysis of the left lower limb and motor paresis of the right one. Knee-jerks were absent. Sensation was very slightly if at all impaired. The bladder was completely paralysed, and had to be emptied at regular intervals. There was likewise incontinence of fæces. Two days after admission

paralysis of the right lower limb became complete. Little or no alteration in sensation, as far as the examination went, was observed up to the last. Treatment was begun on admission—mercurial inunction with $1\frac{1}{4}$ drachms of the Unguentum Hydrargyri daily, and iodide of potassium internally (15 grains thrice daily). After three weeks, when the patient had had eighteen inunctions, the treatment was left off, as it was found to have done no good. The paralysis remained stationary. Acute decubitus showed itself soon after admission, and this and cystitis were the ultimate cause of the patient's death six weeks after admission. The cystitis appeared only a fortnight before death. There was evening fever during the last four weeks.

The post-mortem examination was performed by the Senior Resident Medical Officer, Dr. Zum Busch, who found that the substance of the cord for about an inch in the lower dorsal region was nearly diffluent and pinkish in colour. Sections of the hardened cord have not yet been obtained.

A curious feature of the case is that sensation was not lost. Dr. Zum Busch tested the sensation repeatedly till within a week of patient's death. The sensation was tested by touching with the sharp and blunt ends of a needle. Perception of sensation appeared not to be delayed, and the patient could say which part of the limbs was touched, and whether the sharp or blunt end of the needle was used. Special sensation to heat and cold was not examined. Mr. Hutchinson tells me that in one of the cases noted by him in which bedsores occurred, sensation was, as in this case, not lost; he remarks that this is a fact of interest, inasmuch as bedsores are rather associated with loss of sensation than loss of motion. In this case there seems to have been some hyperæsthesia in the lower extremities, for the patient complained of pain at times when the thighs were moved to draw off his urine.

The President.—The discussion which has taken place was initiated by the Council with the desire of affording an opportunity for the collection of evidence and the expression of opinion by the Fellows generally. My personal share in it has been but small. I had no original opinions to advance, and, as a consequence, I do not now at its conclusion feel that it rests with me to defend any. The debate has, I think we may say, been a success, in that it has elicited from those well qualified to speak with authority valuable criticisms and important statements of fact. It is not possible that I should attempt, in the short time now at my disposal, anything like a recapitulary summing up. I will refer only to a few more or less isolated points. To take first what has been last said, we have had from Dr. Weber a very interesting narrative of a case of paraplegia in which sensation was retained, and yet the man died with bedsores. This case, although exceptional to the general rule, has a parallel in one other in those which I cited. We have heard also from Dr. Althaus, in the course of his very valuable remarks, that he has seen a case which was followed by extreme muscular wasting of the lower extremities although sensation was retained. Thus it seems clear that although the usual type of the transverse myelitis which attends this special form of paraplegia has for its result the implication alike

of motor, sensory, and visceral functions, yet that this does not necessarily and always happen. I may remark that both Dr. Weber's case and the important one mentioned by Dr. Frederick Smith support my statement that this peculiar form of acute paraplegia is usually met with in the early stage of syphilis, for in both it began within six months of the chancre. As regards this part of my subject I think it will be admitted that the general outcome of the discussion has been strongly confirmatory.

A majority of the isolated cases which have been mentioned have occurred in early periods, and although Dr. Ferrier's facts have seemed to him to imply that no great difference as to stage could be asserted, yet I noted as he spoke that most of his typical cases were early ones. His admirable speech, let me say, was exactly what we wanted in this debate. He had been at the trouble to search his note-books, and he came here and told us the results. The conclusions arrived at from counting up his cases differed somewhat from my own, but these differences may be safely left to be elucidated by larger collections of facts. If the drift of Dr. Ferrier's argument was rather to the effect that nothing of importance could be observed in reference to the precise period of syphilis in which affections of the nervous system occur, I may hold that he was to a large extent answered by the statistical speech which we had the pleasure of listening to from Dr. Ogilvie. With much ability Dr. Ogilvie had collated for us from various Continental anthorities statements as to the stage in which tertiary affections, inclusive of those of the nervous system, occur. These statistics he held to prove abundantly that affections of the nervous system are met with in a large majority of instances in the early periods.

In thanking him for his demonstration on this point I must, on my own behalf, assert that I had by no means omitted recognition of the facts which he adduced. I especially referred in my opening remarks (although not in the paper which has been printed) to the statistics on this point which are expressed in what is well known as "Fournier's curve." This curve shows that a large majority of the tertiary phenomena occur in the secondary period. If Dr. Ogilvie understood me to say that up to the present time this fact had not been recognised, I can only express my regret that I did not make my meaning more clear. All that I meant, and all that I think I said, was that they had hitherto been called "tertiary," and it was to the name that I took exception. This is far from being a matter of mere words, for, as I have endeavoured to show, there is a perfectly natural and very important distinction to be drawn between the secondary and tertiary stages. I have tried to define the secondary stage as being that during which the blood is infected. It is coincident with that during which contagion and hereditary transmission are possible. No person should be allowed to marry during the secondary stage, but he may when it is over. This leads me to speak concerning what fell from Dr. Gowers. In the main I believe that I may say that Dr. Gowers did not advance anything in his very interesting address which I have to answer. On one point, however, I think we differ. He believes that the tertiary stage (adopting Strümpell's hypothesis) is produced by some chemical

poison left behind by the particulate virus which is extant in the earlier stages. I confess that I cannot accept this view, and that I still hold clearly to the creed which Sir William Broadbent has this evening done me the honour to refer to, that the tertiary phenomena do not imply any persisting affection of the blood, either particulate or chemical, but are consequent upon elements which have been left behind in the solid tissues. I thus hold firmly to the belief that we ought not to expect the tertiary phenomena to be either general or symmetrical, as those of the blood-infected period (the secondary stage) usually are. To put it briefly, I think that we must extend our conception of the secondary stage, and allow it to include a much longer period than we have hitherto done. If this discussion shall have had the effect of directing the attention of the profession to the importance of taking cognizance of the stage of syphilis in cases of affections of the nervous system, it will in the main have served its purpose. The facts which have been adduced have also, I think, given us material help in two other directions. They have tended to support strongly the opinion that morbid processes commencing in or around the blood-vessels are really the first stage of most of what we know as diseases of the nervous system in syphilis. They have shown us also that this wide-spread implication of the vascular system is often met with in very early stages, and, what is scarcely less important, they have afforded little or no proof that parallel conditions are encountered in the tertiary stage. It is to the collection of evidence on this point that the labours of our pathologists must be directed. The discussion has also, I think, confirmed the statement that there is an acute type of paraplegia which occurs not infrequently in the early periods of the disease, which although sometimes fatal is often curable. In conclusion I have only to thank those who have taken part in the debate, and those who have so patiently listened to it. No one who has learnt from it as much as I have done myself will consider his time to have been wasted.