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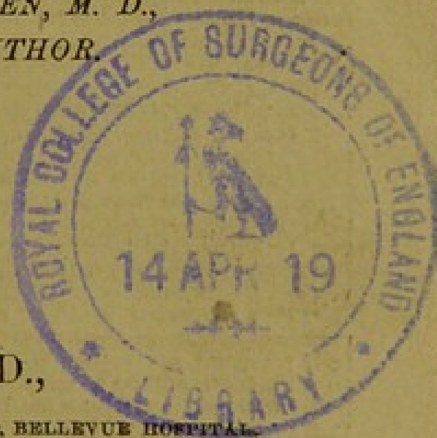
SYPHILIS

OF THE

NERVOUS SYSTEM.

A CLINICAL STUDY CHIEFLY IN REGARD TO DIAGNOSIS AND TREATMENT, FOUNDED ON THE CASES OF PROF. WM. H. VAN BUREN, M. D., AND THOSE OF THE AUTHOR.



BY

E. L. KEYES, M. D.,

PHYSICIAN TO THE BUREAU OF OUT-DOOR RELIEF, BELLEVUE HOSPITAL, CLASS OF GENITO-URINARY DISEASES.

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EDITED BY

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Professor of Diseases of the Mind and Nervous System in the Bellevue Hospital Medical College,

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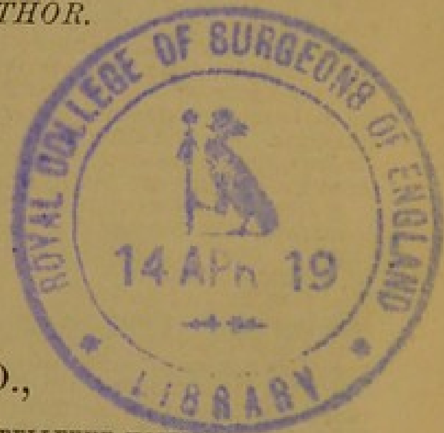

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marks, some were under the care of Dr. Van Buren exclusively (the earliest case is dated 1850), other cases are my own, while others again have been observed by us jointly. I must further premise that no hospital patients are included in the following statement. All the cases have been seen and treated in the course of private practice, or encountered in consultation with other physicians. Hence, most of those patients, who are still alive, are accessible, and their actual condition to-day is known.

The whole number of cases of nervous syphilis, from which I have to draw, is thirty-four; a number sufficiently large, considering the comparative rarity of the disease. Many of these cases presented several nervous symptoms due to syphilis at the same or at different times. Classified according to the most prominent symptom, there were—fourteen cases of hemiplegia, nine of paraplegia, four of epilepsy, two of facial paralysis, one of paralysis of biceps and deltoid, and four of intellectual derangement.

From this general outline of the more prominent nervous symptoms, it will be noticed that fourteen out of thirty-four—more than two-fifths of the whole number—were cases of hemiplegia, a proportion larger than what is usually met with. Among one hundred and twenty cases of syphilitic paralysis, collected by Ladreit de la Charrière,[1] hemiplegia occurred in only thirty-three. About one-quarter of the thirty-four cases were paraplegic, a proportion which I believe also to be rather large.

Result at the date of writing.

Recovery	11
Arrest of the disease, with improvement sufficient to allow the patient to continue business	5
Doing well, still under treatment	5
Death	7
Unknown	6

In the following reports of cases, for the sake of brevity, I have endeavored to suppress all details of minor importance:

Case I.—(First seen in July, 1856.) ——, aged twenty-nine, a pallid and delicate young man, had drunk to excess until he was twenty-four years old. In December, 1855, he contracted chancre, for which, and the erup-

[1] Rollet, Traité des Maladies, Vénériennes. Paris, 1866, p. 930.

tions which followed, he had received no systematic treatment. About six months after infection, having at the time groups of syphilitic papules interspersed with scaly patches upon his body, he began to complain of severe headache on the right side of his head, worse at night. Symptoms of mental disturbance came on with his headache, and gradually increased in severity. He would commence a sentence and not finish it, suddenly changing the topic. He would assert that absent friends and relatives, some of whom were dead, were present, and would address them. He manifested curious defects in memory, such as, on one occasion, while out walking, insisting upon returning home to a house occupied by his family three years before. He became stupid, silent, and sleepy, always complaining of his head, and his temper increased in irritability.

With these premonitory symptoms he awoke one morning, six weeks after the beginning of his headache, and attempted to get out of bed as usual. Sitting upon the edge of the bed, he endeavored to make a step forward upon the floor, but fell in a heap into the opposite corner of the room, without, however, losing consciousness. He was found by his brother, unable to rise or to articulate distinctly, with complete paralysis of the left side. Paralysis of the left side of the face had been noticed by his friends ten days before the hemiplegia occurred, and was worse then than during the attack.

After some hours (having been meantime cupped on the temples and nape, and a vain attempt to purge him having been made), he was found asleep in a semi-stupid way; but he answered questions promptly, although not always to the point. The tongue when protruded turned toward the paralyzed side. Sensation was perfect, and there was slight motion of the leg. The pupils were alike. There had been no loss of consciousness during the attack.

In this case, mercury was pushed to salivation, with rapid improvement at first, which, however, soon became arrested. After six weeks, considerable paralysis still remained. The iodide of potassium was never given in greater doses than five grains.

The patient became well enough to get out; but the leg never recovered as much motion as the arm. A marked impairment of the intellect remained—a condition of hebetude and stupidity, added to a state of childish simplicity. As nearly as the subsequent history could be gained, he died a few years afterward in a private ward of one of our hospitals, from what on inquiry was spoken of as "softening of the brain."

In this case the mercury had not a sufficiently powerful effect to prevent permanent injury to the nerve-tissue at the time of the occurrence of the hemiplegia, and the iodide of potassium was not commenced early enough, nor pushed with sufficient vigor.

Case II.—(First seen March, 1866.) ——, aged sixty-one ,contracted chancre in January, 1866, followed by iritis and eruptions, and treated with mercury, later with the iodide of potassium. He never rallied well, however, but had an ecthymatous eruption, and, ten months after, an attack of right hemiplegia, which came on in the night without loss of consciousness. His mind was clear, though his speech was thick. For six weeks previous to the attack, he had been suffering from constant severe headache, worse at night. On the evening of his attack, he first noticed numbness in the right arm, then a thickness in his speech. The hemiplegia was not fully developed until the next day. Mydriasis existed on the right side. The tongue protruded to the right side. The patient had been purged, blistered, and leeched on the nucha at first. As soon as he was seen (three days after the attack, November, 1866), the iodide of potassium was administered, and continued at between five and ten grain doses, with improvement for a few days. But the improvement was slight, and recovery never fairly set in. As was afterward learned, death occurred in a few months, and no *post mortem* was obtained.

This case was grave from the first. The symptoms were progressively more severe. Perhaps the extreme age of the patient (sixty-one) contributed toward making the disease so rapidly fatal.

Case III.—(First seen in October, 1867.) ——, aged twenty-eight, contracted chancre at twenty-one, followed by eruptions. Eighteen months after infection, being apparently in good health, he went out one day to shoot blackbirds, and lay down beside a fence waiting for a shot. He presently saw a bird, raised himself to the sitting posture, and shot it; but, on attempting to get up and go after the bird, he found that his left leg was paralyzed. The paralysis proved slowly progressive, and in twenty-four hours complete left hemiplegia was established, there having been no moment of loss of consciousness.

No efficient treatment was adopted for about five years, and atrophy, with contraction of the muscles of the arm, was the result. The leg participated to a slight degree in the contraction. In this condition, he came to New York. The leg and arm were found as described. Sensation was unimpaired. Intelligence perfect. The testicle was enlarged, and several syphilitic ulcerations existed on the legs. The patient also was very thin, and much reduced in general health and strength.

Under the use of mercury, and increasing doses of iodide of potassium, assisted by electricity and cod-liver oil, the patient improved greatly in every respect, gaining some twenty-three pounds in a few months, and getting back a good deal of strength and motion in his arm and leg; but early in the spring of 1868, an old ague cropped out upon him. He could not take his medicines. His arm recontracted, and he gradually sank, and

died during the same summer at his home in the South, diarrhœa being a prominent symptom.

Case IV.—(First seen November, 1859.) ——, aged forty-nine, contracted chancre, followed by sore-throat and specific eruptions, in 1857. He took mercury and remained well for about a year, when he began to feel pain across the back of the head (not worse at night), sometimes accompanied by giddiness. He now had an epileptic convulsion in the night, and another in a week, in the daytime. He had never had convulsions in his youth. After these attacks, he became stupid and queer, and his memory showed decided impairment.

He was put upon five-grain doses of iodide of potassium three times daily, and had no more fits. He was awakened one night in about a week by a queer feeling, but slept again without further disturbance. He now considered himself well and returned to his home in the country, but came back after six months with the amnesia more marked and some paralysis of the right side of the face. The iodide of potassium was resumed, for he had left it off, and continued at a dose of eight and a half grains for a month, when the patient reported himself perfectly well and went home. He has not been heard of since.

Case V.—(First seen March, 1856.) ——, aged forty-nine, contracted chancre in February, 1856, followed in one month by rheumatic pains (not worse at night), and during the second month by total facial paralysis of the right side, attended by constant slight headache, accompanied with dizziness and depression of spirits. Shortly after this, a general papular eruption appeared with induration of the inguinal, epitrochlear, and post-cervical glands. Ten-grain doses of iodide of potassium dissipated the paralysis shortly, and no return of nervous symptoms occurred. The patient was lost sight of some time afterward.

Case VI.—(First seen December, 1862.) ——, aged thirty, a perfectly-healthy man, contracted chancre with indolent bubo, which was followed by sore-throat, osteocopic pains, headache, and a general specific eruption, and, eight months after infection, by paralysis of the bladder, shortly succeeded by paraplegia, to which no other than a syphilitic origin could be ascribed. Treatment continued for three years, consisting of mercury and iodide of potassium, failed to effect a cure, but produced enough improvement to allow the patient to continue his business and to get around without much difficulty. The disease made no progress, but the damaged cord remained permanently impaired in function.

Remarks.—I have grouped these six cases, seemingly without order, not for the purpose of studying the symptoms (which I will take up farther on), but to call attention to one point, common to all of them, namely, the early date in the general malady at which the symptom occurred. The periods after infection, at which the nervous symptom in question in

these six cases appeared, were respectively eight months, ten months, eighteen months, twelve months, two months, and eight months; while the nervous manifestations under which the patients labored were hemiplegia, paraplegia, epilepsy, facial paralysis, intellectual aberration, mydriasis, etc.

The characteristic features of these cases are clearly those laid down for syphilis, and no reasonable doubt of the diagnosis can exist. The hemiplegia occurred without loss of consciousness in all the cases (I shall lay special stress upon this point farther on). Its advent was gradual in two of them. It came on before the age of forty in two of the cases (twenty-one and twenty-nine); in the other the patient did not get his chancre till he was sixty. Specific eruptions had existed in all, and constant severe fixed headache had preceded the attack by several weeks in two of the cases. Mydriasis existed in one, and in the other two special mention is made of the fact that sensation was not abolished with motion. All these conditions seem to be the rule with cases of syphilitic hemiplegia.

As for the epileptic patient (Case IV.), the case is a typical one. The patient was forty-nine years old, and had never had convulsive attacks before. Idiopathic epilepsy occurs in early life, almost always before thirty. The rule is reversed for syphilitic epilepsy. Beau's statistics of two hundred and nine cases of idiopathic epilepsy give one hundred and seventy-seven before thirty. Of sixty-six cases observed by Boucher and Cazauvielh, fifty were under twenty years of age; while, on the other hand, of thirteen cases observed by Gros and Lancereaux,[1] of syphilitic epilepsy, ten occurred at about the age of thirty; and, among forty-three others observed by Jaksch,[2] only one occurred before the age of thirty.

The occurrence of headache before the attack was held by Moreau to be of value in deciding the syphilitic origin of epilepsy, and Gros and Lancereaux[3] agree with this statement. The continuance, or rather aggravation, of the stupidity and general condition of *malaise* between and after the attacks, a

[1] Gros et Lancereaux, Des Affections nerveuses syphilitiques, Paris, 1861, p. 85.

[2] Lancereaux, Traité de la Syphilis, Paris, 1866, p. 450.

[3] *Op. cit.*, 492.

point first alluded to by Vidus Vidius, is considered by Maisonneuve[1] to be pathognomonic of a syphilitic cause for a given epilepsy.

In Case IV., too, the attack came on in the night; but this sign, considered of so much value by Franck, has been proved to be unreliable for determining the specific character of an epileptic attack. But the local paralysis following the attack is very suggestive of syphilis, and the speedy relief afforded by the iodide of potassium makes out the case beyond a doubt.

Of the facial paralysis of Case V., I have nothing to say, except that none of the usual causes of paralysis of the portio dura were present, that pain in the head preceded the attack, and that a specific eruption shortly followed.

As for the diagnosis in Case VI., the patient was young and in seemingly excellent health before the acquisition of his chancre, and no other cause for his paraplegia could be made out.

All the nervous symptoms presented by the six cases I have detailed may be said to have been unusually precocious, except the facial paralysis. This latter, when it occurs alone, is observed early in syphilis as the rule. Bassereau and Vidal (de Cassis) have each left on record two cases where it occurred within the first few weeks after infection, and the number of cases reported to have come on within a few months after the chancre is not small. Several new cases have recently been placed before the profession by Dr. Alrik Ljunggrén,[2] in an interesting article devoted to the consideration of the forms of nervous syphilis, which occur early in the disease. A good many cases are given, but no autopsies were furnished. The author considers cerebral congestion, caused by the syphilis, to be the pathology of these earlier nervous manifestations.

The chief of the other symptoms — hemiplegia, paraplegia, epilepsy—all belong decidedly to the later manifestations. Occasional cases of hemiplegia have been reported as early as six months after infection, by Zambaco, Ricord, and others, as well as of paraplegia; but the former

[1] Quoted by Rollet, *op. cit.*, p. 930.

[2] Klinische Beobachtungen über visceral Syphilis. Archiv. für Derm. und Syph., No II., 1870, p. 141.

rarely appears before two or three years,[1] or the latter before from three to five years.

As to epilepsy, I quote from Rollet: "Epileptiform attacks are among the later symptoms of syphilis. The interval between the primitive chancre and the epilepsy has never been less than one year."[2] In the case I have recorded the attack came on just after a year.

Now, as none of the three fatal cases afforded autopsies, what was the probable lesion? Were they cases of paralysis *sine materiâ?* And this suggests a third question. Is there any constancy of relation between the nature, the severity, and the situation of the lesion in syphilis, and the nature, the severity, and the situation of the nervous symptom caused by it?

I think the last question can be decidedly answered in the negative. For, although a gummy tumor in an optic thalamus or a corpus striatum will give rise to a hemiplegia of the opposite side, yet a syphilitic pachymeningitis may occasion the same symptom, as may also an internal exostosis of the bones of the skull, or even a peripheral gummy tumor or a purulent collection under the dura mater, connected with necrosed bone; yet, again, a convulsion, or some other nervous symptom, may be caused by many, if not by all, of these same lesions—in proof of all of which assertions I might cite cases did time allow. Although in a given case certain symptoms connected with the paralysis may make this or that situation of the lesion the more probable, yet nobody, who has seen or read the account of any number of autopsies, can claim a *constancy* of relation between the nature of the lesion and its situation in syphilis, and the nature and situation of the symptom to which it gives rise.

As to the relation between the severity of the lesion and that of the symptom, that point may well be considered along with the second question—of syphilitic paralysis *sine materiâ.*

A few cases will, I think, show the impossibility of certainly predicting the lightness or severity of the lesion from the lightness or severity of the symptoms.

[1] Rollet, *op. cit.*, pp. 927, 932. [2] *Op. cit.*, p. 929.

In Botal's case,[1] the only nervous symptoms were headache and amaurosis, while the autopsy revealed a disorganization of the brain, "corruptum et cerebrum et nervi optici." In the case of Duhamel and Legrand, obs. 97, Lagneau fils, where headache with nocturnal exacerbation was the only nervous symptom, the autopsy showed carious perforation of the ethmoid plate, pachymeningitis over the anterior lobes of the cerebrum with points of calcification in the dura mater, the brain-substance hardened, hypertrophied, changed in color, and adherent in front.

But most striking of all is the case of Gama, obs. 87, Lagneau fils, where, although the syphilis caused fearful ravages in the way of necrosis of the bones of the face and nose, including the ethmoid, yet severe pain in the head was absolutely the only nervous symptom, and the patient died, having "preserved the use of all his movements and of his intellectual faculties." On *post mortem*, the frontal bone was found carious in an areolar manner. The most altered points of the bone internally corresponded with little erosions of the dura mater, from which pus flowed. An incision through the dura mater gave exit to about four ounces of pus, with which fluid the cerebral hemispheres were covered. Of the cerebral arachnoid there were only a few black shreds left, while the cranial reflection formed a sort of black pulp on the surface of the dura mater. The pia mater tore off in pieces, and the whole surface of the cerebral hemispheres was of a greenish-black for a depth of two or three lines. A portion of the front of the left hemisphere was putrid, and the cerebral lobes all softened. The cerebellum was similarly affected, but to a less degree.

For the other side of the question, the syphilitic paralysis *sine materiâ*, there are scores of observations. Rodet[2] gives two cases of autopsies made on syphilitic hemiplegics, where no lesion of the nervous centres or their envelopes could be found. Zambaco's 73d observation[3] is another, where the

[1] Obs. 3, Gustave Lagneau fils. Maladies syphilitiques du Système nerveux. Paris, 1860.

[2] Gaz. Méd. de Lyon, 1858.

[3] A. Zambaco. Des Affections nerveuses syphilitiques. Paris, 1862.

patient became hemiplegic in the seventh month after infection, yet the autopsy revealed nothing. Folin[1] gives a similar case with a similar result at six months. Gjör, obs. 60, Gros et Lancereaux, tells of a syphilitic woman of thirty-one, who became paralyzed in the right arm, then in the right leg, and finally on the left side as well, while the autopsy showed nothing abnormal in the brain, the cord, or elsewhere.

Delaunay tells of one of Ricord's patients of 37, obs. 86, Gros and Lancereaux, who, during a pustular syphilide in the sixth month after infection, suffered from an attack of right hemiplegia, without loss of consciousness, and after improving a little died in a month, with sudden aggravation of the paralysis. The autopsy revealed absolutely nothing. This case occurred early after infection; but Ricord gives a case in his Clinique Iconographique (obs. 78, Gros and Lancereaux), where a woman of thirty-seven, five years after infection, had ringing in the ears, diplopia, paralysis of the third pair on the left side, followed by enfeeblement of the left side, amounting to hemiplegia, with loss of memory, impairment of intelligence, insanity during one month, all of which symptoms were calmed by the iodide of potassium; but, the patient dying suddenly of cholera, the brain with its envelopes and the bones were all found perfectly healthy. Ricord[2] lost another patient affected with permanent hemiplegia and presenting all the symptoms of cerebral softening, yet not the slightest lesion could be discovered at the autopsy.

Tarnowsky,[3] who has collected all the cases of syphilitic aphasia, which had been recorded up to 1868 (fifty-six cases)' in a work full of erudition, has only one among the many autopsies of syphilitic aphasics, where there was no lesion to be found (case of Delaunay quoted). The patient had right hemiplegia and aphasia six months after his chancre. Tarnowsky quotes another case, occurring at six months after chancre (case of Engelstedt, quoted), of left hemiplegia with aphasia, where the only lesions found were a slight meningeal hyperæmia, and a little bloody serum in the ventricles. It is

[1] Quoted by Rollet, *op. cit.*, p. 913. [2] Gros et Lancereaux, p. 13.

[3] Aphasie Syphilitique. Paris, 1870.

perhaps needless to add that, where lesions were found, the third convolution of the anterior lobe on the left side was not always involved.

The first and thirtieth of the "conclusions" of Gros and Lancereaux read as follows:

I. "Nervous affections may be developed during any period of constitutional syphilis."

XXX. "Nervous affections without appreciable lesion may arise in all the periods of syphilis."

From what I have been able to gather, however, the majority of autopsies, which have shown no lesion, were made upon cases where the nervous symptoms appeared at an early period of the general malady; but that they also occur later, Ricord's case at five years is a proof.

To explain these cases of paralysis *sine materiâ*, which of the many theories that have been advanced shall we accept? Shall we agree with Virchow and Ricord that positive lesions probably did exist, but had been removed by treatment before death, so that no discernible trace was left behind? If death occurs a long time after the disappearance of the paralysis, well and good; but, although it is unbecoming to doubt such high authority on merely plausible grounds, yet it is hard to believe that, where the paralysis is progressive and kills the patient in a month (as in Delaunay's case), treatment has been able to dispose of the lesion, without some corresponding amelioration in the symptoms. Or is it that the lesion is some mysterious, undiscoverable change in the nerve-cells and tubes? The hypothesis does not seem so plausible as some others. Or is it that the blood is poisoned by the virus, and the symptoms produced by that virus without any material change in the nerve-tissue? This theory sounds more rational than the last one; but, if it were true, we ought to have these nervous phenomena occurring more frequently in those cases where there is every reason to suppose the quantity of that virus to be excessive, as in those severe malignant forms of syphilis where the late cutaneous symptoms appear during the first few months, and the patient seems saturated with the poison—the *syphilide maligne précoce* of French dermatologists—but this does not seem to be the case. Is it a chlorotic

state of the blood, as has been advanced? The majority of patients with syphilitic chlorosis are not affected with serious nervous symptoms. Shall we adopt the ingenious theory of Knorre, or that of Zeissl, that efflorescences on the pia mater may coincide with the earlier cutaneous lesions, and like them disappear after death, or that the pia mater is subject to an eruption like that which we see in syphilitic punctiform iritis? These theories are by no means as simple nor as easily accounted for as cerebral congestion, partial or general, and this it seems to me is probably often the cause of the paralyses *sine materiâ.*

Of the autopsies, which I have been able to find, where no lesion was discovered, the majority of the patients had suffered from their nervous manifestations early in the general malady, before it was likely that serious organic lesions would have occurred and when congestion was the general habit of the disease—as shown in the earlier exanthematic eruptions, especially roseola, which leaves no trace behind after death. The congestions which are sometimes seen on the conjunctiva in syphilis, sometimes preceding inflammation, sometimes subsiding without inflammation, form another support by analogy. A syphilitic congestion of the liver has been admitted by Gubler.[1]

In favor also of the probability of congestion of the brain from the poison of syphilis, we have the analogy of the gouty poison and of urea in the blood producing a similar effect.

Hence, it seems probable that congestion is the pathology of many cases of nervous syphilis which occur early, or, carried a step higher, actual inflammation, in the form, perhaps, of pachymeningitis.

HEMIPLEGIA.

Case VII.—(First seen May, 1869.) ——, aged twenty-three, contracted chancre at twenty (1866), followed by a general eruption, with osteocopic pains, which got well under mercury. In December, 1868, two and a half years after infection, he was attacked with constant headache, worse daily at 5 P. M. Six weeks after the commencement of the headache, he felt one morning a tingling and weakness in the left hand and arm, which passed off quickly, but returned five times during the day, leaving

[1] Quoted by Gros et Laucereaux, *op. cit.*, p. 144.

no trace behind until the last time, when he fell, without loss of consciousness, and found himself suddenly paralyzed on the left side. Under mercury and the iodide of potassium he improved slowly for four weeks, so that his face became well and his leg nearly so, but the arm and hand contracted and remained almost powerless. Both legs now became a little weak, and the bladder lost some of its expulsive power. Left mydriasis existed, and a gummy tumor on the dorsum of the left foot. Every few weeks this patient would suffer a slight relapse in the way of a more positive feeling of weakness in both his legs and in his left arm, and these relapses could always be predicted by him, from noticing a congestion of both conjunctivæ some hours before. (I observed this phenomenon personally several times.) He complained also of a feeling of lightness in the legs, as if his body ended at the waist, and was swaying in the air. Slight constant headache was still complained of. He was put upon rapidly-increasing doses of iodide of potassium, but it was not until the dose reached one hundred grains, three times daily, that the gummy tumor on his foot disappeared, and positive improvement in his nervous symptoms was evident. The iodide was held at this dose for several weeks. Mercurial inunctions were employed during a portion of the time, and a little mercury internally during another portion. An abundant crop of acne was the only sign of iodism. He improved sufficiently to resume his trade as a piano-polisher, but his legs never recovered their original strength, and his hand and arm failed to respond to treatment beyond a certain point, which left him with but little use of the member. The headache, however, got better, and finally, when improvement ceased, the iodide was suddenly discontinued for a few days, without bad effect, and then resumed, to be given up gradually. When last seen, some months afterward, he was in a condition of *statu quo*, following his trade. The iodide of sodium was substituted at one period of the treatment for the iodide of potassium, in a slightly-diminished dose, but the effect did not seem to be as good. Iron and strychnine were used during the treatment at intervals. The intellect was only noticeably touched, in that the patient seemed to think slowly. He always appeared to deliberate a little over a question before he answered it, and then to speak slowly. He had been absent from his wife during the early part of his treatment, but joined her again, and stated that his sexual power and appetite had not diminished.

CASE VIII.—(First seen May, 1870.) ——, aged thirty-four, had chancre in 1863, followed by sore-throat and eruptions. Nodes on tibia in 1865, with violent pain in the head, worse at night. In 1869 his wife was delivered of a dead child at term, said to have been strangled by the cord. Later in the same year a severe neuralgia of the right arm came on, lasting three weeks. In November, 1869, he had a sudden attack of left hemiplegia at night, without loss of consciousness, and attended with thickness of speech. He was in bed, but awake, at 2 A. M., and, in passing his left hand over his face, he noticed a strange feeling of numbness in it, which seemed to increase. He awakened his wife and tried to get out of bed, but fell upon

the floor, and found himself paralyzed on the left side. The hemiplegia passed off entirely in three hours, leaving only a little increased weakness and nervousness behind. In April, 1870, he had an attack of aphasia in the daytime, which passed off in a few minutes. It recurred again in May, and passed off in the same way. With the first attack of aphasia came neuralgia in the left arm and paresis of the bladder, both worse at night. Memory had been gradually growing more and more defective; he has had also, at different times, about a dozen attacks of vertigo, a sudden feeling of dizziness, which causes him to put out his hands against the wall for support. His condition had never been thoroughly appreciated, nor had any systematic treatment ever been carried out, but iodide of potassium had always benefited him. He has improved slowly, but positively, in all respects, under large doses of the iodide of potassium, with a little mercury, and is still under treatment.

Case IX.—(First seen October, 1864.) ——, aged thirty-nine, had chancre, followed by sore-throat and eruptions at thirty-two (in 1857), and later an exostosis involving the upper margin of the right orbit. This exostosis remained, and occasionally afterward became the seat of pain, extending over the whole side of the head, and giving the sensation of pressure on the brain. In November, 1865, he lost sight suddenly in one eye, as he said. (This was probably a symmetrical lesion in both retinæ, as half the field of vision was blank.) He experienced a sensation of pressure on the top of his head, numbness of the tongue, aphasia, and partial left hemiplegia. In January, 1866, a node appeared on the top of the head, just to the left of the median line, attended by constant headache, which a hundred grains daily of the iodide of potassium, continued for six weeks, failed to relieve. Among his other symptoms at this date may be enumerated twitching and numbness of the right hand and forearm, right mydriasis, despondency of spirits, and impairment of sexual power. Tonics and mercurial vapor-baths were followed by improvement. In November, 1866, he had the same symptoms as a year before, sudden loss of sight, tenderness on pressure on the top of the head, partial loss of consciousness and of speech, but this time no hemiplegia. The attack passed off quickly without the use of specifics. Small doses of iodide of potassium with the biniodide of mercury now relieved his headache decidedly. The cranium seemed to be permanently thickened. Mercurial vapor-baths at about this time appeared to relieve the headache, but constant attacks of dizziness occurred, for which the patient was advised to give up the use of tobacco, go into the country, and take a mixed internal treatment in place of the baths. When last seen, in April, 1867, he was continuing his mixed treatment, but was running down a little. His mydriasis still persisted. Dr. Agnew found the retinal veins tortuous and varicose, suggesting obstruction (congestive or otherwise) in the cranial cavity along the course of the return channel of blood from the eye.

This patient is an example of the inveterate sort of nervous syphilis,

which treatment seems to have but little effect upon. He was lost sight of after his last visit, and his present condition is unknown.

Case X.—(First seen October, 1869.) ——, aged thirty-nine. Date of chancre uncertain. Seven years ago the patient had a general eruption, which got well after "taking pills" for six months. When first seen, ulcerations of a distinctly syphilitic character existed upon the legs, and numerous old cicatrices, whose smooth surface, round form, pigmented circumference, and whitening centres, were no less characteristic. There was also a node on the left femur. When first seen, the patient had already had two attacks of almost entire loss of speech, which had greatly improved under specific treatment. He had been taking medicine for three years previously for partial hemiplegia of the left side, and partial paralysis of the tongue, which made articulation difficult. In October, 1869, while taking half a drachm of iodide of potassium daily, his speech began to get worse, and he complained every morning of a severe pain in the back of his head. A week after the headache had set in, he came home one night at 11 P. M., unable to articulate a word, and sank gradually into a state of stupor, which attained its height in about eight hours, but never reached actual unconsciousness. He had slight mydriasis. He tried to say the word "no," but failed, and had to indicate affirmation and negation by the appropriate motions of the head. Sensation was blunted but not abolished. There was retention of urine, although the expulsive power of the bladder was unimpaired. A catheter was introduced, but it was quickly forced out by the stream, and more than a quart of urine followed, the presence of which had been unnoticed by the bladder. During the day, the patient came out of his stupid state into a condition of acute mania, with partial paralysis of the right side. Mercurial inunctions were administered, and he took ten grains of iodide of potassium every three hours. He rapidly improved, and in a week had lost most of his aphasia, and had become perfectly quiet and rational. The hemiplegia improved, but loss of memory was marked, and the pain in the head continued in spite of one hundred grains of iodide of potassium daily. Improvement continued, and the dose of the iodide was gradually diminished. Early in December, 1869, the headache became suddenly aggravated, and, on the fourth day, the patient, having just returned from a walk, while standing in his room, was suddenly seized with convulsive motions in the right arm and leg, and imperfection in his speech, and in a few minutes was paralyzed on the right side. Consciousness remained, but intelligence almost disappeared. Occasional slight convulsive movements occurred in the paralyzed members, which, when not convulsed, were relaxed. There were retention of urine and mydriasis, as in the previous attack, and acute mania set in with reaction as before. This attack passed off in a few days under mercurial inunctions and one hundred and twenty grains daily of iodide of potassium. The paralysis nearly left him, but headache and mydriasis continued as before. He had next a slight relapse in the way of complete

paralysis of the right hand and twitching motions of both sides of the face, but this time his speech was not troubled, his intelligence was perfect, nor did he pass through any maniacal stage. The dose of the iodide was now run up to one hundred and eighty grains daily, and the headache disappeared entirely for a time, while the general condition became greatly improved. But the stomach began to show irritation under these large doses, and the appetite ran down; consequently, the dose was reduced a little. The headache returned, and, early in January, 1870, the aphasia reappeared, and there were some convulsive movements in the fingers. The iodide was now at once run up to one ounce daily, and the nervous symptoms and headache again disappeared, and the patient remained comparatively well, up and about, without any headache for six weeks, until the middle of February, when a general sinking came on, attended with tremulous motions of both sides of the body, which progressed nearly to unconsciousness. After five or six days, reaction set in with acute mania, mydriasis disappeared, there was no paralysis on either side, a constantly-increasing debility overcame the patient, and he died, intelligence returning, but not fully, before death. The iodide was discontinued seventy-two hours before death, but no change in the symptoms ensued. Profuse acneic eruptions were the only signs of iodism. During all the treatment, nourishment was pushed and tonics given interruptedly. Unfortunately, no *post mortem* was allowed.

Case XI.—(First seen November, 1863.) ——, aged sixty-three. Date of chancre and early eruptive symptoms uncertain. In 1859, paralysis of the portio dura had come on, and been cured by the iodide of potassium. For some years past, he has complained of a "misery" on the left side of his head, always worse at night, and always relieved by the iodide of potassium. He had, also, when first seen, a severe pain over the eyes.

Iodide of potassium was given in five-grain doses, but no relief was obtained until two or three mercurial vapor-baths had been taken, and an acneic eruption had been produced by the iodide, upon which the headache entirely disappeared. He remained well for a year, when his headache returned at intervals, and he began to run down and have a poor appetite. The mental condition was one of despondency. He was taciturn, indifferent to natural appetites, and desired to die. He was morose, had a defective memory, and difficulty in fixing his attention. Mercury, in the shape of vapor-baths, and internally with quinine, relieved the headache, as soon as the mouth became a little tender, and then a mercurial vapor-bath soon brought him to a happy, healthy condition, where he remained for six months. Late in the fall of 1865, he returned with some uneasy feelings on the left side of the head, which were relieved shortly by a few mercurial vapor-baths, and the mixed treatment internally. He now disappeared again for six months, as he always did on getting the better of his troubles. He never continued a mercurial treatment for more than three weeks at a time. In May, 1866, he was suddenly stricken in the early

morning with hemiplegia on the right side, without loss of consciousness—although his mind at the time was much obscured. He was found by his daughter lying on the floor in the corner of his bedroom dressed. He had evidently dressed as usual for church, and then fallen suddenly paralyzed, and remained where he was until his daughter found him, recalling Case I. of this paper.

He had convulsive movements coming on every ten minutes in the paralyzed side, and lasting a minute or two. Iodide of potassium was given, but the patient never rallied, and died shortly with symptoms of cerebritis. A *post mortem* was not permitted.

Case XII.—(First seen June, 1870.) ——, aged fifty-one. Contracted chancre fourteen years ago, followed by eruptions, nodes, loss of bones from the nose, etc. About the middle of February, 1870, after long-continued complaint of severe headache, he had an attack of hemiplegia, which came on without loss of consciousness, attended with impairment of the intellect and defective articulation. The cause of the attack was not recognized, and no appropriate treatment had been brought to bear upon the patient; but he gradually recovered up to the end of May, 1870, when improvement ceased. In June, when first seen, he was found to limp, and to have but little use of the affected arm. His emotional manifestations were exaggerated, his mind weak, and his memory, especially of time, very defective. He seemed totally unable to measure time, and made very curious statements where dates were concerned. A little neuralgia in the left shoulder was the only pain complained of. He was put upon a mixed treatment, and, after improving a little, came to a condition of *statu quo*, where he now remains.

The long interval between the paralytic attack and the commencement of antisyphilitic treatment probably allowed irreparable injury of nerve-tissue, which no treatment could entirely do away with. Had treatment been commenced early, the result might have been different, for the attack could not have been a very severe one, since the patient was old and had no treatment, yet rallied without help quite promptly. He is still under observation.

Case XIII.—(First seen December, 1869.) ——, aged thirty. Had often had ulcers upon the penis; but at what time his chancre occurred could not be positively fixed. His early syphilitic eruptions had come and gone many years back. They were light (as his family physician stated, and passed away quickly), so that no systematic nor protracted course of treatment had been kept up; nor was it at the time considered necessary. During the winter and spring of 1869 he had suffered very much from constant severe headache, in front on the left side, and had been put upon

thirty grains daily of the iodide of potassium, with a little of the bromide, with the effect of quieting the pain greatly.

In August of the same year, having been working in the sun all day, he felt a numbness coming over his right hand, and gradually lost the power of speech, and became hemiplegic on the right side, without any change in the pupils, or any loss of consciousness. His thinking and intellectual faculties were also unimpaired. The attack was considered one of sunstroke. The patient was a German, but had lived in France and in America. He spoke all three languages fluently, but, as he recovered the use of his speech, he, strangely enough, did not use English, the language he had been last accustomed to, nor German, his own language, but preferred French, and afterward wrote it rather than either of the other languages. His iodide was continued at the same dose through this attack, and in six weeks he resumed his business, having moderate use of his extremities, and talking pretty well. In December, 1869, he had another attack of paralysis on the same side, but this time with right mydriasis, some mania, and great impairment of intellect, but without loss of consciousness. He came out of his mania into a condition of hebetude and silly stupidity Pressure upon the skull made him weep copiously. He would soon become quiet, however, and then pressure upon his enlarged tibiæ would again dissolve him in tears. This exaggeration of emotional expression was the more noticeable, as the patient became brighter under rapidly-increasing doses of iodide of potassium, and came out of his condition of hebetude. He would laugh immoderately if he was smiled at, or if any thing amusing was said which he could understand, and was moved to tears on the slightest provocation. "No," was the first word he could utter, as he began to improve after his second attack, but he would get vexed and angry with himself for saying it when he meant "yes," which latter word he could not speak. He understood questions perfectly, whether given in German, French, or English, but could only answer "no." He spoke this word, however, with a shake of the head to indicate negation, and a nod to denote affirmation.

He quickly reached three drachms daily of the iodide of potassium, his appetite returned, and his intellect greatly improved, as did also his paralysis, so that he could walk a little without his cane, could write his name, and had several words in his vocabulary.

He returned to France in January, 1870, and has been heard from during the summer. He was continuing his medicine, and doing well in every respect.

Case XIV.—(First seen August, 1868.) ——, aged thirty, contracted chancre in December, 1864, followed by sore-throat and eruptions, later by circular ulcerations on the arms and legs. In April, 1868, he had hemiplegia, without loss of consciousness, for which he was bled and salivated in Savannah. His hemiplegia got better, and he came to this city in August of the same year, complaining of "crushing, sharp, prickling" sensations

in his head, and with his hemiplegia still persistent. He was put upon the mixed treatment, and recovered rapidly. He considered himself cured, discontinued treatment, and returned home to Savannah. After remaining well for nearly two years, he returned to New York in April of the present year, run down in health, and complaining of all his old symptoms, except the paralysis. Large doses of the iodide of potassium speedily mastered his troubles, and built him up again. He returned home in the summer, to all appearances well.

Case XV.—(First seen April, 1866.) ——, aged forty-seven. Date of chancre uncertain. He has suffered from specific eruptions, among which are syphilitic psoriasis of the palms, and a scaly eruption of the scalp. All these were treated with mercury, and disappeared. In September, 1865, he had slight paraplegia, followed by hemiplegia, without loss of consciousness, which gradually improved under treatment, leaving behind headache, numbness of the limbs and fingers, and a desire to pass water very frequently. A slight stricture existed at the bulbous portion of the urethra. Hydrarg. cum cretâ in three-grain doses soon touched his mouth and produced very slight improvement, and his condition was still further bettered by a little iodide of potassium. No more nervous symptoms occurred, but the vesical affection remained, and when last seen, in 1867, was the only thing that gave him any trouble.

Case XVI.—(First seen July, 1863.) ——, aged twenty-eight, had chancre in December, 1862, followed by sore-throat and specific eruptions, which were successfully combated with mercury. A slight attack of hemiplegia, without loss of consciousness, came on at the South in the spring of 1864, while taking mercury. Entire recovery followed shortly, and under the mixed treatment the patient's general condition steadily improved, in spite of a relapse in the shape of slight necrosis of the bones of the nose, and up to the date of his last visit, in August, 1870, there had been no recurrence of any nervous symptom attributable to syphilis.

Case XVII.—(First seen June, 1870.) ——, aged forty-nine, had solitary chancre at twenty-three, without bubo, followed by sore-throat, which lasted several months, and at twenty-eight, five years afterward, by an attack of right hemiplegia, which came on gradually, without loss of consciousness, while he was walking in the street. The nature of the attack was not recognized, but no recurrence has taken place, and now a little atrophy and retraction in the leg and impairment in the use of the arm is all that remains. For twenty-one years past he has had no symptom of syphilis in any form.

Remarks.—In these fourteen cases of syphilitic hemiplegia, the average length of time which elapsed after infection, before the occurrence of the paralysis, was a little over five years. The ages of the patients varied between twenty-three and sixty-three, but only four of them were over forty, and of these

four, one did not contract his chancre till he was sixty-one, and the date of infection in two others could not be positively ascertained. These statistics correspond with all the experience which has been gathered on this point. The early age at which the attack occurs, especially if it is apoplectiform in character, is one of the marks which distinguishes syphilitic hemiplegia from hemiplegia depending on apoplexy, as Thomas Inman and Vidal de Cassis pointed out. Gros and Lancereaux met with thirty-six cases of syphilitic hemiplegia, and of these, thirty occurred in patients under forty years of age, while of the one hundred and twenty-eight cases of apoplexy reported by Morgagni, Rochou, and Andral, in only sixteen cases was the age less than forty. Hence the earlier in life that hemiplegia comes on, the more reason is there to suspect syphilis to be the cause.

Headache, that symptom which is almost a *sine quâ non* of syphilitic hemiplegia, was noted as being particularly severe several weeks before the attack in the majority of the foregoing cases. Andral and Rostan[1] consider it of diagnostic importance, in the later headaches of syphilis caused by organic change within the cranium, that the pain is located permanently in one spot, and that pressure increases the pain—although there may be no external humor, nor evidence of diseased bone at the point pressed upon; whereas the headache which comes on in the early months is not increased by pressure.

The sensibility in syphilitic paralyses seems, as a rule, to be preserved, or, if affected, to be so in a less degree than the motility—although loss of sensibility without loss of motion does sometimes occur. The paralyzed parts are relaxed as a rule, except, of course, when convulsed. One point, however, remains to be touched upon, and that one of great importance, from the fact that it occurs so frequently, but yet is so little insisted upon: in all the fourteen cases of hemiplegia *there was not in any one of them loss of consciousness with the attack.*

Syphilitic hemiplegia may come on in three ways: 1. Gradually, without loss of consciousness. 2. Suddenly, with-

[1] Quoted by Gros et Lancereaux, *op. cit.*, p. 429.

out loss of consciousness. 3. Suddenly, with loss of consciousness. Usually the attack is progressive. Paralysis of the face may come on and last a few hours or days, as in Case I., before the extremities become powerless. The leg may be first affected, as in Case III., or unnatural feelings may first appear in the arm, as in Cases II. VII., VIII., and XIII. There may or may not be numbness or tingling in the member previous to the attack. Vertigo or localized convulsions may precede the paralysis, as in one of the attacks of Case X. Sometimes it takes twenty-four hours for the paralysis to reach its height, and the loss of motion is often not complete. With this form of attack I believe there is never any moment of entire loss of consciousness, although the intelligence is generally more or less impaired.

Second in frequency is that form of attack where the whole side becomes suddenly paralyzed without loss of consciousness, of which the foregoing cases present several examples. Thus the patient may wake up in the morning, feeling nothing unusual, but, on attempting to get out of bed, he finds that one side is powerless, as in Case I. This second form may also be introduced by a general convulsion or by convulsive twitchings in the side about to be paralyzed.

The third and least frequent form is the true apoplectiform seizure, with loss of consciousness, of which there are cases on record, but of which I have seen none.

A very important distinguishing feature, then, of hemiplegia depending on syphilis, is the great relative frequency of its occurrence *without loss of consciousness*, even when the attack is in other respects apoplectiform. If a hemiplegic attack comes on without loss of consciousness, that circumstance alone, it seems to me, is of sufficient importance to call attention always to the investigation of syphilis as a cause. This fact has been noticed by most of the special writers on nervous syphilis. Zambaco[1] says that syphilitic patients affected with cerebral syphilis (encephalopathie) rarely have their attacks preceded by the group of phenomena with loss of consciousness, which constitutes the apoplectic seizure.

[1] *Op. cit.*, p. 557.

Rollet[1] puts it even more strongly, saying that sometimes the *début* is sudden, like an attack of apoplexy, but "the patients rarely lose consciousness; they say that they have experienced a sensation resembling vertigo (*éblouissement*), which caused them to fall, or that they waked up paralyzed."

These statements are clear enough, but yet neither of the two most recent standard works on syphilis in French or English, neither Lancereaux ("Traité de la Syphilis," 1866) nor Berkeley Hill ("Syphilis and Local Contagious Disorders," 1869) make the slightest allusion to this point, that I can discover.

I believe it to be of the first importance, and of sufficient value to decide the treatment in a doubtful case.

Those forms of paralysis, either hemiplegic or paraplegic, which come and go very rapidly, of which the foregoing cases contain several examples, often owe their origin to syphilis. Lancereaux mentions this form, and Yvaren has reported a case, in which, however, there were temporary losses of consciousness as well, and where antisyphilitic treatment brought about a cure.

Another point of importance, tending to make out a diagnosis of syphilis for a given paralysis, is the existence of mydriasis occurring either in the eye of the affected side or in the other eye, with or without ptosis or paralysis of any of the muscles of the eye, and without any disease of the eye itself. Mydriasis may precede a paralytic attack, remain after the latter has subsided, or may come on by itself, apart from any other paralysis in the body, during the course of syphilis, in which latter case it is of significance, and puts us on our guard to look out for other nervous symptoms. Examples of all these forms are contained in the cases of this article.

Mydriasis has been occasionally mentioned as occurring in nervous syphilis ever since that subject has been written upon, but its importance as a symptom has not been appreciated until quite recently. Victor de Méric,[2] in an article on the

[1] *Op. cit.*, p. 932.

[2] "Cases of Syphilitic Affection of the Third Nerve, producing Mydriasis with and without Ptosis." (British Medical Journal, January, 1870, pp. 29, 52.)

subject, gives five well-marked cases of syphilitic mydriasis, mostly, however, with ptosis or paralysis of some other muscle of the eye, but coinciding with no other syphilitic nervous symptom, and without disease of the eye proper in any case. There was, however, some enlargement of the retinal veins in one case. When mydriasis occurs alone, it is believed to be caused by paralysis of that branch of the third nerve only, which goes to the lenticular ganglion.

Victor de Méric states that only the short ciliary nerves coming from the fore-part of the ganglion are affected, when mydriasis occurs without paralysis of any other of the parts supplied by the third nerve. De Méric believes also that the pathology of the affection consists in a thickening of the nerve-sheath. All of De Méric's cases, except one, recovered entirely in a few months, under the use of mercury and iodide of potassium together with calabar-bean, and, in one case, electricity. The same article contains a curious case by Lawson Tait, of myosis, which had come on without any iritis in the course of syphilis, and had existed for a long time. The patient had also a gummy tumor on the clavicle. The myosis disappeared entirely under ten-grain doses of iodide of potassium.

PARALYSIS OF SPECIAL MUSCLES.

CASE XVIII.—(First seen November, 1850.) ——, aged thirty-five, had chancre with eruptions in 1849, and iritis in 1850. He improved under the bichloride of mercury, to whose action he was excessively sensitive, but he always discontinued his treatment as soon as he experienced a certain amount of relief, resuming it on running down a little. In the fall of 1850, after a severe headache lasting a few days, slowly relieved by the iodide of potassium, he suffered on several occasions from anomalous head-symptoms, and gradually had become stupid, making mistakes in his business, calling things by their wrong names, commencing sentences without finishing them, complaining of pain in the head, etc. One side of the face became paralyzed, but the tongue was straight. He was blistered successively on the nape and behind the ears, and calomel was given to salivation, which was unavoidable. He slowly improved to complete recovery in four weeks. Four months later, though improved in general health, he was still a little forgetful and slow in thinking. He now disappeared until June, 1859, when he returned, complaining of obstruction in the larynx, with hoarseness. He stated that, since 1850, he had been salivated twice for brain-symptoms, but that for the last five years he had been perfectly well in every way.

I add this case in this place, so that it may follow upon the last case (XVII.), where the disease seemed to arrest itself, and Cases XV. and XVI., where treatment appeared to arrest and even cure the nervous manifestations of the disease—other symptoms, however, persisting. In the present case the laryngeal disease was syphilitic, but the nervous symptoms, which had been cured five years before, had not recurred, nor have they to this day, as far as I am able to learn. These cases seem to show a continuance of the general malady, without its becoming progressively more severe.

Case XIX.—(First seen April, 1854.) ——, aged twenty-eight, contracted chancre at twenty-one, with non-suppurating bubo, for which his mouth was kept sore during three weeks. After this he had no further symptoms, and considered himself perfectly well during six years and a half. He now began to have pain in the shoulders and arms, and above the elbows at night, without any falling off in his general health. A month before these pains commenced a node came out on the frontal bone. As the pains came on, he began to lose power in his right arm. At the date of examination, all the muscles of the right arm were found atrophied, especially the biceps and the deltoid. He was put upon the iodide of potassium in five-grain doses, under which his pains disappeared and his strength returned, so that, in three months after the dose had reached ten grains, he had recovered the use of his biceps sufficiently to resume his trade as a stone-cutter, and, continuing his medicines, he had no relapse as long as he was under observation.

This case illustrates a large class where localized paralyses occur. Sometimes all the muscles supplied by one nerve are affected, sometimes only a single muscle. The paralysis of a single muscle or group of muscles is very significant of syphilis.

PARAPLEGIA.

Case XX.—(First seen November, 1860.) ——, aged forty-four, had chancre at twenty. In 1852 paralysis of the portio dura came on, and, at the time of his examination in 1860, still persisted. In 1858 he had necrosis of the bones of the nose, and loss of a portion of the soft palate. About sixteen years after the date of his chancre, he commenced to have difficulty in commanding the use of his lower limbs on first arising from a sitting posture. This progressed for six years up to the date of his first visit. He would frequently trip while walking, had numb feelings in his legs, and twitchings in his muscles. His bladder had also been losing power for about five years, but more particularly for eighteen months be-

fore his examination. His calls occurred every two hours, and he had great difficulty in starting the stream. His bladder always contained three or four ounces of residual urine which he could not pass. His memory and mental activity were lessened. Under iodide of potassium pushed to ten-grain doses, and injections of the bladder, his legs gained power, and the paresis of his bladder diminished, so that he was able to get around and resume business. He was seen eighteen months afterward, and there had been no aggravation of his symptoms.

Case XXI.—(First seen January, 1869.) ——, aged forty, had chancre, followed by crops of eruptions several years before date, and two attacks of retention of urine in 1868. At the date of examination there was weakness with slight wasting of the lower limbs, constipation, and inability to empty the bladder entirely. He had been treated for reflex paralysis. A slight stricture also existed, the result of three attacks of gonorrhœa. He was put upon the mixed treatment, with excess of iodide of potassium, and his bladder was treated locally by injections, etc. He improved steadily with occasional set-backs, never being able to take a higher dose of the iodide than twenty grains. His legs recovered their strength in a measure, and his bladder its power in part. In the spring of the present year he sailed for Europe, and was doing well when last heard from.

Case XXII.—(First seen September, 1867.) ——, aged fifty-two, had chancre at twenty-eight, with non-suppurating bubo, followed by sore-throat. No symptoms due to syphilis seem to have followed this for more than twenty years, when he was attacked with a numbness in his legs, which rendered them hardly movable, but which gradually subsided into a clumsiness, a "stiffish feeling," with some paresis of the bladder. Ordinary treatment, persisted in for some time, failed to afford any relief, until finally five-grain doses of the iodide of potassium were given. After two doses (as the patient described it), he caught a severe cold, with violent catarrh, sneezing, spasmodic irritation of the glottis, headache, pains in his bones, etc., followed by a profuse sweating, which left his shirt and the sheets stained yellow where he was lying. His cold, however, gave him no further trouble, and, after the subsidence of this severe attack of iodism, all his symptoms lighted up in a marked degree. His legs became more manageable, and his bladder acquired force, while the feeling of constriction around his body, and an old pain in the back, disappeared, to return no more. A little mercury was added to his treatment, and he continued improving until his condition was satisfactory to himself, when he disappeared. The diagnosis of syphilitic disease of the cord in this case was made certain by the effect of treatment, without which it could have been at best but problematical.

Case XXIII.—(First seen July, 1864.) ——, aged thirty-two, had chancre, followed by eruptions, at twenty-five. After this, in 1860, he had paraplegia, which came on gradually, with paresis of the bladder, retention of urine on two occasions, and an epileptic fit in 1863. His paresis of the bladder persisted, as did his paraplegia, and, as he was very cachectic, spe-

cific treatment was not ordered at first, but he was sent to Saratoga for the summer. There his general health greatly improved, and after he returned to the city antisyphilitic treatment was commenced. The result of the case is not known, as the physician in whose immediate charge he was has since died.

Case XXIV.—(First seen April, 1859.) ——, aged forty, had chancre followed by eruptions several years before, and at the time of examination had still a milk-spot on the inside of his cheek. Paraplegia came on gradually in August, 1858, without pain in the spine or any apparent cause. Walking was difficult, sensation good. He was put upon increasing doses of iodide of potassium and improved to a certain extent, but the physician in charge not being now accessible, the final result of the case is unknown.

Case XXV.—(First seen October, 1866.) ——, aged thirty-eight, had chancre in 1862, treated with mercury, and followed by nocturnal pains. Two years afterward he noticed weakness in his legs, which gradually increased, accompanied by diminished force and volume in the stream of urine. Sensation as well as motion became impaired. A gummy tumor formed on the left leg. Iodide of potassium gradually pushed to ten-grain doses increased the power in his legs, and diminished the size of the gummy tumor. Three years from commencement of treatment he could walk without crutches, taking fifteen grains of the iodide at a dose, but he fell off again in a few months, having relaxed his treatment on account of mental disturbances connected with the late civil war. He again improved under treatment, but soon after disappeared, and has not been heard of since.

Case XXVI.—(First seen January, 1864.) ——, aged forty-two, had chancre followed by sore-throat and eruptions in 1851, for which he was treated during two years with mercury and iodide of potassium. For ten years he enjoyed perfectly good health until 1863, when he noticed commencing loss of power in his legs and feet, slowness of action of the bladder, afterward loss of sensation in his fingers and toes, and ptosis of the right eyelid. For several months before the date of examination, the patient had had no actual desire to pass water. He had been treated by Brown-Séquard for locomotor ataxia. Under increasing doses of iodide of potassium he improved to a certain point, where he remained stationary—able, however, to continue his business. His condition has since been one of *statu quo*.

Case XXVII.—(First seen in 1867.) ——, was born in January, 1862, of syphilitic parents. Three weeks after birth, an eruption spread over his whole body, having commenced at the corners of his mouth and nose. The eruption disappeared under the use of gray powder. Early in his fifth year large nodes developed on each tibia and on one ulna, attended by nocturnal pains. The boy was affected also with complete paraplegia on two separate occasions, the attack lasting only one day each time, and he habitually suffered from too frequent desire to urinate, especially at night. He

had headache, and was irritable, pallid, run down, dejected, and miserable. No specific treatment had been employed since the first three months of his life. Two-grain doses of iodide of potassium, increased shortly to four grains, with cod-liver oil, brought the patient up quickly to a condition of good health, though he still remained delicate. All the symptoms disappeared except the nodes, which remained in part. After leaving the city for his home, treatment was continued irregularly, and he ran down again somewhat. When the permanent incisors came out, they were syphilitic. The boy is now eight years old, and has had no return of his nervous symptoms.

Remarks.—These nine cases of paraplegia present nothing particularly remarkable. The extreme ages of the patients were four and forty-nine years, averaging over thirty, and the extremes of time, after contraction of the chancre, eight months and twenty-one years. In three cases the time was not accurately made out; and in one the disease was inherited, making a mean for the rest of about nine years. The bladder was sometimes simultaneously affected, sometimes first, and an actual cure was arrived at in only two cases. In one of these the attack was very mild, and in the other the disease was hereditary. In every case the bladder was affected, and the general treatment had very little influence over the bladder-symptoms. Local treatment had to be employed as well, to keep the bladder in a good-humor. Most of the cases were already old before they were seen, and a permanent effect seemed to have been produced upon the cord, so that, although treatment resulted in some improvement, and was always able to hold the disease in abeyance, yet it was powerless to reconstruct the delicate nerve-tissue which had suffered permanent impairment. All the patients are still on their feet, as far as heard from, but they all suffer more or less from the results of the injury inflicted by the disease upon the cord. The expulsive power of the rectum was impaired in several cases, but in none was the control over the sphincters lost, nor was the paraplegia ever complete. The bladder was involved in nearly all the cases, and did not respond well to general treatment, but had to be attended to locally. In hemiplegia the bladder nearly always escapes. The onset of the disease in the foregoing cases followed what seems to be the rule, in that they came on gradually, almost always without any complaint of pain in the back,

or other local symptom which might call the patient's attention to the seat of the mischief. Zambaco[1] states that there is no sign peculiar to paraplegia caused by syphilis, except rapid amelioration if specifics are used early—adding that, later, they (specifics) are often inefficient to bring about a cure. In none of the many cases to which he had access was the paralysis complete. Convulsive motions of the legs were rarely present, and very rarely was there any pain either spontaneous or provoked by pressure along the vertebral column. The onset of the disease also was nearly always insidious. Zambaco believes that the lesion is rarely an exostosis, more often gummy exudation. These cases may also be "*sine materiâ.*" Rollet[2] mentions the feeling of the girdle as not being uncommon, and further states that syphilitic paraplegia almost always comes on after all the other syphilitic symptoms, secondary and tertiary, have disappeared.

Paraplegia depending upon inherited syphilis is rare, but it differs in no essential particular from the paraplegia attending acquired syphilis. In Case XXVII. it was fleeting in character, and the bladder seemed to suffer most; but the treatment was commenced early, and was thoroughly effective. Loss of memory and some degree of intellectual impairment were noticeable in one or two of the foregoing cases, but not in the majority.

Berkeley Hill states that syphilitic paraplegia never occurs until several years after contagion (which statement Case VI. of this paper seems to contradict), and further, that, in these cases, "the eruptions of the skin have been obstinate and repeated, and in other respects syphilis has run a severe course." The above cases do not seem to agree with this statement, but rather appear to indicate that the disease has been inveterate without having been exceptionally severe. The date of the appearance of paraplegia after infection, in the foregoing cases, was nearly twice as long as that of hemiplegia.

[1] *Op. cit.*, p. 235, *et seq.* [2] *Op. cit.*, p. 927.

EPILEPSY.

CASE XXVIII.—(First seen May, 1866.) ——, aged thirty-eight, had chancre at eighteen, with non-suppurating bubo, followed by sore-throat, for which he took mercury. Afterward he was troubled with pains in different parts of the body, which were always relieved by the iodide of potassium. In October, 1865, he had several epileptic seizures, followed by paralysis of the external rectus of the left eye, causing diplopia. Iodide of potassium in increasing doses was followed by a disappearance of the diplopia, and no more convulsive attacks occurred until 1868, when they reappeared and were attended by numbness along the course of the ulnar nerve. The iodide of potassium again removed the symptoms. The patient is now living in the Far West, and has not been heard from for about two years. Previously to 1866 he had been treated in New Haven, by the late Worthington Hooker, for a very grave condition of the brain, threatening life, which the doctor called "encephalitis," and from which he recovered.

CASE XXIX.—(First seen in November, 1863.) ——, aged thirty-six, had chancre in 1846, with non-suppurating bubo. In May, 1862, he had in rapid succession six epileptic convulsions, preceded by aura, controlled by ligature around the arms. A gummy tumor existed on the leg at the date of the examination, and a cluster of little indolent ulcers on the shoulder. There were also some irregularities on the back part of the skull, attributed by the patient to blows and falls. Mercurial inunctions with the iodide of potassium internally were ordered, but the result of treatment is not known. This patient was seen in consultation.

CASE XXX.—(First seen February, 1870.) For the history of the following case I am indebted to the kindness of Dr. Wm. H. Draper, the physician in charge, with whom the case was seen in consultation. ——, aged about forty, contracted chancre, without attendant bubo, in 1861, which was treated (probably with mercury), and was followed by no symptoms attributable to syphilis for two years. At this time, however, osteocopic pains came on, chiefly about the joints, and a circumscribed superficial ulcerated syphilide about the face and in the beard. Under mercurial fumigations the ulcers healed, but the pains continued with more or less severity, and the patient acquired the habit of opium-eating (taking about a bottle of McMunn daily). He took also, under advice, small doses of iodide of potassium, but not enough to affect his pains materially. In the winter of 1868 he came under the care of Dr. Draper, greatly run down in general health, with his pains still persistent and nodes on the forehead and vertex. He was put upon the regular use of rapidly-increasing doses of iodide of potassium, and at the end of six months had nearly discontinued his opium, and his pains had left him. He had reached at this period a daily dose of ninety grains, and continued at that amount, free from his pains and in a condition of robust health which he had regained. In Feb-

ruary, 1870, he noticed some dimness of the eyes, not sufficiently marked to keep him from business, but becoming progressively more severe during several days, until one morning at breakfast he experienced a severe pain through the back of the head behind the ears, accompained by nausea and vomiting, and great restlessness and excitement. He suddenly became totally blind during the afternoon, and had a period of apparent loss of consciousness, preceded by some muscular twitchings of the face. His pain in the head gradually worked forward, until it took up its position through the temples. From having previously been delirious and excited, he now became torpid, stupid, and apparently insensible, and had subsequently four epileptiform convulsions during the night. Neither morphine, nor chloral, nor the inhalation of chloroform, afforded more than a temporary and unimportant relief—twenty grains of calomel were also administered. In this desperate condition, in the early morning of the second day, nearly twenty-four hours after the commencement of the attack (an intercranial syphilitic lesion being considered the cause of the symptoms), the iodide of potassium was commenced in half-drachm doses every two hours, alternating with a little chloral, and was administered regularly. In twenty-four hours intelligence had already returned in a measure. The patient called for his wife, and, although still blind, his eyes were conscious of perceiving light. His improvement was steadily and rapidly progressive. His headache diminished and disappeared entirely, and his sight became perfect within a few weeks. He had no more convulsions. As his symptoms disappeared, the dose of the iodide was gradually diminished down to ninety grains a day, where it now stands. The patient was seen a few days since, in the full enjoyment of health. The eyes presented no abnormal appearance during the attack. It is to be regretted that the ophthalmoscope was not used. The pupils at first were normal, later both dilated.

Remarks.—These three cases, with Case IV., of epilepsy, or more properly epileptiform convulsions, make a rather small number from which to draw reliable deductions. In two of the cases, as the epileptic attack did not come on while the patient was under immediate observation, no inquiry was made in regard to headache; but both cases occurred after the age of thirty, and long after infection, and the paralysis of a single muscle of the eye which followed, together with the prompt effect of treatment, confirm the diagnosis in the one case; while the existence of other syphilitic manifestations and the rapid succession of the convulsions, succeeded by a long interval of freedom from attacks, make the diagnosis but little less doubtful in the other. In the last case, headache was a prominent symptom, and the success of treatment makes further

comment upon the nature of the case unnecessary. The accompanying blindness is a rare symptom. It occurred also in Case IX.

Lancereaux[1] states that it has not yet been proved that epilepsy has occurred without a material lesion. The aura is often absent in syphilitic epilepsy, though it has been observed.[2]

APHASIA. MANIA.

Case XXXI.—(First seen March, 1861.) ——, a delicate young man, aged about thirty, contracted chancre in 1860. This was followed by successive crops of eruptions, and nocturnal headache. The mercurial bath put an end to the symptoms, and the patient remained well for about seven years. In the spring of 1869 he was suddenly attacked with numbness of the tongue and extremities, and partial aphasia, which latter continued, and became aggravated after any fatigue or excitement. He became irritable, and had difficulty in controlling his temper. He manifested evidences of mental weakness, became eccentric and suspicious, and had some slight delusions, with frequent temporary loss of speech, and difficulty of articulation at all times. In writing letters, he would leave out words, omit words in speaking, tell stories twice, laugh and cry too easily. In the fall of 1869, mydriasis of the right eye came on. All these symptoms appeared, while he was taking iodide of potassium internally, and mercury through the skin. The iodide of potassium was now suddenly raised to a dose of sixty-seven and one-half grains, three times daily, with the effect of increasing the patient's weight, and lighting up the brain-symptoms. This dose, however, disagreed with the stomach; a little morning nausea came on, attended by falling off in weight. One dose of the iodide was consequently omitted, and he was sent into the country (spring of 1870), when he immediately ceased falling off, and improved steadily and rapidly until he considered himself well as far as syphilis was concerned. He now writes long and perfect letters. His temper and condition of mind are normal, and when last heard from, a few weeks ago, he was in a very satisfactory condition, and still improving. His wife gave birth during the present year to a healthy child, which up to date has given evidence of no syphilitic taint.

Case XXXII.—(First seen October, 1862.) ——, aged forty-seven, contracted chancre, followed by eruptions, at thirty. Afterward she was troubled with periarticular pains, which were always relieved by iodide of potassium. In October, 1862, she became full of talkative illusions, had all her teeth pulled, etc. In September, 1867, after suffering for some time from severe pain in the head, she was seized with acute mania. Twenty

[1] *Op. cit.*, p. 450. [2] Gamberini's case, obs. 202, Lagneau fils.

grains of the iodide of potassium, every four hours, seemed at first to arrest the violence of the mania a little, but she soon refused to take nourishment or medicine, and died in a month, worn out. She became perfectly rational for a few moments before she died. A *post-mortem* examination could not be obtained.

CASE XXXIII.—(First seen April, 1870.) ——, aged fifty-two (date of chancre uncertain), had a protracted sciatica some years before the date of examination, which a trip to Europe did not benefit, but which got well finally under the iodide of potassium. In October, 1870, he fractured his arm. The bones failed to unite. Afterward, they became consolidated while taking thirty-grain doses of iodide of potassium three times daily. At this time he had a large nodulated liver, and a periostitis on the fractured radius. In April, 1870, he ran down in general health, and suffered from dread, paroxysms of restlessness, and delusions as to imminent poverty amounting to mania. One-drachm doses of iodide of potassium soon "lifted the cloud," as he expressed it, and restored his mind to a natural condition. At the end of April, the liver showed no signs of enlargement. In July last, the patient being out of town at the time, a relapse occurred in the shape of another attack of mania, more severe and well marked than the first. He became unmanageable, and his family was advised to have him restrained, and forced to submit to treatment. My letters to the country have remained unanswered, and I have been unable to learn the present condition of the patient.

CASE XXXIV.— ——, aged about thirty, contracted chancre in early manhood, followed by roseola. It was treated with mercury, and no other symptoms occurred, until five years afterward, when he was affected with mydriasis in one eye and pain over the orbit of the same side. His temper also became excessively irritable. Small doses of corrosive sublimate improved his condition somewhat, but his mind became progressively weakened and affected with delusions. He took mercury, but could only be made to use small doses of the iodide of potassium, on account of the acne which that remedy produced. He finally developed ambitious and exalted ideas, which made it necessary for his friends to have him restrained. This was accordingly done, his insanity progressed, general paralysis came on, and he died. His brain was examined, but no positive lesion was made out.

This case is very imperfect. The patient was under the observation of many physicians, but no accurate note was taken of his case, nor was he ever steadily and regularly treated by any one. He died at Bloomingdale under the care of Dr. D. Tilden Brown, and that gentleman informs me that the insanity at the time (which was several years ago) was not considered to be of syphilitic origin. The doctor informed me,

however, that, if he had the case now to treat, he would use large doses of the iodide of potassium.

Remarks.—Here are three cases of derangement of the intellect, occurring in syphilitic patients, none of whom (the mydriasis of the first case excepted) had any attendant paralysis of motion or sensibility. In all the iodide of potassium brought about a cure, although in two relapse occurred. The aphasia of the first case needs no comment. Tamowsky's monograph, already cited, is exhaustive on the subject of syphilitic aphasia, but fails to point out any distinguishing mark between it and the aphasia arising from other causes, except the concomitance of the syphilitic diathesis. That there is, however, an aphasia caused by syphilis the fifty-two cases collected by Tarnowsky out of the literature of syphilis place beyond a doubt, and that it is often curable by specific treatment is equally evident. About the last case (Case XXXIV.), of which I am able to give only such a slender report, I would say that I have introduced it on account of the firmly-expressed opinion of Dr. Van Buren, who had charge of the case at one time, that the insanity was of syphilitic origin.

Upon the subject of mania, however, authorities do not seem to agree; and it is claimed by many that the causality of insanity by syphilis has not been made out. Lancereaux[1] says, "perhaps we must also admit a syphilitic mania." Follin denies the existence of "folie syphilitique" as a specific symptom; while he accords to syphilis a like power with misery, privations, excesses, and griefs, in contributing to the development of insanity. Rollet[2] agrees with him that, outside of these cases, "there are no other intellectual troubles depending upon syphilis except those associated more or less with lesions of sensibility and of movement, and which result from a compression, for example, or from some other organic alteration of the brain, as in the epileptiform attacks of syphilis, which simulate rather than constitute epilepsy." Gros and Lancereaux,[3] founding their decision upon some cases of Essmarck and Jessen, Ricord and Hildenbrant, agree to the facts of enfeeblement of intelligence, and mania, being caused by

[1] *Op. cit.*, p. 470. [2] *Op. cit.*, p. 935. [3] *Op. cit.*, p. 130.

syphilis, without the necessary concomitance of any paralytic or other nervous symptom, and their cure by specific treatment. Lagneau fils[1] admits the possibility of all forms of perversion of the intelligence, from mania down, being caused by syphilis, without any necessary accompanying physical symptom. Zambaco,[2] while admitting that many of the perversions of the intellect may, like some of the paralytic forms, be cases of nervous syphilis, *sine materiâ*, as they are called, yet doubts if any cases of pure insanity have been made out to be of syphilitic origin. Whether, then, Case XXXIV. was syphilitic insanity or not, cannot be affirmed. But in conversing with Dr. Brown about the patient, he informed me that the belief had been gaining ground for several years past, among the German and English specialists in mental diseases, that this form of insanity, attended with or followed by paralysis, might be of syphilitic origin, and that, if he had the patient now to treat, he would consider the case as syphilitic, and use iodide of potassium in large doses.

But be it as it may for actual insanity, there are enough cases of intellectual disturbance on record short of insanity, coming on in the course of syphilis, without any physical paralytic symptom, and relievable by treatment, to establish the claim of cause and effect between the two. One great question, however, has never been broached, and its consideration may lead to the detection of other and more subtle symptoms of cerebral syphilis than we are yet possessed of. The question may be stated as follows: Does the presence of the syphilitic diathesis ever so enfeeble the intellect as to render the subject less capable of mental exertion than he was before he acquired the disease, without at the same time giving rise to intellectual eccentricities or loss of memory sufficiently noticeable to disclose his mental condition to his associates?

It seems probable, *a priori*, that this question may be answered in the affirmative, but to state it positively would be going too far, and would require proof, which I am not at present prepared to give. It will be interesting, however, to study syphilitic patients, who have manifested no well-marked

[1] *Op. cit.*, p. 88. [2] *Op. cit.*, p. 508.

nervous symptom, with a view to determining whether their emotional expressions have become exaggerated, and whether they are as capable of prolonged mental effort as they were before the contraction of their syphilis.

One source of error in the study of nervous syphilis is the wonderful resemblance which exists between some of its manifestations and those seen in severe cases of nervous gout; such as cerebral congestion, with a feeling of dizziness or vertigo, culminating in aphasia; loss of memory; severe continued headache; irritability of temper; loss of confidence, and suspicious tendencies to the extent of mild illusions; local neuralgia, as of the sciatic; numbness along the course of certain nerves, as the radical or ulnar, etc. All these symptoms may be the effect of the gouty as well as of the syphilitic poison acting upon the brain and nervous centres, and a diagnosis can only be made out by a thorough study of the general condition and previous history of the case. The symptoms of the one yield to the alkaline and eliminative treatment; of the other, to anti-syphilitic remedies.

Prognosis.—The prognosis of the lighter and earlier nervous manifestations caused by syphilis is good. For the later symptoms, when not very severe, it is also good in regard to the symptom itself, and this especially if the patient is seen early; but still the prognosis must always be guarded as far as the probability of relapse is concerned, and it must be remembered that, if there is reason to suppose that nerve-tissue has been destroyed or injured, although the disease may be arrested, and no further injury done, yet new and healthy nerve-tissue cannot be reformed by treatment any more than a scar left by the ulceration of a gummy tumor can be obliterated, and more or less impairment of function will be permanent. This remark applies especially to syphilitic disease of the spinal cord giving rise to paraplegia.

Still, the opinion of Rollet is sound in regard to the prognosis in the severest cases, and in a given case, with given nervous symptoms and a given lesion, the prognosis is better if syphilis can be made out as the cause of that lesion, than if the cause lies in any other disease of the nervous centres.

Treatment.—Some of the nervous, like many of the other symptoms of syphilis, have been known exceptionally to disappear without treatment, and the patient to suffer no relapse. Case XVII. of the present article is an example in point, where no relapse of the disease in any form occurred, although the injury to the brain-tissue, sustained at the time of the occurrence of the hemiplegia, manifested itself ever afterward by impairment of motion in the side which had been paralyzed. It is the rule, however, for nervous symptoms to relapse, and to become progressively more severe, unless an appropriate treatment is interposed; and, in inveterate cases, sometimes, in spite of a treatment seemingly the best directed.

It is useless to halt and parley about the many medicaments which have been vaunted in the treatment of syphilis by different authors. We have two powerful weapons with which to vanquish the disease, and, when these fail us, we may well despair. Mercury and iodine are both efficacious against the nervous manifestations of syphilis.

It is fashionable to give mercury early in syphilis and iodide of potassium late, but like many another good rule this one has its exceptions. Many cases of nervous syphilis were treated successfully with mercury by the older physicians before Wallace introduced the iodide of potassium as a cure for syphilis, or Ricord established its peculiar efficacy, when used to combat the later forms; and since that date the records still show cases of successful treatment where mercury alone was used.

But the iodide of potassium has proved itself the remedy *par excellence*, and almost miraculous results are sometimes obtained by its administration in cases seemingly desperate. What can be more appalling than to be called suddenly to a case, and find the patient in a condition like that described in Case XXX. or Case X. of this paper, with no history of the antecedents of the patient to guide the treatment? What a feeling of relief at such a moment of doubt, if we can discover facts about the patient's previous history from his friends to make us believe syphilis the probable cause of the attack—such as the existence of mydriasis in one eye, perhaps long before, paralysis of some of the separate muscles of the eye, irritabil-

ity of temper, hesitation in speech, loss of memory, inordinate emotional displays, or fixed pain at one spot upon the head for a long time before the attack; and if, added to a few of these symptoms, we learn that the attack, if it was hemiplegia, came on without loss of consciousness, or if it came on gradually, and we detect on examination some swellings on the bones, or old scars with a syphilitic aspect, or make out an enlarged liver, and, last but not least, if you press heavily upon the patient's head at the spot where he has been accustomed to complain of his pain, and cause him to wince and burst into tears, or to look up stupidly into your face and commence to laugh in an idiotic way: with these symptoms, I say, or even a few of them present in a given case, I think the diagnosis of syphilis is justifiable, and that the administration of iodide of potassium should be commenced at once in a large dose by the mouth or anus, and steadily and rapidly carried up to toleration.

How gratifying, after such a course, as in Case XXX., already alluded to, to see a few days bring back light and intelligence into the patient's eye, speech to his tongue, and motion to his limbs! Truly it seems in cases like these that our art can save life.

The dose of the iodide of potassium has been advocated at a higher and higher figure. Whether the maximum has yet been reached, who shall say? I believe the only indication to stop increasing the dose is an arrest in the symptoms. In Case X., where the disease was old and inveterate, and the relapses during treatment enough to cause despair of final success, and while relapse after relapse would come on, and subside under an increase of the dose of the iodide, yet the headache never left the patient for more than a few days at a time, until the dose was run up to one ounce daily (in four two-drachm doses), and then it disappeared and kept away under that dose for six weeks, although from the beginning of his last series of attacks it had been his almost constant companion. The other symptoms were also held in check by this dose for the period of six weeks.

If any rule can be hazarded on a vital question of this sort, I should say, in a severe case, where the patient is found

stricken down by a paralysis of which a syphilitic origin seems probable, commence, not with five or ten grains, but with twenty or thirty grains of the iodide of potassium, every four or five hours; and the patient may be sometimes rescued from the jaws of death, and those serious changes of nerve-tissue so often left behind, making the patient more or less of a cripple for life, may be, I believe, often averted—always moderated. Iodism is not to be feared. Acne is usually the only symptom caused, and that is very bearable.

But mercury, which has so powerful an influence upon all the stages of syphilis, cannot be denied its share in the treatment of the nervous forms. It is, I believe, the general opinion among authorities, that mercury should be given for the nervous manifestations of syphilis, when they come on at an early stage of the general malady. Although this cannot be positively disputed, yet it is well known that the iodide of potassium often dispels these symptoms like a charm. Mercury, again, has been specially recommended where the disease is believed to be a pachymeningitis or inflammatory in any form, as the softening which occurs after a while around a gummy exudation; while on the other hand specifics have been considered of little value to combat the inflammations lighted up around a syphilitic deposit, and antiphlogistics have been recommended in these cases to allay the inflammatory symptoms at first, specific treatment to be taken up after their subsidence.

But who shall decide that softening exists, when no less an acute observer than Ricord tells us that a syphilitic patient died in his service, with all the symptoms of cerebral softening, while a carefully-made autopsy could detect no lesion whatever in the brain or its envelopes? Safety consists in pushing the most powerful remedy first, and this the iodide of potassium has shown itself to be. If the lesion is bony or gummy, it is almost sure to yield to this remedy, steadily and rapidly pushed, and in the vast majority of nervous symptoms caused by syphilis the lesion is bony or gummy.

Still, mercury can be often called in with advantage to assist the treatment. In a chronic case of nervous syphilis, when improvement has continued for a certain time under a given

dose, it often ceases, and then it is that the substitution of some mercurial vapor-baths or mercurial inunctions for the other medicament will cause the symptoms again to progress favorably. Or, perhaps better still, a little mercury may be added to the treatment, the iodide of potassium still being continued, constituting what is called the mixed treatment. No positive rule can be laid down for guiding the alternating or the mixed treatment. When improvement ceases under one, the other must be tried, and judgment and experience must decide upon the course to be pursued in a given case.

When mercury is employed, is it to be pushed to salivation? I think not, although some cases are recorded where improvement did not commence until signs of ptyalism began to manifest themselves (Benjamin Bell, obs. 56, Lagneau fils), and the cure was not obtained until salivation had been kept up for some time. Yet, in the vast majority of cases where mercury is used, I think the treatment by extinction is to be preferred; that is, not pushing the mercury beyond the point where the mouth is slightly touched, and then keeping ptyalism off by every means possible, but continuing the mercury.

The stomach must be carefully watched during the treatment, which should be prolonged for a number of months after the disappearance of the symptoms, for a period longer or shorter according to the severity of the attack, and the tendency which the disease may have shown to relapse. Tonics and cod-liver oil are often of great importance; while proper food, regularity of habits, and fresh air, are sometimes positive essentials to the success of specific treatment. Sometimes the state of cachexia is so marked that, unless the nervous symptoms are threatening and progressive, it is injudicious to commence with the specific treatment, until a tonic course, with some weeks in the country, have built up the patient to a certain point, as in Case XXIII., after which the treatment seems to take hold better. Case XXXI., again, is an instance of how much change of air can do with a continuation of the treatment. In this case improvement ceased, and the patient began to run down in the city, but on being sent to the country he immediately began to mend, his iodide being still con-

tinued, though at a less dose. Frictions and electricity are of service in old cases, especially where there is any muscular atrophy. Allusion has already been made to the necessity of special treatment for the bladder in cases of paraplegia.

My remarks upon treatment have been brief and general on account of the impossibility of laying down fixed rules. Every case is a study in itself, and must be treated upon its own ground. While a little mercury will cause salivation in one, another may take immense doses without any similar effect. This one will improve under frictions when internal treatment seems of no avail, and another will respond to the mercurial vapor-bath when no other means of introducing the metal appears to agree. Again, five-grain doses of iodide of potassium may, exceptionally, produce violent symptoms of iodism, as in Case XXII., while an ounce a day may only give rise to an acne, as in Case X. The iodide of potassium should always be given largely diluted with water, and never, if it can be avoided, upon an entirely empty stomach.

Conclusions.—By way of a *résumé* of the foregoing study of cases, I think it is justifiable to conclude—

1. That nervous symptoms depending upon syphilis may arise within the first few weeks after an infecting chancre, or at any period later during the life of the individual.

2. That it is presumable, from the study of published autopsies, that the earlier a nervous symptom (paralytic or otherwise) occurs, the less likely is there to be any material lesion which an autopsy can reveal; and that in a given case there exists no constancy of relation between the nature, the situation, and the severity of the lesion, and the nature, situation, and severity of the nervous symptom, to which that lesion may give rise.

3. That cerebral congestion is probably the pathology of many of the earlier nervous syphilitic symptoms.

4. That syphilitic hemiplegia occurs, as a rule, without loss of consciousness, even when the attack is sudden; but that the paralysis usually comes on gradually, the patient being under forty years of age, and having had fixed constant headache for some time before the attack.

5 That mydriasis, existing alone, or with other nervous

symptoms, without positive disease of the eye, is presumptive evidence of syphilis.

6. That paralyses of single muscles, or sets of muscles, are frequently syphilitic.

7. That syphilitic paraplegia generally comes on gradually, often without any local symptom to call the patient's attention to the injured portion of the cord, and that it is rarely complete. That the bladder almost always suffers more or less, and calls for special local treatment. That paraplegia may be developed as a symptom of inherited syphilis.

8. That syphilitic epilepsy usually occurs after thirty, in patients who have not had epilepsy in early life. That headache is liable to precede the attacks. That the convulsions occur often, many in quick succession, the intermission between the series of attacks being comparatively long, but that, during this period, headache or other nervous symptoms exist and become aggravated, contrary to what obtains in idiopathic epilepsy. That syphilitic epilepsy is liable to be associated with, or followed by, some form of paralysis.

9. That aphasia is often associated with the intellectual disturbances caused by syphilis.

10. That loss of memory is a common nervous symptom of syphilis, as are also all forms of mental disturbance—from mild hallucinations and illusions up to actual insanity, and all these without any necessary accompanying paralysis.

11. That inordinate emotional expressions are often associated with the mental weakness caused by syphilis.

12. That care must be taken to distinguish certain symptoms caused by gout, from the same symptoms owing their origin to syphilis.

13. That the prognosis is better as a rule for nervous symptoms caused by syphilis than for the same symptoms depending on a lesion equal in extent, caused by another malady of the nervous centres; but that, after the arrest of the disease, an indelible impression is often left upon the nerve-tissue, which manifests itself by impaired function, and which treatment cannot overcome.

14. That the iodide of potassium pushed rapidly to toleration, unless the symptoms subside before that point is reached,

is the main outline of treatment. That mercury, used at the same time, or alternated with the iodide of potassium, is often of great value in protracted or inveterate cases; and that tonics, change of air and surroundings, frequently influence the effect of treatment in a marked degree, and may become essentials to success.