air which prevents this occurring each time we shake up water in a phial, while in the partial vacuum of the water-hammer, the beautifully elastic cushion of the air has been purposely removed.

The conclusion to be drawn from these observations is, that it is not safe to explore the interior of the bladder in the female with a catheter or hollow sound, while there is any chance of the fluid escaping and being suddenly stopped during the operation. This rule does not apply to the case of the male bladder, on account of a male catheter being generally so much curved as to prevent the urine flowing through it at any great velocity. If, however, in examining the bladder for stone, we always use a solid sound, there can be no such error; or if, which is in effect the same, we keep the plug in the hollow one while it is moved about in the bladder, these concussions will not occur, and a possible fault of diagnosis will be avoided.

ON LOCOMOTOR ATAXY.*

By J. LOCKHART CLARKE, M.D., F.R.S., etc.

CASE I.—R. L., aged 35, and a very intelligent man, carrying on the business of a shoemaker at Richmond, was sent to me by a practitioner of that town. About seven years back he began to feel what he called rheumatic pains, caused, as he supposed, "by working in a draughty shop." These pains were first experienced in his feet and legs; seldom in his thighs. They come on suddenly and violently, like electric shocks, but may be absent for several days together. As in most other instances, there are two kinds of pains—the one gnawing or "rheumatic", the other lancinating. Sometimes they begin in the knee-caps, sometimes at the back of the knee-joints, and always shoot upwards from below. He has scarcely ever experienced any pain in either of the upper extremities. For the last five or six months he has had numbness all over his feet, reaching above the ankles. For the last twelve months or more he has felt, as he says, "great weakness in his legs", so that he could not walk properly, but swayed about like a drunken man. He feels exceedingly nervous and stiff when he first starts, but walks better as he proceeds. His movements are somewhat jerking or spasmodic, and he feels exhausted after walking a short distance. He has no hold of the ground upon which he walks, but nevertheless it feels hard. When he stoops to pick up an object, his feet seem to slip from under him. He can walk without looking at his feet, and generally walks without doing so. He can stand, also, with his feet close together, although unsteadily, when his eyes are open; but, when he shuts his eyes, he reels, and would fall if not supported.

His upper extremities are as strong as they ever were, and he has perfect use of his hands in working at his trade; but, nevertheless, the ends of all his fingers, except the thumbs, have been feeling a little numb for some weeks. For the last eighteen months or more, he has felt occasional gnawing pains round the chest and waist, with numbness and constriction, and has occasional pains in the loins. He has never suffered from piles, as many of these patients do, but he has frequently incontinence of urine; and, on the other hand, has frequently a difficulty in passing it, although the desire be urgent. He married a year ago, and has one child. There is no loss of sexual desire or power. His habits are temperate, and he smokes moderately. His father died of phthisis, but he knows nothing about the death of his mother.

The ocular affections of this patient, which are very striking and interesting, came on *subsequently* to the pains and the muscular incoordination. When looking straight at me, there is slight internal strabismus of both eyes—very slight in the left, and rather more in the right eye; but in this position he can see me only as a dim figure, or rather only part of me dimly; but if he turns his head half round to the right, he sees me perfectly, and then there is no squint. When he turns his head half round to the left, he can scarcely see me, the right eye being turned, but only partially turned, outwards, while the left eye turns fully inward, so that there is a very considerable squint. In the same position in front of me, when the *left* eye is covered, he can see me with the right eye *pretty distinctly*; when the right eye is covered, he can see me *perfectly* with the left; but with both eyes, while looking in the same direction, I appear double. He almost always sees double when moving about indoors or outdoors; but never sees double when he reads. Sometimes the side of a house, or a wall, does not seem to be one-third of its proper distance. His sight is very good, for he reads the smallest print with facility. Both pupils are contracted to the size of large pins' heads. His smell, taste, and hearing, are perfect.

CASE II.—The second case was a man named Hurst, 45 years of age, and by trade a draper. He was married, and had two children. Four

years ago, he had a heavy fall on his back, from which he felt no immediate effects. About five months after, however, he began to complain of weakness in his legs, but his manner of walking was not then altered. The weakness gradually increased, until he was wholly unable to walk, or even stand. After a time, however, he got much better, and regained the power of walking. He never had any pains either in his arms or legs, and was never affected with strabismus or amblyopia. When I first saw him, although he had regained the use of his legs, he was unable to walk without the support of a person's arm or of two sticks. His legs were rather numb, but he could feel that he was walking on hard ground. He had some weakness of the arms, and slight numbness of the finger-ends. His hands always felt numb when he awoke in the morning; but the movements of his hands and fingers were not much affected, and he could button his clothes without much difficulty. He complained of a heavy pain at the back of his neck, and extending round the back of his head. There was total loss of sexual power and desire from the commencement of his illness. He had frequent incontinence of urine, and sometimes of faeces. In walking, the movements of his legs had the peculiar prancing and spasmodic or jerking character that belongs to the advanced stages of locomotor ataxy. The patient died rather suddenly of inflammation of the lungs.

Post Mortem Examination.—On opening the head, some fluid was found on the surface of the brain: the arachnoid was thick and opaque in certain parts, with effusion of lymph beneath it. Some of the superficial veins were very full of blood. There was some atrophy of nearly all the convolutions, and the grey substance was of a slate-colour. With these exceptions, all parts of the brain-substance presented their usual appearance.

There was a large quantity of fluid in the thorax pressing on the lungs, which, in some places, contained tubercles of different sizes, and had evidently been recently inflamed. There were extensive adhesions of the pleura. The heart was rather large, with a considerable quantity of fat on its surface. The ventricular walls were thin, but not otherwise unhealthy. The tricuspid valves were atheromatous, but not sufficiently so to impede their proper action. The semilunar valves were healthy. The liver was rather uneven on its surface, and somewhat nutmeggy. The kidneys were healthy. The pia mater and arachnoid membranes of the spinal cord were thickened and adherent to each other; the former was much congested. The posterior columns, through the whole length of the cord, had undergone, to a considerable extent, the grey degeneration and disintegration peculiar to locomotor ataxy. But, besides this alteration of the posterior columns, the grey substance was in every region more or less softened and damaged by disintegration, but particularly in the lower dorsal and lumbar regions, about the centre of each lateral half and around the

Fig. 1.

canal. Fig. 1 represents a transverse section of the upper part of the lumbar enlargement. The posterior columns, from *a* backward to the surface, had lost a large proportion of their nerve-fibres, and were much more transparent than the rest. In the centre of the section was a large, irregular, and transparent area of granular disintegration, represented black in the figure. It extended from the middle of each lateral half of the grey substance (*b, b*), between the anterior and posterior cornua, across the deep strata of the posterior columns. Other small and irregular patches were scattered around the central canal *c*.

This case is one of exceeding interest; for the symptoms are such as might easily lead to a doubtful or erroneous diagnosis, while the real

* Continued from page 4 of number for July 3rd.

nature of the malady is clearly revealed by the *post mortem* appearances. The patient was twice admitted into the infirmary of one of the metropolitan poorhouses for supposed incomplete hemiplegia. Once he was admitted into Lambeth Workhouse for paraplegia, and subsequently into the London Hospital for locomotor ataxy, under Dr. Hughlings Jackson. The heavy fall on the back, followed soon after by rapidly increasing weakness of the legs, without at first any remarkable incoordination of movement, would suggest the probability of paraplegia rather than locomotor ataxy. In the latter disease, although weakness of the legs is commonly experienced from the first, it does not proceed rapidly to such an extent as in the present case, and is always accompanied by increasing incoordination of movement before the patient is deprived of the power of standing or walking. Moreover, there was an entire absence from the limbs of those peculiar pains which, with very few exceptions, are amongst the earliest symptoms of locomotor ataxy. There was an absence, also, of the ocular disturbance which so frequently precede and accompany the pains. On the other hand, there were evidently many of the characteristic symptoms of this disorder, as numbness in the hands and feet, the impaired muscular coordination of the fingers, the peculiar jerking or spasmodic action of the legs in progression, and the occasional incontinence of urine. The sum of the symptoms, when properly weighed and considered, would lead to the inference that the case was one of partial paralysis combined with locomotor ataxy; and the correctness of this diagnosis is confirmed by the lesions which were found in the cord; for not only were the posterior columns, and many of the posterior nerve-roots, affected by that peculiar degeneration which belongs to locomotor ataxy, but the grey substance, particularly in the lumbar region, was extensively damaged by softening, and by those areas of granular and fluid disintegration which I commonly find in spinal paralysis, and which I hope to have the pleasure of showing you. There is one point, however, which does not appear to be so satisfactorily explained; viz., the total absence of the pains which are almost always experienced in locomotor ataxy. It may be that the extensive disintegrations of the grey substance of the cord interrupted the transmission to the sensorium, of the irritations arising from the disintegrating central ends of the posterior nerve-roots.

[To be continued.]

ABSCESS OF THE BRAIN, WITH ANOMALOUS SYMPTOMS.

By C. W. THORP, L.K.Q.C.P.I., Todmorden.

THE patient was W. I. B., aged 29, by occupation a general manager of several large cotton-mills, of red hair, sallow complexion, tall and slight figure. He was married, and had one child, aged six months. He was an active man, both in mind and in body. He spent a year in Egypt, whence he returned in July 1865, invalided from the effects of liver-derangement. He also suffered from ophthalmia whilst there. During the time I knew him (about three years), he enjoyed generally very good health, except once, when I attended him for an attack of jaundice. He had also occasional slight hepatic disturbances. He had never received any injury of the head; nor had he suffered earache, nor had any discharge from the ear or the nose. For about a fortnight before his fatal illness, he complained of headache and other dyspeptic symptoms, which were considered bilious; and occasionally, for some time previously, suffered from headache and indigestion, but attended to his business regularly up to March 10th, 1869, when he sent for me, having suffered acutely from his head during the previous night. His tongue was furred; pulse 68; skin hot. He felt sickness of the stomach. I ordered an emetic, a pediluvium of mustard and hot water at bedtime, and cold water to be applied to the forehead.

March 11th. He was slightly better. An aperient was given.

March 12th. He had a bad night. He complained of a constant throbbing pain, greatly increased on moving the head, feeling as if some one was beating him with a hammer. He was given five-minim doses of liquor opii sedativus with bicarbonate of soda, with slight relief.

March 13th. He was not any better. The character of the pain remained the same. He vomited some tea taken at breakfast-time. I ordered sinapisms to the back of the neck and calves of the legs, and half a grain of calomel every hour.

March 14th. There was not the slightest improvement. The pulse was full, never having varied more than eight beats in the minute since the 11th. The tongue was coated with brown fur. He had great pain, referred specially to the right side of the head, chiefly to the temple, but

extending to behind the ear of that side. This, taken with the peculiar throbbing sensation, made me now think that an abscess had formed within the cranium. He had slight difficulty in passing urine. There had been no action of the bowels since the 12th. The calomel was continued. He had had a good deal of sleep at intervals during the last two days. I ordered eight leeches to the temples, a blister to the nape of the neck, a cold lotion to the forehead after the leeches had ceased to bleed, and half a grain of podophylline at bed time.

March 15th, 6 A.M. There was no cessation of the pain, which was still of the same character. He had been very restless during the night; had hardly any sleep. He had frequent desire to pass urine, though unable to do so. The pulse was as before; the tongue furred. The head was shaved, and ice applied. Colocynth and rhubarb pill, with blue pill, were given during the night. He had slight desire to go to stool, but was unable to effect it, through faintness. Weak brandy and water was ordered.—1.30 P.M. About twenty ounces of healthy urine were drawn off with the catheter; it deposited lithic acid after standing.—6 P.M. Urine was passed naturally again. Beef-tea had been his chief diet for the last two days. He also had port wine to-day.

March 16th, 8.30 A.M. He had been slightly delirious when coming out of short sleeps during the night. The pupils had not been affected at any time; or, if anything, slightly contracted. The conjunctivæ were congested. Numbness of the left side came on during the early morning. There was slight muscular paralysis, more of sensation. He passed urine frequently at night, voluntarily; the bowels were not moved.—9.25 A.M. Mr. Turner of Manchester saw him with me. He was quite conscious, and talked naturally. A grain of calomel was ordered to be taken every four hours. A great quantity of feculent matter came away after an enema of salt and warm water. The blister at the back of the neck was dressed with strong mercurial ointment. Another blister was applied to the left side of the head, so as to allow ice to be applied to the other. This blister was obliged to be removed after two hours, from the irritation which it produced, though it had blistered in that time.—7 P.M. The pain was much worse, particularly in the right eye, which was surrounded with a purplish red halo. He had restless jactitation.—10 P.M. Pain was now referred to the left eye.

March 17th, 12.30 A.M. Ice was the only thing that gave any relief. He became more quiet, and seemed to sleep occasionally.—5 A.M. He was more restless. Urine was passed frequently in small quantities, voluntarily, during the night. Beef-tea and port wine had been given at regular intervals.—9.45 A.M. The pain was more of an aching character. Mr. Turner again saw him. There was a good deal of difficulty in fixing his attention. Ice was applied occasionally, and the same treatment continued.—1 P.M. He asked to see his baby, whom he kissed, and ordered to be taken away again. He said he felt better; but he gradually became more unconscious until 4 P.M., when stertorous breathing set in, with the other symptoms of effusion; and increased with remarkable rapidity until he died, at 6.45 P.M.

POST MORTEM EXAMINATION, twenty hours after death.—On removing the calvarium, I found the dura mater deeply congested; and a quantity of dark grumous blood burst from the orifice of each divided vein. A large quantity of serum was contained beneath the arachnoid. The hemispheres of the brain were perfectly healthy: in fact, all the parts were so, except the right optic thalamus, which gave the sense of fluctuation to the touch; and, on being punctured, gave exit to about two ounces of pus. That which at first flowed was laudable, but what followed was of a greenish colour, with a very foetid odour. Nothing was left of that optic thalamus but what was converted into the abscess; and its sac, which was about a quarter of an inch in thickness. The ventricles all contained a quantity of serous fluid; but the bones of the head were perfectly healthy, both externally and internally.

This case is remarkable from the absence of any urgent symptoms prior to the week before death, and the unimpairment of the mental faculties almost to the last, as well as the absence of any great amount of paralysis.

QUEKETT MICROSCOPICAL CLUB.—The fourth annual general meeting of this club was held on July 23rd, at University College. The report showed that 142 members had been elected since the last annual meeting. Mr. P. Le Neve Foster was elected president in the room of Mr. Durham, who has filled the office during two years.

TESTIMONIAL TO MR. F. T. ROBERTS.—The students of the Liverpool School of Medicine have presented Mr. F. T. Roberts, Demonstrator of Anatomy and Lecturer on Botany in the School, with a microscope and an illuminated address, on the occasion of his leaving Liverpool in consequence of having been appointed Demonstrator of Anatomy in University College, London.