some even fatten on it. It not only gives relief to pain, but renders life tolerable, under circumstances in which it would otherwise be one continuous term of suffering or agony till relieved by death. It need only be limited in dose by its effect; it is the only drug we can depend on to lessen the severity of a surely advancing disease, and need not be stinted by any rule which would apply to the treatment of disease not of a fatal or malignant character.

The tolerance of opium in many cases is very remarkable, the quantity being only measured by its quieting effects.

I wish to offer a few remarks of caution in the administration of opium, when requisite under any circumstances for a continuance. Constipation is one of the evils to be guarded against. Sir Benjamin Brodie was in the habit of advising us, in the wards of St. George's Hospital, to prescribe calomel occasionally, when opium was requisite for a continuance. It will, also, not unfrequently be found absolutely necessary to relieve the rectum by enemata, or even occasionally to break down hard accumulations of feculent matter plugging up the rectum, but incapable of being voluntarily expelled.

Under the latter circumstances, a frequent desire to defecate should arouse the suspicions of the medical attendant. A digital examination will at once clear up any doubt. I would urge the advantage of this examination whenever such symptoms are present, and the importance of not taking for granted that the bowel has been sufficiently emptied.

Not unfrequently does opium disagree in a capricious manner in certain individuals; in one, it may be the quantity, in the other, the quality of the ingredient.

As an instance of the former, I may mention a case related to me by the late Dr. Latham. A lady consulted him on account of a chronic diarrhoea of some standing. Her first request was that he would not prescribe any form of opium, as it acted like a poison upon her. Dr. Latham's reply was characteristic; he said, "Whatever is powerful for evil in medicine is powerful for good, if the right dose be ascertained." He ordered his patient to take one drop of laudanum in a teaspoonful of water after each motion. He did not see his patient again for many months, when he accidentally met her at a friend's house. She recalled to him the circumstances of her visit and his advice; upon which he replied, "I concluded you thought me an old fool, and threw away my prescription." "No," she replied. "I at once had recourse to it, and became quite restored to health and strength, and I am never without a supply of the medicine."

Again, it will constantly be found that one form of opium cannot be tolerated when another will effect all that is desired. A lady under my care, the subject of severe cancerous trouble, cannot take solid opium without great discomfort, depression, and vomiting; whereas Battley's solution of opium relieves from pain whenever taken, and procures refreshing sleep, and does not in any degree disturb the stomach. In the case of a professional friend suffering from extreme irritability of the bladder, due to alkaline urine, the result of too liberal indulgence in Vichy water, I found it difficult to overcome this irritability, even after the urine became acid. The bladder had acquired a most irritable condition, probably rendered worse by the nervous temperament and professional anxieties of my patient. No preparation of opium appeared to suit, but rather increased than diminished his general discomfort. At last, I had recourse to codeia, the result of which was most immediate and satisfactory. Codeia is often useful as a sedative in bladder-trouble, complicated with enlarged prostate, when other opiates fail to provide comfort.

I need say little of the abuse of opium. My task—a pleasurable one—has been to speak of its advantages when and where its use is indicated. But we must not shut our eyes to the tendency on the part of patients to continue its use when once commenced, but after it has ceased to be requisite. When I was house-surgeon at St. George's Hospital, a woman was admitted under the care of the late Mr. Keate with a large sloughing wound of the leg. The sloughing was arrested by the free internal use of opium. Some years passed, when I was consulted by the same woman as an out-patient. I casually referred to her original condition, when she replied that her leg had remained well since then, but that she had become a confirmed opium-eater from the time she quitted the hospital. In no respect did she appear the worse for the indulgence.

I have endeavoured to confine myself to what experience has led me to consider the practical value of opium in surgery. In sloughing sores, in gangrene, in almost every variety of acute ulceration, it will be found a help to the surgeon; and in his adoption of it in such cases he will rarely find himself disappointed. If this communication should in any degree aid to render that adoption favourably considered, the object of the writer will be entirely gained.

REMARKS ON UNRECOGNISED OR MASKED CEREBRAL TUBERCULOSIS.*

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I AM afraid that the title I have chosen for my paper this evening does not accurately suggest the object I had in view in writing it. In looking through the fatal cases that have been under my care during the last two or three years, I found that they included a considerable number in which tubercles were found either in the brain or in the cerebral meninges, or in both. In this, of course, there is nothing very remarkable; for cases of cerebral tubercle are unfortunately very common, and they gravitate largely to hospitals. But I observed also that there were several among them in which the presence of tubercles in the brain or its membranes was concealed, or rendered doubtful, during life, in consequence of the association therewith of other diseases which seemed adequate to explain the patients' symptoms; and one or two in which the apparent cause of cerebral symptoms might have been taken to exclude the possibility of their dependence on tuberculosis. It was to these cases that I determined to call your attention this evening; because, while several of them have clinical or pathological features of special interest, they all seem linked together by the common clinical difficulty which the name that heads my paper was intended to express.

The first two cases I shall quote are cases of children who, supposed to be perfectly healthy at the time, received blows on the head which were immediately, or almost immediately, followed by cerebral symptoms leading to death at the end of about three weeks.

CASE I. *Tubercular Meningitis; Symptoms following immediately on a Blow on the Head; Death; Necropsy.*—A boy, aged 10, a pupil at a board-school, was said to have had perfectly good health up to May 30th, 1879. On that day, his schoolmaster boxed his ears two or three times; and shortly afterwards he complained of headache, was sick, and went home. From that time until June 17th, he suffered more or less constant pain in the back of the head and neck; he was frequently sick; there was a marked tendency to constipation; and he lost flesh and strength. His pulse was observed to be slow, and his tongue clean. He had no fit. On the 17th, he passed into a state of partial coma.

On the next day, the 18th, I saw him with his medical attendant. He lay in bed, taking no notice of what was going on round about him; his respirations were for the most part attended with groaning; and occasionally he uttered some stereotyped phrase. When addressed loudly, he opened his eyes, but he made no answer, and took no further notice. His pupils were unequal, but there was no obvious squint, nor, indeed, any other definite paralytic symptoms; the conjunctivæ were congested. He had passed his evacuations into the bed since the previous day. There was no sign of thoracic or abdominal disease, no rash, no ear-affection, no sign of injury to the head. The tongue was coated. His coma gradually became more profound; and he died, without any important change of symptoms, on the afternoon of the 21st.

The *post mortem* examination (at which I was present) was made on the 22nd. The body was emaciated. On removal of the skull-cap, the surface of the brain was found flattened and dry, and the pia mater uniformly and much congested. There was slight inflammatory thickening along the intergyral spaces and large vessels. A good deal of inflammatory deposit occupied the convulges at the base of the brain; and numerous small but distinct tubercles were scattered over the medulla oblongata and pons Varolii, about the circle of Willis, and along the fissures of Sylvius. There was great excess of fluid in the lateral ventricles, with much congestion and thickening of the velum interpositum and choroid plexuses, and abundance of tubercles in the velum. The brain-substance was fairly healthy. There was no evidence of injury to the bones of the skull or to the soft parts within. The lungs, pleuræ, heart, and pericardium were free from tubercles, and healthy. The abdominal organs were not examined.

CASE II. *Tubercular Meningitis; Symptoms coming on after a Blow;*

* Read before the South London District of the Metropolitan Counties Branch.

Death; Necropsy.—J. A. B., a boy two-and-a-half years old, was admitted under my care on April 8th, 1882. He had had good health up to the present illness, with the exception that, about a year previously, he had had two convulsive fits, attributed to teething. On March 21st, he accidentally fell downstairs, cried, and said he had hurt his head; but he soon recovered, and continued well until the 24th, on which day he refused his food. In the night he was sick. The next day he ran about; but he was feverish and fretful, and still refused his food. He continued in much the same state for the next fortnight, suffering especially from loss of appetite, sickness, and constipation. On the 31st, he took to his bed; and from that time till his admission he passed his evacuations involuntarily. On April 7th he had a fit, attended with loss of consciousness, distortion, and lividity of face, and convulsive movements of the hands. He remained unconscious ever since.

He appeared to be a well developed, well nourished child. He was almost wholly unconscious; took no notice when spoken to; but withdrew his limbs when they were pinched or pricked. He generally lay on his back, but occasionally placed himself on his side. He presented occasional slight convulsive movements, which were also induced whenever he was moved or the attempt was made to feed him. The limbs tended also to become rigid at these times. The face was flushed. The eyes were opened occasionally, but usually kept closed; there was no squint; the pupils were equal, of medium size, insensible to light. Respiration presented the Cheyne-Stokes character in a well marked form. The *tache cérébrale* was fairly well developed. Reflex phenomena were natural. The thoracic and abdominal viscera were apparently all healthy. There was no albumen in the urine. The temperature in the morning was 99.2°, but it rose in the course of the day to 101.8°.

During the 9th he still remained unconscious, and had several fits. The temperature varied from 102.8° in the morning to 100.1° in the evening. No paralyses. The optic discs and retinae were healthy.

On the 10th he still remained unconscious; and, excepting that his temperature gradually fell from 101.2° in the morning to 97.4° in the evening, his condition underwent no material change up to the time of his death, a little after 7 p.m.

Necropsy.—The convolutions of the brain were flattened, and the surface dry. There was a little recent lymph in the subarachnoid tissue at the base; and numerous grey tubercles existed about the fissures of Sylvius, crura cerebri, and pons Varolii. The brain-substance generally was healthy, and was free from tubercular deposits. The ventricles were distended with serous fluid, and the white matter around them was softened. There was an encapsuled calcareous mass in the apex of the left lung, and a few miliary tubercles in its neighbourhood. Miliary tubercles were also found in the liver and spleen. All the other organs were healthy.

REMARKS.—The above cases were, apart from their apparent causes, mere ordinary cases of tubercular meningitis, and would naturally, by most medical men, have been regarded as such during life. That also was the view which I took of them. At the same time, they were attended with some obscurity, and there were some grounds for entertaining an opposite opinion with regard to them; and I looked, therefore, with more anxious interest than I usually do to the revelations of the *post mortem* room. In both of them, and especially in the first, the symptoms followed so immediately on the blow, that it was difficult not to believe that the cerebral mischief was due to the blow; in neither of them was there any clinical evidence whatever of abdominal or thoracic tuberculosis; in neither of them was there any paralysis of the ocular or other cerebral nerves, which is common in inflammations at the base of the brain; and in the only one examined ophthalmoscopically the optic discs were healthy; but, on the other hand, there were no signs whatever of disease of the ear, or any evidence of damage to the skull. The *post mortem* examination in each case revealed, as was anticipated, the presence of tubercular meningitis, but it showed also that the tubercles were few in number and small in size, and that the tubercular affection was therefore in an early stage. There is no sufficient reason, of course, to suppose that the tubercular deposit was caused by, or even supervened on, the blow upon the head. Doubtless the natural course of events in each case was, first, the deposition of tubercles, unattended with marked symptoms or obvious deterioration of health; and second, the supervention of inflammation and drowsy excited by the local injury, to which, and not to the tubercular deposit immediately, the patient's symptoms and death were due. There is no reason, so far as I know, to doubt that, in all cases of cerebral tuberculosis, the early stage of tubercular deposition is unattended with symptoms, and that it is only at a later period, when the tubercles either have attained considerable bulk, or have implicated specially important parts, or have become associated with inflammatory mischief, that such cases become recognised clinically as cases of cere-

bral tumour or tubercular meningitis, as the case may be. Both of the cases I have narrated, and more particularly the first of them, convey an important warning to schoolmasters, and others who have to do with children, and are in the habit of chastising them. There are parts of the body which seem made for corporal punishment, and on which it may be inflicted to any reasonable extent without injury. They should confine their attention to these. I need scarcely add that the danger of serious mischief from comparatively slight blows on the head is not limited to those who are the subjects of latent tubercles. Rupture of the membrana tympani is not unfrequently caused by boxing the ears; and I recollect very well, some few years ago, being called to the death-bed of a young man who was dying from abscess of the brain connected with ear-disease. The history was that he had had some deafness and discharge from his ear for some years, but that he had never had any severe suffering from it, and was in fact in good health until (about a week before his death) he was knocked down by a blow of the fist inflicted straight upon his lower jaw. This was immediately followed by intense pain and other symptoms referable to the ear, and, within a day or two, by those of fatal cerebral disease.

The next two cases are instances of disease of the internal ear, in both of which cerebral tuberculosis was discovered after death, but in neither of which (I am bound to confess) did I suspect the presence of this complication during life; in the first, because, as a matter of fact, there were no symptoms to justify any such diagnosis; in the second, because, although the child's symptoms were exactly such as might be caused by tubercular meningitis, I was misled by the history and presence of ear-disease into attributing them to brain-mischief secondary to this affection.

CASE III.—*Caries of Temporal Bone: Facial Palsy: Tubercular Tumour in Brain: Pulmonary Tuberculosis: Death, apparently from Exhaustion: Necropsy.*—Mary C., aged 2½, was admitted under my care on May 31st, 1883. She had had measles and whooping-cough, and for a year had suffered from a discharge from the left ear. Three days before, without obvious cause, her face became drawn to the right. She had not suffered specially from earache; and she had had no headache, no drowsiness, no squinting, no vomiting.

On admission, she was pale, but not emaciated. She had an offensive discharge from the left ear, and complete paralysis of the left portio dura; but there was no other paralysis; and, excepting that the child had a slight cough and a little occasional coarse crepitation over both lungs, she seemed healthy.

She gradually became weaker; but there was very little further change in the child's condition during the month she was in the hospital. The ear continued to discharge profusely, but she had very little pain in it, and no swelling or tenderness in the neighbouring parts. The facial palsy remained unchanged. She was inclined to be drowsy, but was not irritable, was perfectly sensible, and never had convulsions or any paralysis save that of the portio dura. She had no sickness; took her food fairly well, excepting towards the last; and her bowels were regular. Her pulse and respirations were rapid; and her temperature presented remarkable variations; in the morning, it was always subnormal, ranging usually from 95° to 97°; in the evening, it was almost always between 102° and 103.8°. On two or three occasions, the evening temperature varied from 99° to 101°. Her cough, though not very troublesome, continued to the last. The *tache cérébrale* was always producible. The ear was examined on two or three occasions; but the discharge was so profuse, that no clear view of the bottom of the meatus could be obtained. During the last few days, she became very weak and very drowsy, and, without any special symptoms, died, apparently from exhaustion, on the morning of June 30th.

Necropsy.—The body was much emaciated. The dura mater was firmly adherent to the skull, especially in each temporal region. That over the left temporal bone was a little thickened; and there was a slight amount of inflammatory lymph between it and the bone in this situation. The convolutions were flattened. There was no congestion or inflammation of the pia mater, and no appearance of miliary tubercle. The substance of the brain was soft, and the lateral ventricles contained a large quantity of serous fluid. In the right superior parietal lobule was a caseous tubercular mass as large as a small walnut; this was imbedded in the brain-substance, and extended almost to the outer edge of the lateral ventricle. Two similar masses, each of the size of a pea, were found in the left occipital lobe, at its extreme posterior edge. The left temporal bone, at the junction of the squamous and petrous portions, was superficially carious, granular, and presented pin-hole perforations. The external surface of the temporal bone, adjacent to the attachment of the pinna, was in a similar condition. The external meatus was completely bare and carious.

The aqueductus Fallopii was involved in the carious and necrosed bone, and the facial nerves were destroyed. There were no traces of the auditory ossicles. The carotid canal and jugular fossa were not affected. The lungs were adherent by old adhesions, and thickly studded with caseous masses. In the apices were many small cavities. The bronchial glands were enlarged and caseous. The mesenteric glands were caseous. The remaining organs were generally healthy.

CASE IV. *Tubercular Meningitis associated with Chronic Otorrhoea: Psoas Abscess: Convulsions: Coma: Paralysis of both External Recti and of Superior Rectus and Levator Palpebrae of Right Side.*—Rosina C., aged 9, was admitted under my care on April 9th, 1883. When two-and-a-half years old, she fell and injured her spine, and subsequently presented a bend in the lumbar region. Three years before admission, she had scarlet fever, since which time she had been deaf, and had had a discharge from her right ear. Two weeks before admission, "an abscess broke" in this ear, and there was an offensive discharge from it up to the 6th. The patient was frequently sick from the commencement of her illness up to the same date; but she continued to run about and play as usual. On the evening of the 7th, she had an epileptiform fit; and on the 9th she had a second. The convulsions affected both arms and both legs equally.

The child, on admission, was fairly healthy-looking. She was drowsy, but very irritable, and frequently uttered the "hydrocephalic cry." There was no paralysis of the limbs, and no squint. The pupils were dilated, the right most so; and they acted little, if at all, to light. The tongue was coated. There was no vomiting. She had retention of urine. Temperature 102.2°.

April 10th. She was in much the same state, drowsy, irritable, and complained of headache. There was no paralysis of the limbs; but both external recti now acted imperfectly, as also did the right superior rectus and levator palpebrae. Both pupils were dilated, but the right was the larger. The *tache cérébrale* was well marked. The hydrocephalic cry was frequent. The tongue was coated; there was no sickness; the bowels were confined. The urine was retained and had to be drawn off by the catheter. There was no affection of the chest. On examination of the right ear, perforation of the membrana tympani was discovered, but no discharge. It was assumed, however, that the child was suffering from cerebral complication of ear-disease, and six leeches were applied to the mastoid process. The temperature to-day varied from 102.2° in the morning to 100° in the evening.

April 11th. The child gradually became comatose, with stertorous breathing, very feeble pulse, coldness of limbs, and falling temperature. When death occurred, in the course of the morning, the temperature was a little below the normal.

Post Mortem Examination.—The dura mater and skull were healthy. The surface of the brain was flattened, and somewhat dry, and the pia mater was a little congested. The membranes covering the medulla oblongata, pons Varolii, crura cerebri, and parts between these and the lamina cinerea were thickened, rough, and studded with a small number of minute grey tubercles. The surfaces of the fissures of Sylvius were adherent, and also presented a few small tubercles. The presence of these bodies was confirmed by microscopic examination. There was very little fluid in the ventricles, which were not at all distended. The substance of the brain was wet, but otherwise healthy. The fornix was somewhat softened. The vessels at the base were healthy. The sinuses were all healthy. The affection of the ear had not extended to the surface of the petrous bone, and there was no disease whatever in the dura mater covering it. The only other morbid conditions discovered were some caries of the lumbar vertebrae, and a double psoas-abscess. But although the spine was bent, there was no disease of the bony surfaces immediately surrounding the spinal canal; no inflammatory products in the canal, and no affection of the spinal cord or nerves. There were no tubercles in the lungs or elsewhere.

REMARKS.—In the first of the cases just narrated the child was suffering from advanced ear-disease, which had implicated the aqueductus Fallopii, and destroyed the trunk of the portio dura, and had involved the dura mater in the neighbourhood of the petrous bone. But, although there were tubercular masses of some size imbedded in the substance of the brain, they had caused no symptoms whatever; there was no meningitis, and death was due mainly, if not exclusively, to exhaustion, referable in part to the profuse discharge of pus from the ear, in part to pulmonary tuberculosis. In the second case, the child's latter symptoms and death were doubtless attributable to tubercular meningitis. It is noticeable, however, that the tubercles were few and small, and the meningeal inflammation slight; but that, excepting for vague prodromal symptoms, lasting about two weeks, the progress of the case was unusually rapid, extending only to about five days.

The last case to which I propose calling your attention is one

which naturally falls into the same category as the two which have just been discussed; but, altogether, it was a case of much greater interest than either of these, and deserves individual consideration. It was that of a little girl who, two or three months before she came under my care, showed signs of paraplegia, without definite local signs of spinal disease; who, a week or two before I saw her first, had some protrusion of the left eyeball, and fullness in the corresponding temporal region; who suffered (during the twenty weeks she was under my care) from incomplete and somewhat varying paraplegia, presumably due to vertebral caries; from exophthalmos on the left side, with swelling in the left temporal region, and (later) discharge from the left ear, manifestly dependent on disease of the bones forming the wall of the orbit, and in the neighbourhood of this part; and who, a week or two before her death, manifested signs of cerebral mischief, of which (in combination with gradual exhaustion) she died.

In this case, caries of the vertebrae and of certain of the bones of the skull was discovered *post mortem*, as had been expected. There was also some inflammation of the portion of the brain in relation with the carious bone; but, further, there were miliary tubercles (scarcely tubercular meningitis) in the usual situation at the base of the brain. Their presence had not been suspected, and probably had had no influence on the patient's symptoms, or the event of the case. I may call attention to a practical point illustrated by both the fourth and fifth of my cases; to wit, that while both presented vertebral caries with pretty abundant suppuration, associated in one case with angular curvature, and in the other with paraplegia, neither of the patients presented the slightest pain or tenderness in the back.

CASE V.—*Caries of Sphenoid Bone with Protrusion of Eye-ball, Softening of Brain and Meningeal Tubercles: Caries of Dorsal Vertebra and Paralysis: Death: Necropsy.*—E. M., a little girl, aged 7, was received into one of my beds on March 17th, 1880. The father had had syphilis followed by eruptions, and had latterly been suffering from progressive muscular atrophy. One brother had a blow on the head, followed by the separation of a sequestrum, and died of psoas abscess; and a sister, after an injury to the wrist, had an abscess in her forearm, followed by the discharge of a necrosed portion of the ulna.

The child was well until last Christmas, when she became dull and spiritless and inclined to mope. During January she began to complain of pain in her legs, but at first had no difficulty in walking. About the same time, she seemed to suffer from general tenderness, and would scream when she was lifted up. Before long, it was noticed that her legs were weak, and that also she had difficulty in sitting up. About three weeks before admission, the paralysis of the legs had become complete; and then, or a little later, the left eye was observed to protrude. Subsequently a swelling made its appearance on the left temple.

She was a spare, delicate looking, sensible child. There was marked exophthalmos of the left eye, but she could close the lid. There was no impairment of the motion of the eye, and no inflammation. The pupils were equal and acted to light; the optic discs were healthy. In the left temporal region, just outside the orbit, there was a doughy, obscurely fluctuating, ill-defined swelling. There was no paralysis of the jaw, tongue, or arms. The legs were completely paralysed, but sensation remained perfect. The superficial and deep reflexes were increased. Ankle-clonus was readily developed, and the legs were apt to become stiff and to present paroxysms of trembling. The evacuations were passed involuntarily. There was no curvature and no tenderness at any part of the spine; there were no bed-sores; there was no disease of thoracic or abdominal organs. Pulse, 96; respirations, 24; the urine was of specific gravity, 1025, phosphatic, without albumen.

There was very little change in her condition during the next three or four months. She did not lose feeling in her legs, nor did she recover power over them, and all the phenomena of spastic paralysis remained well marked, possibly even became somewhat increased. She occasionally acquired power over her evacuations, lasting even for several days at a time; but for the most part, and latterly, her evacuations escaped involuntarily. She improved a little in health and spirits, and at no time complained of pain or tenderness in the course of the spine. The prominence of the left eye varied a little from time to time, and once a patch of congestion appeared on the outer and upper part of the conjunctiva. The swelling in the temporal region increased a little, and became somewhat more diffused.

On July 4th, I noted that there had been slight oedema of the left eyelids for a week or two; and, now, that the oedema of the upper eyelid had much increased, and was attended with congestion; that a circumscribed swelling, with an indistinct sense of fluctuation (as though an abscess were presenting), could be felt in the upper and outer part of the upper eyelid; that the eye was a little less prominent than it had

been, and slightly displaced downwards and inwards; and that there was still no pain in the parts.

On the 12th, some purulent discharge escaped for the first time from the left ear; there was, however, no ear-ache or deafness. The temporal swelling was somewhat smaller. The protrusion of the eyeball had increased, and the swelling in its vicinity was larger, redder, and more distinctly fluctuating. A day or two afterwards the swelling was punctured with a fine trocar and cannula, but no fluid escaped.

On the 20th, I remarked that the swelling above the eye had become larger, but that the eye was somewhat less prominent; that pus had continued to escape from the left ear, and that the temporal swelling had almost disappeared; and that the child had for some days been able to move its legs freely, but that they were liable to become rigid and to tremble convulsively.

About this time, however, the child's temperature began to rise, attaining on one occasion an elevation of 103.4°; her appetite fell off, and her health began to fail. She complained at first of nausea, and soon was sick after everything she took, and rapidly lost flesh and strength. She still had no pain or tenderness in the back, and still retained the power of moving her legs voluntarily. She was now fed with nutrient enemata.

July 30th. She had a very restless night, calling and crying out constantly. She was apparently sensible, but spoke very indistinctly. Her pupils were dilated, equal. There was no paralysis of the face or arms. She had no discharge from the ear this morning. The swelling above the eye fluctuated. Temperature normal.

July 31st. She slept well and did not cry out all night. She had taken no food by mouth, and had been sick only once after medicine. She was drowsy. She put out her tongue when told; it was thickly furred. The left pupil was larger than the right. She had no pain in the head. Temperature normal. In the evening she was about the same. Pulse, 108; respirations, 24; temperature, subnormal. There was no pain in head, and no sickness nor discharge from the ear that day. There was no facial or ocular paralysis, but the tongue deviated distinctly to the left.

August 1st. She was much weaker. Her tongue was dry, protruded to the left. The pupils were equal. Pulse, 108; respirations, 36, attended with much rattling in the throat. Some hours later (at 1.30 P.M.) she had not spoken, but seemed sensible. The left pupil was more dilated than the right, and was unaffected by light. The tongue deviated distinctly to the left. The swelling above the eye fluctuated. There was no sickness, no fits. She waved her arms about, and picked at her nose; and had occasional twitchings of the muscles of the shoulder and back. The *tache cérébrale* was readily obtained. Pulse, 120; respirations, 30, attended with rattling in the throat. There was no sickness, nor discharge from the ear. She died shortly afterwards.

Post Mortem Examination.—The body was much emaciated. The left eyeball projected. There was ecchymosis of the corresponding upper eyelid. The left temporo-sphenoidal lobe of the brain was firmly adherent to the greater wing of the sphenoid bone and to the posterior border of the lesser wing. The arachnoid at the base of the brain was a good deal thickened, and of an opaque yellow colour. Surrounding the vessels of the base, and especially along the fissures of Sylvius and connected with the duplicatures of pia mater in the adjoining sulci, were numerous minute grey tubercles. There was great increase of sub-arachnoid fluid, but in all other respects the membranes were healthy. The ventricles were slightly distended with fluid. The substance of the left temporo-sphenoidal lobe was considerably softened, and was readily broken up by a stream of water. But there was no abscess; and the brain-substance, with this exception, was healthy. The nerves at the base were apparently healthy. In the left orbit, the upper and outer osseous boundary (including the orbital plate of the frontal, the greater wing of the sphenoid, and the orbital portion of the malar bone) was partly stripped of periosteum, carious, and bathed in a considerable accumulation of thick matter. There was also a collection of cheesy pus under the left temporal muscle, connected with denudation and caries of the portion of the sphenoid here situated. The bodies of the third, fourth, and fifth dorsal vertebrae were largely destroyed by caries; the pedicles of the same vertebrae were carious and brittle; and the laminae of the third and fourth were also involved. The bodies of the vertebrae were comprised in an abscess, extending from the second to the sixth vertebra, occupying the posterior mediastinum, but not affecting in any degree the adjoining pericardium and pleurae. The affected portions of the vertebrae bounding the spinal canal were also bathed in pus, which was chiefly accumulated in front between the bodies of the vertebrae and the dura mater of the spinal cord. The anterior and posterior common ligaments were partly destroyed. The accumulation had evidently caused some pres-

sure on the spinal cord. The dura mater was adherent at one point to the vertebrae; but the membranes were in the main healthy. The portion of cord corresponding to the diseased vertebrae was very pulpy. The rest of the cord appeared healthy. There was a little early inflammation at the base of the right lung; but no tubercles were discovered in the lungs or any other organ. The remaining thoracic and abdominal viscera, including the kidneys and bladder, were healthy. No disease of the temporal bone was discovered; nor was the communication (which doubtless existed), between the abscess under the temporal muscle and the external auditory meatus, traced.

REMARKS.—The facts which one or two of my cases seem to illustrate, and which I could have illustrated more fully had that been my sole, or even main, object, namely, that there is a period in the early progress of cerebral tuberculosis in which the presence of cerebral mischief is not revealed by symptoms; and that the symptoms which attend the presence of meningeal tubercles are, for the most part, due less to the tubercles themselves than to the inflammation which sooner or later accompanies them; suggest a question of no little importance, which I should have liked to discuss had I not already taken up fully as much of your time as, on the present occasion, I have any claim to do. The question is whether the progress of cerebral tuberculosis, like that of pulmonary tuberculosis, admits of being arrested; and whether, too, the cure of tubercular meningitis, that is, of tubercle with its inflammatory complication, is within the range of practical therapeutics. The first half of the question is, of course, exceedingly difficult to solve. It may be observed, however, in reference to it, that tubercular tumours are, judging from their clinical history, often very chronic in their progress, extending, it may be, over several years; and that occasionally the membranes of the brain seem, judging from *post mortem* examination, to be the only part of the body affected with tubercle. Both of these are facts comprising an element of hope as to the latter half of the question. I may say for myself that I have, on several occasions, had patients under my care, or have seen them in consultation, in whom the history and symptoms rendered it almost certain that they were suffering from tubercular meningitis, but in whom recovery took place. That the patients recovered from meningitis of the base was certain; but whether from meningitis the consequence or accompaniment of tubercle, I have never (fortunately or unfortunately, according to the point of view from which one regards it) had the opportunity of placing beyond doubt. At any rate, the belief that we may, even though very rarely, check the progress of cerebral tubercle, and cure the inflammation of tubercular meningitis, is calculated to encourage us in our dealings with such cases, and to justify us in persisting in reasonable treatment, and in hoping against hope.

THE DIAGNOSTIC VALUE OF THE DISCOVERY OF KOCH'S BACILLI IN SPUTUM.

Read in the Section of Medicine at the Annual Meeting of the British Medical Association, 1883.

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HAVING completed a series of observations on the sputa in 110 cases of diseases of the chest, with a view to ascertaining the presence of Koch's bacilli, I have thought it well to publish the results, not because the number is sufficient to justify any broad generalisations, but because practical contributions to the subject appear to be needed. My observations have been made almost exclusively at the Royal Chest Hospital, where I had abundant opportunities of obtaining specimens under favourable conditions, and of discovering the precise condition of the patient. In every instance, all important particulars of symptoms and physical signs were entered in a note-book at the time of examination, and the further history of the individual was added subsequently, when it could be ascertained; and, in a very large number of the cases (especially those in which the result was negative at first), the experiment was repeated several times.

It may be well to state, by way of preface, that the value of these and all similar observations depends wholly upon a staining reaction. It is practically impossible for clinical observers to repeat the steps of Koch's well known experiments; and therefore, to identify the "pathogenic" organisms, we are obliged to content ourselves with certain staining methods by which, it is said, the "bacillus of tubercle" alone is coloured.¹ For I think it must be confessed that (except in their staining reaction) there is nothing obviously characteristic in the appearance of these bacilli. It is possible that a very wide experience

¹ Alone; that is, among organisms occurring in sputum.