Lectures

ON

CERTAIN MUTUAL RELATIONS OF PHYSIOLOGY, PATHOLOGY, AND THE PRACTICE OF MEDICINE.

BY

A. T. H. WATERS, M.D., M.R.C.P.,

PHYSICIAN TO THE LIVERPOOL NORTHERN HOSPITAL, ETC.

LECTURE III.

On the Pathology and Treatment of Certain Forms of Delirium. Therapeutics. The Physiological and Therapeutic Action of Alcohol. The Present State of Therapeutics, and the Direction which Therapeutical Inquiries should take, etc.

MR. PRESIDENT AND GENTLEMEN,—At the termination of my last lecture, I had referred to two pathological conditions of the body as illustrative of the general bearings of the subject of these lectures. Before passing on to the special object of the lecture of to-night, I wish to direct your attention, very briefly, to certain other pathological phenomena of great practical importance.

I pointed out, in a former lecture, some of the difficulties with which the study of the structure and functions of the nervous centres is involved; and I endeavoured to show the influence which our imperfect physiological knowledge has had in retarding our progress with reference to the pathology and therapeutics of the diseases of the nervous system. But it would be easy to prove that, in regard to those particular morbid symptoms which are essentially referable to a perverted function of the organ of consciousness and intellectuality, important advances have been made, both in the discrimination of the different conditions under which the phenomena occur, and the treatment to which they are submitted. Is it not true that we are now aware that two of the most formidable symptoms with which we have to deal, delirium and coma, are caused by various and differing conditions of the brain? And has not this knowledge been acquired as the result of our improved physiology, and the careful observation of facts in clinical medicine and morbid anatomy?

These symptoms, delirium and coma, were once thought, and that not long ago, to be essentially connected with an inflammatory state of the brain or its membranes; but, careful *post mortem* examination of cases in which the symptoms had occurred revealed the fact that no such inflammation had existed. Indeed, we have now learned that acute inflammation of the brain, or of its membranes, occurring in adults, is a very rare disease; and that, in the vast majority of cases, in which we meet with delirium, and even coma, there is no structural change of an inflammatory kind going on within the cranium.

It is especially to the subject of delirium that I wish to direct your attention. I do not, however, intend to enter into any lengthened consideration of its nature, but rather to confine my remarks to the

pathology of the phenomenon, when it occurs in connexion with some general malady or some distant disease—when, for instance, it arises in the course of a specific fever, or of a local inflammation, as pneumonia, pericarditis, or erysipelas.

It seems to me that, step by step, we have arrived at conclusions, with reference to this symptom, which have materially modified our treatment of it.

The occurrence of delirium from the imbibition of alcohol or the inhalation of chloroform, and of coma as a consequence of the administration of opium in large doses, has taught us that these symptoms do exist without any structural change in the organ of consciousness and intellectuality. Further, the condition of the brain after death from delirium tremens, and as a consequence of Bright's disease attended with coma, shows that a poisoned state of the blood is alone sufficient to give rise to the symptoms to which I am referring.

When, therefore, we meet with delirium in the course of a specific fever, as scarlatina, or in the progress of pneumonia, pericarditis, or erysipelas, may not the symptom be due to a like cause? Nay, has not clinical experience shown the strong probability that such is the case? And when an opportunity has been afforded of making a *post mortem* examination, have we not seen that not only has there been no congested or inflamed condition of the brain, but that the only morbid change occasionally found has been a somewhat anæmic state of the grey matter of the cerebral convolutions?

I believe these facts are becoming recognised and acted on by us; but yet I doubt whether they have been sufficiently impressed on our minds, and whether they have yet led to the general adoption of a practice in accordance with the indications they afford; whether, in fact, we are not too apt to consider delirium, occurring in such cases as I have referred to, as the result of organic changes going on within the cranium, and to direct our remedial measures in accordance with this view.

I am unwilling to trouble you with unnecessary details; but, in order to make my position clear, I must illustrate my views by reference to a single case.

I attended, in the spring of the present year, a gentleman of middle age attacked with scarlatina. I saw him on the fourth day of the attack. The rash was not well out; the throat was sore; the pulse 120; and the fever rather high. The symptoms may be characterised as, at that time, severe, but not urgent. On the following day—the fifth of the disease—the general symptoms were much the same, except that there was great excitement in the patient's manner, with restlessness, flushed face, and injected conjunctivæ. Moreover, the urine was albuminous. On the following day—the sixth of the disease—I was told my patient had passed a bad night, and had been very restless and delirious. He was excited, talked in a rambling manner; but, when spoken to, answered sensibly. He complained of violent palpitation of the heart, which he said was a steam-engine working in his inside. I examined his chest, and found no evidence of inflammatory mischief. On the next day—the seventh of the disease—he had passed rather a better night, but still had been delirious. In the afternoon of this day, he began to talk in an incoherent manner; got up and crawled to the bottom of his bed, and was obliged to be pu

back by his attendants. When I saw him at night, he was more quiet, and the pulse was less frequent; but there was extreme prostration. From this time, no delirium occurred; and, with the exception of a threatening of diphtheria which manifested itself on the eighth day, and a somewhat alarming prostration, the patient progressed satisfactorily to recovery.

Now, I wish to refer briefly to the measures which were adopted in this case, under which the delirium disappeared, and a favourable issue resulted. I must here remark, that the delirium was of a severe type; it was not the mild delirium we so frequently meet with, but such as to require, for two or three days, constant watching, and, on more than one occasion, actual personal restraint.

On the day on which I saw the patient, he was taking chlorate of potash and steel, with small quantities of wine. On the following day, the steel was omitted, the wine and potash were increased, and free nutrition was ordered. As soon as the delirium occurred, notwithstanding the flushed state of the face, I considered the symptom to be due rather to a poisoned condition of the blood, and perhaps an anæmic state of the brain (for, although the pulse was quick, it was weak), than to any congestion or inflammation of the contents of the cranium; and, acting on this view, the only modification I made in the treatment was to increase the quantity of stimulants, and to insist more urgently on the free administration of nourishment. These measures were fully carried out, and the quantity of stimulants given was large. The chlorate of potash was continued up to the eighth day of the disease, when two grains of quinine were given every four hours.

I have referred to this case, because it is an instance of severe and alarming delirium occurring in the progress of a specific fever, not met by any abstraction of blood, nor by any remedy addressed to the head itself, but by free stimulation and nutrition; and with the most satisfactory results. To the early, persistent, and regular carrying out, night and day, of these measures, I attribute the patient's recovery; for, in spite of all the stimulants that were given, on the eighth and ninth days of the disease, when the fever-symptoms and delirium had subsided, the pulse became intermittent, and the patient lay for some time in a semi-syncopal condition, from which he was roused by a very liberal administration of brandy. I have mentioned that the urine was albuminous. On the fifth day, it was smoky, and gave a large deposit with heat and nitric acid. The alcohol did not seem in anywise to be prejudicial to this condition; on the contrary, during its administration, the smoky colour became daily less, the albumen diminished in quantity, and both conditions soon disappeared. No dropsical symptom followed the attack.

Cases of this kind we are probably all familiar with. I might relate others; but the one I have mentioned is perhaps sufficient to illustrate the principle to which I have directed your attention. Had the delirium been dependent on inflammation or congestion of the brain, the treatment adopted might have endangered, or even destroyed, the patient's life. The result, I think, afforded a strong proof that no such condition existed.

But, to pass on to the delirium which we often meet with in the course of a local inflammation. It

not unfrequently happens that, during the progress of pneumonia or pericarditis, the patient becomes more or less violently delirious. Several such cases have come under my notice; but, without occupying your time by referring to the details of them, I may remark that, as far as my experience goes, the symptoms come on, for the most part, in patients who have indications of general malnutrition, in whom the pulse is quick and feeble; and I consider that the delirium partakes very much of the nature of that which is called traumatic.

An acute disease, like an accident, interferes with the usual habits of life, and when there has been an over-indulgence in alcoholic liquids, severe mental exhaustion, or anything which has led to impaired nutrition, it is very probable that results, similar in their character to those which often follow an accident, will arise in the progress of an acute attack, unless they are anticipated by the practitioner.

But there is, further, in these cases of inflammation, and more especially in some, as rheumatic pericarditis, an additional cause of the symptom in the poisoned state of the blood; this—together, perhaps, with the feeble action of the heart, consequent on its impaired nutrition, and often the mechanical interference with its movements—becomes the exciting cause of the delirium.

The remarks I have made as to the nature of the delirium in rheumatic inflammation will assuredly apply to that which occurs in erysipelas. In my own experience, I have seen a large number of cases of this disease, and I can safely say that, often as I have seen it attacking various parts of the body, I have never seen an instance in which there has been a metastasis to the brain or its membranes. Delirium I have seen very frequently, varying in degree from the slightest possible disturbance of the normal function of the brain, to that which required constant watching; but I have never seen actual inflammation within the cranium as revealed by the scalpel. And does not the treatment with which we meet these cases, even when delirium exists, bear out the view I have taken of the pathology of that phenomenon? Do we not find, that the purely sustaining and stimulating treatment is that on which we can most safely rely, to carry our patients through a severe attack of the disease.

And to return to the point on which I have often insisted in these lectures—the importance of studying slight deviations from normal actions, if we would understand the graver aberrations—I think we may gather valuable indications as to the nature and treatment of the phenomenon to which I have directed your attention, from a consideration of the conditions under which it occurs in its milder forms. There is no difference, except in degree, between the mild delirium, if I may so term it, which we so frequently meet with, and those violent paroxysms which characterise some specific diseases. Have we not all experienced the symptom to a greater or less extent? Have we not felt and noted the access of the phenomenon, the gradual passage from the healthy action of the brain, to one which has stepped into the confines of pathology? Have we not, under the influence of over-work, over-anxiety, irregular hours, suffered from that malnutrition which always follows as the result of mal-assimilation? Under these circumstances, or depressed, perhaps, by some prevailing epidemic—even

the mildest attack of influenza,—have we not felt a sort of wandering of our thoughts when we ought to have been healthily sleeping? Have we not found ourselves dwelling on fantastic images, and weaving curious combinations? Have we not felt the occasional involuntary start, or the uncontrollable twitching of some muscle? Have we not, in fine, found that the central, regulating, coordinating agent, that by which our thoughts are elaborated, our ideas conceived, and by which our will exerts its power, has passed from a condition of vigour to one of feeble and uncertain action? And have we not found, as our anxiety has ceased, our work diminished, as our food has been better assimilated, and, in fact, as the nutrition of the brain has improved, that these symptoms have disappeared, and that the normal vigour has returned to the organ of our thought, our intellect, and our will?

And it is by studying these phenomena in their early stages, or their slight manifestations, by watching the steps which mark the passage from health to disease, and from disease back to health, that we gain an insight into their pathology, and the clearest indications as to their treatment.

But in referring to the cases in which this perverted function of the brain occurs, I would distinctly guard my hearers against a hasty generalisation as to its causes or its treatment. It would be far beyond the scope of this lecture for me to attempt to define the peculiarities of delirium as caused by an inflammation of the brain, and of that which results from a mere functional disturbance. My object has been rather to show that, in the majority of cases, the phenomenon is due, not to inflammatory change, but to faulty nutrition, the result of a poisoned state of the blood, or an impairment of the general circulation, or of both these causes combined; and that, in our treatment, we should direct our efforts to the relief of the general malady, and not specifically to the symptom itself.

[To be continued.]

A RECENT INVENTION. The Graduated Compression Suspensory Bandage is designed for the relief, prevention, and cure of the various diseases connected with or in relation to the spermatic cord, the testes, and the envelopes. This bandage, invented by Dr. G. Miliano, of New York, has been so constructed and arranged as to make equal pressure upon the whole surface of diseased testes and their envelopes. The pressure can be graduated at the pleasure of the surgeon or the wearer, according to the circumstances of the case, by drawing sufficiently upon the braids so as to contract the bandage and compress the disease; then crossing them at the back of the scrotum, at the perineum, and tying them in front under the penis. (*American Medical Times.*)

INSIDE A MONITOR. Only think of the sanitary prospects of eighty or a hundred men shut up in a submerged iron encasement, with only about sixty-five cubic feet of air-space to each person, and that sepulchral atmosphere unchanged, except by the very imperfect process of "blowing" a feeble current from the "turret." According to our own rough estimate, each man during battle, or in a sea at all rough, when scuttles and hatches must be closed, would receive less than two cubic feet per minute of fresh air for respiration. Add to this the inevitable humidity and the excessive heat and darkness of the monitors, and you have the elemental and inevitable causes of a fearfully high invalid-rate. (*American Med. Times.*)

Original Communications.

A CASE OF MANIA, WITH ALBUMINURIA, CURED BY THE ROMAN BATH.

By C. L. ROBERTSON, M.D. Cantab.; Medical Superintendent of the Sussex Lunatic Asylum, Hayward's Heath; Editor of the *Journal of Mental Science*.

M. W. (No. 720) was admitted at Hayward's Heath on February 23rd, 1863.

History. He was married, aged fifty; was coach-maker at the Brighton railway works; a man of intemperate habits. He was stated to have shown symptoms of mental disease for a twelvemonth, with a tendency to suicide. There was no hereditary taint.

State on admission. *a. Bodily.* He was very weak. The tongue was furred and tremulous; the whole frame in a state of tremor. He was restless, and did not sleep. *b. Mental.* The mind was quite confused; he was unable to understand or answer questions. There was difficulty of articulation. He was unable to tell his name; and was disposed to be destructive and dirty.

February 25. Want of sleep and restlessness continued. He was very nervous and tremulous. Pulse feeble, 90; pupil contracted. He ate slops. He was ordered to have a glass of whisky at bed-time, and to be packed in the wet sheet for two hours, with two cold pails afterwards.

March 2. He had improved rather under the treatment; pulse 72; tongue cleaner; pupils contracted. The mind was incoherent; memory deficient. He was very restless—taking down the pictures; and was disposed to be dirty in his habits.

March 18. He was not so well. Pulse 120; face pale; surface cold. Restlessness increased; he was incoherent and noisy. The packing and cold pails were omitted, and 3j of the sedative mixture* ordered to be given at bed-time, and he was directed to continue the whisky and extra food (chops, porter, and ordinary diet), of which he ate well; and to have an occasional warm bath for half-an-hour at bed-time.

May 10. He had lost ground; the restlessness and incoherence continued. He was noisy at night; his habits were dirty; he was feebler. (Edema of the legs had set in. The urine† was found laden with albumen, abundant in quantity, specific gravity 1025, clear, no deposit. The heart was healthy; pulse 110. He was rambling in his conversation; he spoke also of his strength and ability, and that he would build me a carriage, and provide four horses for it, and drive it himself. He was very troublesome, secreting things, etc. He was ordered to have the Roman bath at 150°; to omit the sedative mixture. He was so feeble that he could hardly stand. He had to be carried to the bath. The skin acted feebly; pulse 70, on his return.

May 21. The Roman bath was continued twice a week at 170°. The skin acted better. He was still very feeble. The oedema of the legs was less. His mind was no better; he had delusions, and was incoherent. The albumen was less in quantity.

June 17. He was in every way better. His conversation was more rational. He was gaining strength daily. He still entertained rather an exaggerated

* The following is the formula of the sedative mixture. R. Tinctura digitalis, tinctura cannabis Indicae, liquoris opii (Taylor), ætheris chlorici, singulorum unciam. Dose 3ss to ʒj.

† Unfortunately, the urine was not microscopically examined.