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COURSE OF CLINICAL LECTURES, DELIVERED AT THE MIDDLESEX HOSPITAL. BY DR. WATSON.

Lecture V.—November 12, 1842.

GENTLEMEN,—In addition to the twenty-four new patients, whose names and disorders I briefly announced at our last meeting, six more were admitted before the week closed—one woman and five men. The woman, named Mary Scannell, presents a case of abdominal tumor, somewhat obscure in its character, to which I do not purpose devoting any further observations this day. I shall take occasion to advert to it, at a length somewhat proportioned to its very interesting character, on a future occasion. Of the five males, one case, that of James Shutton, is a case of very slight febrile disturbance, scarcely to be dignified with the name of fever, and for which I trust repose and abstinence from all excitement will prove effective remedies; one, Wm. Davis, with hoarseness, aphonia, and some indistinct thoracic affection; one, Robert Penyman, with renal pains rather severe, and consequent upon some renal disorder; one, John Little, affected with acute rheumatism; and one, Solomon Sutton, whom we regarded at first, but probably erroneously, as laboring under lead colic. This man has left the house; I shall, therefore, in compliance with our plan, now address to you such observations as I have to make on his case.

He came into the hospital on Sunday evening; the Thursday before he had been seized with pains in the abdomen, so severe as to bend him double; his bowels, which up to that day, had been regular, then ceased to act; pressure on the abdomen, so far from aggravating, actually alleviated the pain. He had had active aperients and enemata administered to him, but in vain, before his entry into the hospital, and blood had been drawn very freely; indeed, I must say, lavishly, for so much as thirty ounces had been taken from him at a time. It was tolerably obvious, on his admission, that this man was laboring under colic; and as he was by trade a painter, and had been so for nine years, and had suffered, he told us, slighter attacks of colic before, it was natural to set down the case as an instance of that particular colic, known as the colica pictorum, or painters' colic. This form of the disease is the result of the slow accumulation of lead in the system, to which painters in particular are subjected, from the constant use of lead in the composition of their pigments, and the daily imbibing of numerous small particles, until the aggregate becomes large and most injurious. Why I doubt whether this case was anything more than a common stercoraceous colic, arising from a torpid state of the bowels, to

which any one of any class in life is liable, is this—his gums did not show the token of the presence of lead in his system. It is only within the last two years that this phenomenon has been attended to, and it is one to which I would direct your careful attention. In 1840, Dr. Burton communicated to the Medico-Chirurgical Society the result of his observations on cases of disease arising from the entrance of lead into the system, and on the effects produced by lead when administered for medical purposes. He directed attention to the fact, that in almost every such case, perhaps in all such cases, there was found a defined dark blue edging of the patient's gums, where the gums meet the teeth. Experience since has fully verified this observation—this dark blue edging is, I am inclined to affirm, an invariable consequence of the admission of lead into the system, and I believe it to be a sulphuret of lead. A very small quantity of lead is sufficient to cause this symptom. In one case which occurred in this hospital, the edging formed in two days, where only fifteen grains of the acetate of lead had been taken. This species of colic not infrequently occurs from residence in a newly-painted house. If you wish to see for yourselves the remarkable phenomenon attending the admission of this metal into the human system, you will look to the case of Joseph Reynolds, in Peppy's ward. On his gums you will find the blue edging very distinct, and you will find that I had administered to him three grains of the acetate of lead, with the view of arresting the hæmoptosis, of which I spoke to you, when submitting for consideration his case, among others, of phthisis, at a former meeting. It is more than probable that a quantity of lead, sufficient to produce colic, would produce this edging. I may remark that the edging is most manifest where there is much tartar on the teeth. This man's teeth were not very clean, yet there was not the slightest appearance of the discoloration; neither was there any paralysis of the wrists. Either, therefore, his is a case of common colic, independent of any action of lead on the system, or it is a case of lead colic, without the characteristic affection of the gums. To the former conclusion I lean, for were it a case of lead colic, I am strongly of opinion that the quantity of lead which caused the colic would be more than sufficient to produce, and would have produced, this blue edging of the gums. This is a point which I consider well worthy your attention, and which should be remembered; for the presence of this symptom may often decide the character of symptoms otherwise ambiguous. Lead in the system produces also pains similar to those attendant on rheumatism, and between the pains caused by lead and rheumatic pains, this symptom draws a definite line, gives an immediate distinction. Some of you, Gentlemen, saw early last year a female patient of mine, named Davis, who came into hospital with dropped wrists, and pre-

sented a very interesting case. For the satisfaction of such of you as did not see her, I may briefly mention the points in her case. She had, as I have said, dropped wrists, her hands dangling powerless, and severe pains in the limbs. I must tell you that that state of the wrists is almost peculiar to disease from lead, and from all our examination I was assured that it was a case of lead palsy. But she had, as she thought, had nothing whatever to do with lead, as women from their occupations seldom have. Her husband had not been using it, he was a broker; in short, by all our inquiries we could not ascertain any circumstances under which lead was likely to have entered her frame. She had, previous to her admission, and in the hospital, violent constipation. At last we inspected her gums, and on them we found the mark which confirmed my opinion; the blue edging was there. Then at length the secret came out; at last she remembered that her sons had been employed in painting bird-cages in her room.

With respect to the man who has just left the hospital I will not pretend to say that bleeding, in his case, was wrong. And here I may take occasion to advise you, Gentlemen, to be cautious and chary in forming an unfavorable opinion respecting the treatment adopted by others; you should not be hasty to judge and prone to condemn, when you are perfectly aware of all the circumstances under which the treatment was adopted. But in this case I fear the bleeding was carried further than was necessary; thirty ounces of blood are a very large quantity, and should not be hastily or wantonly drawn. I do not know who the medical gentleman was that directed this treatment, and I do not wish to attach blame to him, whoever he may be; but I feel it necessary to observe that I should not have considered so large an exhaustion of blood judicious or prudent. When we have got patients afflicted with colic to treat, our first and great effort must be to open the bowels, and thereby remove the matter which has accumulated, and causes at once the constipation and the pain. My colleague, Dr. Wilson, recommends the warm bath, and that a quantity of warm water should be thrown up into the bowels; this has been found very successful, and has produced great relief and copious evacuation, with great ease. Other efficacious remedies are mustard poultices and turpentine. In the first instance I have found most satisfactory results from a full dose of calomel and opium; sometimes opium alone must be used to allay the pains; after the opiate there should be exhibited a large dose of neutral salts, or castor oil, with (if the necessity should arise) the addition of croton oil. Our means of removing the affection are purgatives and anodynes. When you have got the bowels to open and act freely, the patient, at least in the early stages of such an attack, is well; and so it was in this case. The medicines operated freely, all pain and inconvenience were removed, and the patient has left the house convalescent. I shall not say anything more on the paralysis attending lead colic, until an example of it shall afford us a more fitting opportunity for comment.

Since this day week there has been no death. I have, therefore, Gentlemen, no pathological observations to address to you this day. Let us now advert for a little to the two cases of anasarca, which I ad-

mitted on Tuesday week, and to which I cursorily referred on last Saturday. The names of the patients, you remember, are Edward Sanders and Margaret Ryan, whose cases are much alike in their external phenomena, but they differ very considerably in their source.

Sanders has had, and continues to have, anasarca of the lower extremities, enlargement of the abdomen, and puffing of the face. The woman Ryan has the same symptoms.

Those external phenomena are simply the mechanical consequences of the accumulation of water in the cellular tissue and in the shut serous cavities. They are, in general, swollen, unshapely legs, pitting on pressure; prominence and fluctuation in the abdomen; and puffiness or bloated appearance of the cheeks and neck. In the two cases I refer to, those phenomena present themselves, and some years ago no difference in the nature of the two cases would have been suspected. A difference, however, does exist, and a difference of the nicest importance. To that let us direct our attention.

Edward Sanders is aged twenty-four. The anasarca in his case was of only a fortnight's duration at the time of his admission. It first made its appearance, he said, in his knees and thighs, and subsequently descended to his ancles. Its commencing in the lower extremities is to be accounted for simply by the laws of gravity—the collected water sinks by its own weight. That its descent had been at first impeded, I conjectured, and on inquiry I found the man had worn garters, which acted as a ligature to stay the descent of the accumulated water farther than the knees. So far downwards the force of gravity impelled the water; but there the ligature had intercepted and barred up the descending liquid. Two years before this attack the man had had a cough, shortness of breath, and palpitation. The cough had been attended by expectoration, and he had thrown up large quantities of blood. All these symptoms denoted the existence of some thoracic disease; and in such cases, where in males there is no tubercular disease of the lung, the strong inference is that the heart is engaged. In Sanders there was no such affection, and all the circumstances led me to think that he labored under disease of the heart. On directing attention particularly to this point, I found a diastolic bellows sound extending over a small space corresponding to the ventricle. This is a consequence of the circulation of the blood in the veins being impeded; the serum or liquid which has accumulated prevents the regurgitating of the blood; the flood-gates are closed, and that particular sound is produced. You may observe it noted in the case-book that Sanders had never had rheumatic fever. To beginners that observation may seem unimportant; but those who have had any experience know the importance of it, and so many are the cases of decided cardiac disease that have grown out of that common disorder, rheumatic fever, that it forms with me a regular and uniform subject of inquiry and investigation. Sanders had not had rheumatic fever.

With the view of showing you, Gentlemen, and in particular the less experienced among you, how very frequently disease of the heart follows and results from attacks of rheumatic fever, I shall for a few minutes

digress from the case immediately before us, and call your attention to a few instances of patients, in whose cases this observation is verified. I mentioned to you on last Saturday the case of John Dean, a phthisical patient. On examination he is found to have a systolic bruit, a systolic bellows sound in the ventricle, which indicates and is the result of organic disease of the heart. Pursuing the clue thus afforded, I ascertained that the man had twice had attacks of acute rheumatism, that is rheumatic fever—once three years ago, and again four months subsequent to his first attack. Charlotte Parrock, whose name I also brought before you at our last meeting, has palpitation, irregular pulse, and other symptoms denoting cardiac affection. She has twice had rheumatic fever—first, as she says, when she was sixteen years old, and though she dates her present ailment from the later attack, I am disposed to count its commencement from that in her early life; since which attack she admits she has been ever since more or less subject to palpitation. Charlotte Elmore is another whose name I mentioned; she, among other symptoms, complains of palpitation. Six years ago she had rheumatic fever, which laid her up for thirteen weeks. During that attack she had pains in the thorax and palpitation, which she had never had before, and to which she has been very liable ever since. Elizabeth Moore came into hospital laboring under acute rheumatism. She too has palpitation of the heart, and a catch in her left side. On inquiry I found she had had several attacks before of acute rheumatism, at various intervals of time; that she has been subject to the palpitation for years, but that it began to trouble her after the primary attack of rheumatic fever, when she was twenty-five or twenty-six years old. So that even confining ourselves to the new cases admitted, we have in them abundant illustration of the fact to which I have adverted. To those which I have named, I should, perhaps, add the case of William Balding, whose disease I am strongly led to set down as also of the rheumatic character. In further confirmation of the connection to which I have been directing attention, I may mention that, in my private practice, I have seen one clear case of acute rheumatism, in which the heart was the first part affected, and it was three or four days after that that rheumatism of the joints began.

My latter remarks have been only a digression, which I have allowed myself for the purpose of illustrating the frequent connection of cardiac disease with previous rheumatic attacks. Now to return to Sanders. The disease of the heart is sufficient to account for the dropsy. The circulation has been diminished, the return of the blood in the veins has been impeded, and hence the accumulation of liquid in the cellular tissue. This, then, is a case of cardiac dropsy. But sometimes the cardiac affection is a consequence of renal disease, and that condition is disclosed by albuminous urine. This man's urine is scanty, dark, and throws down a sediment; such urine is not generally albuminous. On applying the test of heat, as is readily and conveniently done by this apparatus,* you

perceive at first that there is an opacity and a deposit. This deposit is probably of earthy phosphate; and if the urine were tried by the nitric acid test, we should find this sediment re-dissolved. But on repeating the examination you find, first, the urine cleared, the opacity gone, and on the heat being raised to the boiling point there is no precipitation, no albumen is found, none exists in the urine; the dropsy, therefore, is purely cardiac.

The woman's, on the contrary, is a case of renal dropsy. I have already given you her name, Margaret Ryan, suffering under general anasarca, which, according to the rules of gravitation, manifested itself first in her feet. The phenomena depending on the presence of water are much the same, and she, too, has thoracic affection. Her urine, Gentlemen, is, as you perceive, rather peculiar in appearance; it is rather dark and dirty, somewhat resembling pale muddy beer, and it deposits a sort of sooty matter, which is, no doubt, formed of particles of the blood diverted from their proper destination, and changed in their appearance. On the application of heat you see it becomes quite opaque, and the test by nitric acid produces the same result—the urine is highly albuminous. This urine contains some of the serum of the blood, and is, therefore, not so acid. It is sometimes of a neutral character, and then heat will fail to detect the albumen; but the test by nitric acid will succeed. This state of the urine depends on the diseased condition of the kidneys; on that granular disorganisation, known by the name of Bright's kidney, to which I have already, in the course of those lectures, directed attention. It originates in the congestion of blood, which sometimes follows any very acute disorder, such as scarlet fever. After that disease the newly covered delicate skin is very susceptible of cold; congestion of the blood takes place; the circulation throughout the venous system is stayed or impeded; the blood becomes stagnant and unfitted for its purposes. The urea is suffered to accumulate in the blood, from which it fails to be eliminated. The action of the heart becomes sharp and noisy; the body anasarca; there is crepitation of the lungs; frequently there is drowsiness and great disposition to effusion on the brain, which ends by the patient becoming comatose, and so dying with apoplectic symptoms. Anasarca is sometimes the only circumstance that makes the patient feel ill. I have in recollection one instance perhaps not unworthy of relation. I was some time ago called on to visit a distiller, whom I found affected with abdominal dropsy, and in a state of alarm as to the consequence. He then feared he would die. From his former medical attendant I found he had habitually passed albuminous urine. By the treatment adopted the anasarca was reduced, and he was restored to what he considered good health. But I find he still continues to pass a quantity of albumen; he is, therefore, every day of his existence walking on the edge of a precipice. As to the causes of this kidney disease—it sometimes arises from the exposure of the person to

gravity, a small bottle with a double gilt stopper, to hold nitric acid, a nest of test tools, litmus paper, &c. The case had been purchased at Bouchette's for thirty shillings; and Dr. W. expressed himself happy in bringing it under the notice of his auditors, because of its neatness, portability, utility, and cheapness.

* In those illustrations, Dr. Watson made use of a small and handsome apparatus, contained in a portable case; the several parts and their uses he exhibited and explained. Among the instruments were a spirit lamp, glass vessels, a thermometer, an instrument for ascertaining the specific

cold and wet, when heated and perspiring freely; sometimes, as I have said, it follows scarlet fever, and consequently too much precaution cannot be used in convalescence from that disease; sometimes it comes on insidiously, and no circumstances can be remembered that favored its attack.

With regard to the mode of treatment that seems most likely to produce good results, I shall have but a few general suggestions to make. In renal dropsy, as the disease of the kidney arises from congestion of the blood, and overwork, and irritation, all stimulating diuretics must be avoided, if you can help it. In the cardiac variety diuretics are the main remedy, if you can get them to act. In the former variety, if you find you cannot give relief by purgatives and by action on the skin, you are of course driven to the alternative; you must risk further damage to the kidney, and employ those diuretics which you would, if possible, gladly avoid. In this woman's case I have sought to relieve her by medicines operating on the alimentary canal and by diuretics of a less stimulating character. Diuretics have been administered to the man with some good effect. On the whole I have more hope of affording relief in the cardiac case than, I regret to say, I can have in the case of the poor woman.

ON THE
MINUTE STRUCTURE OF THE BRAIN,
IN
THE CHIMPANZEE AND IN THE HUMAN IDIOT,
COMPARED WITH THAT OF THE PERFECT BRAIN
OF MAN; WITH SOME REFLECTIONS ON
THE CEREBRAL FUNCTIONS.

By JAMES MACARTNEY, M.D.

(From the Transactions of the Royal Irish Academy.)

Many years ago I discovered, with only a common pocket lens, a reticulation of fine white fibres, immediately under the surface of the cerebrum, in birds. This first led me to believe that the medullary fibres, as they are called, extended farther, and were more subdivided than had been hitherto supposed. I have since been able to demonstrate to medical students, and to several teachers of anatomy, the existence of those filaments in every part of the brain, by simply moistening the substance of the organ, during the dissection, with a solution of alum in water, which has the effect of slightly coagulating, and rendering the finer filaments visible, which, in their natural condition, are transparent. By this means, I have shown that the filaments (which I prefer to call *sentient*, instead of *white* or *medullary*) everywhere assumed a plexiform arrangement, and that the most delicate and intricate plexuses were to be found inclosed in the grey or colored substance of the brain. This fact proves the analogy between the colored substances of the brain, and the ganglia of the nervous system, in which there is a close reticulation of nervous fibres. I have long been in the habit of considering the magnitude and form of the entire brain, and of its several parts, as being merely subservient to the number, extent, and connections of the various plexuses, in which, and especially in those occupying the colored substances, I believe the sensorial powers of the brain to reside.

A chimpanzee (the pigmy of Tyson) having some months ago died in Dublin, and the dissection of it having been entrusted to Mr. Wilde, I proposed to him that I should undertake the examination of the animal's brain, in my own manner. Tyson and others had described the bulk, shape, and external appearance of the different parts of this creature's brain, but the intimate structure had never been examined by any anatomist.

I shall now lay before the academy an account of what I observed in the brain of the chimpanzee, and likewise in those of two idiots; by which it will appear that the brain in the latter possesses a still lower degree of organisation than in the former animal.

Dissection of the Brain in the Chimpanzee (Simia Troglodytes.—Lin.)

The *external form* bore so great a resemblance to the human brain, that, excepting the difference in size, the one might be mistaken for the other. The *convolutions* were as decidedly marked, and the proportions of the cerebellum to the cerebrum were exactly as in man. On the under surface of the brain I observed that the two white pea-shaped bodies, called *corpora candicantia*, were very indistinct; and they did not appear to be, as in man, the continuation of the anterior crura of the *fornix*. The *pons*, which unites the lateral lobes of the cerebellum, was, perhaps, rather flatter than in the human subject, and the fifth pair of nerves entered it, and passed for a little way distinctly, which is so remarkable in the sheep. The *pyramids* did not decussate to any extent; only two superficial bundles of fibres crossed. The *corpora olivaria* did not project distinctly, and the band which surrounds them was not observed. The structure internally of these bodies consisted of white filaments included in grey substance. The branches of the *arbor vitæ* were, perhaps, not so deep, but quite as numerous as in us. The white filaments composing the trunk were not so fine, nor so strictly interwoven, as in man, and, therefore, they were more easily distinguished. The *corpus fimbriatum* was of a long shape, and appeared to be composed chiefly of grey substance, and wanted the denticulated edge. The part called *locus niger*, in the crura of the cerebrum, was a small, greenish-grey mass, of an irregular figure, and less than a pea, instead of the crescentic form, as in man; and it did not mingle with the white fibres of the crus. The *pineal gland* was large. It was removed in making a cast of the ventricles, and lost; it was not, therefore, ascertained whether it had any calcareous matter in it or not. The parts in the lateral ventricles corresponded very nearly with the same in man. The soft *commissure* was particularly strong, and held distinct white filaments. The *linea semilunaris* was faintly marked. The two anterior of the *tubercula quadrigemina*, called *nates*, were the smaller. The *fourth ventricle* was much prolonged into the lateral lobes of the cerebellum. The *grey substance* on the floor of the ventricle was not raised into the appearance of two ganglia, and there were no *white striæ*. The sentient or white filaments formed looser or less complicated plexuses, wherever they were examined, than in man, and I could not discover any of the delicate *arborescent filaments* in the base of the *corpora striata*.