



## TWO HARVEIAN LECTURES

ON

### BRIGHT'S DISEASE AND ITS TREATMENT:

CONSIDERED MAINLY IN RELATION WITH ARTERIAL TENSION FROM BLOOD-CONTAMINATION.

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BY

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#### LECTURE II.

*Treatment.*—We have evidence, amounting to a scientific demonstration, that in Bright's disease the poison in the blood causes arterial tension; and that the degree of the tension is in proportion to the amount of the poison. Although the arterial tension does immediate harm by causing hypertrophy and valvular disease of the heart and atheroma and dilatation of the aorta and the rest of the arterial tree, yet the mischief caused by the arterial tension is in every way secondary to that induced by the poisoning of the blood. Our treatment is, therefore, mainly directed to the poison, for we know that if we lessen that, we lessen all the ill effects that proceed from the poison. We have seen that the left ventricle, forced into a large expansion with thickening of its walls, has found relief by widening out its mitral aperture, and so sending its overcharge of blood backwards into the left auricle as well as forwards into the aorta. We have seen that the arch of the aorta, widened excessively by its own distension, has thus rendered its value incompetent, and has so lessened the tension of the whole arterial tree and lessened its own size. We have observed cases in which bronchitis or congestion of the lung has transferred the tension from the arteries of the body to the arteries of the lungs, which have in their turn relieved themselves by pulmonary apoplexy, when the blood, incapable of finding its way through the capillaries of the lungs, has poured itself out into the air-cells. Under all these circumstances, and others that I do not name, the arterial tension has been completely relieved; and yet the poison saturates the blood and the tissues as completely as ever, sometimes more so, and the danger to life is often rather increased than lessened.

In considering the treatment of Bright's disease, I shall keep steadily in view the getting rid or lessening of the poison actually in the blood; the not adding to the blood fresh poison, either of the kind already there, or of a similar narcotic quality; and the stirring up the powers of life, so that they may better resist, override, and live above the poison that is there. I shall also keep in view the relief that may be afforded to certain effects of the disease, such as dropsy and distension of the abdomen, which tend dangerously to increase the disease that gave them birth. I shall, however, make no attempt to exhaust the subject of the treatment of the disease, and to repeat those lessons familiar to all of you, and which, as practical men, you employ every day efficiently in the treatment of the disease.

Soft water, repeated frequently through the twenty-four hours, is the great and effectual diuretic. It is the needful medium for other diuretics if we would really make them do their work. Hard water certainly passes less freely through the kidneys than soft water, and in going through them it carries off much of the poison that has accumulated in the blood. I would here say that the kidneys cannot work by deputy. They alone have the power of expelling the urea and the other salts that are the result of the metamorphosis of the muscles and tissues. The hot-air bath, which is often an effectual remedy in acute Bright's disease and fatty kidney, draws off an abundance of water with common salt and salts that pass off through the surface, and it relieves the pressure of blood that is bearing on the kidneys themselves, and overwhelming or drowning their function. But this great remedy is doing the work, not of the kidneys, but of the skin; and, as practical physicians, we all know how important it is that the skin should be active and warm in this disease. In doing so, as I have just said, the kidneys, no longer flooded with an excess of blood, are often restored to their function. I have advocated soft water, and the difficulty is to get it; for rain-water, if it could be met with, is unfit, and

distilled water is unpleasant; and if much water is to be really taken, it must be welcomed by the palate. Schweppe's Malvern soda-water, the gas being previously stirred out with a spoon, is the best means that I know of giving soft water. It has the advantage, too, of lessening the acidity of the urine, for acid urine irritates the kidneys and makes them deny their function when affected with Bright's disease, especially in the inflammatory forms; just as acid urine irritates the bladder when it, the prostate, or the urethra is affected.

This leads me to say that alkalies, in proper quantity, are as useful to the physician in Bright's disease, as to the surgeon in disease of the bladder and urethra; and for the same reason, since they render the acid fluid bland and soothing that is constantly distilling through the bladder of the affected kidney. The smallest vessels then cease to shut themselves up, and the tubes are flushed by the abundance of soft mild fluid that is passed through them. We all know how admirably the potash salts often fulfil the purposes of which I have just spoken in these cases. Leeches to the loins, linseed and mustard poultices, warm and not wet, we all know to be effectual diuretics, as well as soothers, in acute Bright's disease.

When the abdomen is greatly distended by windy inflation of the stomach and bowels, or by ascites, or when the lower part of the body, from the waist downwards, is greatly swollen by dropsy, these conditions being either single, or, as they often are, conjoined, the return of venous blood from the kidneys is hindered by the general compression, and the urine is scanty. Under such circumstances, the relief of the swelling is often the best, and indeed only, diuretic, for the kidneys refuse to let any quantity of fluid through themselves, when their veins are thus obstructed. The œdema of the surface should then be drained by puncture with the needle or lancet; and the ascites by the trocar and cannula, or the aspirator.

One of my patients with Bright's disease in St. Mary's Hospital suffered from great distension of stomach and colon, moderate ascites, and some tightness of the skin of the abdomen from dropsy. He was only passing fourteen ounces of urine in the twenty-four hours. I decided to have the fluid removed from the abdomen; and, as the intestines came very near the surface, the trocar was thrust downwards and withdrawn. A drachm of fluid came through the cannula, but, by the insertion of a female catheter, at hand for the purpose, through the cannula, ninety ounces of fluid were easily drawn off. The relief to the patient was immediate, and the urine increased at once to forty ounces, and subsequently to sixty ounces in 24 hours. He improved for a time, but finally died. This case shows well how useless it is to give diuretics when the return of blood from the kidneys is hindered, for the same means exactly were employed before and after the tapping.

I have spoken here only of the obstruction to the flow of blood through the renal veins in such cases; but another effect is to have no vegetables, but take lemon-juice instead, and biscuits instead of bread. On this diet, the size of the abdomen has lessened three inches in forty-eight hours, with great relief to the patient in every way.

It is evident that if we would put no additional poison into the body of the kind already there, we must know one of two things, either the character or the effects of the poison; so that we may put nothing into the body, whether in the form of food, stimulant, or medicine, that is of the same character or tends to produce the same effects as the poison already there.

My first lecture was occupied with the conditions that prove the presence of a poison in the blood, and in so far as that poison affects the circulation of the blood; and we saw the main effect of the poison on that function was that arterial tension, with all its various secondary effects, symptoms, and signs.

We have here a definite indication that we should avoid giving the patient anything that tends to increase arterial tension. We have the opposite effect to guide us in the treatment of fevers with great arterial relaxation, and its effect and sign, a dicrotous pulse; and we know that by giving those substances that increase arterial relaxation we do this chief, while by giving those that lessen arterial relaxation and substitute for it arterial tension, we do good.

A similar position holds in Bright's disease as regards the first point, and we may say with certainty that whatever increases arterial tension adds to the original mischief.

It does not, however, follow that whatever will lessen tension will be of use, for, as we have seen, the nitrite of amyl immediately converts the sphygmographic tracing of tension to one of complete relaxation or dicrotism. This step, however, instead of touching the disease, adds to the original poison another poison that intensifies rather than moderates the effects of the kidney disease.

It is self-evident that the main motive of our treatment, in regard to the point we are now considering, should be the withholding, as far as possible, every article of food that contains the same kind of poison as

that which already contaminates the blood; and especially that we should not ourselves actually direct the patient to take such food as his proper nourishment. In carrying out this principle, it is needful that we shall keep steadily before us the character of the poison so infecting the body.

Although chemists and physiologists are agreed that the poison of Bright's disease consists in the *débris* of the tissues, that, instead of being expelled through the diseased kidneys, is unduly retained in the blood so as to impregnate every organ in the body; yet they have not yet discovered the precise chemical nature of that poison.

The work done by the muscles—including that most important and incessantly labouring muscle of them all, the heart—and by every important organ, indeed, in the body, is done at the expense of some of the materials of those organs; for there can be no expenditure of force without the corresponding metamorphosis of tissue. No part of the tissue is lost, but it is converted mainly by oxidation into a series of new products, which are, at the beginning of the process of metamorphosis, only less complex than the muscle by the exuviae of which they are formed; which become less and less complex in the descending scale; and which finally appear in the more and more simple forms of urea and ammonia. Now the juice of flesh, the composition of which has been in a great measure made known to us by the labours of Liebig and other chemists, is, if we deduct the albumen and gelatine, entirely composed of "extractive", due to the metamorphosis of tissue. Kreatin, one of the more compound of the structures transformed from muscle, is itself found in urine, and is converted by its decomposition into sarcosine and urea. The poison contained in the blood in cases of Bright's disease is composed of the materials metamorphosed from the muscles and other tissues, that accumulate in the blood because they are not sufficiently expelled by the diseased kidneys. Beef-tea and soups, deducting albumen, and Liebig's essence of meat, which contains no albumen, are entirely composed of the metamorphosed structures of muscle, including kreatin, kreatinin, and the fatty and aromatic acids. Some of those ingredients are innocuous, but the more important of them essentially correspond with the retained self-generative poison already circulating in the blood. By giving such patients beef tea or the essence of meat or soups, we are adding the metamorphosed structure of the muscles of the cow to the retained metamorphosed structures that are already poisoning their blood. Beef-tea and the so-called essence of meat, by containing the fragrant juices of the flesh, give a grateful spur to the stomach in patients weakened by fever and other ailments in which the blood is not poisoned by the effete tissues, and are of great value to such patients as the medium in which real food may be given. They are not in themselves a food, but flavour food that may be finely mixed with them, whether the *purée* powder of the meat of which they have been made, or vermicelli, or bread, or other farinaceous food. In these feeble patients the arteries are relaxed and the pulse dicrotous, and the metamorphosed materials from the cow's flesh increase the tension of the over-relaxed arteries. Those effete structures, though not a food, are a double spur when given to those weakened patients; first to the stomach, enabling it to digest real food, and then to the heart and blood-vessels, by lessening arterial relaxation or increasing arterial tension.

Cases of Bright's disease are diametrically opposite to the enfeebled patients of whom I have just spoken, in the character of the poisoned composition of their blood, the arterial tension caused by the difficulty with which their poisoned blood forces its way through the smallest vessels, and the powerful action of the heart. What is, therefore, a life-stimulating fluid to the exhausted patient, is an immediate poison to the patient with Bright's disease. Beef-tea, soups, gravies, chicken-broth, animal fluids of all kinds, essences of meat, whether Brand's admirable kind, or Liebig's essence, which, because it is stale, should never be used where fresh beef-tea or essence is to be had, ought to be rigorously forbidden to every patient with Bright's disease.

It has been justly said that it is not incumbent on those who discover and expose an evil to find out and apply a remedy. The detective and critical mind is not, as a rule, the suggestive, organising, and artistic mind. The two classes of mind are almost opposed to each other. But in this case, in objecting to the use of beef-tea, essence of meat, and the like, with life to be supported by food, it is a duty that cannot be escaped from to find a substitute for the poisonous beef-tea; and that duty has already been practically fulfilled by every physician in this room; for in milk, abundantly supplied, we have a perfectly innocuous food that supplies every part of the body with its needed materials of repair; that has already built up and formed every one of us in infant-life; that promotes the action of the kidneys, and so tends to expel the poison from the blood; and that may be gratefully mixed with Schweppe's Malvern soda-water, or Apollinaris, or lithia, or other waters, with the effect of enhancing the purifying

power of the kidneys and so washing out the poison. Milk, however, two or three or more pints daily, may be given in any form that is agreeable to the patients, cold, iced, hot, with rice, with bread, with flour or vermicelli, or corn-flour, with macaroni, with fruit, with puddings and tempting well-flavoured dishes of all those varieties that the thoughtful, handy, artistic cook of taste and affection knows so well how to prepare.

The question must here be put and answered, whether it is proper or not to give meat to patients affected with Bright's disease. When we consider that meat contains its own juice which is impregnated with the poisonous metamorphosed structures; and that meat in its own nature tends to undergo metamorphosis; our first inclination would, perhaps, be to forbid meat. There is no doubt that meat is found to be injurious in some cases of acute Bright's disease, whether from cold or scarlet fever in the young, and one of yourselves told me after my last lecture of an interesting case of that class. In answering this inquiry, however, we must look to both sides of the question, which every practical and sagacious physician will intuitively do, and inquire what influence the giving and the withholding of meat may have on a patient affected with Bright's disease. In cases of fatty, lardaceous, and granular kidney, meat in moderate quantities, and properly cooked, is in a practical point of view of unquestionable service. It gives them a compact non-distending food; it helps to sustain their muscular power and action, just as it helps to sustain hard labour, and it gives zest to life. Nor is this result of practice otherwise than confirmatory, as it always must be, of the physiological view of this question. Meat supplies the body with the exact ingredients of the patient's muscles, all ready to be laid down in the midst of the structure when it requires repair. It is like the stone already hewn and shaped in the quarry for the builder; transport only, and not local labour, is wanted. The meat that is eaten is not metamorphosed until it has served its purpose, taken part in the work of the muscle, and, like every other part so doing its work, is then metamorphosed and thrown off, first from the muscular fibre into the muscular juice, and thence into the blood and the urine. There is an experimental point suggestively in favour of giving meat in cases of Bright's disease that is quoted by Donders in his very valuable work on the *Constituents of Food, in relation to Muscular Work and Animal Heat*, translated by Dr. Moore. He states that Bischoff and Voit observed that when a dog, after having been fed for some time on vegetable matters, got a liberal supply of meat, the water was removed from his body in streams; by the urine alone, four ounces more were excreted than was taken in with all the food and drink together.

I need not detain you by speaking of the valuable employment of eggs, of the fats, and of fat-making food of all kinds, the patient using his own choice; and of other non-poisonous and fitting articles of food, in cases of Bright's disease, for they suggest themselves to all of us in our practical everyday treatment of that affection.

The second application of the principle, that we should not add another poison to the poison in the blood, is to the alcoholic stimulants. The composition of alcohol, unlike that of the juice of meat, is quite different from that of the poison that infects the blood in Bright's disease, so that, in that respect, we have no reason to expect that alcohol would in those cases form an additional poison to that in the blood. There are, however, two of the effects of alcohol on the system—one from the immediate, the other from the habitual, use of that stimulant—that make it, when employed in large doses, an additional poison to that in the blood. The immediate effect is the intoxication of the nervous system; the effect of its habitual use is the degeneration of the tissues, and especially of the arteries, the actual production of Bright's disease itself. The full effect of the two poisons on the nervous system is very close, since they both produce confusion and clouding of the intellect, thickness of speech, imperfect use of the limbs, unconsciousness, and coma resulting in death. The excitement and exhilaration of alcohol, and the whole character of its early symptoms when not taken in excessive quantities, are quite unknown as the effects of the poison of Bright's disease. Looking to the analogous effect of the two poisons, when alcohol is given in large doses, and to the ultimate injurious effect of the continued over-use of alcohol in causing degeneration of the tissues and Bright's disease itself, we may accept the principle that, unless there be some immediate good effect to be gained from alcohol, it is better not to give it in Bright's disease, and especially not to give it habitually, or even in large quantities. Dr. Parkes has shown, by a long and careful series of observation of its effect on soldiers who were the models of health and strength, that the continuous daily use of alcohol in quantities above one ounce and a half, is injurious to the healthy man. It is self-evident that, if more than this quantity be injurious to the healthy man, less than this quantity will be injurious to the patient affected

with Bright's disease which, as we have just seen, is itself often caused by habitual drinking, and which causes, like alcohol, degeneration of the arteries. We may say, then, with scientific and practical confidence, that in Bright's disease, alcohol, if habitually used, should be taken sparingly, and in far smaller quantities than in health.

There may, however, be some effect of alcohol in small doses that may render it of service in Bright's disease. In small quantities, largely diluted with soft water, and especially in certain forms, such as gin or whiskey among spirits, and hock and perhaps claret among wines, it certainly promotes the action of the kidneys, and in so doing it may carry away not only its own poison but a certain amount of the poison of Bright's disease.

Thus controlled, alcohol may be of use in that disease, for we know that practically it is sometimes of the greatest use. Hock was a favourite wine with the original observer of this disease, Dr. Blackall of Exeter; that wine or claret in very moderate quantity—a glass or at most two daily of either of those wines largely diluted—may be, and I believe is, of real service in some cases. It promotes the action of the kidneys, serves to help digestion, and to give a sense of support and comfort. Whiskey in very moderate quantity, an ounce in the twenty-four hours, very largely diluted, may prove equally serviceable with hock or claret in its action on the kidneys. If, however, there be any cirrhosis or congestion of the liver, or any degeneration of the arteries, spirit is to be altogether forbidden, and every wine that contains spirit. Beer is as a rule to be forbidden, but I know no practical objection to a moderate amount of cider.

The effect of alcohol on arterial tension is an important consideration in guiding us as to its use in Bright's disease. Dr. Anstie showed, in 1863, that alcohol increased arterial tension and the power of the heart, and the force of its action in cases of fever or pneumonia with low arterial tension, indicated by a dicrotous pulse; and he thus supplied us with a scientific and practical rule of the greatest value for its employment in those cases. If alcohol increased arterial tension in health, it would at once condemn its employment in Bright's disease, with arterial tension, which, as we have already amply seen, is the natural effect of that disease.

The important series of sphygmographic observations made by Dr. Parkes and Count Wollowicz, M.D., that I now send round, show that, as a rule, and especially after it had been administered for some days in succession, relaxation of the arteries, shown by dicrotism, was induced. Thus, on the diagram of the fourteenth day, which was the sixth of the use of alcohol, dicrotism was strongly induced; while on the very next day, the fifteenth, when the healthy soldier drank nothing but water, the dicrotism disappeared and a healthy amount of arterial distension was restored. When spirit was again given, and for the first time in the form of brandy, dicrotism reappeared, and became intensified during the two succeeding days with a large allowance of brandy. This effect is especially marked on the twenty-third day, when at twelve o'clock the effect of the eight o'clock dose was going off, and the pulse, dicrotous at ten o'clock, one hour and a half after brandy, ceased to be dicrotous at twelve o'clock, and became again dicrotous at two o'clock, after a renewed dose of four ounces of brandy. On the first of the three days of the renewal of spirit (the twenty-first) the two o'clock tracing, half an hour after the dose of brandy, showed no dicrotism. On the twenty-fourth day, after the return to water, the dicrotism disappeared, showing, as before, that the continued use of spirit increased the dicrotism. Zimmerberg, quoted by Marvaud, observed, by the use of the kymograph, that arterial tension was lessened by alcohol, and Marvaud himself in these observations found that the first effect of alcohol was to cause increased action of the heart and lessening arterial tension, followed by diminished action of the heart and increased arterial tension. He also found, confirming Anstie's observations, that in fever the low arterial tension was increased by alcohol.

These various results would not in themselves forbid the employment of alcohol. When, however, the alcohol increases arterial tension, they directly say do not employ it; but when the alcohol lessens tension, they are neutral as regards its use, for, as I have before remarked, it is not the effect of the poison, but the poison itself that we have to consider.

When, however, there is, owing to pulmonary congestion and pulmonary apoplexy, low arterial tension, then alcohol may be used with best effect, and, as in the case of fever, just related by me, saves the patient's life.

[To be concluded.]

His Majesty the King of Prussia has conferred the dignity of Knight of the Order of Merit for Science and Knowledge on the eminent physicist Professor Du Bois Reymond of Berlin.

## ON MENTAL ANXIETY AS A CAUSE OF GRANULAR KIDNEY.\*

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To the physician who desires, in the highest sense of the word, to be a practical man, a knowledge of the causes of disease is the most precious part of his craft, and may be more valuable to him, if possible, than a knowledge of technical therapeutics. And yet it is in this department of our science that we seem chiefly to lag behind. Much has been done, no doubt, in the discovery of the causation of infectious diseases; but our knowledge of the causation of the organic diseases of the human system is still far behind our knowledge of their pathological anatomy.

With these views, it has been my earnest desire, as a practitioner of medicine, to trace, as circumstances would allow, the causes of disease in those persons who have come under my own eye. For this end, I have taken more or less careful notes of almost every case which has come under my notice at my consulting-rooms for some years past; and these records have led me to many important conclusions, and have incidentally taught me that no case, or but very few cases, can be regarded as trivial or meaningless; but that disorder, at the time slight enough, may often form very important links in the chain of the life history of the individual or of the family. Among the conclusions to which I have been led by the careful record of nearly one thousand new cases in each year, I may refer to the following, which I have published already or which are almost fit for publication.

First of all, I have convinced myself that affections of the skin form most important links in several series, and that many of them enter curiously into the history of hereditary neuroses, as well, of course, as into the gouty and other series; also that, as herpes occurs at the various mucous outlets, so eczema occurs in the bronchial mucous membrane, psoriasis in the tongue and colon, and so forth; that, in fact, skin-diseases are not always placed on the outer skin alone.

Secondly, my notes seem to prove that acute phthisis is, very often at any rate, a neurosis.

Thirdly, that migraine, among many other curious affinities so admirably worked out by Dr. Liveing, is associated with aphasia and right-sided palsies.

Fourthly, that rheumatic fever tends to concur with gout in some persons or families, and with phthisis in others.

To-day, however, I have more especially to urge upon you a proposition, the truth of which has been asserting itself in my own mind for some years; namely, that among the causes of that kind of Bright's disease known as granular kidney, mental anxiety and prolonged distress take a high, if not the chief, place.† A middle-aged person, man or woman, will come to us complaining that he is no longer active and eager for work, but is unaccountably languid and heavy; that he has of late become liable to dyspnoea; and that, especially after mental anxiety, attacks of this dyspnoea may come on even during hours of repose. The physician will then find the flesh falling and the complexion fading, the pulse growing tense and the heart enlarging; the urine varying widely in quantity, of low gravity, and often slightly albuminous. Now, if he inquire into the preceding history of such a patient, he will very commonly find that carking care or bitter and long sorrow has set its mark upon his life. It is impossible to prove this statement by the reading of cases; my statement is one which must be tested by others, and must stand or fall by the general voice. But I may say that I am even myself surprised to find how fully my belief is borne out by the comparison of my own cases. During the last two years, I find I have made notes of thirty-five cases of granular kidney occurring in private practice, and I find a marked history of mental distress or care, or both, in twenty-four of them. As a result of such causes, indeed, I find that granular kidney follows more frequently than degeneration of the brain or spinal cord, and far more frequently than primary failure of the heart's muscle. Not as proofs, then, but as illustrations, I may read brief notes of some few of those cases which I find recorded during the last two years, and which resulted probably from the causes I have indicated.

CASE I.—A lady, aged at death about 52, was brought to penury by her husband, who then deserted her. She was reduced to keeping a small shop in Hull; and, while there, her son deceived, deserted, and, I believe, robbed her. She gradually became sallow, wan, listless; the

\* Read before the Medical Section at the Annual Meeting of the British Medical Association in Sheffield, August 1876.

† I published this opinion in the *Lancet* some time ago, and Dr. Brookhouse of Nottingham subsequently expressed a like opinion. I believe I am at liberty to say that Dr. Dickinson also accepts it.