Croonian Lectures

ON THE

LOCALISATION OF DISEASE.

DELIVERED BEFORE THE

ROYAL COLLEGE OF PHYSICIANS.

BY

EDWARD H. SIEVEKING, M.D.,

PHYSICIAN TO H.R.H. THE PRINCE OF WALES, AND TO ST. MARY'S HOSPITAL; PRESIDENT OF THE METROPOLITAN COUNTIES BRANCH OF THE BRITISH MEDICAL ASSOCIATION; ETC.

LECTURE III.

MR. PRESIDENT,—It may be stated as an axiom, that any comprehensive theory of morbid action, to be true, must give and find support in a corresponding theory of therapeutics. In the present state of science, any perfect harmony is impossible; but, in conducting an argument like the one I have ventured to place before this distinguished audience, I should regard an essential element in the consideration neglected, did we not inquire whether or not our present knowledge of the action of remedies, and our prevailing practice in the treatment of disease, give aid to the doctrine or discountenance it. Whether or not I have succeeded in placing my views before you in an acceptable light, I cannot but state, *in limine*, that the bearing they have upon therapeutics, and the reciprocal support which the treatment of disease gives to them, appear to me of utmost importance in presenting a means of harmonising some of the contradictions that impede the inquirer in his search after truth. Doubtful as are so many questions regarding the action of drugs, all that is positive in the treatment of disease seems to me to countenance the views I am seeking to propound as to its nature. Anxious as I am not to make dogmatic assertions, I fear lest the very nature of the subject lays me open to a charge of dogmatism. So many different views have always prevailed with regard to the action of medicines, and so few facts are even now known explanatory of their action, that no system of therapeutics can yet be constructed that is at all likely to have a permanent existence. No one can have earnestly studied his profession without feeling that the materia medica and therapeutics present the most feeble point in our fortress.* But we shall not strengthen it by ignoring our weakness; and to discuss the materials (if a continuation of the simile be permitted) which form that particular embrasure, at the proper time and place, can only, it would seem, increase self-knowledge and facilitate improvement.

I will not weary you with a long recapitulation of the former lectures; but, as some gentlemen may this day honour me with their presence, who have not listened to my previous observations, I may briefly remark that I have tried, by reference to what we

know of disease and what appear to be the prevailing views of some of the many eminent students of the present day as to the nature of the various diseases that come under our notice, to show that they are devoid of that essential character which our nosological nomenclature imparts to them. In analysing some of the more prominent and best known morbid affections, the conclusion has forced itself upon me, that the localisation of a disease is always a secondary and accidental circumstance, depending upon a variety of causes; the primary and essential phase being a perversion of nutrition, brought about by the ingesta, by an arrest of the metamorphosis of the tissues, or by some influence operating upon the emunctories of the body. The morbid product being generated has a greater or less affinity for individual parts of the body, by virtue of which it fixes itself and becomes the first stage of the local process; or, setting aside this theoretical affinity, we may say that the product is arrested in some organ or tissue, in consequence of an injury or weakness in which the part has become involved. I adduced, among other illustrations, the unique case of Mr. Ford's South African, who lost a large portion of his lung in consequence of a penetrating wound of the thorax, and recovered without a bad symptom. Owing to the perfect health which the individual enjoyed at the time of injury, no reaction of a morbid kind occurred; and, as life could go on without the portion of the lung removed, and the powers of nature sufficed to throw it off, a recovery took place, such as would have been impossible, had the least taint or weakness existed in any tissue of the body. On the other hand, I may appeal to your individual experience to show how universally disease of the head, or the chest, or the abdomen, occurs as a sort of cumulative effect of irregular, unhealthy, unphysiological habits, producing in the system combustible material ready for ignition by the spark, but equally ready to be expelled or neutralised, if duly recognised and attacked. Bring the spark, and the disease lights up—only so far local as one or the other organ exhibits a larger congeries of symptoms, attracting greater attention, and therefore receiving a characteristic name. As no two human beings are identically alike in any one feature, so they differ in regard to the exact changes that precede typical disease, and the conditions or symptoms that characterise it. This endless variety of morbid phenomena militates strongly against the essentiality of disease; and they can only be understood by going back to the very earliest evidence of a deviation from health that we are able to reach.

It has long appeared to me that, by a symbolical representation of disease, we may render clear to ourselves the exact scope and object of therapeutics. I hope that the illustration I am about to give may not suggest the idea that I have any intention of joining the iatro-mathematical school. A formula, like a sketch, will sometimes realise a thought in a manner that long explanation will fail in rendering clear.

Health may be represented by the ordinary succession of the first letters of the alphabet, $a + b + c + d + e + f$. So long as no material derangement occurs, the various forces retain their due relation and equilibrium; nutrition, growth, change, and repair of tissues continue in their normal course; and the individual is capable of the greatest possible power of resistance to external influences, and at the same

* I trust that, in a brief space of time, we may not be called upon to make this admission, if the views opened out by Dr. Hance Jones's remarkable discovery regarding the fluorescence of the animal tissues, and of the presence in them of quinine or an analogous substance, be correct. (See *Proceedings of the Royal Institution*, April 1866.)

time of the greatest amount of physical labour and enjoyment.

The first disturbance likely to occur, except in the case of external injury or a poison introduced from without, consists in an alteration of the relation in the various elements that constitute health. The balance is disturbed; and this state of things may be fitly represented by changing the order of the letters, $b+d+e+a+f$, or to any other irregular sequence calculated to typify the new condition. No new element has been introduced; no essential element has been withdrawn from the body. We are on the border-land, as it were, between health and disease; and there is in this state, perhaps, more danger from the *nimia diligentia medici*, than from his neglect. However, its recognition is often most important, because the restoration of the equilibrium is easy; while, if the balance be not restored, more palpable and serious deviations ensue, and the susceptibility to the reception of external poisons, or the generation of internal equally deleterious agents, is fostered. In the active warfare of life, the constant tension of all the powers keeps most of us in or near this borderland. We are constantly in danger of disturbing the healthy balance; and, but for an inherent power of rectifying herself, Nature would soon be wrecked on the shoals and quicksands of human ignorance. On the other hand, we must not decline the responsibility of seeking to gauge the capabilities of man, and, by care and caution, training him to use his bodily and mental powers to the utmost, placing his talent to the greatest usury, short of inducing a disturbance in the equilibrium sufficient to constitute disease and to interrupt the work of life. The terms implying the disturbance are necessarily relative. What is over-fatigue to one is healthy exercise to another. The congestion of a part, induced by certain occupations, may be necessary to the healthy nutrition of the part here, while there it would be disease. The food necessary for the support of the healthy mariner would prove a source of severe dyspepsia in the sedentary clerk. We have, therefore, no absolute measure of health or the balance of the forces of the body in man, whose relations and conditions vary as much as the lineaments of his face. But we have general principles to guide us; such as, that for the production of a certain effect, a definite expenditure of power is necessary; and it would be as futile to expect long life, vigour, and activity from an ill-fed, over-worked human being, as it would be to expect a pocket-pistol to produce the effect of an Armstrong gun, or a one-horse-power steam-engine to compete with one of a hundred horse power. It is in general principles that we must seek the indications for special methods. We know enough of the structure and functions of the body to place the individual in whom this elementary balance has been disturbed in a position to recover it. The whole range of sanitary science is nothing else than an endeavour to teach mankind in what manner they may most completely preserve the normal balance of the forces; but, unfortunately, though much has been achieved, the non-medical community is not yet sufficiently imbued with the advantage of science over quackery of every sort. We may console ourselves with the assurance that progress, to be deep and lasting, must be slow; and we may also find comfort in the suggestion not long since made by Professor Owen, that

as, in the middle ages, astrology and alchemy were patronised by the public, who would now look upon them with scorn, so at the present day medical science is still labouring under the stigma of ancient dogmatism, and but slowly emerging into that species of confidence which true science alone commands. In sanitary science lies at present our main strength. We are here prophets, with as great certainty as is obtainable in any scientific prognostications. We know the amount of air, food, clothing, and work generally suitable to the maintenance of health; and we know that, if these conditions exist, nothing but the culpable neglect of God's laws can entail disease.

The indication for therapeutical interference in the first class of morbid conditions, that I have represented by a simple derangement in the sequence of the first letters of the alphabet, is essentially comprised in the rule to place the body in such a position as to enable it to recover its normal condition. Nature here is all-powerful, if artificial checks and restraints are removed. Medicines are probably altogether unnecessary, except as an indirect means of securing obedience. Rest, so eloquently urged by Mr. Hilton as a condition of restoring health, is here generally the main element of treatment; while attention to diet and regimen in all its phases will complete what science demands of the medical man, that he may secure perfect nutrition of his patient's body. If, by any of the agents ordinarily regarded as medicines, he be able to promote these objects, they should certainly be employed; but in many instances they will more probably interfere with, than promote, healthy nutrition. If, in consequence of overstrain of the mind, a condition of the brain be induced unfavourable to sleep, rest alone may suffice to restore it; but the addition of a dose of morphia, by checking the hyperæsthesia, and possibly by arresting the metamorphosis of the tissues, may and will accelerate the process. If the Christmas festivities cause a disturbance of the digestive powers, they may rectify themselves, if left alone, with an abstemious diet; but a rhubarb draught will certainly here also accelerate the return of health.

The first category of morbid conditions, depending upon a mere disturbance in the equilibrium of the forces, is generally found to precede and imperceptibly blend with the other two categories, for which I would suggest an algebraical symbol. The two categories would be characterised either by a withdrawal of an existing, or the addition of a new, element.

The first of these might be represented thus: $a+b+c-(d+e)$, or $b+c+d+e-a$. The withdrawal of one of the elements can scarcely occur without more or less turmoil among those that remain; so that, even more decidedly than in the first category, we now see the well-marked phenomena of disease varying according to the particular element that is removed in the first instance; in the second, according to the organ or organs in which a localisation takes place. Owing to a malnutrition that may date back to the different stages of infancy or even of uterine life, the blood loses the due proportion of a salt of iron, and we have to deal with a case of anæmia calling imperatively for a chalybeate preparation. Perhaps it has not been given in due time, and our patient, if a young woman, may next present an irregularity and even suppression of the cata-

menia. We subsequently find that, owing to the absence of the depurating period and a general functional debility, the carbonaceous and other combustible constituents of the blood are not properly burnt off, and tubercle is deposited in the lung. A new series of phenomena now set in, with which we at present have nothing to do. Here, so far as we are able to judge, the absence of the salt of iron was the particular feature in the malnutrition of the body, to which we may refer all the subsequent phenomena of disease. But although, by supplementing it in the first instance in a proper manner, we might have prevented the subsequent stages, it by no means follows that the secondary and tertiary morbid conditions would be amenable to the same measures. In the same way as iron, so fibrine, phosphoric acid, fat, gelatine, or, in fact, any of the tissues or constituents of the tissues of the body, may be removed in excess; and clearly our object must be to obtain a certain measure of these particular changes. We seek it approximately at present, by the symptoms which our patient presents. Indirectly, too, we ascertain it by the analysis of the secretions; while we measure the amount of disturbance by the thermometer, the pulse, the expression. As one element is removed in excess, so the other will preponderate unduly, according to the relation normally existing to the one that is taken away. It seems perfectly legitimate to assume that, as the excessive elimination of a certain tissue is likely to occur more through one organ than another, so also the localisation of disease may depend upon this excretion; while, according to the law of *contrecoup*, the predominating excess in another direction may induce local disease in an organ occupying a position, as it were, at the opposite side of the circumference of the vital circle. This balance between individual organs is constantly seen in practice; and we avail ourselves of the known law to produce therapeutic effects which are among the most certain and effectual that science can boast of. It would lead us too far to enter into further detail; and your own experience will readily suggest the examples.

With regard to the therapeutic proceedings to be adopted in the category generally, it is self-evident that, if we can determine the exact element of tissue which is being removed, and the removal of which constitutes the disease, our duty consists in restoring that element. We are able in a few cases to demonstrate the entire series of phenomena in so positive and scientific a manner, that we are justified in assuming that an analogous process occurs in at least some other morbid processes, in which some of the links, though not all, necessary to a stringent proof, are wanting. In idiopathic anæmia, we know that a definite proportion of iron is wanting in the blood; and we find that the symptoms accompanying this condition yield in the exact ratio in which the powers of the system assimilate more iron. Whether that iron come from food, or from the druggist, matters not; though, practically, we know that the patient's strength is frequently insufficient to extract iron enough from the diet, and therefore wise men have not yet, and we may safely say, never will, entirely discard the contents of the *Pharmacopœia*. We know nothing about the *modus operandi* of many of our remedies that we most rely upon. The whole class of bitters and stomachics, and especially quinine, possess a hold that no scepticism will loosen;

but what do we know of their action, except by the effects which they produce? I cannot but think that, when our knowledge shall be more profound, we shall find that they supply some element that is actually absent in those diseases in which their effect is but seen.* I cannot believe that quinine cures ague by a catalytic effect, or we should not find that so much depends upon the increasing magnitude of the dose, according to the duration and severity of a seizure. It is not the bulk of the spongy platinum which determines the ignition of hydrogen that impinges upon it; nor the quantity of gluten introduced into the vat of must upon which depends the fermentation that yields the *Βακχικὸν δάρμα*; but the amount of ague-poison that yields to ten or twenty grains may and does refuse to take its departure at the bidding of smaller doses of two or four.

However little we may know of the exact manner in which some of our remedial agents produce their effects, certainly all that are available in the category of disease which we are now discussing produce their effects solely, so far as they accelerate or promote the nutrition of the body, in some way or other; and none do so without the patient being duly supplied at the same time with the nourishment appropriate to his condition. It does not, however, follow that, because we may cure disease without medicine, *sensu strictiore*, by placing the individual under circumstances which favour repair, therefore we do wisely in eschewing the additional aid of medicine; but we must be careful to obtain the correct indication, and to find out the medicinal agent which shall either supply the defective element more readily than the food, or enable the digestive organs to extract it more readily from the food. Medicines are constantly used for both those purposes, with the most certain and beneficial and expeditious results.

The last of the three categories to which I would request your attention is the converse of the one of which we have just now spoken. In the second, the morbid condition consisted in the removal of one of the normal elements of the body; we now review a class of diseases in which a foreign element finds its way into the body. The formula, accordingly, would run: $a + b + c + d + x$ or y . The foreign element or poison necessarily soon causes a perturbation in the normal elements; and, on the other hand, the reception of the poison is much facilitated by any derangement already existing. The poison itself may be of the most varying character; and the indication here would be to find an antidote for the poison, to cause it to be eliminated, or to give the constitution the strength necessary to resist its effects. Practically, here again the question resolves itself mainly into one of nutrition. The medical man often unconsciously seeks only to place his patient in the best position calculated to enable him to resist the influences of the poison, the powers of Nature decomposing or eliminating them. It is doubtful whether we possess any agent which, like the reagent of the chemist, neutralises or decomposes any animal poison directly. Of all the vaunted specifics, none perhaps has ever enjoyed so large and ancient a reputation as mercury in the treatment of syphilis;

* This was written before I had any knowledge that Dr. Bence Jones's experiments appear to give direct proof that, in the diseases cured by quinine, the remedy supplies a normal element of the body, unduly removed or neutralised by the disease.

and yet what is our position in regard to this matter even at the present moment? Whatever may yet be elucidated by that at first sight alarming and repulsive process, syphilisation, it certainly is in evidence that inveterate cases of syphilis get well under it, after the failure of the ordinary metallic treatment; and that patients who have been effectually syphilised are less liable to relapses and to syphilitic affections of the brain, the liver, and other internal organs, than those treated in the ordinary manner. The effect of the process would appear to lie in producing a series of ulcers on the surface of the body, in which the receptivity of an individual exhausts itself; while the internal nutrition can be carried on in the most perfect manner, so as to support the cutaneous process. Patients who undergo this method, far from succumbing and resembling patients suffering under metallic influence, appear fresher, plumper, and more vigorous, in spite of the increased local disorder that is intentionally generated. Whether eventually we may find another and more perfect means of neutralising the syphilitic poison, our preconceived notions have certainly received a shock by the carefully performed experiments on repeated inoculation recently made by Professor Boeck at the Lock Hospital. The inoculations, far from lighting up and increasing the constitutional taint, appear to rouse a power of resistance from within, which, after a time, throws off the poison more effectually and persistently than the measures upon which we have hitherto relied as our best allies. As, however, this matter is still *sub judice*, I will not lay much stress upon it; but, having seen and watched the progress of many cases, I could not resist adverting what to me appears a remarkable fact in confirmation of my argument.

I prefer, however, to rely rather upon those general views with regard to the treatment of disease which appear to me to prevail among the teachers of clinical medicine of our country, and upon which more or less we are all acting.

[To be continued.]

THE CHOLERA ON BOARD THE ENGLAND. Letters from Halifax state that cholera broke out among the German emigrants on board this vessel during her passage from Liverpool. She left the Mersey on the 28th of March, and Queenstown on the 29th, and she had then over 1,000 passengers, of whom 400 were Germans, on board. On the fifth day after leaving Queenstown, cholera appeared among the steerage passengers, and raged with great virulence despite the efforts of two doctors, who were fortunately on board. By the time the England put into Halifax the deaths were 46; and in two days after her arrival they had increased to 140. On the 11th of April, when letters left, there were twenty-five deaths per day. The whole of the deaths were among the steerage passengers and the crew; among the latter there were five deaths. The authorities at Halifax took prompt measures to alleviate the condition of the sufferers, and at the same time to prevent the spread of the disease. The Admiral sent down the hulk *Pyramus* as hospital ship, and the governor eighty tents, in which the healthy survivors were encamped on Macnab's Island. The *England* has been placed in the care of Messrs. Cunard, of Halifax, and they are fumigating her as rapidly as possible. It is supposed that the outbreak of the disease is due to the dirty habits of the Germans and their great consumption of sauerkraut.

Illustrations

OF

HOSPITAL PRACTICE:

METROPOLITAN AND PROVINCIAL.

MANCHESTER EYE HOSPITAL.

EXTRACTION OF SOFT CATARACT BY SUCTION.

By R. H. M'KEAND, Esq., Surgeon to the Hospital.

SOME few weeks past, I had the pleasure of meeting at the house of a mutual friend (Dr. Crompton of this city) Mr. Teale, jun., of Leeds, and had some conversation with him upon the subject of his recent publication *On Extraction of Soft Cataract by Suction*. He had with him his suction-curette, and accompanied his remarks with a request that I would give the little instrument a trial. Having an opportunity afforded within a brief period of operating upon four subjects, as detailed below, out of compliment to him, I thus early publish the result of each. No inflammatory or objective symptoms of any kind occurred to mar the operation, and the little patients discarded entirely upon the third day the isinglass-plaster, applied after the operation to prevent movement of the eyelids.

Mr. Teale's instrument was procured from Messrs. Weiss; but, after using it the first time, I thought the curette might with advantage be made smaller, which was done by Messrs. Hunt and Roskell, jewellers, and I found the reduction advantageous in the three other cases.

I think the profession much indebted to the revival of this operation through the hands of Mr. Teale. The result in these four, my first trial cases, has so much delighted me, that in my individuality I beg to thank him.

CASE I. Ada W., aged 5, was admitted a patient of the Eye Hospital, on March 7th, 1866, with cataract in the left eye—the result of a blow two or three years ago. The cataract was quite soft, and the pupil could be fully dilated with atropine.

March 10th. Operation. The patient having been put under the influence of chloroform, a broad needle was introduced through the cornea at the outer part opposite the margin of the dilated pupil. The capsule of the lens was then freely ruptured, and Teale's suction-curette introduced, and the whole of the cataract withdrawn without the slightest difficulty, leaving a perfectly clear pupil. The eye was then closed with tissue-plaster, and a compress-bandage applied.

March 12th. There was hardly any irritation in the eye; and the pupil was quite clear, except close to the inner margin of the iris, where a very small portion of capsule was seen. Two days afterwards, the eye was free from all irritation. As the patient had never been taught to read, the amount of vision could not be accurately ascertained; but, with the aid of a convex glass, she was able to distinguish very small objects, such as pins, etc.

CASE II. Elizabeth E., aged 7, was operated upon on March 14th, 1866, for soft cataract in her right eye. In this case also, Teale's suction-instrument was used, and the whole of the lens removed without accident.

March 16th. The eye was entirely free from inflammation. The pupil was moderately clear; but one long band of capsule passed across it, and consequently interfered with vision, so that the patient could distinguish only large letters.