Lecture

INTRODUCTORY TO THE COURSE OF LECTURES
ON THE

ANATOMY OF THE LIVER:

WITH
OBSERVATIONS ON CERTAIN CHANGES
OCCURRING IN DISEASE.

Delivered at the Royal College of Physicians.

BY

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*The Influence exerted by Scientific Inquiries, and
especially by Minute Anatomy, on the Progress of
Medicine.*

MR. PRESIDENT AND GENTLEMEN,—From the earliest times, progress in medicine has been associated with progress in various departments of science, and especially with an increasing perfection of anatomical knowledge. Many of our greatest practitioners have been most distinguished anatomists; and several of our most eminent physicians and surgeons have made important discoveries in this branch of science. The present high position of British medicine and surgery is doubtless in great measure due to the thorough anatomical knowledge acquired in early life by physicians and surgeons. Many eminent practitioners have been eminent anatomical teachers; and several have pursued their anatomical investigations, and added important facts to our knowledge, while they were engaged in the active duties of practice.

During the present century, anatomy has kept pace with other branches of science. Of late years, so rapid has been its advance, that its aspect has been completely changed. Many facts which could not be seen by the unaided eye, have been revealed by the use of lenses of various construction; but it is only during the last thirty years that important improvements in the compound microscope have enabled observers to advance in a most striking manner our knowledge of the minute structure of the tissues of the body. So rapid has been the increase of our knowledge of microscopic anatomy during the last quarter of a century, that it has been necessary to make this a study distinct from ordinary anatomy; and by many, the investigation of the minute anatomy of the tissues of man and animals is regarded as a distinct branch of science, to which the name of Histology has been given.

Minute anatomy is taught by special teachers; and much more attention has been paid to this subject in some schools than in others. Although England has produced many distinguished microscopic observers, histology has been more studied in Germany than in this country or in France. It has been taught in all the German schools; and the number of successful labourers in this branch of anatomical inquiry, in Germany, is undoubtedly far greater than in all the rest of Europe and America.

It is doubtful if this new department of anatomy is now prosecuted in this country by physicians and surgeons with the same zeal that anatomy was by

our predecessors in the last century; neither is it considered by many to hold the same intimate relation to the medicine of the present day, that the anatomy taught here a century or more ago bore to the medicine of that period. The opinion that minute anatomy did not possess any important bearing on the practice of medicine, has been often stated; and it has been urged very frequently that this continually increasing knowledge of detail had not led to a corresponding improvement in medical practice.

It seems, however, reasonable to infer that the direct advantages of anatomy to medicine will become more and more manifest the more anatomical investigation advances; for it is clear that all the symptoms with which we are familiar in cases of disease result from changes occurring in anatomical elements, which, by their minuteness, are far removed from unaided observation. What a number of the minute anatomical elements of nervous tissue must be similarly affected to give rise to the slightest ache or pain which we experience! and doubtless important modifications in nutrition are produced by the occurrence of changes which are not sufficiently intense, or do not affect a sufficient number of elements to render them appreciable by our senses.

Although the general anatomy of most of the important organs and tissues of the body has been ascertained, there remains much to be discovered as to the relation of the tissues to each other, structurally as well as physiologically. The investigation of the changes occurring in these organs as they grow forms almost a new field of inquiry. This investigation involves most important general questions, such as the nature of the processes of nutrition and growth; and it involves the consideration of many phenomena, which form, as it were, the starting point of those alterations which we regard as morbid, and which subsequently lead to the most important changes in structure. The very earliest modifications occurring in the nutrition of a part are of the greatest interest to us, practically as well as in a purely scientific sense.

An immense field, requiring long continued laborious microscopical and chemical research, yet remains to be explored, before we can give a clear account of the phenomena which succeed each other in regular order in diseases with which we are most familiar; and by such investigations alone can the actual effects of medicines in the organism ever be arrived at. As yet how little we know of the action of the simplest medicines in daily use! We are, nevertheless, convinced that all such matters are to be, and will be, discovered by careful and intelligent observation. How much there is yet to be learned with reference to the changes in the blood in health and disease! and how important is it that we should learn the nature of the actual changes which take place in the healthy blood-corpuscle, and obtain an insight into phenomena connected with its development, decay, and removal!

The alterations occurring in the capillaries during the nutrition of tissues, and the early changes occurring in inflammation, are examples of important processes, the exact nature of which has not yet been conclusively determined. Questions of this kind form the very foundation of medical science, and how much remains to be worked out in connexion with them.

But, in truth, we do not lack that encouragement to prosecute laborious inquiries which can alone be afforded by the actual establishment of useful results in the course of previous inquiries of a similar character. The anatomy, the action, the morbid changes and the pathology of the kidney, have been most minutely investigated by a very large number of observers. There are few diseases, the course of which is better known, few in which we can obtain such positive evidence on which to ground our diagnosis, few which can be treated with greater confidence, and very few in which the course and result of the case can be determined with greater certainty at a comparatively early period of the malady.

But it is not difficult to point to a still stronger proof of the very important and direct influence which scientific investigation exerts upon the practical treatment of disease. Almost within the memory of young practitioners, the minute anatomy of the most important structures connected with the action of the eye has been worked out. The exact changes taking place in its adaptation to vision at different distances, have been demonstrated. Most important discoveries connected with the mechanism of its various parts have been made. New instruments for the detection of various imperfections, structural, as well as optical, have been designed, brought to a state of perfection, and introduced into general use. New principles in the treatment of diseases of the eye have been laid down, and their truth demonstrated by experience. New operations have been performed, carried out on a large scale, and the results carefully recorded and analysed. Some of these operations have already been brought into general use, and numerous cases have been relieved, which, a few years ago, would have been considered hopeless. But this is not all. From the changes which may be seen to have taken place in the structures of the eye during life, we may form some conclusions as to the changes which may have affected corresponding textures in other parts; and there is even much reason to hope that by the use of the ophthalmoscope, the diagnosis of diseases of the brain may be assisted in the same degree as the diagnosis of pulmonary diseases has been advanced by the employment of auscultation.

Earnest scientific work is now being carried out with continually increasing activity and ever increasing success in every department of natural knowledge in almost every part of the world. Most important changes are also being accomplished in medicine. It is not merely that opinions are being modified as they have been from time to time ever since the foundation of our science, but every question seems to be undergoing the most searching examination. The evidence upon which many facts generally received have been based, is being re-investigated. At every step new facts are discovered, new lines of inquiry are proposed. The changes going on in medicine cannot be attributed to the successful promulgation of any special doctrine, nor are they due to the rise or fall of any particular school. The number of men who devote much of their time to advancing knowledge is daily increasing. The careful examination to which every new conclusion is subjected, ensures its confirmation as true, or its rejection as erroneous.

There are few subjects which afford scope for so

many different kinds of research as medicine; and the progress of our medical knowledge clearly depends upon the development of several distinct branches of science. Various departments of physics, chemistry, anatomy, and statistics, have been prosecuted by physicians, and the results of their researches have been found to have a direct bearing upon the progress of medicine. Indeed, to be beneficial to medicine in the greatest degree, the scientific work must be prosecuted by physicians themselves; for it is the physician alone who can understand the medical bearing of many questions, which are also of great general interest.

Those who study the normal changes occurring in the tissues of the body as these tissues grow old, learn that all the organs, the elementary parts of all the organs, and the particles of which these elementary parts are made up, like the entire organism, pass through certain definite stages of existence, die, and are resolved into compounds of a more simple constitution. These stages of existence, which are continuous and uninterrupted, and pass by insensible gradations one into the other, nevertheless require a certain definite time for their completion, and the periods of time are constant, and fixed within very narrow limits.

The changes referred to, occur with a certain order and regularity which are repeated in every healthy individual of the same species. We learn that although these changes are influenced and modified by certain external conditions, they are not caused by them. That they are intimately connected with certain conditions, which are brought about within the organism, is undoubtedly true; but the existence of these so-called conditions can be traced backwards as the consequence of prior conditions. The cause of all must at last be referred to certain peculiar powers existing in the living being, upon which its very nature depends—powers which it has derived from its predecessors, and which it will transmit to its offspring, but which cannot manifest themselves in any other manner.

The period of duration of life, like other periodical phenomena, varies in different classes of animals and in different species; but in each species the normal period is constant within a certain range, and is never extended beyond a certain limit.

The average period which life lasts in a community of individuals may, there is every reason to believe, increase considerably beyond the present average; but we conclude that the duration of life cannot be extended beyond a certain definite limit, because it can be shown that the limited period of life results from the occurrence of a certain definite and unbroken series of changes which are due to powers resident in the living structure itself, and which commenced to run their uninterrupted course at the first moment of existence. Although many different kinds of scientific investigation are being pursued by physicians in this country, and to a much greater extent on the continent, in physics, chemistry, and minute anatomy, which to a general observer seem to have little or no connexion with practical medicine, such observations will contribute in no small degree to the attainment of the end which those who devote themselves more exclusively to observing and recording symptoms by the bedside, rightly regard as the real objects for which medical investigation is prosecuted; viz., increasing the average duration and

average health of human life, as well as relieving disease.

It is only reasonable to believe that, as we gain more exact knowledge of the laws which govern the changes occurring in man's organism, and of the conditions by which these may be modified injuriously or beneficially, this improved knowledge will be turned to practical use. As the physical conditions under which life is carried on become improved, the average amount of labour performed by the different individuals of a community will be greater; each will do more work in his time, because he will enjoy better health and live longer. The work will be better work, and its performance will be accompanied with a greater amount of happiness.

It is clear that, as our means of investigation become more perfect and more exact, the inquiry into the nature of physiological and pathological changes will be more minute and our knowledge more exact. The results of these inquiries may lead us to reduce the number of reputed remedies now employed in treatment; but we shall certainly learn more exactly in what cases and in what particular manner we may interfere with the best prospect of success. Such inquiries will teach us more of the real nature of the processes we have to excite, oppose, or modify, and we shall, therefore, act with more confidence and decision.

[To be continued.]

CASE OF KLEPTOMANIA. According to Tallemant des Reaux, Henri Quatre was troubled with this disease. He says of the King: "Il estoit larron naturellement; il ne pouvoit s'empescher de prendre ce qu'il trouvoit; mais il le renvoyoit. Il disoit que s'il n'eust esté roy, il eust esté pendu."

DARWIN'S HYPOTHESIS. One of the difficulties in the Darwinian hypothesis is the want of evidence of progression of species. Progression in form as in the vertebrates seems probable from the geological record, though even here there is a difficulty relating to the adaptation of forms to surrounding circumstances; but progression in the separate forms is not yet conclusively shown. Modification is not necessarily progression even though the modified animal should have some forms and properties superior in certain senses to those of its ancestor. Here I may notice the controversy between Professor Owen and two continental anatomists, Schröder van der Kolk and Vrolik, both of whom, following Tiedemann and Gratiolet, have demonstrated the existence of a posterior lobe of the brain in the higher quadrumana. Owen denies the existence of any such development, and on this founds an argument against the Darwinian hypothesis. The Dutch anatomists complain that, while Professor Owen compliments them upon the great accuracy of their dissections and plates, in which this portion of the brain is clearly shown, he continues to deny its existence altogether, and in its absence thinks he finds a triumphant refutation of the whole theory. Van der Kolk and Vrolik pertinently observe that if he had studied their dissections and plates he must have seen the posterior lobe with its constituent parts, and are at a loss to understand why the accuracy of their drawings should be lauded, while Mr. Owen still holds to the absence of the parts which they have delineated. But it is plain that even if in the brain of the orang outang and chimpanzee, there was no posterior lobe, it would make little or nothing against the views of Darwin, for it could at once be argued that this was but a case of missing links. (*Professor Stokes' Address.*)

Original Communications.

INFLUENCE OF CONSTITUTIONAL SYPHILIS IN MODIFYING THE CHARACTER OF ORDINARY DISEASE.

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If there be truth in the axiom, "Naturam morbi remedium ostendit," the following cases afford not only practical instruction, but open up to the student a new sphere of inquiry. The nature of the disease is shown by the action of the remedy. This is a point of view from which disease has been little studied. Within certain limits, our knowledge upon this subject has already assumed a complete and convincing form. Vaccine lymph in relation to small-pox, bark to ague, mercury and iodide of potassium to venereal disease, are illustrations. It is not intended here to apply these general statements in too abstract and absolute a sense. They will be adopted only as guides, by which the mind may be conducted upwards from facts and details to interpretation and principles. Syphilis, in its multitudinous and endless forms, has immemorially engaged the study of the ablest men. But there remain, even at the present time, many bearings and relations in which this animal poison has been little, if at all investigated. The following paper is a humble contribution towards a better knowledge of syphilitic disease, in one only of its consequences. Let the point be put under the form of a question:—

Does any or every disease* of any or every organ, internal as well as external, of the body, assume the same pathological characters, and yield to the same remedies in a system which has never been syphilitically tainted, as in one which has been affected with constitutional syphilis?

Preparatory to the further discussion of the subject, the following cases—only a few out of a considerable number which might be related—which present materials well adapted to aid in the solution of the question, may be studied with advantage.

CASE. I. Two years ago, with Mr. Cook, of Morriston, I attended a married lady who was suffering under rupia syphilitica. She was about 29 years of age. She was not aware that she had ever had any primary affection whatever. The child born before the occurrence of the attack is now alive, and is quite well. Another, born about six months ago, lately died of undoubted syphilis, viz.: mucous patches on skin and mucous membranes, cracked and coppery erythematous blotches about the lips and anus and thighs: it died in convulsions. Now, between the conception and birth of this child, the mother never had any manifest syphilitic affection whatever, and during the same period the father was quite well. Therefore, although the attack of rupia which the mother experienced more than two years before the birth of the last child was apparently cured, and although during this period of two years she looked and considered herself "quite well," the child born at the end of this term in two months became the subject of constitutional syphilis, and died. It fortunately happened that, when I was called to this lady in six weeks after her last labour, I remembered that I had attended her two years before for syphilitic rupia. In listening to her story, and that of her friends around her, the question immediately oc-

* Of course, I mean a supposed non-syphilitic disease, such as pneumonia, bronchitis, etc., not any of the recognised syphilitic diseases.