no intra-pericardial pressure is possible.² In distension of the abdomen by flatulence, ascites, or pregnancy, in effusions into the pleura, and in the numerous violent shocks to which in our daily life and amusements we are frequently subject, the heart is protected from pressure. And yet, with all this freedom, its mean position scarcely varies a fraction of an inch throughout healthy life.

The forces of which I have been speaking—the traction of the diaphragm, the lungs, and the elastic vessels—are of but feeble tension, but they are of constant action, and one more important effect which they have upon the centre of the circulation is to assist during diastole the filling of the heart's cavities.

Respecting the circulation generally and the innervation of the heart I have nothing now to say. As to the sounds of the heart every conceivable explanation has been suggested and insisted upon with much eloquence and warmth as accounting for them. We have now no doubt, however, that there are at least two important factors concerned in the first sound—viz., the sudden tension of the ventricular wall and that of the auriculo-ventricular valves, the mitral valve more particularly. It is one of the auscultatory features of the weak or fatty heart that the systolic sound is purely valvular and flapping in character, not being associated with any muscular sound. Doubtless, also, in excited action, the direct knocking of the ventricle against the thorax may add to the normal sound. Respecting the second sound there has been less dispute, the tension of the aortic and pulmonary valves being universally admitted as a sufficient cause.

By this simple method of testing the valves of the heart (by means of a syphon with a fall of nine feet of water, the metal nozzle of which is inserted alternately into the several orifices of the heart) the absolute perfection of the mitral valve in resisting regurgitation under any pressure of distension is well shown; the greater the pressure the more absolute the closure of the valve. It is not so with the tricuspid valve; you will observe that under considerable pressure (about nine feet of water) a twisted triangular stream regurgitates through the tensely closed valve.

My object in submitting to you these familiar facts is to remind you that the closure of the mitral and tricuspid valves is a mere matter of fluid pressure, just as we observe the closure of the semilunar valves to be, the papillary muscles, as such, and so far, having nothing to do in the matter beyond being part of the chords which support the valves. We cannot thus, however, fairly estimate the perfection of the mitral (or tricuspid) as a living valve, for this depends largely on the papillary muscles, which, contracting with the systole of the ventricle, maintain the tension of the chords during the approximation of their valve and ventricular attachments. The papillary muscles are believed to be concerned in the production of some murmurs not due to disease of the valve itself. It not unfrequently happens in some cases of hypertrophied heart that, from some cause or another—e.g., the oncoming of an acute lung complication—the pressure upon the ventricle is greatly increased, and we get rapid yielding of its walls and an apex systolic murmur produced. It is commonly believed that this murmur is due to the auriculo-ventricular orifice becoming dilated “beyond the tether of the valves,” which thus permit of regurgitation. I think, however, we have all seen cases in which, the lung troubles having subsided under judicious management and rest, the relieved ventricle has rapidly resumed its former dimensions, and the murmur has disappeared. Now, were the murmur in the first instance due to dilatation of the rigid tendinous mitral orifice in such degree as to be beyond the tether of the valves, it is difficult to conceive how such reparation should occur.

A different and more tenable explanation is at hand, however—viz., that the ventricle itself becoming acutely dilated, the papillary muscles to which the chordæ tendinæ are attached are displaced outwards to a circle of wider arc; the valves are thus dragged upon, and their accurate closure interfered with, by the tightened chords, the direction of whose traction is also somewhat changed, and when systole takes place blood is forced between the leaflets, the breach being maintained rather than closed by the contraction of the papillary muscles.

In more chronic and less remediable cases the papillary

muscles become stiffened and degenerated with the rest of the ventricle, and begin to fail in contracting and supporting the valve during systole. When, in cases of heart disease, the mitral orifice becomes dilated I believe the lesion, within the smallest possible limits, to be abiding.

In the first two cases of mitral disease which I will now ask you to examine—Case 1, that of a girl aged twelve, whose heart disease dates from rheumatic fever, two years and a half back; Case 2, that of a woman aged twenty-five, who at ten years old had rheumatic fever—you will observe that the murmurs at the apex (mitral systolic), although very distinct, are yet heard with, and in addition to, the first sound, which they do not wholly replace. There is but very little hypertrophy present, although the valve lesion is of some duration; and the patients are but little disabled by their heart disease, which, in fact, is better described as a *mitral leaking* than a mitral regurgitation. One of them, however, is unfortunately the subject of advanced phthisis.

If you contrast these two cases with others now in the room in which the mitral valve is more seriously damaged, and particularly with one in which there is stenosis as well as regurgitation, you will see how plainly is told the greater mechanical defect in the rapid growth of the labouring ventricle and the gradual yielding step by step of the strongholds of the circulation.

I shall have more to say of these cases at our next meeting, and will only now make the general observation that in taking a heart case we must never consider that to detect and localise a murmur is to make a diagnosis; still less can we on stethoscopic data alone build a prognosis. Having considered the murmur, whether it completely or only partially replaced the normal sound, and whether it be solitary or accompanied by other murmurs, we look to the heart and compare its degree of hypertrophy or dilatation with the duration of the disease. Then the pulse—its rapidity, regularity, force, and volume—is compared with the ventricular hypertrophy and other special qualities noted.

With regard to other organs, again, we must, in judging of their condition with a view to prognosis, have a due regard to the special heart lesions before us. Thus pulmonary congestion, normal to an early stage of mitral stenosis, would be of graver augury in simple regurgitation, and of speedily fatal significance in aortic disease. Similarly with systemic dropsy.

The previous habits, social condition, and occupation of the patient and the previous treatment of his disease are important points for consideration in estimating a prognosis. In most hospital cases the urgent symptoms have been hastened on by undue exposure and exertion, and, if not too far advanced, brilliant results are often obtained from rest and treatment. In other people these later symptoms come on rather in the natural course of the disease, in their due time, when the reserve forces have been exhausted, and they can be no longer staved off by judicious treatment. Unless, however, one is careful to ascertain this to be the case, one may make great mistakes in prognosis.

Observations

INTRODUCTORY TO CLINICAL LECTURES
ON THE

DISEASES OF WOMEN.

BY ROBERT BARNES, M.D.,
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GENTLEMEN,—It is not unfitting, before inviting you to accompany me in the clinical study of the diseases of women, to examine into what is understood by a special department of medicine. There are not a few persons who, for want either of knowledge of the subject or of reflexion, are apt to look upon obstetrics and the diseases of women as something special. If the term means anything at all, it must mean a piece of medicine that can be taken up apart from the general body of medicine, studied and practised separately, or with only a feeble and casual reference to the other parts or to the whole. If this definition be objected to in theory, there can be no difficulty in showing that in practice it is true. There are two aspects from which the question may

² Dr. T. M. Rotch, of Boston, in his “Absence of Resonance in the Fifth Right Intercostal Space diagnostic of Pericardial Effusion,” has shown by some interesting experiments that the normal traction of the lungs upon the pericardium determines the shape assumed by the effusion.

be regarded. First, there is the view which we will assume for the moment is that taken by the so-called general or "all-round" physician. Secondly, there is the view taken by, or ascribed to, the pure specialist. We will consider these two views first. By and by, perhaps, we may discover a third, truer than either of these, because it rejects the exclusive notions of both, and combines their common or mutual relations.

The first aspect, that of the general physician, is, in practice if not in theory, that medicine is made up of bits, each bit being the pathology of one organ or set of organs; further, that each of these bits of medicine may be detached from the rest, and be allotted to a distinct class of physicians; and, therefore, that the general physician need not trouble himself about these bits. He throws them off as of inferior importance, only worthy of the notice of an inferior order of practitioners—that is, of specialists. He studiously, almost contemptuously, ignores them, strangely preferring ignorance to knowledge. Let us take an illustration or two. The eye, the ear, the skin, the throat are told off to special practitioners, who are assumed to limit their attention to the organs assigned to them. Now the fatal error that lies at the root of this creed is the assumption that these organs are practically distinct entities or organisms, having no reciprocal relations to the rest of the body. Of course the reply will be that this is an extreme way of stating the case, that in fact no one will affirm that the diseases of one organ can be understood without reference to other organs and the state of the body generally. I will also freely admit that most physicians carefully include the study of the skin and throat in their grasp; that some take in the eye and the ear, more or less. This may be granted; but, on the other hand, it follows that, granting it, we acknowledge that a real specialism is impossible. And then, pursuing our inquiry from this basis, we shall find that the specialisms in vogue are not, indeed, pure absolute specialisms, but bits of medicine approaching more or less nearly to the definition we have laid down. In proportion as attention is concentrated upon the organ which is the subject of specialism, and its relation to other parts ignored, the nearer we approach to that definition. And it cannot be denied that the subdivision of medicine as now taught and practised tends strongly in this direction. We can never realise the abstract idea of specialism. But we are continually in danger of diverging farther and farther from the great truth that medicine, like the body which is its subject, is one and indivisible. To affirm that the eye could exist, live and see apart from the brain and body, would be to utter an absurdity so gross that the most ignorant would ridicule it. To affirm that the diseases of the eye can be studied and treated successfully without regarding the relations of the eye, anatomical and pathological, to the body at large, is in reality equally absurd. The absurdity may not perhaps strike so forcibly. But a moment's thought is enough to show that if the assumed physiological independence of the eye is absurd, its pathological independence is simply a corollary.

Now, I do not accuse any physician or surgeon of entertaining either of these absurdities in their naked abstraction, but I cannot help saying that not a few do encourage a belief in the second or pathological absurdity amongst the mass of the public; and the public do believe in it. Proofs abound. We shall glance at some as we proceed. One might touch upon a new development of the practice of specialism. Specialism itself tends to divide into sub-specialisms. I prefer to take an example from my own department, but examples are not wanting in others. Some women will select physicians who are supposed to have made a special study of tumours of the uterus, whilst others will prefer those who know all about flexions.

We may perhaps come to see the field of the chiropodist cut up, and each of the toes assigned to a special physician. But the "great-toe doctor" will retain pre-eminence, on account of the splendour of the connexions of the great-toe with hereditary rank, sumptuous living, and the imperial stomach.

This splitting up of medicine into fragments may suggest to the historical student the reflexion that we are undergoing a retrograde or backward development towards the medicine of ages and nations lapped in barbarism, or only emerging into inchoate civilisation, which plotted out the human body, assigning each plot to a particular doctor, as the Egyptians plotted out the mud of the banks of the Nile. It is not a little curious that in no other country is this

plotting process carried out so minutely as in England, especially in London, which, Alemannic pretensions notwithstanding, has held, still holds, and will hold, a significant position amongst the scientific and civilising energies of the world. This anomaly is to some extent due to the accident or blunder which permitted separate colleges for medicine and surgery to be founded, and gather independent, sometimes antagonistic, strength. Some sanguine men were once fired with the hope that the University of London would have reunited the detached elements of medicine, restoring her to her original integrity. But that dream is dispelled. Radical organic vices in the constitution and working of that much-promising body have, for a time at least, destroyed the possibility of its realisation. The colleges maintain, and I must frankly acknowledge greatly justify, their supremacy. Their justification would be complete if they were united in one corporation, as is the human body, whose welfare is their common object.

Now let us take an illustration of the popular outcome of this division of medicine:—A woman comes to a physician, selected for his supposed exclusive skill, complaining of amenorrhœa; she suffers at the same time from dimness of sight, perhaps pain in the eyeball, for this she goes to an ophthalmic surgeon; she has at the same time blotches on the legs—erythema nodosum,—and for this she goes to a skin doctor; she has also weakness and pain in the back, perhaps a little curvature, and for this she goes either to an orthopædic surgeon, or to some physician who takes special care of the nerves. And she visits all these specialists at short intervals, entrusting to each the organ which public opinion assigns to him. Here is the pathological absurdity carried into practice. One might give endless similar illustrations, more or less amusing or instructive. The public, personified if you like, is often strangely at fault to know what is the seat of his malady. He feels a pain or sees something amiss in some part of his body. He straightway fixes upon the pain or other symptom as an infallible indication of the seat of his disease. He feels his heart beat; he has disease of the heart, and goes in trepidation to a chest doctor. He feels a pain in his loins, or sees something queer about his urine; he has kidney disease, and goes to a kidney doctor. In both cases he is probably wide of the mark; and often he is governed in his choice simply by the name of a disease which somehow has got a hold upon his brain. I will tell you what happens to me frequently. A climacteric woman comes to me, complaining of pruritus of the vulva. The agony in that part rouses the dread of local disease. I test her urine—greatly to her surprise, for she does not take this to be my business—and find she has diabetes. Having determined this, and knowing that the pruritus is the consequence of the diabetes, I do not presume to treat it—of course, I am not competent to do that,—but I refer her to some friend who has a urinary reputation. And this is the way in which the evils that would infallibly attend upon pure specialism are neutralised or corrected. No reputed specialist ever will or can practise as a pure specialist. He cannot help reading in the organ or structure placed under his observation the record of troubles in neighbouring or distant organs, or of disorders affecting the system at large. At the same time that he recognises the alterations of function or structure in his particular organ, he studies by the light of his general physiological and pathological knowledge the reciprocal play of local and distant actions. Nor can he hope in a great number of instances to frame a rational scheme of treatment on any other basis. If he detects the master-disease, or a serious complication in some other part of the body, to treat which does not fall fairly within his scope, he seeks further counsel. Thus you see he is not, in fact or in theory, a specialist. He is a true physician bringing the light of general physiology and pathology to bear upon disorders more or less localised, and seeking in general as well as topical therapeutics for the means of cure.

Having explained to you that a pure specialist is an impossible monster, I may, without offence to anyone, describe the ideal specialist. We will suppose a physician who devotes great—I will not say exclusive—attention to the nervous system. He has to deal with a case of which epilepsy is a phenomenon. He examines with laudable care the nervous functions, the lungs, heart, kidneys; and yet—the subject being a woman—he specially omits to explore the condition of the uterus and ovaries. Is not this specialism? Might we not define a specialist as one who, in the investigation of disease, specially neglects an important factor in the problem? The man who takes a part

for the whole is surely a specialist, and this notwithstanding that the part he ignores may seem to him insignificant.

The third aspect—better than that of the so-called pure physician, and better than that of the pure specialist—is that of the physician who neglects no part, but who gives due consideration to each separately, and to their mutual relations. If you watch the practice of the ophthalmic surgeon, you will see that he does not limit his inquiry to the physical examination of the eye. He takes a survey—rapid it may be—of the whole system. He knows, and he will show, that many functional and organic affections of the eye depend upon, or at least have a pathological relation with, disease of the brain, of the heart and vessels, of the blood, of the kidneys; and his treatment will be largely governed by these relations. Inasmuch as he knows that the disease he detects in the eye is due to disease elsewhere, he attacks the disease in the eye through the provoking disease beyond.

And there is something more than this to learn from the observation of local disease. Sometimes local disease, instead of being derivative or secondary, is primary, and acts in a retrograde direction, or towards the centre. And thus we have to watch closely and guard as far as we can the centres of life against invasion from the periphery. Every organ in the body affords examples of this centrifugal and centripetal pathology. If examples seem so manifold and so clear in the eye and in the skin, it is because those organs lie so directly open to inspection. In the eye and on the skin we may often see written in characters as plain to the educated mind as the characters in a book the history of disease distant in time as well as in seat of origin. It is not my place to dwell upon these points. What I want to enforce upon you is the necessity of studying local disease, no matter where, by the light of general science. It will be my business to show you how the local conditions of the female pelvic organs are linked inseparably with the physiology and pathology of other parts of the body. We shall have many opportunities of seeing how many of the disorders of this part depend for their origin or aggravation upon disease elsewhere; how, on the other hand, disorders essentially local in their origin produce functional disorder and structural disease in other parts of the body. You will soon realise the fact that the pelvic organs form an integral, I might even say a dominant, part of the female organisation. Nowhere, I think, will you find more instructive examples of that primary local and centripetal pathology, which you may trace, if you seek, more or less in connexion with every organ. A whole catalogue of ailments, some long classed as morbid entities or essential diseases, including neuralgia in many forms, hysteria, that much-abused term, many cases of epilepsy, of paralysis, notably of paraplegia, and—I almost tremble as I utter it, exposing myself, I fear, to wrath and ridicule—not a few cases of insanity, are no more than symptoms or consequences of surgical or medical disorders of the uterus and ovaries. Many blood diseases also take their origin here. I cannot stop to give particular instances. But if you weigh philosophically the experiments of Charcot on hystero-epilepsy, you will come to the understanding that if a presumed disease can be produced at will by playing upon the ovaries, that disease is not a primary or essential disease, but only a symptom of ovarian action. Now the cure of a large number of the cases to which I have referred depends upon the cure of the primary pelvic disease. And in a very large proportion of cases, this primary pelvic disease is not very difficult to cure.

This comparative facility of cure depends mainly upon the fact that the organs involved are within easy range of objective observation and topical treatment. Their size, position, consistency, shape, and other physical conditions are capable of being determined by touch and the sound with considerable precision, whilst some parts may be brought directly under ocular inspection, and the secretions are readily obtained and examined. One great means of diagnosis employed in medicine is the observation of the organs in the performance of their functions. Nowhere is this method so thoroughly or so scientifically applied as in the investigation of the eye. The ophthalmic surgeon now uses instruments and methods for testing the way in which the eye performs its functions, that may be said to give results almost mathematically exact. We cannot pretend to such precision in the examination of the pelvic organs in woman. But in precision of objective observation I think we approach at least as nearly to it as can be done in the case of any other part of the body. We touch the uterus

directly from below; we feel its whole surface often from behind, from above, and in front; also we command it by palpation, we determine its texture, its mobility, its relation to other organs; we see a part of it which gives an indication of the vascularity and other features of the whole. How much of this can be said of any other internal organ?

Not to detain you longer before we enter upon the immediate study of our subject, I will simply press this lesson upon you: that the study of so-called specialties—the study of woman and her diseases is not a specialty, so the lesson is general—should be so pursued that you seek in that study examples and elucidations of general pathology. Take one instance, say inflammation. There is hardly another mucous membrane in the body whose pathology lies so open to study as that of the vagina and uterus. In seeing, then, a case of endometritis or vaginitis, you will see, not simply a local inflammation, but an instructive example of inflammation of a mucous membrane. You may, by the light of modern pathology, recognise a case of bronchitis or enteritis, and, in fact, know a good deal about it, but you cannot watch it through its changes in the living body as you can a case of vaginitis. So of other morbid processes. The history of fibroid, cancerous, hypertrophic, atrophic, and other morbid processes, can hardly be studied so effectively as in the uterus. It is not too much to say that few chapters in general pathology can be complete unless the correlated conditions of the pelvic organs be taken into account. The best definition or idea—for definitions are proverbially arbitrary and loose—of rational specialism is the application of general pathology to the investigation of the disorders of particular organs. The study of any organ of the body will lead us a part of the way on the right road to the understanding of pathology. He who neglects any one organ simply closes one of the gates of knowledge. To him may be applied the pathetic line of Milton lamenting his blindness—

“And wisdom at one entrance quite shut out.”

The difference is that, unlike Milton, the specialist is unconscious of his defect, and therefore of his loss.

CATARRH OF THE BLADDER; ALBUMEN IN THE URINE.

Part of a Clinical Lecture, recently given at University College Hospital,

BY SIR HENRY THOMPSON,

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THERE is a group of symptoms frequently met with in men of advancing years, to which I desire especially to call your attention. One of the first circumstances to attract notice is that the urine is more or less cloudy when passed, and that on standing it deposits some adhesive opaque matter in the bottom of the vessel. Such urine is generally neutral, or at best faintly acid; occasionally it is alkaline, always becoming so rapidly by keeping. On interrogating the patient, you learn that the act of micturition is performed rather more frequently than natural—that he is disturbed by it two or three times in the night, and every two hours or so during the day. He may also complain of dull pains about the pelvis and back; he finds the effort to pass water rather greater than it formerly was, and the general health has of late suffered a little.

Now it is by no means uncommon to hear this group of symptoms spoken of as indicating the presence of a “catarrh of the bladder.” And catarrh of the bladder is very generally regarded as a particularly obstinate, sometimes indeed as an incurable, affection. And I am free to confess that as long as these phenomena are considered referable to a specific disease, “catarrh,” so long probably will the disease prove rebellious to treatment and sometimes even incurable.

Again, when the urine described is examined by the microscope, a quantity of pus, varying much in different cases, is seen to be present in it; and when examined by heat and nitric acid, a certain amount of albumen is, as a matter of course, deposited.