AN ADDRESS ON THE UNVEILING OF THE STATUE OF JOHN HUNTER BY PRINCESS CHRISTIAN.

*Delivered in the University Museum, Oxford, on Saturday,
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By SIR JAMES PAGET, F.R.C.S., D.C.L., LL.D., F.R.S.

MAY it please your Royal Highness, Mr. Vice-Chancellor, ladies and gentlemen: There are very few subjects on which I could be induced to speak in the University of Oxford, especially on an occasion such as this, in which Her Majesty has been pleased to express her approval of the teaching of the natural sciences in this University, and, by the gift of the statue of John Hunter, has especially given her approval to the teaching of the biological sciences. But when, in the invitation with which I was honoured, I was told that the subject should be John Hunter and his relation to medicine and surgery, I felt that I might resist the temptation to decline it; for so much of my time has been spent in the study and arrangement of museums, and, for so many years I was occupied many hours a day in writing a part of the catalogues of the Hunterian Museum, and, at the same time, in the careful study of many manuscripts of Hunter, and of the illustrations left of his work, that I could not but feel that, even if I had not knowledge wherewith to speak of his influence in science, I had at least such a strong conviction that he stands highest amongst those that have practised medicine or surgery, that with my conviction, if not with my knowledge, I might impress upon you the value of his life. And there was another reason: that this year, in which, as if it were with a happy insight into the fitness of the occasion, Her Majesty has given that which may last for ever as a memorial of John Hunter, is the centenary of the opening of that Hunterian Museum, which was the nucleus of the great biological collection which is now in the College of Surgeons of England, and has been a source of knowledge to all men pursuing biology from that time to this.

It was in the year 1786, one hundred years ago, that John Hunter, after years and years of laborious toil, finished and arranged the museum which he planted in Leicester Square, and then, for the first time, opened it to the public and his scientific friends; himself the curator, himself the demonstrator, himself the promoter of all the good work to which it could lead.

I have been almost tempted to make this a discourse upon museums, especially as it was the formation of a museum which seems to have been the first motive of Hunter, and certainly throughout his life was one of the chief motives of his study of biology. He was an idle, uncultivated, Scotch lad, with no appearance of purpose in his life till he came to his brother William in London, who was then practising as a considerable physician, and, as the expression is, was collecting everything; and he caught the fascination from his brother, and himself began at once to collect everything—not anatomical specimens alone, nor things relating to medicine or surgery, but barbarian weapons, and works in bronze and ivory, and pictures—everything that was rare and curious. But he gave himself chiefly to the collection of such things as were interesting in regard to living creatures, and his love of collecting seems to have led him to the pursuit of knowledge, and a readiness to work which was hitherto completely unobserved by himself or any other. Becoming an insatiable collector, he at the same time became insatiable in the pursuit of knowledge. And everything that he collected he studied profoundly, till, to be brief, he ended in the completest study of everything living, or that had ever lived, and of all things living in health, or in disease. No man covered a wider range of ground than he did; no man studied with more care. I doubt whether, amongst all, could be found one who studied with more insight into facts, with more ingenuity and experiment, with more capacity of interpreting all he saw, with more caution, with more earnest desire to arrive at the truth, whatever it might be. I doubt whether there be any other, except John Hunter, who might be safely matched, in all these things, with Darwin. With him he was equal; with him, I doubt whether any others could be found comparable.

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Let me read you a letter which will tell you something of the kind of pursuits he had all through his life, and which will tell, besides, something of the defects of his mind and something of his personal character. It is one of a set of letters which he wrote to Jenner, his old pupil, which I was fortunate enough to be able to buy some time ago. It is this: "Dear Jenner,—You must think me very fond of Fish, when you even send me cheese as much fishified as possible. However, it is an excellent cheese, and every country has laid claim to its birth." Then follows what will tell of his pursuits. "I have but one order to send you, which is, send everything you can get, whether animal vegetable or mineral, and the compound of the two; namely, either animal or vegetable mineralized." That was John Hunter's first thought—of fossils. And there are in his manuscripts, and in what Professor Owen has unearthed from them, the most marvellous forecasts of the paleontology of the then future that could be found in any writings of his time. Then come a very practical sentence, very roughly expressed: "I would have you do nothing with the boy but dress him superficially, these fungus's will die, and be damn'd to them, and drop off." Then he goes on: "Have you any large trees of differ't kinds that you can make free with? If you have, I will put you upon a set of expt's with regard to the heat of vegetables," a subject which at that time, I believe, had been scarcely ever investigated, and of which precise knowledge has not even now been obtained—the self-productive power of heat in vegetables; but even this was within the range of his studies.

"Have you any caves where bats go to at night? If you have, I will put you upon a set of expt's concerning the heat of them at diff. seasons." I am not sure whether anyone before Hunter had ever suspected the great facts that he unravelled concerning the different heats of creatures in different degrees of activity in their lives: but this may show the way in which he pursued his work, with all the width and directness of purpose, and with the constant outlook for things that he might investigate in regions yet unknown.

He goes on: "I should have been extremely happy to have had the honour of a visit to Lord Barkley.—Ever your's, JOHN HUNTER. Anny sends her comp'ts, and thank you for all favours;" and then comes a practical ending, "write down the case."

I might apologise for speaking thus of museums and their influence if I were not speaking in this place where the museum, begun after the fashion of Hunter's, was, I believe, the starting point of the early study of biological sciences in this University. A great deal of the progress that has been made you owe to Sir Henry Acland; and he is an example, I think, that might be quoted of the unbounded advantages of museums. It has often been observed of librarians that the librarian is considerably more learned than the collector of books—obtaining from them very much more of knowledge, and spreading it more widely. The same may often be said of museums. The curator often knows very much more than the collector. But that does not apply to Hunter. Hunter was at once a collector and a curator, and every portion of his museum that he had time to investigate was made the subject of profound study; but Owen, Flower, and others, have found, in his museum, treasures which he had put by for inquiry, as if in the vain hope that his life might last very far beyond the ordinary life of man.

But I will now pass from museums that I may speak chiefly of the influence of John Hunter upon medicine and surgery. He has been called the founder of scientific surgery, and this expression concerning him is rather more true than most of the brief, unconditional statements which are made concerning a man. It would be folly to say that no science existed in surgery before the time of Hunter, or that no man had ever studied surgery with the help of such light of science as he could gather at the time then passing; but it is quite true that Hunter was by far the chief promoter of scientific surgery. And, as we may call a man a discoverer, though we could not prove that there had never been a suspicion of the truth which he had discovered, so Hunter may be regarded as the founder of scientific surgery. It would be impossible to find anyone who has communicated so large a mass of mere fact as he has, anyone who has searched so deeply and gathered facts so well together, who added so much as he did to the mere bulk of the material by which surgery can be studied. It would be impossible, I think, to point out anyone who introduced into surgery so many general rules of practice, so many means by which its study might be continually promoted and made more clear. There would not be nearly time to speak even of the chief examples of this; but what, I think, may be told more briefly, and seen more commonly, is that we owe to Hunter the habitual introduction of science into the study of surgery, and into its practice. Before his time, it was thought a decoration, an ornament, for a man if he knew some science; since the time of Hunter, it has been a necessary study for every man who is

deemed even competent for practice. Since the time of Hunter, I think one might say the very language of science in relation to surgery has been, for the first time, adopted. For years and years afterwards, though now, in the passage of time, it has become nearly obsolete, Hunter's language was that in which the scientific truths of surgery could always best be expressed. And if I speak of surgery, I may venture to say that, as medicine sometimes includes surgery, so sometimes surgery may be deemed to include medicine. In regard to both, Hunter's language prevailed, and the temper which he showed still prevails; that is, the care and constant inquiry for the accumulation and exact record of facts, the care for comparison, for very slow induction, and for the attainment, at last, of only feelings of probability, not of dead final certainty. I know no one whose writings might be more studied for an example how, in the best scientific inquiry, the expressions of certainty are rare. His customary expressions are "I think there is reason to believe," "I am disposed to believe," "There is some evidence for holding" this or that; never such statements as "I am sure," "I have finally settled this." Hunter showed clearly that element of the scientific mind, the element of doubt—doubt repeated and prolonged, doubt justifying continual revision and fresh thought, doubt which, within the proper range of a man's own scientific study, it is better to hold and easier to maintain than complete belief.

I have been obliged, in speaking of this, to use words which I do not like to use in contrast. We often hear the expression, "the science and practice of medicine," or "of surgery." Now, the two things should not be held as if they were different. There is a view in which they may be different. One man may be scientific, without being practical; another may be practical, without being scientific; and each of these characters might be studied from its type here or there. But that which Hunter began to prove, and which is now evident, is that there should be no such contrast between the science and practice of medicine. Science only changes its ground when it takes to practice; there may be the same pursuit of science still, and there is as much material for an accurate scientific investigation in many parts of the practice of medicine, as there is in any scientific question. Truly, the one is to be pursued in the laboratory, and the other is to be pursued by the bedside; but the same temper, the same method, the same caution, the same final careful settlement, may be observed in both; and, I repeat, if we owe the evidence of this to anyone more than another, we owe it to John Hunter.

But I have produced this letter that I might show that he was one of the best examples that can be cited, of the possibility there is for the practical and the scientific tempers to be combined in one man. I have read volumes of his manuscripts—his manuscript case-books especially—and, as I read page after page, I could say to myself, "Had this man the smallest insight into scientific things at all?" There were the plain simple facts before him, most carefully recorded; and, every now and then, there was such natural sagacity for seeing what he could not understand, though holding it to be true, as might have been the boast of the most practical man living. Scientific men, then, do wrongly when they speak as if the science of medicine cannot be pursued in its practice. The practice of medicine and of surgery since Hunter's time can be, in every day's, in every hour's work, as thoroughly a scientific study as is the work of any chemist or any mechanician. Let me say, however, on the other hand, that some practical men, as they call themselves, make far too light of the value of scientific studies; they are doing it now, but I believe that this University will be amongst the leading forces for the expelling of the absurdity. What in the world, it is asked, has this or that scientific fact to do with the cure of this or that man who lies there in distress? Is it not true that scientific facts are continually changing, shifting their ground, and that that which was learned as a scientific fact forty years ago, is now put by as altogether fallacious? I should admit it in some degree, but not as being fallacious. I might speak of a fact as being embryonic or on its way to something better; but it is no more a fallacy than is an embryo. And the changes of facts in their evolution do not diminish the value of scientific education, of whatever kind, in making a man competent for the study of medicine.

May I, for one moment, refer to my own experience on this point? In my boyhood, I studied botany. It was the beginning of my intimacy with museums—the study of botany after the old Linnean fashion, with no natural system at that time prevalent—collecting everything, arranging it, naming it, putting it by, studying it as deeply as I then well could. In later years, I have often looked back to see whether in the whole of that course of study I had learned a really useful fact, a thing that I could apply to everyday life; and I have never been able to discern one. If I am to speak of the present utility of the knowledge then obtained, I should say the

time was simply wasted. But for the discipline, the exercise of the mind, the education in observing, in arranging, in discerning differences, I should have still to say that the value of that study was beyond all estimate.

I have spoken of "science," as if there were but one. There are many, and my last illustration may be my apology, if I do not speak of other branches of science which are now as potent in education for medicine as that of which I have just now been speaking. These—chemistry and physics (in their relation to biology), electric science, and the rest—were, in Hunter's time, comparatively unknown and useless. Now, they have their full utility. I cannot measure them; I can only measure, and that in a feeble degree, the influence of Hunter's own study upon the science which it has been my happiness to pursue. Only this I will venture to say: Hunter studied biology with a constant regard towards its application to the study of medicine and surgery; and I venture to say that that is still a wise rule to be followed, even in a University such as this, where the biological and other sciences are to have, at least for one of their designs, the education to fitness for medicine. I think the nearer the scientific facts which we can study come within the range of that which is to be the object of after-life, the better; and that the larger the number of facts which we can gain for later application, the better also. So, even for a museum of biology, I venture to hold that the nearer its plan is to the Hunterian type the better it will be for the student of medicine. There may be in this some prejudice in favour of my old work in Hunter's museum, but I think that it will be found true.

Of one thing more I must venture to speak. What, it will be asked, in a university like this, is to be the relation of medicine or of surgery to literature? One cannot be here without, in thought, comparing Radcliffe with Hunter. There are very few of us who could venture to say what are the relative advantages of literature and the study of the records of the past on the one hand, and that of a biological museum on the other. My friend Sir Henry Acland, at once the librarian of the Radcliffe Library and the chief founder of the Museum, could tell far better than I can; but if I may refer to Hunter again, I will refer to him, not in praise of the absence of literary knowledge, but in regret that he was without it. Hunter was entered at this University, and he resided for two terms in St. Mary Hall. He left it, I should think, with regret, finding himself absolutely unable to study classics. It is recorded that he left it with undisguised contempt; but if he did so, it was an expression of his ignorance, for in all his after-life, one can see that his great defect in all his work was want of literary knowledge. I have read many of his letters, and have read many of his manuscripts, and I think there is not one of them in which either construction or orthography would obtain high marks in an ordinary board-school of the present day. I believe he never could publish one of his works without literary assistance, that they might be orderly, grammatical, and well spelt. But what was much more important was that defect of language, which was amongst the greatest hindrances to his power of communicating knowledge.

He was an unimpressive, uninstructional lecturer; and the Hunterian School was not formed by those who heard him, so much as by those who studied the writings which he left behind; and one can see, in many of his writings, the grave defects of the mutual errors into which thoughts and words are apt to lead one another. I have often felt that he illustrates how thoughts and words are like mutually reflecting mirrors; if either of them, when an object is placed between them, give an erroneous reflection of that object, the other cannot but in the same way reflect it in error. Hunter's gravest defect was in his want of literary power. If I refer to it, let it be with the desire that the literature of the University may be made as useful towards medical science as are the biological subjects. But, the two may be for men of different kinds. Hunter could never have been a great *literateur*: there are great *litterateurs* who cannot be made scientific. Each must be fitted for his own proper work; each hold the other in all due respect. From the controversy of these things, good will come. In the struggle for existence, which there is in intellectual pursuits as well as in the more maintenance of life, the fittest will survive; and the fittest will find his own fit place, here or there, the more widely all studies are pursued, and the more thoroughly the University fulfils that purpose which its name seems to indicate, that all knowledge shall be pursued within it—each part adjusted to those most fitted to take it, all directed towards the good of man.

If I have but satisfied your Royal Highness, in reference to the work which you are about to do in graciously unveiling the statue of John Hunter, and the additional honour which is given to the ceremony by your presence, and that of his Royal Highness the Prince, let me only assure you that, if time were to be had, it could be proved a

hundredfold that even Her Majesty's honours were never better bestowed than they are now upon John Hunter; and, if I may, in conclusion, be allowed to tell how great the honour is, I will do so in words, not of my own, but in those of an eloquence which this University has often heard—in the words of Mr. Ruskin. He says, in writing of the design of having the statues in the museum: "There is no man of worth or heart who would not feel it a high and priceless reward that his statue should be placed where it might remind the youth of England of what had been exemplary in his life, or useful in his labours, and might be regarded with no empty reverence, no fruitless pensiveness, but with the emulative, eager, unstinted passionateness of honour, which youth pays to the dead leaders of the cause it loves, or discoverers of the light by which it lives. To be buried under weight of marble, or with splendour of ceremonial, is still no more than burial; but to be remembered daily, with profitable tenderness, by the activist intelligences of the nation we have served, and to have power granted even to the shadows of the poor features, sunk into dust, still to warn, to animate, to command, as the father's brow rules and exalts the toil of his children: this is not burial, but immortality."

INGLEBY LECTURES ON SOME FUNCTIONAL DISORDERS OF FEMALES.

Delivered at Queen's College, Birmingham.

By WILLOUGHBY FRANCIS WADE, F.R.C.P.,

Senior Physician to the General Hospital, Birmingham; and Vice-President of the British Medical Association.

LECTURE II.

THE preliminary stage of the reproductive cycle includes, as I have said, the whole life of a woman antecedent to marriage. The hope of marriage, or if not the hope, the idea of its possibility, is never quite extinguished in the female breast. And it must be confessed that events occur from time to time which afford sufficient justification for this tenacity. Disappointment in the realisation of these hopes produces different effects upon different mental constitutions. In some cases, it produces a hardening and deleterious effect upon the character; in others, it ripens and intensifies all the most beautiful and charming qualities of the woman. We may say that, if it takes a good woman to make a good wife, it takes a still better to make a good "old maid." And yet it is but simple justice to say that examples of both classes abound, fortunately for it, in the world. The appearance of the most striking evidence of puberty, the catamenia, is rather the beginning than the end of those changes of body and mind, which result in the production of the woman. We may be permitted to imagine the body divided into that which is nervous system and that which is not. Of these two parts, it is the former which chiefly, that is essentially, distinguishes the woman from the man; which most clearly justifies the statement that the key to the difference between the two sexes is only to be found in the different part which each has to play in the business of continuing the species. The quickness of perception, the rapidity, and within limits, the accuracy of interpretation, the ready responsiveness, the too often fatal, but always interesting credulity—all these are necessary to the successful transaction of the instinctive business of her life, the attraction and retention of an admirer, the detection and annihilation of a rival. Nor is there any incongruity between the higher qualities of the mind and the lower or quasi-instinctive ones.

Any adequate discussion of this subject would absorb more time than we have to spare. If they interest you, study them for yourselves in the book of Nature. For yourselves, but not by yourselves, take for your guides and teachers the great masters and mistresses of fiction.

I need not enumerate those whose genius has enabled them to penetrate and portray the innermost workings of the heart. All afford materials which may assist you in your research for "the truest tales are not those which really happen." All, even the most antipodal, as, amongst living authors, the American Howells and the French Zola, can tell something of the workings of the human mind, as affected by the conditions under which it operates. Thus we may learn that the passions, like bacilli, can be malignantly intensified, or usefully attenuated, according to the medium in which they are developed. If

the attenuation be carried to the point of uneffectiveness, the form may remain the same, but the vital characteristics are abolished.

We are told in a pungent modern satire, acidulated, no doubt, by the unhappy personal experiences of the author, that, in "The coming race," women will claim the privilege now "usurped by men, of proclaiming their love, and urging their suit; in other words, of being the wooing party rather than the wooed."

This gibe is not altogether gratuitous; but, nevertheless, we should all sympathise with, and, according to our opportunities, further the intellectual elevation of, the other sex; if on no other, on selfish grounds, and for the purpose of perpetuating the ascendancy of our own sex; for we know how often, and in how large a degree, great men are indebted for their superior powers to their mothers. It is not art, but Nature providing for the continuation of the species, that has framed the minds and bodies of the race; that has implanted in each sex those peculiarities which are responsible for things as they are, and, for the most part, must continue to be. But, it must be repeated, this is no justification for artificially intensifying these differences; nor is it any reason why the higher powers of the female mind should not be educated, with the view of fortifying them by cultivation.

No sensible person would assert that all men are superior, either physically or mentally, to all women. On the other hand, few would deny that, in both these respects, the average of man is higher than the average of woman, or that the highest man is higher than the highest woman.

I have already referred to those qualities which are, by common consent, accepted as being peculiarly characteristic of the female mind; these are acuteness of perception, and rapidity of interpretation. The woman sees many things which pass before a man's eyes unperceived; or, if perceived by both, the woman's conclusions are drawn instantaneously. The man revolves the circumstances in his brain, comes to a conclusion more slowly, and often less correctly. We have here, as it seems to me, the key to many of the functional disorders of women. The same peculiarity characterises the structure of the whole nervous system, from that of the highest centres of the brain to that of the lowest ganglia of the sympathetic system. This difference in structure is not discoverable by anatomy, however minute. It is by its fruits that we know it. Sensitiveness to impressions, or excitability; facility of transmission of these impressions from one centre to another; this we may be permitted to call "permeability." A clinical phenomenon which has not received due attention, and which I venture to call "the radiation of pain," may be cited in illustration of this permeability.

The following cases, which I quote as examples of radiation of pain, are worthy of consideration, even by those who may not be prepared to accept my theoretical explanation of them. Some years ago, my opinion was requested in regard to a lady, aged about 32. She had been for a good many months under medical care for general, and somewhat indefinite, ill-health. For some weeks previous to my visit, pains about each subclavicular region and a dry cough had raised fears in the minds of her medical attendants, that she might be becoming consumptive.

My examination confirmed the opinion previously entertained, that no physical sign of lung-disease was to be discovered. We all know that many patients are extremely loath to let us get away from the consideration of an existent pain to that of any other symptom. She was one of this class. It required, therefore, much insistence to elicit the following facts. Before the pain attacked the subclavicular region, there had been a zone of pain round the middle of the chest; previously to that, a similar zone round the lower part of the chest and the upper part of the abdomen. That, in its turn, had been preceded by pain occupying the middle third of the abdomen; and then we found that the original seat of the pain had been the two hypogastric and the pubic regions. It came out that, though her attention had been engrossed by each new development of pain, those previously existent had never entirely subsided. This history suggested that perhaps, after all, the disorder had an uterine origin; and so it turned out.

On examination, we found that the os uteri was extremely tender, and also, as it was then termed (for it was a good many years ago), ulcerated. This condition was, in a short time, relieved by local treatment, and, coincidentally, all her pains and the cough disappeared, and she was restored to health.

It may not be disadvantageous to diverge here for a moment from our immediate subject, and interpolate a few words upon a very important topic. This is the relation of such a lesion as that just mentioned to the symptoms described, and more especially to the earlier symptoms.