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PART I.

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ART. XX.—*Address at the First Meeting, Nov. 7th, 1884, of the Pathological Section of the Academy of Medicine.* By the President of the Section, ARTHUR WYNNE FOOT, M.D.; Senior Physician to the Meath Hospital; Professor of Practice of Medicine, Royal College of Surgeons; Fellow, King and Queen's College of Physicians, &c., &c.

GENTLEMEN,—My first duty on this occasion is to ask you to allow me to thank you very much for the honour you have conferred on me in having elected me to preside over this Section of the Academy.

The honour has been as unexpected as it was unlooked-for, and is—I say it without the slightest affectation—embarrassing to one who feels himself to be far indeed from worthy of it.

But reliance on the co-operation of the members of the Section, and on the support of the working element in this department of medicine, encourages me to hope that the Session inaugurated this evening will prove as instructive in practical objects as those which have preceded it.

It is but a few days since it was intimated to me that I had been nominated for the office of President of this Section, and at the same time I was made acquainted with the fact that I would be expected to address you on the occasion of my first appearance in such a capacity.

A feeling of propriety makes me unwilling to shirk the duty of offering some remarks to you in concession to established usage; a feeling of respect for this large and influential Section of the Academy of Medicine disinclines me to undertake the examination of any of the great pathological questions of the day, in the presence of an audience comprising many from whom I daily learn of such matters. Not being fortunate enough to be an original worker in the micro-organic world, and having no pretence to suppose that otherwise my individual views would carry any particular weight, I am constrained to pass by the many prominent subjects connected with bacterial and histological pathology.

Mindful of the epithet which Pope applies to those who presumptuously rush in upon hallowed ground, it seems to me more becoming to leave such abstruse questions to those—and I am happy to know they are among our members—who can handle them without spoiling them, and to occupy a portion of your time with some more ordinary considerations, which, however, bear strongly on the scope and objects of our Section.

In considering how may be turned to the best account the synthesis of observation and mutual friction of thought, which may be anticipated here in the coming Session, it occurs to me that more good is likely to result from a cultivation of general than of special pathology—meaning by general pathology the knowledge of the morbid state and of disease in general, and by special pathology the knowledge of individual diseases. The encouragement of general pathology places it within the power of each individual member to contribute something, though it be but a mite, to the common treasury of information; while the elucidation of points in special pathology requires opportunities, facilities, and qualifications which are denied to the majority, and is a process which may at the time possess but little interest for those outside a limited group of students.

Pathology, understood as the scientific interpretation of the phenomena of disease, is not only the necessary basis of the rational art of healing, but is also a requisite part of the intellectual equipment of anyone who aspires to practical utility in even a minor degree.

There are four sources from which the materials of general pathology are chiefly derived—observation at the bedside, experimentation, pathological anatomy, and pathological chemistry.

Clinical observation stands in the most intimate relation to

general pathology; every step in advance in the former naturally benefits the latter, and *vice versâ*. It is true that complete clinical analysis is possible only in well-organised hospitals, but it is to be borne in mind that a host of questions are to be solved only in private practice, and by the family physician. Unfortunately, the latter is too apt to withdraw from the proper cultivation of science, and to hold the hospital physician responsible for future progress. But clinical pathology is not outside the scope even of the active general practitioner, for progress in this direction will ever be largely due to those who intelligently and studiously investigate disease as it is observed at the bedsides of their patients.

Among the points in clinical pathology which the family physician and general practitioner have peculiar facilities for observing are such important matters as the influence of heredity and of consanguinity; the incubation periods and the duration of contagiousness in infectious diseases; the effect of *diathesis* in its relations to renal calculi and gallstones, to the causation of gout, and to the ætiology of non-traumatic hæmorrhages; the communicability of phthisis, the subject of puerperal toxæmia, and such like. The determination of questions such as these imperiously demands the most rigorous accuracy of observation, otherwise the result is only intensification of the cloud of mystery overhanging them.

Clinical facts are as much facts as are histological or physiological ones. Those who continue to work patiently and laboriously in the mines of clinical pathology, though they may meet with little public recognition or remuneration, will become increasingly competent to estimate the value and utilise the results of other methods of observation, and will have the satisfaction of knowing that their exertions are tending to further the attainment of general pathological truth.

Experimentation is a gateway of knowledge which, in this country at least, has been so tightly locked that the difficulties of advance in the path of experimental pathology are almost insuperable.

Pathological anatomy has exerted an extraordinary influence on general pathology, as much by the reformation of medicine in general as by the discovery of a mass of peculiar histologico-pathological facts. Pathological anatomy was the lever by which the ancient symptomatic medicine was overthrown. It must be considered as not merely the basis of medical knowledge, but also of the

medical art, since it contains all that is positive knowledge in medicine or the foundation of it. It is through pathological anatomy that physical diagnosis has reached its high degree of perfection. The best and busiest practitioners advocate its study, knowing that *post mortem* examinations are the greatest aids to diagnosis we possess. Paradoxical as it may sound, it may be said that he who has completed the largest number of his cases by necropsy is likely to be the best practitioner; or, as Dr. Hughlings Jackson puts it, the best practitioner, though perhaps not the most confident, is he who has carefully made most *post mortem* examinations. Such affections as are not demonstrable by means of the scalpel and microscope are, with very few exceptions, exceedingly obscure.

Pathological chemistry is a line of investigation from which great advances in the next few years may be looked for, especially in the direction of the processes of oxidation and of assimilation. Pathological chemistry has not merely enlightened us upon the subject of many special diseases, such as renal affections, &c., and of general morbid processes, such as fatty and pigmentary degenerations, but it has furnished us with useful knowledge as to the clinical nature of obscure conditions, such as uræmia and diabetes. Thus it has become one of the sources from which the materials of general pathology are derived. The modern treatment of wounds relies to a large extent upon chemical agents, and what is commonly termed antiseptic might in a wider, and perhaps better, sense be called chemical surgery. Medical science is at present particularly interested in the solution of the problems concerning the nature of the causes of infectious diseases, and the character of the processes engendered in the organism by these causes. These latter most probably act after the manner of ferments, and while some of them are doubtless organised, self-reproducing, parasitical bodies, others are regarded as unorganised and shapeless, and in this respect resemble the normal ferments of particular organs in living beings. The proximate and final effects of both kinds of disease-causes upon the body are, in the main, chemical; the ferments decompose materials of the body into substances which either engender increased consumption of oxygen and excessive production of organic heat, or act as poisons upon the nervous and muscular systems.

These are the four principal sources of our knowledge of general pathology; from one or other of these every practitioner can draw,

and can contribute, if not a stone to the temple of science, at least a mustard-seed of information to the general field of knowledge. The number and complexity of the pathological problems still unsolved, the gravity of the interests they involve, the anxiety with which the educated portion of the profession and even of the laity await their solution, are inducements strong enough to kindle a desire in every member of the Section to take some part, however minor, in promoting the common aim and object of our lives—the rational treatment of disease—which advances towards its attainment *pari passu* with the progress of pathological information.

If I may venture to express my own conviction, I would say that from these four sources of knowledge the course which even still promises the best results is the study of pathological anatomy, closely united with accurate clinical observation; or, in other words, the careful study after death of the alterations recognised in cases which have been well observed during life. I know that it may at once be objected that these subjects are exhausted, that this ground has been searched so often that there is nothing more to be found in it, that the works of the great masters, long common property, have left no more to be done with the scalpel, nothing new to be seen with the unassisted eye; but how few are there who really know all that has been done by the great pathological anatomists, and how many have still to learn even macroscopic pathology?

The motto of the Pathological Society of London, "*Nec silet mors*," is still true; the *post mortem* room still continues, from time to time, to make most unexpected revelations when the crucial test of cadaveric inspection is applied to diagnosis; it still continues to be the court of appeal for questions which can be decided before no other tribunal. A vast deal remains to be learned from the dead body; a *post mortem* examination does not always flatter us—it makes us less confident, teaches us to be more careful, and may tell us in unmistakable language that we had been treating a patient with useless, if not injurious, drugs. In individual cases, even when a well-conducted *post mortem* examination is made, it is often difficult enough to determine the exact way in which death has been brought about. Even where we have the most striking anatomical changes, it is not always easy to specify the immediate cause of death. Increase of general pathological experience seems to give the fairest promise of eventually lessening

the number of autopsies which only yield the so-called "negative results."

It may occur to some that the drift of these remarks displays a bias towards the mode of procedure of the old Pathological Society of Dublin, whose glory lay in its cultivation of morbid anatomy. I am not careful to repudiate the impression, and will further take this opportunity of stating that I have always had, and still retain, sentiments of profound respect for that old Society, and the work it did. The latest but one of its long list of Presidents, it would be base disloyalty could I so soon forget its teaching, though but connected with it in its old age, or in what some were inclined to call its stage of senile imbecility. Any rudiments of pathology I am acquainted with were acquired in the dead-house or at the meetings of the Pathological Society of Dublin. The mode of procedure which made that old Society the success it was, and which has caused it to be taken as a model for similar institutions, was, in the main, a combination of accurate clinical observation with careful *post mortem* investigation; and, even at the risk of being thought antiquated and behind the times, I venture to think that this combination still remains as the back-bone of general pathology.

Ætiology, or the knowledge of the causes of disease, is at present one of the weakest chapters of pathology. Inasmuch as from a strictly scientific ætiology flows in a natural way the prophylaxis of disease, the causal conditions of morbid states imply a knowledge which is indispensable to any who claim the power to avert or who hope to avoid them. A larger knowledge in the direction of ætiology will restrict the use of the expression "idiopathic"—a term which, though current and convenient, is but a neat mode of formulating our ignorance with precision.

Comparative pathology is a subject upon which it is to be hoped we shall have much information brought before the Section during the Session. In the past year interesting communications were made by Mr. Abraham on "Arthritis Deformans in the Horse," and on "Scapulo-humeral Dislocation" in an animal of the same species. The diseases of the lower animals have already thrown much light upon human pathology. Sir James Paget stated in his Address on Pathology, at the Cambridge meeting of the British Medical Association (Aug., 1880), that he had long and often felt that we might gain help in the difficulties of human pathology from studying the consequences of injury and disease in the structures of *plants*. The diseases communicable from animals

to man, perhaps, come rather under the cognisance of the Sub-Section of Public Health, the members of which may be called the *pathologists of the social organism*, but they occupy such a relatively important position in human pathology that they have many points of contact with the work proper to this Section. One general principle of great importance has already been brought to light by the study of comparative pathology, which is that while man evinces a strong affinity for animal poisons, the susceptibility of animals to contagion of human origin is but slight.

Among the benefits which the study of comparative pathology has conferred on medicine, there are none more conspicuous than those which will result from a knowledge of the transmissibility of tuberculosis from animals to man. Of all the maladies affecting the domesticated animals tuberculosis is that which is the most wide-spread. The bovine race have a constitutional predisposition to tuberculosis. The influence of heredity has been established, and, as in the case of higher animals, it is most strongly marked when coming from the side of the female parent. Consanguinity increases the receptivity of animals to tuberculosis, and the disease increases with the improvement in, or specialisation of, the breeds of the domesticated animals.

Analysis of established facts shows that, concurrently with centres of tuberculosis in animals, we find more or less numerous cases of tuberculosis in man. The indirect medium of contagion is the flesh and milk which may be often consumed a long way from the locality in which they are produced.

Animal tuberculosis makes its ravages more especially among beasts exclusively destined to furnish milk and flesh, owing to their mode of life being often unnatural as well as insanitary; it is then not surprising that, with the foci of animal tuberculosis in the great centres of human populations, we find a large percentage of phthisis in mankind. It is some consolation to know that the temperature of boiling water kills the *bacillus* of tubercle, but then this temperature is not attained throughout the whole mass of a piece of meat prepared for consumption; the portions insufficiently heated may, therefore, preserve their infective property, and, on the other hand, the germs and spores of the bacillus may resist this temperature and retain their germinative power. Injurious action on the part of milk from tuberculous animals is more easily obviated; milk being a fluid which heats uniformly, it may be

assumed that in boiled milk every specific principle of tuberculosis, as well as the virus, is destroyed. In addition, the milk from different animals is usually mixed, so that the activity of the virus in infected milk is attenuated by its being mingled with healthy milk. Lastly, it should be recognised that the milk of every tuberculous cow is not fatally charged with the contagious principle of tuberculosis, although it has to be admitted that the milk is very infective when the disease is localised in the udder.

Whether tuberculosis is the expression of the full maturation of a predisposition the resultant of many causes, and often bequeathed, or the consequence of infection from a special nosogenic agent, the conclusions which comparative pathology point to should change from indifference to circumspection those who believed themselves entirely exempt from predisposition; while, on the other hand, they will allay the fears of those who suspected the existence of this predisposition in themselves.

Gentlemen, I will conclude these desultory remarks with the expression of a hope that this Session will be one significant of increased exertion and contributory zeal on the part of the members. As I have endeavoured to indicate, it is within the power of the members of the Section to contribute, each from the various sources accessible to him, some item of pathological value. With harmonious co-operation for this end, the meetings may become so profitable that no one will be able to go away without feeling the sensation of having learned something useful, and we may look forward to a prospect as full of benefit and advantage as the retrospect of the two past Sessions, under the rule of my able predecessors, is of interest and instruction.

Trusting that the members of the Section will be disposed to take a lenient view of what I feel has been an unwarrantable trespass on their time and an illegal tax upon their patience, I beg again to offer my sincere thanks for the undeserved honour they have conferred upon me.