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THE PRINCIPLES AND PRACTICE OF MEDICINE.

By MAURICE DAVIDSON,

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THERE is a time-honoured saying, somewhat exasperating to the philosophic mind, that an ounce of fact is worth a ton of theory. I have always felt that this sententious observation was hardly fair to those against whom it is generally directed, and it was with feelings of no small inward satisfaction that I once heard its exact converse pronounced by a celebrated preacher who remarked that an ounce of theory was worth a ton of fact, "because," said he, "it takes a ton of fact to make an ounce of theory!"

The tendency of human thought to diverge into two main channels which distinguish the so-called practical man from the theorist has always been a phenomenon of interest to the student of human nature. It shows itself among men of every sort and condition,

and is often a source of good humoured wrangling between individuals of either type in every walk of life. It may be of interest to us to note how this applies to the profession of medicine, and to speculate as to how far it is possible to attain in this branch of knowledge to the golden mean between two extreme modes of thought, each of which is necessary in the training of a physician if he is to arrive at that via media from which the vision of truth can be approached from the best possible angle.

The history of medicine is a story of the development of method; of the gradual evolution of science from an untutored art. To-day the student, entering upon a heritage provided for him by the labours of many generations, is taught the elements of those sciences which represent the foundations of his knowledge. Chemistry, physics, physiology, and anatomy, these are the root subjects necessary to an understanding of the normal functions of the human body; their essence must be assimilated before we can attain to a

rational conception of the nature of disease and of its treatment.

It is curious to watch the development of medical students along different paths, and to trace the growth of the man of academic mould in contradistinction to that of him whose mind works instinctively along the lines of a more material empiricism. It is a thousand pities that there are so few who are able to combine a proper adherence to those scientific principles which form the groundwork of medical knowledge with an appreciation of that clinical instinct which is ultimately the most important factor in the successful management of individual cases of illness. That this ideal combination can be realized is a thesis which I am anxious to maintain; that those who do achieve it make the best practitioners I think there can be little doubt. By way of illustration, we may perhaps liken the treatment of disease to the task of a commander-in-chief entrusted with the conduct of a long and complicated war. He is concerned with an affair which demands the use not only of strategy but also of tactics. Both are essential to the achievement of his main object; each stands in a certain relation to the other; between the two there often seems to be a sort of antagonism which, however, is more apparent than real. The successful prosecution of a war depends primarily upon sound strategy, which is obviously the basis of the whole business and without which the most astute tactician will ultimately fail; and yet the most perfect strategy may be stultified by faulty tactics. Yet, again, the commander must take into account that incalculable element of chance (the naval officer's "joss"), always incidental to human affairs, and, recognizing the fact that men are necessarily fallible, must remember that success in war goes to him who makes the fewest mistakes. The training of a physician in the first few years of his career may, not inaptly, be compared to the training of the military man in those general principles of the science of warfare which

are indispensable to success in his profession.

In medicine, as in other subjects, the present-day system of education has this disadvantage, that the beginner does not enjoy the salutary experience of having the value of his theoretical learning checked by the lessons of actual practice, as was the case in the older days of apprenticeship. The complexity and departmentalism of modern medicine makes the curriculum more and more exacting as time goes on. According to the natural trend of his mind the average man is apt to grow either into a strategist or a tactician, but even for those constructive brains which can and do attain the golden mean the chief obstacle is time. For the acquisition of that blend of science and art which constitutes true experience, out of which is born the judgment of a good physician, many years are needed; as a shrewd colleague once observed to me, "Since one does not live to be 150, one gets little chance of really making use of one's experience." In reviewing the different stages of the curriculum it is of interest to note some of the points at which the difficulties in regard to theory and practice first begin to be realized. Throughout the stage of preliminary training the student's path is fairly straightforward; chemistry and physics, to the extent to which he has to cope with them, do not bring him into very close contact with practical problems. Anatomy deals only with the most sober facts which admit of no dispute. Physiology brings him nearer to human affairs, but at this period he begins to assimilate dogmas which are soon to be relentlessly assailed by the unsympathetic facts of medical practice. The study of pathology forms, as it were, a kind of no man's land between the science and the art of medicine. The broad general principles taught by the pathologist are the basis of what should be the strategy of the physician; his tactics in dealing with the morbid processes of any given patient must be acquired in the school of practice,

and often by the method of trial and error.

Before discussing how far the future needs of the student are really met by the average medical school, it may be useful to consider one or two concrete instances of apparent discrepancy between the theoretical groundwork of medical teaching and the actual clinical facts encountered in the later stages of a medical man's career. Of the different sections of human physiology which form part of the ordinary intermediate course, one which should be simple of comprehension, because of its more obvious association with anatomy, is that which deals with the functions of the central nervous system. Anyone who has mastered his anatomy should experience little difficulty in the diagnosis of typical cases of a system lesion of the spinal cord. There are, nevertheless, certain phenomena in nervous diseases which seem to contradict the lessons taught in the elementary physiology classes. The disturbances of sphincter control associated with lesions in the neighbourhood of the lumbar enlargement do not by any means correspond precisely to what one has been taught to expect from a study of physiological textbooks. Admittedly it is not always possible to draw an exact comparison between the phenomena of disease in human beings and those resulting from experiments upon the lower animals; in highly differentiated creatures such as humans the element of shock involved in any cord lesion is more far-reaching than is the case in lower animals, and the immediate effects due to shock frequently overshadow those resulting from the anatomical lack of continuity caused by the lesion. In theory, for instance, one is often led to expect certain definite types of sphincter disturbance in association with particular cord lesions, whereas in fact, whatever the nature of the lesion, almost any of the known varieties of sphincter trouble may be met with. The same lack of consistency may be observed as regards the phenomenon of aphasia in

connection with various cerebral diseases. An even better example is seen in the actual results of the comparatively modern operation of gastrectomy, considered in the light of much that has been taught as to the physiology of digestion. Apart from the ill-effects which have sometimes been observed to follow this operation in the shape of grave anæmia associated with deficiency of hydrochloric acid, practical surgery has taught us that our former conceptions of so-called gastric digestion are to a great extent erroneous, and that, so far from being essentially concerned with the digestion of foodstuffs, the main function of the acid gastric juice is possibly to act as an antiseptic. Though it is true that modern physiology has had to concern itself with the importance of alkaline digestion in the duodenum, and the question of backward regurgitation of alkaline fluid into the stomach, one is inclined to look upon our revised notions of digestion as being an outcome of the discrepancy between theory and practice and an example, perhaps, of the debt which science owes to medicine.

The above are familiar instances of the intellectual troubles which disturb the medical man in the earlier stages of his learning. It is, however, later on, as a newly-qualified resident in hospital, and still more amid the exigencies of practice, that he begins to appreciate the empirical side of medicine and to realize how much of his earlier teaching has to be discarded. It is, perhaps, at this period especially that the effects of such realization are felt most strongly and that the division begins to take place which leads men into opposing camps. On the one side stand the scientifically-minded, prone to scorn any line of investigation or treatment of which they cannot exactly schedule the rationale; on the other side are those practitioners of their art who, trusting to their clinical instinct and practical experience, tend to ignore if not to ridicule the efforts of those of their professional brethren whose interests are

directed mainly along the lines of so-called research.

It is no part of my purpose to champion one side or the other. It takes all sorts to make a world, and it certainly takes both scientists and practitioners to make a medical profession. Were it not for the type of mind which works chiefly in the atmosphere of the study and the laboratory, we should see little advance in our knowledge of disease and the development of internal medicine would be in danger of stagnation. At the same time it must be admitted that if the management of patients were left entirely in the hands of the average "internist" things would go somewhat hardly with not a few unfortunates who look to the sons of *Æsculapius* to relieve them of their burdens, which, be it remembered, may be weighing not only on the body but also upon the mind. At the risk of being called reactionary I would venture to suggest that the trend of present-day medical teaching is in the direction of developing the theoretical at the expense of the practical. This is a problem which ought to be a matter of serious concern to those leaders in the profession who are responsible for the training of students. They have the task of moulding to some extent the coming practitioner; it is they of all men who should display in their outlook on medicine the golden mean of which I have spoken; in how many of them is it really to be found? I am reminded in this connection of a little incident which occurred not many years since in the wards of one of the leading hospitals in London. A case of unusual difficulty from a diagnostic standpoint had been admitted into one of the teaching beds under the care of one of the physicians attached to the medical unit, whom I will call Dr. X. He was discoursing on the difficulties of the case to a friend of mine, who expressed surprise that he had not consulted the then senior physician to the hospital, a fine clinical teacher of the older school, remarkable more for his clinical instinct than for his insistence upon modern

laboratory investigations. He of the medical unit received the suggestion with somewhat superior scepticism, being himself a high-brow. Quoth my friend, "You know, my dear X, your trouble is that you want your patient in a bottle, not in a bed!" I mention this little contretemps, not in any ex parte spirit, but to show how pitiful is the lack of co-ordination between the two essential points of view, and to suggest that if only this ridiculous affectation of rivalry could be excluded from among some of the teachers in our medical schools, the training of students in the things which really matter would be considerably improved.

It may well be asked at this point in what way it is suggested that the curriculum might be altered in order to provide the coming practitioner with a fuller and better mental equipment for his work. I think that the reply must be that the fault is not so much with the existing curriculum as with the manner in which it is used and with the general atmosphere that pervades the teaching schools, in which the study of medicine, so far as practice is concerned, appears in a far too impersonal light. Criticism to be of any real value must at least attempt to be constructive, though it is easier to find mistakes than to prescribe the remedies for them. One of the disadvantages of the present mode of training is the temptation it offers to rely too much on those mechanical aids to diagnosis which the improvement of scientific methods has secured for us. In the old days of apprenticeship in practice there were no short cuts to knowledge; the art of healing had to be learned, like any other craft, by personal attention, aided by the experience of the teacher, and the lessons thus taught, since they meant more in the way of effort, were doubtless learned more thoroughly and valued all the more by reason of their cost. The student of to-day does not, perhaps, realize the debt which he owes to the pioneers of scientific investigation, neither, on the other hand, does he appreciate the value of the methods em-

ployed by clinicians of a bygone age, men whose storehouse of scientific knowledge was far more scanty, yet whose powers of observation may well put to shame a good many of their successors for whose benefit the advantages of modern technical methods come so easily to hand. It would hardly be practicable at the present time to insist on a period of apprenticeship, though I venture to think that such an addition to the orthodox course of training would in many respects have a certain usefulness, and I am certain that those who entered upon their profession under such a régime gained a good deal of valuable knowledge that is lost to the more accurately-trained men of to-day.

It is a matter for real concern that so many hospital residents, on receiving a new patient into a medical ward, will automatically refer the case to the pathological laboratory and to the X-ray department for reports, before ever they condescend to obtain a detailed history of the illness, much less to make a careful survey of the general clinical picture. It is difficult to avoid the conclusion that the unit system is to a large extent responsible for this kind of thing, and one is inclined to lay a good deal of the blame upon the shoulders of those who are responsible for the teaching given under that system. It is not that the details of the schedule are at fault, it is rather a question of atmosphere. It is remarkable how little sense of proportion is fostered in the students, who do not seem to appreciate the relative values of the various items of information afforded by different sources. I know that I am treading upon delicate ground. To suggest that the practical value of many of the modern methods of investigation is over-estimated is to utter a heresy; to praise the methods of the older clinicians is almost regarded as an attempt to put back the clock of scientific medicine. This attitude is as unjust as it is untrue. What we should endeavour to instil into the minds of medical men, both present and future, is the need to

combine the thoroughness of the old methods with the wisdom of the new. A physician must learn, in approaching a problem of diagnosis, to think first in terms of general pathology, and, having in his mind a broad conception of the type of disease with which he has to deal, to approach the patient with senses sharpened to perceive all clinical details that a careful examination can elicit. Nothing should seem too trivial; one cannot distinguish in advance the points that will be of importance in the full development of the clinical picture.

Much has been written lately about the study of symptoms and their importance in regard to the recognition of disease at an early stage. While for the elementary student it is inevitable that the classification of symptoms should be somewhat stereotyped, it is a pity that he cannot also be reminded in some practical fashion of the truth that disease in practice does not always conform to the textbook. For example, it is necessary that different types of pain should be to some extent pigeon-holed for teaching purposes; unless this method is adopted and unless descriptions are dogmatic, it is difficult to make a beginning, but the unfortunate thing is that so many men, even among the cleverest, never seem to get beyond this elementary conception, or to realize that at least half the patients they see will not give them a description of symptoms that can be put at once into their orthodox pigeon-hole. Pain is, of course, a relative thing, and allowance has to be made for the personal factor, but the important point is that many patients describe pain which, though it conforms to no recognized type in the academic mind, may be not only real but objective, and of the greatest importance in the clinical history. It is in this sort of case especially that the medical man has to construct his diagnosis, using not only the general pathological principles which he has acquired in his earlier training, but also the art of personal observation, a faculty which comes to him later as a rule, but which he

should be encouraged to cultivate from the very beginning.

To the man who intends to devote himself to the study of internal medicine and to engage in consulting practice, no experience is more valuable than that gained by devoting a certain portion of his time to general practice. There was a time when this was an almost universal custom. Apart from the fact that the consultant can hardly appreciate the difficulties and needs of his colleague in general practice unless he has learned to share them himself, the man who takes up consulting work after some previous schooling in general medicine and surgery, comes to his special duties with a mind broadened by closer contact with the human side of his profession. In consequence he is better able to take a more comprehensive middle view between extremes than is the case with one whose outlook from the start has been either stereotyped by the narrowing limitations of a too specialized routine or disillusioned in the grooves inseparable from general work which tend to cramp his possibilities in the way of clinical research. It is difficult for the average general practitioner to acquire the detachment necessary for many medical problems, and it is a fault of most consultants that their attitude is excessively impersonal. It may be objected that it is not now possible for most men to adopt the course of starting as a general practitioner and taking up consulting work later, and indeed it must be admitted that in the present order of things there are many difficulties in the way. Not the least of these is the fact that election to the staff of an important hospital is hardly possible to those who have left the beaten track of pure medicine and entered upon practice in any capacity but that of consultants. That this is so is partly a matter of precedent and partly a result of the reprehensible tendency to staff the teaching hospitals with physiologists, biochemists, pathologists, anything in short but clinicians. A candidate for the post of physician is recommended for elec-

tion on the grounds of "*work done*" (i.e., publications), work which as often as not has been carried out on abstract lines, entirely detached from the study of disease in its human aspects, that is to say the care and treatment of persons suffering from common disorders. The theorist thus appointed will in turn seek for colleagues of similar trend of thought, and so the circle goes on. It is not by such as these that the golden mean will be presented to students, either in the wards or in the lecture theatre.

I am aware that the above criticisms are less constructive than I had hoped and intended that they should be, but it is not easy to suggest formal advice for the improvement of a system of education which leaves much to be desired, and in any case it may be argued that the mental attitude adopted in medical practice depends more upon the individual himself than upon the system under which he has been trained. Unless, however, we are prepared to view even our best achievements with a whole some sense of dissatisfaction, we shall not get the utmost out of life and work. This surely is a proposition which should appeal to the truly scientific mind. What we need especially in the present age is to bring the teaching of medicine more into practical relation with human affairs, to make it somewhat less "highbrow." "*Nihil humanum a me alienum puto*" should be the motto of every practitioner, no matter what his speciality. It is only by the combination, in this spirit, of the abstract with the concrete in medicine that we shall avoid both the lack of humanity and also the charlatanism that we are apt occasionally to criticize in other nations.