INTRODUCTORY ADDRESS

ON THE PRESENT POSITION OF MEDICINE.

Delivered at King's College.

By ALFRED B. DUFFIN, M.D., F.R.C.P.,

Professor of Morbid Anatomy and Pathology, and Physician to King's College Hospital.

THE Lecturer, after offering a cordial welcome to the old and new students of the School, said to the latter :

I have alluded to the great trust that you are on the eve of confiding to us. It will obviously be a matter of extreme concern to you to know something of the method in which it will be met on our side ; to ascertain something of the principles which will guide us in assisting you to prepare yourselves for your future career. I say advisedly, prepare yourselves. This I take to be the true meaning of the term "education". We may help to develop the abilities and faculties you may possess, provided you co-operate with us. We may sow the seed, but the return depends primarily upon the soil. It rests, then, ultimately with yourselves whether your residence here shall be a season of profit or of loss.

Now, the experience that you will gain here may be referred broadly to three chief sources—*precept, practice, and association*. The first you can acquire from your teachers ; the second you must obtain for yourselves ; the last you will get from your friends.

Under the term *precept*, I would include much more than a series of formal lectures. It comprehends the whole system of instruction as between teacher and pupil. Lectures, doubtless, form no inconsiderable part of this method. Some men are apt to decry lectures. They say that they could acquire from books all that is to be obtained in the class-room, and that the facts brought before them fly by too rapidly to produce any lasting impression. Now, both these arguments, however specious, are unsound. It would require a vast extent of reading to cover anything like the ground often occupied by a single lecture. Your teacher has already gone over and analysed this mass of material on your behalf. He has selected those subjects which it is most important should be presented to you early. He has made it his business to weed out all extraneous matter, to sift controverted questions, and to epitomise results. These he imparts to you clearly and concisely. There is, moreover, a vividness, a reality, about spoken language, which no mere written symbols can convey. But the lecturer has much more than this to communicate. His individual experiences, his observations, his discoveries, are often to be found in his lectures, and nowhere else. As regards the transitory impression produced by lectures, that I venture to affirm depends upon the listener. Attention and note-taking will soon dissipate that difficulty. To take notes that shall be of real service is an art calling for no little skill ; but it is one well worth acquiring. You will refer years hence to your College notes as to one of your most valuable possessions. The fault of most beginners is the attempt to take down too much. You cannot reduce to writing the *ipsissima verba* of the teacher. Try for the governing words that are the key to the sentence or paragraph. Jot these down at the time in any order they may happen to fall. When you get home, while the subject is still fresh in your memory, expand them into readable shape. The advantages of this system are twofold. On the one hand, you do not, in your zeal to transfer remark No. 1 to paper, lose its context remark No. 2. On the other hand, you apply your critical faculties to your notes, and work them into a consistent whole. Should you fail in accomplishing this, set aside any obscure passages for reference to your teacher when you next meet.

This leads me to the second and perhaps more important application of the term teaching by precept. It is colloquial instruction, that which each man will obtain for himself from the individual professors, tutors, and demonstrators in the form of question and answer. The second source of your experience will be *practical*. Here you must rely upon your own hands and ears. Almost every class has its practical associate : the practical chemistry and toxicological classes, the practical biology demonstrations, with their microscopical and chemical subdivisions, and pre-eminently the dissecting-room. In alluding to the dissecting-room, I feel that I cannot do better than repeat to you the words that I heard from the lips of my revered teacher, Professor Bowman, when I for the first time sat upon those benches : "They are a scene of study to which no other profession affords a parallel. While they retain their novelty, you cannot enter them without a certain reverential awe, inspired by the thought that you are walking among the dead. An earnest and right-

minded man will not too forcibly repress this feeling ; nor forget in that customary place the honour due to human dust ; nor so dismiss his own mortality from his recollection as to behave with any unbecoming or ill-timed levity. He will strictly apply himself when there to the acquisition of the necessary knowledge, reminding himself sometimes that the dead body on which he operates has once been tenanted by the soul of man ; that in all probability the Divine Spirit has once deigned His presence there ; and, finally, that its scattered elements are destined to be one day reconstructed, and, in a changed and purified stage of incorruption, to resume their mysterious but essential part in the life of an immortal being."

At the Hospital, you will from the first be required not only to see, but to listen, to handle, and, if need be, to taste. You cannot too early begin to familiarise your senses with the objects presented to you. You will find that, as you train them by an ever-increasing experience, they will become more delicate, more discriminating. The amount of information that you will thus acquire is simply immeasurable. It will continue to increase through life. As you know, the erudite touch of the physician has passed into a proverb. Let me, however, most earnestly remind you that you will be brought into contact with sick and suffering people, many with their sensibility painfully exalted, their minds and bodies wearied by want of rest and the exhaustion of disease ; others with their senses blunted, and the little intelligence they may ever have possessed obscured by the course of their illness. To be patient, gentle, circumspect, forbearing in dealing with men so situated, will constitute not the least important part of your training for after-life. As soon as you have mastered some of the rudiments of observation, and have ascertained somewhat of the method according to which various morbid conditions are investigated and dealt with, you will be early invited to participate in the practical working of the Hospital. Clerkships and dresserships—first of out-patients, later of in-patients—will be severally offered to you for competition. The multitudinous technicalities of our art may thus be readily acquired. A man becomes conversant with the application of those many instruments of precision—the stethoscope, the ophthalmoscope, the laryngoscope, the sphygmograph, the thermometer, the microscope, etc. He there also practises the simpler surgical manipulations ; and lastly, learns to systematise the mass of facts passing before him, by keeping records of the cases brought under his superintendence. If a man acquit himself creditably in these subordinate positions, still higher prizes open up to him. The house-surgeons and resident clinical assistances are within his grasp. In these, although with much increase of responsibility, he will be admitted to a more immediate and important share in the treatment of disease.

Another source of your practical attainments is presented by our periodical class examinations, and by the labours of our most excellent ally the medical tutor. Now, the object aimed at by our class and tutorial examinations is totally different from that intended by the various forms of qualifying examination. These latter, to which you will be submitted by the great examining bodies—the University of London, the Royal College of Surgeons, etc.—are designed to act as a protection to the public, so as to exclude all candidates who do not evince an, I fear, rather ill-defined amount of information. They are imposed upon us by external authority. They are intended as safeguards against negligence and incompetence. Far different is the object of our class examinations. They also are designed to gauge the amount of your knowledge, but with a view to correcting its deficiencies—making it thorough and accurate, and insuring that your progress be safe. They are but too often regarded as purely competitive, to determine who are the leaders of the class, to whom prizes should be adjudged. This is, I believe, an entirely secondary object. The prize is indeed a stimulus to exertion, and a just reward of success ; but the aim of the class examination is, first and foremost, the advancement of every member of the class. Prizes, then, should be regarded simply as graceful marks of the recognition of merit, which, fairly won, may be honourably worn, and which are intended to stir up a spirit of generous emulation.

The third head under which I said that you would find experience was that of *association*. You will now enter a society differing in many fundamental respects from any among which you have hitherto lived. Not only will you be brought into daily contact with your professors, but you cannot help shortly becoming more or less intimately acquainted with each other. A number of men of about your own age, with similar aspirations and prospects to your own, will become your daily companions. You have still to acquire a knowledge of the aptitudes, whether intellectual, social, or moral, of the vast majority of these men. They cannot fail to exercise a powerful influence on the development of your character, and, conversely, you will influence them in return. From every one you can learn something valuable. Hence I would recommend you to scrape some sort of acquaintance with all your associates. But, before you honour any man with your friendship—before you open

up your inmost thoughts to him—try him well; watch how he will act under emergency; labour to ascertain whether he is endowed with stability and integrity of character. The possession of similar aptitudes and desires draws men together as it were by a loadstone. Each one of you will soon find out to what set he belongs. The friendships cemented thus early will follow you through life; and I am sure that your teachers, who sit around me, will all admit that their sincerest and most lasting friendships were selected from among their fellow-students.

You will, then, readily perceive how large a share of your education devolves upon yourselves. Not only are we anxious to store your minds with facts, but we wish to raise your sense of responsibility and self-reliance, to elevate your character and your judgment. "This double movement, moral and intellectual, is essential to the very idea of civilisation, and includes the entire theory of mental progress. To be willing to perform our duty, is the moral part; to know how to perform it, is the intellectual part. The closer these two parts are knit together, the greater the harmony with which they work." (Buckle, vol. i, p. 175.)

The reason of this is that you are entering upon a *liberal profession*. What constitutes a liberal profession? It has been defined by one who was eminent both as a surgeon and as a philosopher, the late Mr. Joseph Henry Green, as "the application of a science by its actual possessors to the wants of the community, and the cultivation of a science for its own sake. This must ever constitute the difference between a profession and a trade." We have, then, two objects presented to us, distinct, yet mutually dependent. On the one hand, our life of relation as members of the commonwealth; on the other, the advancement of knowledge for its own sake. It is with the former of these two aspects that I shall chiefly deal to-day.

As members of the community, our aims are so extensive that we may almost say, with the Latin poet, "*Humani nihil a me alienum puto*". They may be briefly summed up under two heads: first, with reference to society at large; and, secondly, to its individual members. We aim at encouraging the general wellbeing of mankind, by favouring the growth of a robust and healthy population, by tracing out the causes of disease, and diminishing the rate of mortality. In the individual instance, we endeavour to arrest or moderate the course of disease, to mitigate suffering, and to prolong life. Our duties thus bring us almost equally in contact with health and with disease, so that a knowledge of the science of medicine comprehends both. Medicine, indeed, is essentially a branch of that great division of natural science called Biology; that is, the science of life. This includes all the phenomena manifested by living beings, whether in health or in disease. It is impossible for us to understand or to mitigate unhealthy conditions, unless we have a preliminary knowledge of healthy states, and of how they are to be maintained. Biology thus naturally breaks up into two divisions. Those events which characterise the state of health are included under the term Physiology; those which relate to disease under that of Pathology. But life has been defined as "organisation in action"; and here we find these two great fields again subdividing. We must discriminate between the structure and the function which it has to perform. With the former, anatomy (whether normal or morbid) is concerned; with the latter, physiology and pathology. Neither can we stop here. Our life of relation must also be considered. The causes which act upon us from without, and the modifications which they severally induce in the manner in which our various functions are performed, must be duly appreciated. Indeed, they introduce the active elements of experiment into biology. The method in which our surroundings act upon us constitutes the very point at which practical medicine sees its opportunity for useful interference. The study of the condition under which health is maintained, and of the modifying influences that assaults from without are capable of exerting on the course of disease, have given rise to hygiene on one side, and to therapeutics on the other. The former concerns itself with the prevention of disease; the latter with its cure. That department of biology with which the medical profession is chiefly concerned thus readily subdivides itself into four great chapters: physiology, pathology, hygiene, therapeutics. Whilst we make these subdivisions for purposes of study, let us not forget the solidarity that unites all the sections of biology. 'Nowhere can we draw any exact line between health and disease. Dr. Wilks has justly observed, in his Hunterian Oration: "The study of the two branches must be pursued together; for the very derangement of parts gives a clue to their uses. The daily task of the physician is one of physiological investigation, as well as the treatment of disease." Physiology, then, is our corner-stone. I cannot too strongly impress upon you the importance of studying it thoroughly. Without an extensive knowledge of the healthy structures and functions, it is simply impossible for you ever to acquire any adequate acquaintance with the morbid ones; without both, you will fail to appreciate the effects and value of either the hygienic or therapeutic experiment.

I must beg to be understood to use the term experiment here in its

largest sense. Every dose of medicine that we administer, every meal that we consume, partakes of the nature of experiment. Indeed, experiment may be defined as the grafting of some new condition upon those already existing. In common parlance, when this new condition is imported irrespectively of any agency on our part, and when we simply record the change that it produces, we are said to make an observation; when we ourselves import the new condition, we are said to make an experiment. The difference between observation and experiment is thus one of detail rather than of kind. But the value of experiment in its narrower sense must be obvious. In simple observation we neither control the antecedents nor regulate the disturbing agency; in experiment we more or less govern both. "To simplify complications", says Buckle (vol. i, p. 231), "is in all branches of knowledge the first essential of success. This is very familiar to the cultivators of physical science, who are often able by a single experiment to discover a truth for which innumerable observations have vainly searched. The reason is that by experimenting on phenomena we can disentangle them from their complications and thus isolating them from the interference of unknown agencies, we leave them, as it were, to run their own course and disclose the operation of their own law."

We are often taunted with the backwardness of applied medicine. Our detractors forget that rational treatment was impossible so long as those preliminary portions of biology which constitute the foundations upon which alone a true scientific method can rest were not sufficiently advanced. It is only within quite recent times that physiology itself has emerged from the darkness of ages. Even minute anatomy must be regarded as a work of our own epoch. Each department of natural science has had in its turn to contend with the ignorance of the generation in the midst of which it has been developed; each, as it has acquired a solid basis, has laid up material for the growth of its successor. The science of life has thus had to wait until an adequate number of facts and laws had been stored up by the advance of the preliminary sciences and until instruments of precision had been invented such as should render practicable the observations that it required. But within the present century this work has progressed with wonderful velocity. A science of physiology, deep, extensive, and solid, is being rapidly evolved. We no longer refer everything to a vital principle representing something utterly transcending knowledge. The laws of inductive research have been applied to most of the vital functions. The conditions regulating the circulation, respiration, digestion, and to some degree even the nervous system, are passing swiftly into the domain of acquired knowledge. I am far from asserting that the natural laws which have been hitherto revealed to us will suffice to solve all the problems of physiology. I cannot presume to anticipate in what shape the term vital principle will ultimately survive. That the tendency of advancing knowledge must be to circumscribe its application is obvious. All that we can say about it at present is that it represents a force about which we have no knowledge, and about which we cannot reason. It is an abstract speculation, probable indeed, but outside the limits of exact physiology.

Morbid anatomy has also made immense strides, and both from the side of causation and from that of development the outlines of a pure pathology are beginning to be defined. We have ceased to regard disease as a separate entity. We rather consider it as an abnormal condition of the body than as something introduced from without. We discriminate with increasing clearness between the disease and its cause. I have already alluded to the vast importance to be ascribed to disturbing agencies over the whole range of the biological field. It is especially when the potency or number of them is sufficient to excite that hostile reaction either in our functions or structures, or both, which we call disease, that their value becomes manifest. It is then no longer sufficient to recognise the existence of a malady, to be able to define its extent or to predicate its importance to the individual sufferer. We now also aim at ascertaining its cause and the separate steps by which the functions and tissues have been severally interfered with. The causes of many maladies have now been traced out, and the methods by which they gain admission into the system have been ascertained. The specificity of many poisons, whether of mineral or organic origin, the conditions of the multiplication and propagation of these latter, the results of their residence in the animal economy have been gradually revealed to us. I will allude to one illustration of this truth, and to one only. The fearful ravages of pyæmia had long become a matter of national importance, and had proved the curse of many surgical hospitals. The history of the poison upon which pyæmia depends, the method of its elaboration and propagation, have now been elucidated in every essential detail. Most important of all, a series of searching experiments and of brilliant deductions has placed us in the position of victors over this dreaded foe. Gentlemen, it is one of the greatest sources of pride to King's College that we possess in our midst the master mind that has most largely

and most directly contributed to these glorious results. The antiseptic method may still be destined to save more lives than even armies have destroyed.

We are also beginning to understand more clearly the consequences of disobedience to definite physiological laws. We know the results of breathing an air chemically impure or laden with mechanical particles; we understand the conditions under which changes of temperature affect us injuriously, the consequences of dietetic errors, whether in quantity or quality, of intellectual and emotional overstrain, etc.

In the present day, therefore, we recognise that every form of sickness from the fearful epidemic pestilence in which our forefathers saw the direct interposition of preternatural power, down to those mysterious constitutional taints which are transmitted from parent to child, are really due to material causes, are governed by natural laws, and are, to a great extent, within our control.

Hygiene, or the method of preserving health, is already elevated to the dignity of Sanitary Science; whilst its sister, Prophylaxis, or the art of warding off morbid influences, is admitted to be one of the most valuable advances of modern medicine.

Our means of detecting the presence of disease have also largely increased. Our instruments of precision now reveal to our senses the physical conditions of many internal organs, whilst chemical and microscopical analysis offer us timely information of secretory changes. Our powers of diagnosis, then, have been greatly increased. But a deeper acquaintance with pathology and improved means of diagnosis have also taught us that many diseases which were formerly regarded as trivial symptoms are really due to hopeless disorganisation of vital organs. Where our predecessors only saw a comparatively unimportant ailment, we recognise a liver almost converted into fibrous tissue, a heart with valves utterly incompetent, a disorganised kidney, vessels converted into tubes brittle with lime and oil. In all such examples, we may, indeed, hope to alleviate, but the first result of our diagnosis is to preclude all chance of cure. We thus see how the advance of the collateral sciences is defining the limits of therapeutic action and indicating the boundaries and methods within which it may advantageously be applied.

Now, the earliest results of this increase of knowledge have been twofold. Many well established prejudices have been overthrown; we have learnt how unstable was the foundation upon which some of our most cherished practices reposed. We have also learnt that most functional disorders have a very considerable tendency to spontaneous recovery. Many of the good results that were formerly attributed to the action of our remedies we now confess to have been really due to the natural course of the disease, whilst many of the bad effects that were attributed to the disease were actually referable to our remedies.

The consequence of these discoveries has been to raise up a number of sceptics within our own ranks. Many men have pushed the doctrine of expectancy beyond the limits justified by experience, and have imagined that the sole duty of the physician was to look on as an intelligent spectator at the struggle between the disease and the powers of the patient.

Now, for honest scepticism I must confess the greatest respect. Doubt has opened the door to knowledge. Had men at all times been content to accept the dicta of their forefathers unquestioned, not one of the great discoveries which have resulted from civilisation, and which are its index, would have been effected. The determination to verify every assertion, to submit every time-honoured statement to the test of experiment, to ascertain the limits of every fact and the applicability of every law, is the upheaving force that has removed mountains. But for that parody of scepticism which runs beyond just limits, which, because many old landmarks have been removed and much old rubbish consigned to oblivion, concludes that all knowledge is naught; that a reconstruction on a solid basis is impossible; that we can only fold our hands and look on—for that I must express the greatest contempt. Extremes meet. It is our old enemy superstition with a new face.

We may, then, regard the position of medicine as secure in two respects, namely, that it should direct as to the conservation of health, and as to the warding off of disease. Most will also admit the applicability of hygienic laws to the actual management of illness, that we may direct the course of such diseases as get well spontaneously so that it should be "*cito, tutò et jucundè*".

What of the value of drugs? We have already seen reason to understand that any decided advance in this department of medicine was necessarily dependent on the progress of the ancillary branches. But another cause has greatly tended to hold us back. In all ages, suffering humanity has cried out for help. Even in a rude state of society, it was early discovered that certain agents were endowed with what we may broadly call medicinal properties. Armed with these and generalising upon the scanty data accessible in their times, men rushed into the wildest theories and the most venturesome practice. Feeling the want

of accurate information as to the laws of life, they imported into medicine the philosophies and speculations current in their age. Thus they blinded themselves and accumulated a farrago of nonsense that is only now being cleared away. Not that these men were utterly pernicious. They have left to us a legacy of many most valuable remedies; they were often accurate in their application of them; and they were most precise in the employment of the scanty means of diagnosis at their command. Above all, however misled they may have been, we must respect their honesty and sincerity of purpose. That they were no better depended upon the times in which they lived and the knowledge at their disposal. Let me, however, not be misunderstood as decrying all tendency to the formation of theories. On the contrary, the framing of hypotheses or suppositions commonly precedes the discovery of the laws governing phenomena. The best guide that we have in forming them is analogy or similitude. "No intelligence but that of Omniscience", says Professor Daniell, "can comprehend the plan, the theory of the Universe; but from the plan of such small portions as have been mastered, we are often enabled successfully to anticipate the order of other portions, and thus to obtain a guide to experiment, to which the ultimate appeal must always be made." Of such conditional speculations, Sir John Herschell says (*Discourse on Natural Philosophy*): "A facility in framing them, if attended by an equal facility in laying them aside when they have served their turn, is one of the most valuable qualities a philosopher can possess."

As regards the sources from which we derive our weapons, we gladly welcome them from any quarter. The traditions of savage races, the lore of an antiquated priesthood, the experiences of shipwrecked crews, the products of the chemical laboratory, have all placed valuable experiences at our command. Medicine is catholic, and is ready to accept sound information from whatever quarter it may flow.

Therapeutics can only become exact if they are dealt with on the same principles that we apply to other natural sciences. There is no royal road, no all-embracing theory according to which we can predicate what will be the action of any given drug, still less which will permit us to infer that such and such medicines are and must be antidotal to any given diseased state. Such crude speculations are still too rife among us, and they are eagerly caught up by a certain section of the public. They are usually the results of hasty generalisations formed on a few physiological and pathological facts of doubtful value; they represent the desires rather than the acquisitions of mankind. Like every other science, therapeutics must be built up on observation, careful, accurate, and far-seeing, and on experiment defining the conditions within which the agent to be employed is to do its work. The careful physician, although confident in the results of precise experiment, will also strictly observe its limits. Should he feel himself called upon to apply them under new or ill-defined conditions, he will do so with the utmost caution, feeling his way step by step, as the additions to his knowledge may permit. Formerly, it was almost exclusively upon observation that men relied. It is indeed marvellous how rich is the harvest that it has already brought in. It would carry me beyond all reasonable limits were I even to give you an epitome of the results that have been already obtained. These the professors of Medicine, Surgery, Midwifery, and Materia Medica, will in due time lay before you.

But the importation of the *experimental method* into therapeutics demands a passing word. It has been said that the phenomena of life are so complex, so variable, so incapable of being estimated by any exact method, as to render the introduction of experiment nugatory. To this the answer is the present condition of physiology. The complexity of the medicinal agents at our command has also been made an element of objection. But chemistry is rapidly increasing the number of pure alkaloids and of substances of known composition, endowed with precise powers and affinities. It has also been affirmed that experimentation would discredit the results of experience and would check accurate clinical research. That it might upset some theories at present current as to the action of certain remedies of otherwise acknowledged usefulness is probable; but it would thereby increase the value of the remedy by circumscribing exactly its limits of action. In principle, then, we may anticipate much good from the experimental method. But who are to be its subjects?—our fellow-men? In former ages, they have already furnished too many holocausts of victims to the crude and ill-digested blunders of our ancestors. Besides, we cannot insist too earnestly on the sacredness of every human existence. It is, then, to the lower animals that we must turn; and how far can they help us? Now here we must discriminate. Remedies are now admitted to act in two chief directions: either they modify the functions of some part, system, or organ, increasing, diminishing, or extinguishing them for the time, or they act more directly upon the complex phenomena presented by the malady as such in a manner that at present escapes us, or as we are wont to say, specifically. The actions of medicines may then

be, as Sir R. Christison used to express it, "directly therapeutic or physiological". Of remedies of proved specificity in the old sense we possess but few, and increasing knowledge is showing that the action of some of these is rather by their interference with some physiological factor, some key-element in the nexus of the disease, rather than by any antidotal effect on the malady as a whole.

It is, then, with respect to the physiological action of remedies that we may learn so much from animals. It has, however, been averred that such experiments could yield no results of any value, because the formation of animals and their mode of life differed in so many material respects from our own. It is quite correct that the vital processes of many animals differ in numerous respects from our own. Some animals can feed upon substances that are poisonous to ourselves. Rabbits can eat belladonna with impunity; but this drug nevertheless exerts on them the same physiological action as it produces on man. Professor Ferrier has justly observed: "The equilibrium between the circulation and other vital functions in the rabbit is such that the disturbing influence which belladonna induces in man is relatively little felt." Again, goats and sheep can eat conium, but the similarity of the action of conium on man and animals has been clearly demonstrated by Kölliker and Gutmann. Frogs and birds (according to Weir-Mitchell) are thrown into convulsions by opium. Opium has a double action, convulsive as well as narcotic; the former is chiefly exercised on the spinal, the latter on the cerebral, system. Now, in frogs, the spinal system is highly differentiated. In man, the brain is highly developed, and hence the narcotic action of the drug is that most commonly observed. But in man, also, convulsions occasionally follow opium; and this apparent anomaly the action on the frog permits us to understand. But let us look rather at results. Has this field, upon which men have worked for a very few years, yielded any return worth having? Let me point to the discovery of the action of nitrite of amyl and of nitro-glycerine in the treatment of angina pectoris; to the actions of digitaline and atropia on the functions of the heart; to that of physostigma and of pilocarpin, to hydrate of chloral, to the actions of euonymin, iridin, and podophyllin on the liver; and, lastly, to the wonderfully contrasting actions of the great tetanisers, strychnia, brucia, and thebaïa, and their ethyl and methyl compounds respectively. These are but a few of the results obtained. The great doctrine of physiological antagonism has also been thus revealed to us. We have been taught to understand the term antidote in a new sense. Instead of looking simply for chemical neutralisation, we have learnt that drugs, by their opposite actions on the same functions, or by playing off one function against another, could antagonise each other's effects. Thus atropia is known to antagonise morphia, and this fact has already been employed more than once in saving life. The antagonising effects of Calabar bean and strychnia are another example. Above all, the great group of anæsthetics, the most important gift ever conferred on suffering humanity, is to be ascribed to experience on animals. It is in this fact that we find the true answer to that large class of objectors who denounce all experiments on animals on the score of cruelty. Our labour is essentially humane. To save suffering of every kind, to reduce it, where inevitable, to a minimum, is not only our office, but our pride. To imagine that we should inflict pain out of mere wantonness is simply monstrous. But, even in dealing with our patients, we are often obliged to inflict some suffering to avoid more, or to save life. We destroy animals for purposes of food; and the mere wantonness of sport inflicts a thousand times more pain on animals than they are ever likely to suffer at the hands of the biologist. Could the experience be gained in any other way, we would gladly dispense with animal experimentation; but the whole course of science shows that this is inevitable. That we will avoid the infliction of pain in every instance where it is possible the very history of anæsthetics proves clearly. Where its infliction is inevitable, you may be equally sure that we are too alive to the nature and keenness of suffering ever to inflict one particle of it without a reasonable anticipation of beneficial results. Of the application of the experimental method to pathological therapeutics, I can tell you but little. The subject is still in its infancy. But our increasing knowledge of the true character of antidotal action, and of the specific causation of many diseases, raises our hopes highly in this direction.

I have endeavoured briefly to summarise to you the position to which modern medicine pretends, and the methods by which she is endeavouring to make it good. We thus boldly hold up our heads, and look hopefully towards the future. Still we are bound to confess that in no one department have we attained to completeness; many of them, alas! are in the most rudimentary condition. But, imperfect as our knowledge of disease and of the means of preventing it still may be, they are nevertheless in advance of our actual practice. This is to be ascribed, not to ourselves, but to the apathy and prejudice of a large section of the public, and, consequently, to the feeble action of the

executive. I say consequently. The position of the executive towards the removal of abuses has been well summed up by Buckle: "The first suggesters of such steps have invariably been bold and able thinkers, who discern the abuse, denounce it, and point out how it is to be remedied. Long after this is done, the most enlightened governments continue to uphold the abuse, and reject the remedy. At length the pressure from without becomes so strong, that the government is obliged to give way; the reform being accomplished, the people are expected to admire the wisdom of their rulers, by whom all this has been done" (vol. i, p. 273). That same public, which justly hears with horror of the slaughter of a battle-field, has its imagination scarcely, if at all, impressed when they read that, in the last ten years, 180,000 people died in the United Kingdom by continued fever alone. No doubt this depends rather on want of education than on want of benevolence. That benevolence is not lacking our splendid hospital sufficiently proves.

While alluding to our excellent patrons and friends, I may perhaps be excused if I endeavour to point out a few of the fallacies under which I believe that some of them labour respecting our functions in society. With a considerable section of the public I fear that medicine is still rather a matter of faith, or of its correlative scepticism, than one of knowledge. We find repeated among them dim and often distorted images of views and theories long since exploded amongst ourselves.

From the standpoint of the uneducated man, our position is very simple. He regards us as endowed with powers over his illness which are almost absolute; we are the depositories of great secrets which we can, if we choose, exercise for his advantage. To him we are the priests of a great mystery, and are to be propitiated; the more so as he has some uncomfortable notion that we may be evilly disposed, and utilise him as the subject of what he calls experiment.

How or whence our knowledge is obtained are also questions about which many think vaguely, if at all. Many seem to imagine that medical discoveries are showered down in an intermittent and irregular sort of way upon the world at large. Most of them possibly fall on the members of the medical profession, but they may equally tumble on blacksmiths or old women. Their idea is that a man may tumble on a medical discovery much as he may pick up an apple on a roadside. They entirely overlook the complexity and wonderful working of the animal economy, because they know so little about it. Were these same people told that an old woman had suddenly discovered a panacea for all defective steam-boilers, they would laugh the idea to scorn: "We know too much about boilers for that." But, if this same old woman pretend to have discovered a pill which shall cure every human ailment, she is at once regarded as having had a revelation from heaven. What is the actual history of the majority of these cure-alls? An individual with a little capital which he desires to utilise, or a "company limited" with a "cute" secretary, gets hold of a pharmacopœia—British or foreign matters little. They extract therefrom some well-known aperients or sedative substances; these they herald to the world with a blast of trumpets and the prefix of some surname, Brown, Jones, or Robinson; or, better still, they dub their speculation with some title of barbarous etymology, supposed to convey to the public mind some idea of its virtues, such as ventosine or nauseine. They extract some testimonials from a lot of credulous ignoramuses utterly incompetent to judge of the question; these, when worked up skilfully, are served hot in the daily press. An intelligent and a thrifty government casts the ægis of secrecy over this wonderful discovery, on condition that a patent be taken out and a three-halfpenny stamp be fixed on the bottle. A good-natured public, seeing the stuff advertised right and left, thinks there must be what is called "something in it", and invests accordingly. If the something be a mild aperient, it probably, in the long run, does no great harm; if it be a drastic, or still more, if it be a narcotic, it helps to swell the bills of mortality.

There is one class of society, however, to whom this fancy pill-mongering is a decided blessing. I allude to our old friend the *malade imaginaire*, who expounds his "views" of his case till he almost drives one frantic. Let one of them speak for himself in the pages of a weekly contemporary (*Truth*). "I am myself a *malade imaginaire*. In fancy, I have had every disease to which flesh is heir. But I am one of those sufferers whose precise maladies are a mystery to the faculty; and, whenever I consult a doctor, he has the effrontery to tell me that there is nothing the matter with me. Being convinced, however, that my appearance is deceptive, and that I am but a whited sepulchre, I am perpetually engaged in physicking myself."

Ascending among our better informed friends, we find many impressed with the idea that disease is, for the most part, an entity derived from without—a parasite, as it were, growing at our expense. They fail to observe that it is the result of our habits and surroundings, the taint imported by hereditary predisposition, or the wearing out of

our tissues by actual or premature old age. Mistaking between the disease and its cause, they fail to observe that the former grows within us. As to drugs, the idea is very prevalent that their action represents something totally extraneous to the healthy body. We are applied to for cures, antidotes, which shall destroy and expel the intruder, exorcise the foul fiend.

A reproach constantly levelled at us is, that we possess no system. By this, I take it, the public mean some cut-and-dried series of formulæ, chiefly, if not exclusively, of theoretical origin. They seem to expect from us some thoroughgoing, all-including set of principles, elaborated in our studies, logically and harmoniously, out of our own inner consciousness. So impressed do many seem with the necessity of our fighting under some flag, that they have invented for us the term "allopathists, whatever that means. Our answer is, that we labour by the light of nature, and cannot go beyond the facts that have been discovered. Thank goodness, Medicine has done with these falsely called systems. She has suffered enough from them. Their vitality may be ascribed to two causes—the scantiness and tentative character of medical knowledge in times past, and the fact that they satisfy a craving not only in the popular, but in the medical mind itself. The strength of all depended on the tendency of most functional diseases to spontaneous recovery. Many failed to perceive this, and made the most violent and blundering assaults on their unhappy patients. Homœopathy, the "system" of the nineteenth century, is wiser in its generation; it is content to spin theories before the imagination of its believers, and to amuse the patient while the disease runs its own course. Allied to these are those waverers who have dismissed physic and its ways from their thoughts during the day of health, and who have neither firmness nor endurance to support them under suffering. They accept our services eagerly, but quickly become disheartened and wearied; they dismiss us, and run the gauntlet of the quackeries. These are the people who are said to "try" doctors and systems, who discard number one, about whom they know nothing, in favour of number two, about whom they know less.

But many men, seeing apparently the same diseases running the same course, whether under violent bleedings, heroic purgings, infinitesimal doses of nothing or coloured water, have fallen into scepticism. Nor is it to be wondered at. The answer to them is to look and inquire candidly what medicine has done and is actually doing; to put aside prejudice and weigh facts. We have no fear of the result.

Lastly, there is a large and growing section of the public who understand us, our methods, and our objects. To them we are often more than the mere administrators of medicines; we become the advisers, the comforters, the friends. They are content to accept medical science as it is, with all its shortcomings; for they know, as we know, that it is based upon truth.

ABSCESS COMMUNICATING WITH THE BLADDER AND RECTUM.—M. Duchaussey related the following interesting fact at the meeting of a medical society (*France Médicale*, No. 103). A gentleman aged 55 was suddenly taken ill during the night with excruciating pains in the abdomen, vomiting, and rigor. One physician diagnosed an attack of nephritic colic; another attributed it to gravel, but did not find any on passing a sound into the bladder. M. Duchaussey thought that there might be some obstruction in the intestine not far from the bladder, and attempted to remove it by an injection of water. Three days later, the patient passed pus with his urine and through the rectum. This showed that an abscess must have burst somewhere between the bladder and the rectum, communicating with both. Fæcal matter was passed through the bladder. Disinfecting injections of a solution of carbolic acid, etc., were daily used, and the patient bathed frequently. The inflammation was not considerable. There was myelitis, and gradually the fæces ceased to be passed through the bladder, except in particles not larger than grains of sand. The patient could take a little food, was sent to a watering-place, and soon recovered. This happened eighteen months before the case was reported. For the last three months, the communication between the bladder and rectum had been closed; the patient passed a little glairy matter from the bowels; and, two weeks ago, two pieces of fleshy matter escaped. On examining the intestines, it was found that there existed a contraction about five inches from the bladder; the mucous membrane was red and inflamed. The patient was taking twice a week an injection of two pints of water, and a small one daily. To prevent the intestine from being entirely closed, a bougie No. 30 had first been used, and afterwards an ordinary rectal bougie had been inserted into the intestine to keep it open. The cause of this affection is not clear; but in all probability it was due to some small foreign body which had in some way become imbedded into the mucous membrane, thereby causing an abscess.

REMARKS

ON

PROVINCIAL MEDICAL SCHOOLS.

BEING THE

Introductory Address delivered at the Opening of the Session 1879-80, at the Queen's College, Birmingham.

By JAMES SAWYER, M.D.Lond., M.R.C.P.,

Physician to the Queen's Hospital; Professor of Materia Medica and Therapeutics in Queen's College, Birmingham; etc.

It is my duty to-day, when we inaugurate the opening of another academical year, as the representative of the Council and Professors of the College, to address a few words to our old and new pupils in the faculty of medicine. My first words shall be words of welcome. In the name of those who have honoured me by their confidence and on whose behalf I am privileged to speak, I offer a cordial welcome to every student in this theatre. Some of you are here for the first time; perhaps some of you are proud to count the opening session as the last of your collegiate curriculum; most of you return to work in which you have already made considerable progress. I hope you all come with a due and deep sense of the responsibilities you are undertaking. I hope you are all filled with an earnest determination to avail yourselves to the utmost of the great opportunities which are given to you for learning the principles and practice of our profession—opportunities greater, perhaps, than you are able now to esteem them; greater certainly than many of your predecessors have enjoyed.

All of us may justly be proud of the prosperity and promise of the Birmingham Medical School. For many years, its progress has been steady and uninterrupted. Founded more than half a century ago by my late master, Mr. Sands Cox, whose name can never be mentioned within these walls, which he loved so well, without respect, who opened his lecture-rooms in Snow Hill in 1828, our school has had a memorable and chequered, and yet a honourable, history. Memorable is that history—in that its earlier records register the marvellous success attained by the devoted and unwearied enthusiasm of a very remarkable man. Chequered, alas! has that history been by petty jealousies and administrative disaster—blots which a later and enlightened harmony long since has swept away, I hope, for ever. But honourable withal does that history seem when we remember the self-sacrificing zeal of a goodly succession of teachers, not a few of whom have ranked with the brightest and best in our profession; and honourable, too, is our history when we recall a roll of students inscribed by some who have proudly borne the name of our school through the honours lists of colleges and universities, and won their way to the highest eminence in science and in medicine.

Since I first knew the Birmingham Medical School, some important and most beneficial changes have been made in its constitution. We no longer see the General Hospital with its little college and the Queen's College with its little hospital forming two distinct medical schools, weakening each other by their rivalry, and dividing the teachers of the town and the students they could attract in ever-varying proportions. First, the two colleges became united. The Queen's College of to-day represents the rival Queen's and Sydenham Colleges of a dozen years ago, and still numbers, I rejoice to say, amongst its senior professors several of the teachers of the older schools. This happy fusion, which promises to be indissoluble, was followed by another, and, to my mind, more important, union. Seven years ago, the General and Queen's Hospitals, still competing clinical schools, although each was working in conjunction with the united college, became formally associated for the joint practical instruction of students. This co-operation of the two great hospitals of the town—the complement of the amalgamation of the colleges, and without which that amalgamation could scarcely be expected to be permanent—conceived and completed, not without some individual sacrifices, for the welfare of the pupils of the school, has more than realised the sanguine expectations of its promoters. I hope and believe this union will be lasting. You have now the privilege of watching and sharing in the practice of twenty-two hospital physicians and surgeons, who are responsible for the charge of nearly four hundred beds and the yearly care of four thousand in-patients and forty thousand out-patients. You have the advantages of the services of a staff of clinical teachers and the experience of a *clientèle* surpassed in number