An Address

ON

MEDICAL EDUCATION IN LONDON.

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GENTLEMEN.—When your Dean conveyed to me the distinguished invitation to open this session he lightened my responsibility by giving me the subject of my address—namely, Medical Education in London. London, like every other great centre of education, has its own problems and its own difficulties, but these problems and these difficulties cannot be solved without the illumination of the principles which are true for education everywhere and always. If in England these principles are little heeded by the public, and if accordingly secondary education in England is in grievous defect, it is not for want of preaching. From Matthew Arnold and Michael Sadler to the humble empiric who ventures into the pulpit to-day, of preachers there has been no lack. If I am qualified to deal with the subject yet again, it is that all my life I have been engaged in teaching in centres so different as Leeds and Cambridge, and ought from such conflict of conditions to have won some wisdom. If without the added dignity of my office I should scarcely dare to address you, on the other hand I must beware lest I give an official colour to my opinions, lest I seem to engage my University in doctrines which it might have no mind to. *Cucullus non facit monachum*; whatsoever then may be inconveniently said by the professor, pray write down quickly to the account of the individual.

EDUCATION V. INSTRUCTION.

Education, as contrasted with instruction, is a drawing forth of faculties, a quickening, enlarging, and refining of them when brought out, and an establishment of them in habits, so that virtue and reason become easy and pleasant to us. The word is used of mind rather than of morals or of the powers of the body, but by mind we signify both intellect and imagination, and their issue in right action. The more complex the organism can become the more stable it will be, the more it will be in touch with outward contingencies, the more it can use and modify these conditions the more will be the play at the periphery of the organism, the more, in a word, the life. Education, then, is not the formation of a rigid framework, but of the capacity for ideas and for various and supple adaptations. But, speaking generally, and within civil societies, individuals vary more than circumstances; in other words, out of similar circumstances individuals draw widely different advantages, so that, although up to a certain period of life education may be laid out on broad indiscriminate lines proper for all young persons, yet for adolescents by rapid degrees it must become more and more diverse and several, dividing itself into the education of classes, of groups, and of individuals. Now, such specific or technical educations are difficult only in the sense of the difficulty of persuading the British parent of the value of any education whatever; the ends and the methods are pretty clearly seen; the means it is which are wanting—the means of money, of equipment, and of time, which is money, and the provision and endowment of those engines for making knowledge, called universities, without which sources the technical colleges would soon dry up. The problem of education in modern England is that of general schooling, of ascertaining the modes which shall prove most valuable, in the first instance, to put each man during his youth in touch with the sum of conditions under which he is to lead the best life possible to him; this done he may the more efficiently be adapted to specific or personal functions. Although these personal and specific conditions are never so narrow and so specific as to prevent some occupation with those wider conditions which were held in view during his general education, yet, without a somewhat fuller sense of the sum of the conditions of life, he cannot measure the relative values of things; he will, as we say, lack common sense. The importance of a universal training of the instrument of mind before the adaptation of it to special engagements will be better understood when we realize that truth is neither wholly without us nor wholly

within us, but is a function of fact and temperament. Now temperament is partly native, but largely also the creature of habit, and habits—such as the habit of virtue and of comprehensive and precise thinking—are the creatures of education, and especially of education and the plastic years of life. Thus the man whose mind has been built up on universal lines, whatsoever his calling, is enabled to free himself from the conventions and temporary notions of the “practical man,” to distinguish the important from the unimportant truths, and to drop swiftly upon cardinal features, upon the facts which matter.

PUBLIC SCHOOLS.

Now—to consider preliminary education first—to teach every boy everything is obviously impossible; the difficulty is so to select certain things from the whole of things as best to educe universal conceptions or ideas. That we have been successful in creating such a general education no one will be hardy enough to assert. From our public schools our young men derive many fine qualities. As Herodotus says of the Persian youths, they are taught to ride and to speak the truth; and indeed, when our country loses its manliness and its veracity it will lose all things. But these fine qualities do not meet the sum of conditions under which the Englishman has to live; he has to do more than to speak and to act with spirit and uprightness, and to read the sporting papers with intelligence. If he is to be equal to the conflict of modern life he must be able to reason upon man and Nature, to measure his capacities, and to see the trend of events. For these ends, besides energy and will, he must have some intellectual seriousness, some endurance of attention, some self knowledge, and some ideas: qualities eminently in defect in the average products of our public schools. Mistrusting their own capacities these youths become entangled in an awkward and artificial self-consciousness; devoid of ideas they become encrusted with a cake of convention and imitativeness. Thus in later life they remain but too often incapable and even intolerant of ideas—that is, of large and systematic conceptions of present and coming events; and consequently they are incurable empirics and have no higher philosophy than that of muddling through. Now, even if such may have been your start in life from school, you have before you in the education of a physician a training no less manly, but one which, as a moral and intellectual training, I had almost said is incomparable. Even for those of you who are unable to undertake the more arduous and more costly course of a university education, the education of the hospital and technical school is one to develop the highest qualities of the mind, and to kindle them in the warmth of hope and charity. With all men you will learn the evil in the world, but you will go from strength to strength in the faith of making it better.

UNIVERSITIES.

Now the word university means originally a corporation, but it happens also to connote an education dealing chiefly with these universals—with habits of common sense and breadth of faculties, without which even multifarious learning will be disfigured by pedantry or crankiness. Erasmus tells us that in Rome he discussed the immortality of the soul with a great scholar, who rested his denial of a future life on the authority of the elder Pliny. Every man has to be educated for more than one set of duties. As no two men are alike, so each of us can expand and vary only within a certain preordained quality or scheme about his own possibility of development. In most people, perhaps in all of us, some of the innate capacities must be sacrificed—an uneasy reflexion; but, if so, then which, or how much of them? The all of each of us is not wanted; which part of us shall be renounced? About this, at some stage, teachers and pupil may begin to disagree, but out of it the pupil should learn at least the chief of lessons—the lesson of humility. Sacrifice is one of the laws of life, yet it must be sacrifice for some higher end. Admirable, for instance, as is an education of all the faculties—“culture,” as we are wont to call it—yet culture turns into a selfish pride if no part of it is subordinated to education in good citizenship. An aggregation of cultured and fulfilled personalities without some higher unifying influence would not make for the highest national life. The sacrifice of culture for the more specific, and often indeed drier and narrower, purposes of a trade or profession—the *Erwerbsfrage*—is more common and painful. And unhappily only too frequently it is a wasteful sacrifice; for want of private means

or of public aid, the pupil at a critical age is compelled to renounce extent of learning, and the training of some of his higher faculties, for a technical instruction which may narrow his outlook on life and starve those potential qualities for the rest of his days. Yet even such renunciations, if inevitable, are sanctified by a submission to duty and by the faith that after all each man is his own best educator.

We can scarcely hope that the time is at hand when most people will be able to devote time to general training in all three stages of education; many of us must turn to special duties even after the primary school and many after the secondary school; so that the students who for the larger development of their faculties can proceed to a university must always be comparatively few; still fewer are they who can spare the time to complete a university course before turning aside on the narrower lines of professional or commercial instruction. The man who can do this will go much farther in later life than he would have done had he turned aside into technical lines at an earlier stage; still, as things are, most men have to sacrifice more or less of their future to the needs of present livelihood. And happily the alternatives are not so deeply separated as at first they may seem to be; it is found, as we might expect—such is the teeming wealth, the infinite interweaving, and the essential analogies in men and things—that there is no difficulty, at any rate in the later stages of education, in using for general training broad principle in any one of many faculties; so that for him whose technical instruction must begin prematurely a general training may still be continued on principles of that kind which in their more and more special application will form the substance of his calling in life. For university training differs from technical, not so much in the kind or field of the subjects taught as in the more comprehensive, more deliberate, and more disinterested methods of teaching them, the wider outlook upon them, and the awakening of curiosity and research. Nevertheless, it remains true, and even obvious, that for the best education a completer general training in fields other than those of the future calling must be richer in results. How lamentably the prevalent literary education fails in that *exigua cognitio naturae* which even the humanists prescribed scarcely falls within our subject-to-day. But with a pardonable pride I may recall an early advocate of scientific education in the person of my great-grandfather, John Allbutt, a successful schoolmaster in his day, who wrote a primer for this purpose which had some vogue. I quote from the twelfth edition (1817): "I am convinced by experience that children might be taught much earlier than they are the elementary principles of many sciences if these were sufficiently simplified and divested of technical phrases, and these," he adds, "would give correct ideas of things with which men are daily conversant."

It is freely said of the abler men in our laboratories that those of them who enter them with minds already expanded on other kinds of study, such as language and literature, bring to the sphere of scientific studies a ripper understanding and draw from them larger immediate powers and a richer endowment for later life. Professor Ostwald told me that it is the good custom of students in the German universities to attend other lectures than their "Fach," so that in every university there are always one or two professors whose lectures on some such subjects perhaps as history, literature, or philosophy attract large bodies of students from all faculties. By these undergraduates to stick wholly to one's own is regarded as a poor and narrow thing. Once more, if the enrichments of a university education consist in its own breadth and variety and in the maturing of the student's understanding, it confers another endowment no less precious: it establishes the habit of study—a habit which rarely gains any strength or fixity at school or technical college, but when once established belongs to a man for the rest of his life. In the university he sees maturer men devoting themselves to a disinterested love of knowledge, to a steady and faithful pursuit and furtherance of it for its own sake; he sees, also, the infinite variety of intellectual operations, and perceives that knowledge and wisdom are not summaries, schemes, or mysteries, but quick and glowing with a manifold and many-coloured life. And not only does he admire the leaders of research but he is also shoulder to shoulder with eager undergraduates themselves pressing forwards not on one only but on an infinite variety of pursuits and interests, with the general bearings of which he also gains some familiarity.

THE FUNCTION OF A UNIVERSITY.

It appears, then, that the function of university education is not instruction in the special lines of a profession or trade, however these ends may incidentally be promoted, but in expanding and enlarging the mind and making it a more and more perfect instrument of knowledge and progress, whatever its destination. The mind so educated will regard whatever is laid before it more truly and will think upon it more truly; it becomes analogous and assimilated to a wide horizon of the world in which it is to live and work. Christopher Wordsworth¹ writes that a university, "while aiming at educating professional men, never pretended to give the final practical training which is required for every profession. Even in the education of the clergy, to which they gave special attention, the universities attempted to educate them in scientific theology rather than to impart even the elements of the pastoral profession"; and so, he adds, "it was with medicine (and, as we may now add, with engineering); the student received the grounds of a valuable education and some theoretical instruction, but was sent to look elsewhere" for the technical work of qualification. If this be so—and no one will seriously contend to the contrary—a university which lays itself out chiefly to instruct in the technical attainments of a trade or profession departs from its proper function of training the mind and increasing knowledge, and enters into competition with schools of technical instruction, such as the hospitals, the Inns of Court, workshops, and the many other various special institutions. In testing, then, from stage to stage the progress of its students the university will look not so much for technical and empirical knowledge and adroitness, or to the massing of detail for particular uses, as to the training of their minds and their grasp of principles. And for these results, for the breadth, ease, and naturalness with which they have learned to think and to conceive, will its degrees and distinctions be bestowed. It is too commonly supposed, and very erroneously supposed by some who ought to know better, that if a professional or technical instruction be screwed up a little higher and examination made somewhat stiffer the successful candidate should have a claim for a university degree—for the degree of M.D., let us say. Or men will submit that twelve or fifteen years in the practice of a profession should give them claims to such university stamp. But we have seen that the function of the university is not qualification for the practice of any art or trade, but is a training of the mind, a formation of habits of study, of insight, of easy handling of ideas, and of methodical research—an opportunity which is available before, and unless in exceptional cases, only before, the technical stage of study is entered upon. Under the pressure and cares of after-life such a training is rarely achieved.

The universities of the United Kingdom then step out of their functions when they undertake, as they do, to issue with their degrees in medicine a licence to practise. In my own university the M.D. degree is often bestowed, and is properly bestowed, on persons who never intend to practise medicine and who would be much embarrassed if in any emergency they were called upon for this office. Nor should it be any specific concern of the university how well or how ill its graduates may practise medicine; all that the university should be responsible for is that its graduates have had a certain development of mind and imagination. And, as a matter of practice, its tests for these results are much hampered by its incongruous responsibility for the lives of His Majesty's subjects; its examinations have consequently to deal with many matters of memory and mechanical device which throw little or no light upon the breadth or depth of training or upon the formation of habits of study or research; indeed, they crowd out more or less the proper tests for such edification. Now the safety of the public being a State concern, the testing of medical efficiency is the duty of the State itself, and this responsibility the State assumes in practically all other European countries. In the United Kingdom the medical corporations, under the supervision of the General Medical Council, ought to be entrusted by the State with this function.

THE NEEDS OF MEDICINE.

Now, gentlemen, I know you cannot all have university educations—or, at any rate, not in any near future. Many of you on leaving school have no choice but to complete your professional education in the five years' minimum, a period shorter by a year than in other European countries. In this case you have to be satisfied with what your school may have done for your general education—too often, I fear, a paltry result enough, not so much by your fault or even by

the fault of your masters, but of our defective methods of secondary education. To learn your profession in five years means that you will get some education and suffer inevitably much cram. You cannot then make yourselves into philosophers or investigators unless by a happy turn of Nature you contain in yourselves some rare capacities and aspirations which by chance were not choked by the public school; such an one must be content, then, with the honourable ambition to become at any rate a competent practical physician, shrewd, resourceful, and unselfish, a guide to health, and a stay in adversity. Even in the narrower field of professional instruction—I am speaking of the ordinary man—a large scientific education is not to be had in five years. Let us think for a moment what it must contain: The elements of physics, something more than the elements of chemistry, a large and minute knowledge of anatomy and physiology—in itself no mean education; then on this foundation to build the superstructure of pathology, medicine, and midwifery; to spend a few weeks in a fever hospital, in a children's hospital, in a dispensary, in several institutions for diseases of the eyes, ears, throat, and skin: to practise anaesthesia; and to obtain some knowledge of diseases of the mind; and to add to these the elements at any rate of medical jurisprudence, hygiene, and public health is formidable indeed. And still upon this burden of subjects many enthusiasts are yearning to pile more, such as fuller courses on biology, chemical physiology, bacteriology, and pharmacology, not to mention such subjects as the history of medicine, in the absence of which it is said, truly enough, that a medical education cannot be complete.

Now, gentlemen, in the all-round or university sense this is true; without these subjects and without a considerable familiarity with the principles of them a university ought not to grant its degree of M.B. or M.D. But, happily, there are among us men loved and respected as members of our beneficent profession who have never been grounded in these principles, furnished with these ideas, or stored with all this knowledge. None of us are more ready to lament this deficiency than such men themselves; yet when we fall sick we thankfully avail ourselves of their aid and consolation. Nay, may we not go still farther and admit—we university men and consultants—that when it comes to the cure of disease it is by the closer converse with the patient, the little daily dexterities, the cautious but shrewd empiricism, the tact and attention which, by easing and modifying abstract lines of the treatment, adapts them to the peculiarities of the individual, day by day meeting quickly every new symptom and contingency by this incidental drug or that little change in diet, that a family physician who may have enjoyed little beyond the ordinary advantages of a technical training, nevertheless compasses the cure of the individual case on which the consultant can but advise in general terms? Each has need of the other; the practitioner who had not the advantage of a university education desires the easy grasp of co-ordinating principles, the wider range of experience and of outlook on facts, the richer knowledge and the keener perception of the mists of ignorance of the university graduate; the graduate, on the other hand, admires the more homely but not less indispensable and even more varied abilities and adroitnesses of the country doctor. The most accomplished physician is, of course, he who has combined both real and practical education, who is armed with technical dexterity, versatility, and resource, as well as illumined by the ideas and guided by the mental and imaginative discernment which are born of a large, deliberate, and inventive education. How the unhappy division of our profession into medicine and surgery has defeated this integration of faculties I need not repeat here, as I have set this aspect of our education forth at length in my *Historical Relations of Medicine and Surgery*.

COMPROMISES.

If, then, it is a heavy task to get into five years even a technical education, let alone a more liberal and extended training of the mind, to get into five years an instruction to which in Germany, France, Italy, Holland, Belgium, or Switzerland six years at least are devoted, and which in a university course, modelled from the beginning on larger lines, must occupy from six years to seven, how are we to occupy to the best purpose this five years' course for the man who has not the means, or perhaps not the kind of ability, to enable him to enter upon a full university career? One way of doing it is to drag the university training down to the level of the technical, to give the M.B. and M.D.

degrees for a course which scarcely pretends to rise above the ordinary five years' professional instruction, however crowded and crummy this may be. Or if we resign the university to more fortunate men, what are we to think in our serious moments of a technical instruction in which, as now arranged, medicine, surgery, and midwifery, by all the many branches which we have enumerated, are to be taught in part of the fourth year and the fifth—in sixteen or eighteen months? No wonder at the development of coaching—that is, not of making men, but of stuffing them; no wonder at the stream of cram books pouring from the printing offices; no wonder at the "window dressings" for examination; our wonder we will keep for the young men who, under such a drill, come out of it with any freshness of mind left and with any better mental furniture than trite professional formulas. Now, although universities must be designed from beginning to end on other and more deliberate lines, yet for those students who cannot afford a university education what they have time for ought to partake of a university character, and, generally speaking, this means for the Institutes of Medicine teaching in universities and by university professors. A few exceptional teachers, men of remarkable natural endowments, may teach admirably a subject which is not to be the business of their lives, but this can rarely be the case. A teacher who devotes an inconsiderable part, or none, of his best hours to research cannot long hold his place as a fertile and effective teacher. Moreover, if I may contribute my dole to a current controversy, I would opine that no teacher reaches his best till middle life. Not till then does he gather the fruits of a rich experience or attain to a rich and vital sense of our ignorance; not till then does he wholly escape from formula and routine; not till then does he learn what to leave unsaid; then it is that erudition mellow into wisdom.* It is fatal to good work for the teacher to see ahead of him and beside him other purposes, other ambitions in life, than those with which he is immediately and provisionally concerned. Education, then, speaking generally, if it is to be of a university character—if, that is, it is to be more than stuffing—must be in the hands of men whose lives are devoted to it. If it is to be a development of mental faculties and to penetrate to the principles of its subjects it must give time for reflection, for earnest investigation, and for surrender to the personality of the teacher. Yet it is this very time element which is wanting, time in which we are to learn medicine, surgery, midwifery, fevers and mental diseases, the elements of ophthalmology, otology, laryngology, dermatology, and all the rest of them, not forgetting the many elaborate methods of modern diagnosis of which the family physician—often far from expert help—cannot afford to be ignorant of, but which after he has left the special fields in which such instruction is provided he cannot easily learn. I repeat that to devote, as at present, but some year and a half to these manifold final professional classes is, on the face of it, absurd. Surely one moiety of his whole period—two years and a half—is barely enough to devote to the subjects which are to be the main business of his life. For the summary education for a diploma I repeat we have been moving on the wrong tack, and moving away from the stouter and truer methods of two generations ago.

OVERLOADING.

For two generations we have been loading and loading this brief curriculum as if we desired to teach many things ill rather than a few things well. Now we have seen that one may spend a lifetime on many acquirements and yet be uneducated. Our forefathers thought—and I agree with them—that the backbone of medical education is anatomy, that the right way to educate is to teach a few subjects broadly and deeply, and that the right way to build is to begin with the backbone. Young men love to do something with their fingers, and their instinct is a true one. Finger-work does more than add itself to thought and memory—it multiplies them. The fingers are the busy builders of the brain. How admirable a discipline anatomy is for the young student; how it confirms him in quickness of eye, in accuracy of fact, and in co-ordination of facts; how it displays to him the marvellous contrivances and adjustments of organized bodies; and, with the sidelights of modern biology and embryology, the stupendous achievements of mutation and selection are

* It is some thirty years since I read a paper to the Leeds Philosophical Society to illustrate what I believe to be the truth—namely, that the greatest achievements of the human mind have nearly always found their consummation not in the earlier but in the ripper decades of life. Thus Regius Professors may supplement each other's researches.

advantages which need not be laboured over again by me. As an initial training anatomy is better suited to youth than the more abstract principles of chemistry and physics. And as modern research is integrating physiology more and more with anatomy, so the study of structure and function—two aspects of the subject-matter—are becoming more and more associated to the advantage and enlightenment of the student. The movement towards university teaching of these cardinal subjects—a movement which I am here to-day to celebrate—has, then, my cordial goodwill and advocacy.

In his first two years the student who only seeks a diploma should make his own a knowledge of anatomy and physiology, as broad and thorough as university teaching can make it, a discipline to be broken into as little as possible by intercurrent diversions. The elements of physics the student should bring with him from school, where mechanics should form a vitalizing part of his mathematics, and to construct the apparatus of heat and electricity might well occupy some part of the school hours of every boy. With chemistry the case is different. I agree with Sir William Ramsay that this is not a good subject for boys; nor, indeed, in the course for a diploma has it proved possible to teach chemistry on the scale of a pure science, to teach it comprehensively for its own sake and as mental training. In a five years' course it is, and perhaps can be, taught only as a technical department—introduced, that is to say, partially and incidentally as immediate utility requires; but after this manner, as pharmaceutical chemistry, as physiological chemistry, as an instrument of clinical diagnosis, and so forth, it should accompany the paramount and thorough training in anatomy and physiology, and be carried forward with the whole course of medical instruction.* Under present methods the student in his first year sags up some rule-of-thumb chemistry, with no great scientific advantage and on no comprehensive scale; and when his first examination is over dismisses this subject from his mind; his receptiveness has its limits and the ship must be lightened. Anatomy and physiology, on the other hand, should be taught scientifically and for their own sakes—taught, that is, on university methods, taught as education for universal as well as for technical ends: and, as at least as much chemistry would be learned in a utilitarian way as is learned at present, in two full years a really solid scientific foundation would be laid; the three following years would give a more adequate time for the medical studies of men whose minds had received this sound training, and the anxious candidate need not spend his last and most precious year with his nose in his book.

APPRENTICESHIP.

There are not a few physicians who, unable to avail themselves of a fuller education at the commencement of professional study, would gladly enlarge their education at some later time of life; what facilities do we offer for advanced study? Is any student, indeed, when just released from the wards of a hospital at the end of his fifth year, quite fit for private practice? We are assured that he is not, not even if after qualification he has held the usual house appointments; that for private practice there is still much in which even a highly-educated student is ignorant or unskilled. My old friend and colleague, Mr. Wheelhouse, used to impress this upon us time after time, and on the ground of such deficiencies to lament the abolition of apprenticeship. Recently, Mr. M. A. Wardle, of Bishop Auckland, has temperately and persuasively expressed the same opinion.² For my own part, while I admit how much the young diplomé or graduate has to learn in the way of little adroitnesses and tact in the management of private patients and in the conduct of trivial but vexatious disorders which do not find their way into hospitals, yet surely to revive the bond of apprenticeship for these comparatively minor accomplishments is to burn a house for roast pig. Manual dexterity, it is true, can only be gained in early life, but this would come with the earlier application to anatomy which I advocate. The apprentice did not always get the best or most conscientious of masters; in any case he was liable to be infected, and too often was infected, at a critical time of his life with an incurable empiricism, and became habituated to a narrow routine. A convenient and elastic routine and a wise and discriminating empiricism are good, but these resources should not be the beginning of wisdom; after the scientific habit of mind is established, these can be added to it, and I am of opinion that, especially with our excep-

tionally short period of pupillage, six months' occupation with an able and intelligent family physician would prove an invaluable finish to hospital instruction. But I think that such residence should be with masters recognized for their special fitness by the General Medical Council.

Graduate or advanced work, both in the fields of instruction and research, has received of late much of the attention which its great importance demands, and I think the profession does not quite realize the debt we owe to Mr. Jonathan Hutchinson for his enthusiastic and indefatigable exertions in the development of such advantages for qualified practitioners who have still much to learn, a class co-extensive with the whole of us. We ought not to be satisfied until such advanced studies are so organized as to lead up to a university degree, though it follows from what I have said before that in this case they must include some subjects—such as history, philosophy, or literature—to enlarge and enrich the mind beyond the scope of medicine, and even beyond the wider but far from catholic dominion of science itself.

ONE PORTAL.

The undergraduates who are listening to me will expect me to touch at least upon the distressing subject of examinations. It has been inferred, no doubt, from what I have already said that, like every disinterested observer of medical education, I am in favour of that "one portal" which is established in virtually all the other nations of Western Europe, and the advent of which is certain in our own, though, after the way of Englishmen, we shall waste the usual time in trying to apprehend any idea not materialized in custom. To all persons thus qualified the appellation of "doctor" has so long been granted by English custom that it must now have official recognition; and the Conjoint qualification should carry with it the membership, not of one only, but of both the Colleges. The multiplication of modern universities in England—one of the most inspiring features of our day—must compel the institution of one portal; the steam roller of the General Medical Council cannot even pretend to equalize so multifarious a system. In my university I find that the one portal is virtually in force, for from 70 to 80 per cent. of our men take the diploma of the Colleges before presenting themselves for our more advanced graduation. Sometimes I say to them, "Get qualified and then we can proceed with your education." But as this proceeding of theirs is not universal or compulsory we do not derive the benefit of it; still are we obliged to load our examinations with tests of the memory, and of the sharpness and fluency of our candidates, which indeed tend rather to stifle real study, and at any rate testify in no direct way to the broader training and enlarged capacities which are particularly our concern. For qualification I regard the Conjoint examination as excellent; the examination of a university, however, ought to have a somewhat different aim and method from a test of conventional equipment and efficiency; it ought to be much less inquisitive and exacting, much more of a leisurely, continuous, and individual appreciation. We want to move away from tests of results without methods, of practical habits which stand still while knowledge is progressing of bookish acquirements without experience, of seedlings on stony ground which have no root in themselves and so endure but for a time; to move away from the reproduction of other men's notions, and towards the recognition of a critical and flexible judgement, and a habit of looking problems fully and intelligently in the face. For these qualities it is that a university degree is to be conferred; and to this end it is that in Cambridge—I believe with the loyal consent of all our medical graduates—that we retain and attach a cardinal importance to our thesis for M.B. In the thesis for M.B. the student—too often for the first time—realizes that he, too, can grapple with the interpretation of things, that he has got beyond the stage of beseeching his coach "to tell him how to answer but not for heaven's sake to explain the reasons of the answer."

CORRUPTIO OPTIMI.

Yet in addressing a university, as virtually I do to-day, I cannot forbear to warn my brother professors that even the blessed word "research" does not deliver us from the bondage of formula and routine. Much that goes to-day by this name is mechanical routine of a more deadening effect in that it is a *corruptio optimi*. The mere plotting of curves, the mere watching of levers or thermometers, the mere piling up of undigested or over-elaborated statistics is clerk's work which may provide material for a professor, but

* In place of formal examination in chemistry for a diploma, I am disposed to prefer—at any rate in part—the submission of laboratory books, initiated weekly or monthly by a university demonstrator.

—as we may read in the bulk of published theses—do not develop, perhaps scarcely stimulate, that germ of originality in which every normal man varies from his kind. The clinical teaching of the hospitals is so much improved of late years that on this subject I have little advice to give either to teacher or to student. But there is still too much trooping after eminent teachers, too little quiet study of the patient. Reading of textbooks at home is eating sawdust; I counsel you to carry your treatise into the wards, moving from bed to bed as you read. Thus you will get living knowledge which will make you into another man. The close neighbourhood of the clinical laboratory whereby disease is studied in its dynamic aspects from rudimentary beginnings to perilous storm or even to wreck will teach you a lesson which the lay managers of a hospital conceive with difficulty, and never learn, that Medicine is not a Summa or Corpus of fixed axioms or principles, better or worse applied by this physician or that, nor, again, consists in "surgery and placebos," but is a living and progressive organ, only to be kept vigorous by incessant growth and renewal. And is not this living medicine educating not us only but also the butcher and the milkman, the family and the town council, nay, the State itself and its rulers, shaming the complacencies of the unidea'd and dissolving the formulas of the "practical man"? For clinical medicine has always been not only itself a sphere of scientific discovery but also the cause of discovery in other spheres. Over and over again clinical medicine has led the way for the physiologist as well as for the pathologist, and day by day has demonstrated an interlocking of processes and sequences of events which no experimental work could compass, even if such combinations could be foreseen. Every hospital, therefore, large or small, if its work is to thrive and its patients are to reap the benefit, should be open to students. In teaching his pupils the teacher stimulates himself—reveals to himself his own latent capacities. Thus not only should the London hospitals enter into a union of free interchange of students but all country hospitals also should be gathered into the system. I often urge our own men to escape for a few weeks from the hustle of a great metropolitan hospital into the quiet wards of a county institution where a few cases can be thoughtfully considered, and not rarely shrewdly interpreted, by an efficient and unassuming physician or surgeon of the staff who is glad of an intelligent hearer.

THE OUTLOOK.

Never was there a time when the study of medicine offered such visions of reward—social, scientific, and beneficent—as at present. From these manifold visions it is bewildering even to choose a few illustrative glimpses. A recent address by Sir John Burdon Sanderson revealed to us the wider significance of oxidation in the animal body. Each in his own direction, physiologists, such as Langley and Sherrington, have traced the intricacies and yet the integration of parts and functions; while others, such as Starling and Bayliss, have detected the wonderful functions and reciprocities of internal secretions. Allied to these are the specific products of cells, every cell of the body a microbe with its own juice—its toxin, if you will—all playing against each in mutual attractions and repulsions, and not with each other only, but in marvellous fore-ordination with extrinsic agents capable of entering into relation with this or that specific tissue or cell, for good or evil, and if we can but tame them to our uses, potent for therapeutical ends. We are shown how digestion is but one phase of these equivocal processes—food or poison as circumstances may determine; and, by how a ferment in one phase undoing molecules, in another is no less efficient in constructing them. The busy, curious spirit of modern physiology is not arrested even before the riddle of the complexity of the albuminous molecules, probably a finite series, and is reading them, as Ehrlich, Fischer, and Hopkins are, indeed, doing now, by analysis or synthesis; and not their own constitution only but also, as Pavy is discovering, their relation to the molecules of carbohydrate and fat. How, again, with the disappearance of foolish mediaeval divisions of the practice of our profession, the influence of workers in all branches will reinforce each other is remarkably illustrated by the light thrown upon some of the gravest problems of general disease in the sessions of the new Dental Section of the British Medical Association. Dietetics, again, which had made some indefinite advance by the empirical observations of the physician, has been raised nearer to the rank of a scientific study by the investigation of food values by Chittenden and

Atwater, and of the purin bodies by Fischer, Walker Hall, and others. And if these brilliant prospects are opened out to the private physician, how far more dazzling are the promises of preventive and public medicine! By the hands of Koch, Manson, Ross, Bruce, Leishman, and their peers plague-swept areas of the world are being restored to culture and civilization; by the work of Nuttall and Haldane and many others, as chronicled in the *Journal of Hygiene*, the standard of health is raised, dangerous occupations are made wholesome; and the conditions of child-life and education are being moulded for infinite good by the physician, who thus, from the private duties and modest social ambitions of a healer of the ailing individual, is rising to the functions and dignity of the statesman. Could I but touch, as hitherto I have failed to do, the imagination of a rich man that he might see how much this progress would be accelerated if we could rise above our present anthropocentric medicine and establish a laboratory and professor of comparative medicine! For in disease, as in generation, all life is kin, and by a universal pathology our conception of these problems of the perversions of health would be infinitely enlarged and our knowledge of them increased, not for man only but for our herds, our fish, and the fruits of the earth. But no; the unimaginative Englishman is content to blunder along knowing little of the natural world about him and content to spend his money in charity to mitigate calamity and suffering which by more timely aid he might have prevented. But "for knowledge," said Sir William Wharton shortly before he was taken from us, "money is hard to get until the necessity for its expenditure is patent to the smallest intelligence."

THE MORAL.

In all this cry about learning you may ask me, Where is the wool? Where does action come in? Now, if I am earnest with you for learning, I would be even more robust with you for action. Revolve, agitate, test continually the stuff of your knowledge till you have to act; then ponder no more. If you have made a good machine of yourself you will act better by your acquired nature, by the instincts you have truly constructed, than by looking back for your learning. Whether as teacher or practitioner come to a decision, and then stick to your course dogmatically and imperiously. To pretend to know more than we do is one thing; to be vague and indecisive in counsel or action is another. Vacillation spells failure. Doubt breeds diffidence. When tried by an anxious case do not keep turning it over and over again in your mind. To carry through a second best course is better than to falter in the best. To let a case hang about your mind while neither observing it nor reading it up, and especially to do this by night, throws the facts out of perspective, and harasses you when your mind with a little rest would create a truer conception by itself. If you want more information, if events be not as expected, seek more light by book or bedside. If after all you are in doubt, go back formally to the beginning; examine the patient as if you had never seen him before, if possible with an intelligent medical friend. Some forgotten fact of the early history or a sign of local change may thus come to light to bear significantly upon the subsequent events.

We have dwelt upon education as progress from ignorance to knowledge, from feebleness to strength; but as we cannot regard intellect apart from imagination so we cannot separate the moral from the mental part of man. Either without its supplement is incomplete. None knows better than the physician that emotion, religious or other, must have a strong skeleton of intellectual principles; conscientiousness without enlightenment has to account for some of the darkest chapters of human history. At my time of life I feel that I may never again address so important a body of students as those of this great College, and if I must not thrust upon you thoughts of a kind which to-day we may scarcely be in the mood for, I cannot conclude without touching upon some graver matters of that higher life without which we can never prosper either as a nation or as individuals. It was by what Sir Philip Sidney called "the ancient piety and integrity of the English people" rather than by far-seeing wisdom that this nation weathered the storms of the last two centuries. There are now many rich men among us, and there has never been a time when in their monotonous amusements they have seemed—to us poor men—farther from the kingdom of heaven. But England will never dance to the pipe of Omar Khayyam or take for its motto "*Sopias, vina liques, et spem longam resices*." If there be some ominous signs of corruption of moral habits, on the other hand we may

see still more vividly the signs of a new ethical earnestness and insight as pure and intense as the awakening of Wesley and Newman, and far more permanent in its elements. It is your great privilege to be born in a time of breaking up of dogma, or the deliverance of the spirit from the bondage of the letter, of the scrapping of the machinery of religion for the recovery of its essence and for a new embodiment of it. Such was the breaking up of ancient ritual by Christ himself, and, in their measure, by Wycliffe and Luther. Now in this our time we are set free to return not to the sixth century but to the first, to the original source of the Christian life. As to dogma, hear what all men say but follow no man; follow the lights which you will find within you. In the growing purity of your hearts you will not fail of your revelation, and by this touchstone you will distinguish even in your contemplation of Nature the true from the false, you will interpret that higher secret which by her eyes you see that she knows but cannot express, and will read into her message ideas which no analysis, scientific or even philosophical, can reveal. Remember, if you are ever bored with your own self there is something wrong with you. Physiology tells you that you must always be building or you must degenerate; no impure, petty, or rancorous thought but makes a mark not to be undone and weakens the habit of virtue. It has been said, and with some truth perhaps, that men of science are apt to forget we cannot play curiously with base and shameful things and then wipe them away as if we had never been occupied with them. Upon those physicians whose painful duty it may be to examine psychological filth rests the heavier responsibility of a jealous concern for their own the purity of hearts. Our decisive moments, as George Eliot says, are not those of our better hours—protected by wholesome happier dispositions, but when we have in us less devotion—for so we vary; when we give way to little insincerities, little uncharitablenesses, shiftinesses, low standards, tampering with worldly folk, little tempers, and jealousies. In the *Phædrus* we find the profound truth that if the soul be not destroyed by its own proper evil it cannot be destroyed by any other; a lesson there enforced by the figure that the soul is the charioteer of two winged horses, the one of noble the other of ignoble breed, and sooner or later it may be dragged to earth by the baseness of the ignoble steed and there lose its own wings also.

ETHICS.

The opinion is current since the time of William Henry Green that spiritual goods are essentially non-competitive, that the survival of the fittest does not apply to the field of the highest ethics, which is a field rather of inward than of outward occupation. This has always seemed to me a shallow distinction; surely a race is set before us and we run all. Competition is, indeed, now rather between large social than between individual units, but the strongest bond of the parts of the social unit, that by which it survives, is surely the higher ethics. We can no more get out of Nature's methods than out of our own skins. That progress comes by adversity has been told us by Christ and St. Paul, by Tauler and Herbert, as well as by Darwin and Haeckel. Tauler says: "If we were wise and industrious the devil's opposition and his discipline would be more useful to us than those of the good angels; for were there no conflict there could be no victory." A knowledge of the highest endowments, deeds, and creations of man must therefore form not only a part of the universal education but also of our personal meditation, whether it be found in Greek, Latin, or Hebrew.

The physician is wont to learn how noble is his profession, how profound the debt of the public to him, and how devoted society is to his lofty calling, in after-dinner speeches. But it is true that our calling is gentle, unselfish, wise in its intimate converse with Nature and mankind. "*Humanumque genus communi nomine fovit.*" We know, with George Herbert, "it is some relief to a poor body to be heard with patience." Furthermore, it teaches us the secret of the "simple life," which for society too often means a clean slate on which to daub new excitements, for there is no *ennui* like the *ennui* of the man of pleasure. By the realism of its daily practice it hardens us against carnal temptations. It saves us from the withering sin of cynicism, as it inspires us with the building of a world ever better and better—a work in which we are the artificers, for if the world may not be very good we think it possible for us to make it so. No good physician was ever a misanthrope. Yet, if all professions have their safeguards they have also their temptations, and our own is no exception. Laymen—even those most friendly to us—tell

us of our testiness, of our jealousies, of an angularity in our relations with our brethren, especially with those who live near us and ought to be our colleagues, but whom we are too apt to call our "opponents" and so to regard as such. This, to say the least of it, is bad policy; it gives our enemies a handle against us and grieves even our friends who discern our fault but not our temptations. That members of other professions are free from this personal distrust comes of the different conditions of their engagements.

Unfortunately the game of medicine is played with the cards under the table. Whether the clergyman be a good preacher or pastor, whether a barrister conducts a case well or ill, whether a tradesman sells good soap or bad, is not only a matter of which the public can form some fair judgement, but also these transactions are, so to speak, in market overt. In the intimacies of medical counsels, on the other hand, who is there to note the significant glance, the shrug, the hardly-expressed innuendo of one or other of our brethren of whom it might be said, as it was said of Roderick Lopez—Queen Elizabeth's physician—that "he is none of the learnedest or expertest physicians, but one that maketh a great account of himself?" Thus we work not in the light of public opinion, but in the secrecy of the chamber, and perhaps the best of us are apt at times to forget the delicacies and sincerities which, under these conditions, are essential to harmony. But the more careful we make ourselves of these loyalties the less we shall suspect others, and the more candid and sincere we become with our brethren the less they will suspect us. Most of such offences are due not to malevolence, but to want of imagination or good breeding. In any case, let us always remember that, as we have many benefits, so we must be vigilant and forbearing in the perils to which the temper of the physician is exposed. For such trial and unrest as we have let us dwell on the words of Montaigne, that "we have the most sweet and gentle medicine in philosophy; for of others no man feels the pleasure of them but after his recovery, whereas she pleaseth, easeth, and cureth all at once."

THE HIGHER LIFE.

It was said before Chaucer that the physician is no ritualist; in this audience I am addressing men of many creeds, and some, perhaps, who fondly think they have none. At any rate, the physician learns to follow a true instinct in seeking the ideal not in dreams, emotions, or transcendencies but in the actual, in the high choice and promise of the real. No delicacy, or remoteness, or fantasy can make a false idea into a true one. Yet Professor Lloyd Morgan has well said, "the prime condition of progress is to believe more than can be demonstrated." In the rough and tumble of all callings, however, the higher life gets obscured, and we have to seek quiet moments when we can enter into that inner chamber of the mind wherein dwells that self by which we differ from all other individuals, for which we are responsible, and yet wherein, by this difference, are—even those whose hearts are warmest—alone. To this end, whether I could or would go to church or not, I have always "differentiated" my Sundays. If I stay away from a place of worship the greater my responsibility, the more my duty to the higher life. Whether your "studies be on the Bible" or with Shakespeare is for each of you to choose—or perhaps both; but for that one day of the week be thankful to eschew idle books and newspapers, petty cares and business, and even professional usages which can be postponed, so that we may live one day in the presence of men greater and purer than ourselves. And what I say of one day in the week I say also of some minutes in every day; in that inner chamber store for the day some sweet verse, some line of gentle wisdom or lofty thought which—to repeat a phrase with which I began—shall still make the habit of virtue and reason easy and pleasant to us. Then when the new song is sung we may find ourselves among those who could learn that song, for they were redeemed from the earth.

REFERENCES.

- ¹ *Scholae Academicæ*, p. 171. ² BRITISH MEDICAL JOURNAL, September 21st, 1902.

DR. CABANIS DOMINIC FRANCIS DE MELLO, of Poona, who has recently had the honour of knighthood conferred upon him by the Portuguese Government, was entertained by his friends in August at a grand reception. It was attended by many military officers and by several consuls of foreign Powers who came from Bombay for the purpose. The health of the guest of the evening was proposed by his Excellency Viscount de Wrem, Consul-General for Portugal.