THE EDUCATION OF GRADUATES.

BY

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MEDICINE is the only profession which shows any concern for the further education of its graduates. Upon a given day the graduate may profess that he has acquired the mystery, but no one believes him. There is a great gulf fixed between knowing a thing and professing to know it, and a still wider gulf between the knowing and the doing of it. Study of medicine must continue so long as life endures.

Medicine is a profession with an immemorial tradition of service, to be rendered freely to humanity, with a single eye and a pure intention. The votary is set apart, empalmsed, or crucified to the world, as one might affirm with textual truth. He testifies not that he has all the knowledge of the masters, but that he has entered into their spirit, and has the beginning of wisdom.

The entrant upon this career also signifies that he brought with him to the schools a mind, and that something was done to that mind whilst he remained at school; that, in short, his mind was educated up to such a point as the original material would permit; but always remembering the dogma which underlies the fable of the silken purse and the sow's ear.

This process of education is carried on by the senses. Eyes are taught to see, ears to hear. Events are observed, and some effort is made to understand their sequence, connexion, and results. Medicine in the case of each student is thus freed from its old habiliments of witchcraft, magic, and sorcery; it is become scientific, and in his own time the student lives through the whole history of the art.

If every graduate brought such a trained mind to his advanced studies, the problem before the teacher of graduates would be easy. He would continue an education which had begun long years before, and raise it to a higher point. On the other hand, if the mind is not receptive, discriminating, able to assimilate or reject, it will not integrate the new learning into itself; and what should make for strength is become a useless burden. Graduate study may then be worse than useless if it clogs a dulled and uneducated intelligence.

It is quite true that these considerations apply with equal force to the undergraduate. He may have entered into the new world of medicine with a mind unaccustomed to intellectual processes, or brutalized by a long routine which goes by the name of secondary education. It must, however, be placed at the credit of any system of study that, whilst it allows many aspirants to proceed, it destroys the ambition of others, and directs them into more lowly paths. Even a bad system, if not too hardly pressed, is better than none at all.

And working still further back, we are bound to notice preliminary education, which is the first step towards entrance into any profession or any trade; and there we shall discover the source of all our evils, industrial as well as professional. These evils in turn have arisen out of a civilization which has become detached from the soil, and is now in all essentials a slave society in which any little Spartacus may seize control.

It is a condition of life that the experience of parents shall be transmitted to their young. The she-wolf teaches wolfing to her pups, and the bird flying to her fledglings. Domestic animals alone are allowed to grow up in ignorance. Without traditions, without arts or crafts, the yoke of servitude is the more securely fastened upon them.

Within the time of the present generation the young of the human species has fallen to the level of the domestic animals. They are taught nothing. They are segregated from older persons from whom they might learn. They are immured in a building. To quiet their minds and quell their spirit they are given a series of tasks which are all one task—namely, to regard certain emblems fixedly. In time these black emblems upon a white page combine themselves into categories which are known as

words; and these in turn are considered to be the same as things.

This task is performed under the eye of a master who has attained a certain mastery over words. He can read them and he can write them. If he can combine them into larger categories called sentences, he is then known as a professor; and if he contrives to convey any sense by this process of writing, he gives up the trade of teaching and takes to literature. It was not long before it was discovered that a grown man was wasting his time in such an occupation. Young women disclosed a special aptitude for the business, and they soon gained complete control over the minds of the young. A teacher is now usually described as "she."

There was a time when the young of the human species, especially the male, was of some value. From the age of three years he could do something. He could control domestic animals of the lesser breeds, since the opposing muscle in his thumb enabled him to hold a small stick. As he increased in stature he was assigned to more definite tasks. By doing them he learnt to do them, and when he had attained to the age of seven years he was more than self-supporting. In those days a child was an asset. He was easier to rear, and he was more valuable, than many other animals. Also he had a value of a much deeper kind, and account was made of his fitness for another world than this.

It was many years before the public mind became insensible to this new system of instruction. At first there was revolt on the part of all the young, and this revolt was shared by many of their parents. The most stringent laws were passed, and truancy, which was at first a struggle for freedom, came at length to be regarded as a crime, when the public conscience had been dulled by a generation of tyranny.

This system of immuring children in schools where they pass their time in learning to decipher symbols printed upon paper, is of very recent origin. Life had become intolerable as periods of peace increased in length; and hunting, no longer a necessity, ceased to be a sport. This activity of mind found an outlet in debauchery. The mind must be dulled. It was remembered that clerics, who were condemned to a sedentary life, dulled their minds to a point of endurance by the practice of reading books. Henceforth for all idle persons who were too feeble of physique or too sensitive in conscience to indulge in debauchery reading became the sovereign remedy against weariness of mind.

The ability to read soon became a sign to the world of ability to live in idleness. A class distinction was created; and all class distinctions are valid only in so far as they indicate the nicety of balance between idleness and a continued interest in life. Within our own time, when all class distinctions began to grow irksome, few could live without work; but all could learn to read and write. This was a proclamation of independence. It was observed that persons who were not in possession of these accomplishments must work with their hands. This discovery subdued the spirit. The desire to escape from manual labour then proved sufficiently strong to persuade the young to endure the misery of enslavement in a school.

Interested persons who lived by the system were found eager to ameliorate its hardships by persuading the victims that they were undergoing a process of "education." Under so honourable a cloak this meretricious system has worked havoc with the national life. It has seized upon young persons. It has retained them in its grasp for ten precious years. It has left them uneducated. It has prevented them from receiving any education whatever.

When the public conscience began to stir, the soothsayers declared that the system was not sufficiently rigid, that the years must be lengthened, and more money spent. We are now at such a climax, and the new "education" is the result. It is the outcome of minds dulled by living immured for fifty years within school walls.

Soldiers look upon civilians as creators of recruits; schoolmasters look upon the populace as propagators of pupils. Both should remember that there is a point beyond which they will not succeed. Men, and women too, have it in their power to decline. In the industrial community the production of children does not now offer many attractions. This is not the moment—in the waste of war—to make the burden intolerable. A labouring man

will hesitate long, especially in these days when his judgement is unclouded and his natural desire checked by strict sobriety, before he takes the chance of burdening his family with a girl who must be supported in the idleness of a school until her form is mature, or with a boy who is not permitted to earn for himself the necessary penny for shaving his beard. Nature is much more nicely balanced than those persons suspect who deal habitually with the children of other men.

These professors of education with their own eyes in their papers have failed to observe that the race has grown tired of reading and has reverted to the older practice of looking at pictures. Even the newspapers designed for a wide circulation consist almost entirely of "cuts" and diagrams. Whilst reading was a novel accomplishment it captivated the race; but now like an outworn idol it is cast aside with ignominy.

This scepticism has infected even the chief apostles of "education." They too have lost faith in the efficacy of books, and they are now amassing for their support the teaching of trades. This controversy is not new. It was old when Aristophanes directed his attention to it. It all turns on what we really mean by education. A blind insistence upon books and schools will destroy the evils it would create, since it will yield a generation without children to be destroyed by the system which it provides for their education. There is no evil without its own cure.

We have been astray in our education. We have been equally wrong in our science. We have mistaken facts for truth, and placed all truths in the same category, estimating the number of persons and things in a country as equal in importance to the truth, "that the kingdom is within you"—that, in short, physical facts are identical with moral truths, that research in a laboratory is the same as research in the mind. We are prone to think ourselves much wiser than our fathers, but the veracity of angles was known to Euclid, and the veracity of life to the Hebrew prophets.

Even in matters of pure fact the ancients were not so ignorant as we are fain to suppose. Most of our scientific discoveries are nothing more than explanations of world-old experience. The cave mother observed that her offspring must eat animal fats and raw vegetables if they were to have sound teeth and hardy bones. We have allowed teeth and bones to decay whilst we were inventing the term "vitamines." There are persons yet living who remember the days when the child of humble parents was at first suckled, and later allowed to gnaw a piece of carrot or turnip; to suck an apple, orange, or lemon; or even chew upon a piece of muslin containing a morsel of raw meat, and fastened to the waist by a string to prevent its being swallowed. The same child was permitted to come to table and complete its dietary by snatching a whole-some piece from its mother's plate; whilst the child of the rich was segregated in a nursery and starved upon a scientific food.

There is now some hope that we shall revert to the earlier practice, since the Royal Society has allotted a Royal Medal for the discovery—to employ the modern jargon—"that when, instead of the eighteen different amino-acids composing the protein, five only are administered, death rapidly ensues if those five be selected from the simpler aliphatic components—for example, leucine, valine, alanine, glycine, and glutamic acid; but that, on the other hand, nutrition and life are satisfactorily maintained, at least for a considerable period, if the five amino-acids given be chosen from the more complex types, such as tyrosine, tryptophane, histidine, lysine, and cystine, which experiment has shown to lie outside the range of the synthetic power of the animal body."

Astonished by the complexity of our discoveries, we are blind to the larger issues of life; but it is the fate of every art and of every school to think that it has attained to finality. Pneumonia was definitely mastered in 1805. In 1860 Erichsen asserted that surgery had attained its fulfilment; and no surgeons were ever so vociferous as those who declared in 1914 that they had arrived at a perfection of technique. When put to the test of war they discovered that they had merely attained to a mastery of wounds which they created with their own tools under conditions selected by themselves. It was more than two years before they had devised a surgery suitable for war.

It was thought that all the fields of medicine had been at least surveyed; and yet trench fever came upon us like a new calamity. As long ago as 1597 an epidemic fell upon the world. Calenus described it as *ob occultis coeli influenza*. We call it influenza, and are pleased with our perspicacity. We have isolated from children's diseases, and these diseases fall upon armies of adults with the force of a new plague.

If, now, I have left the subject no clearer than I found it, I have, I trust, shown how complicated it is—that all education is one, that a pernicious beginning works its evil through the secondary school, the university, the professional school, and the graduate course. But things are what they are, and those who have to do with advanced medical education must deal with conditions as they find them.

English medicine has always proceeded upon the assumption that new discoveries can only be made by following out old paths; and rarely has it entered upon those paths which lead nowhere but into the desert of barren speculation. Medicine is an art founded upon observation, with experience alone for its guide—observation, that is, with the human eye of the complete patient, and not of parts of him in the form of a slide under a microscope.

When medicine forsakes the patient it becomes futile. And this patient must be regarded as he is, in the circumstances in which he chooses, or is bound, to display himself. When medicine leaves the bedside it is lost. The *post-mortem* table also is a kind of bed, a *κλίνη*, and its teaching clinical. To the bedside the Father brought the medicine, and there he left it. With that cold Greek precision and serene impartiality, which the English have inherited, he recorded what he saw, and his case reports remained unmatched for lucidity until the time of our own Sydenham.

Medicine is a way of life, and the prospective practitioner is the best judge of how far and how fast he can go. He knows his own capacity and feels the bounds of his ambition. He has a safe instinct either for the village practice or the consultant's room. Breeding, training, position, all impose their limits. The doctrine that any man can do any thing is quite new and quite false. The first business of the teacher is to provide practitioners, not to create scientists, and the two are by no means identical. The truth is that the function of a medical school is not in itself intellectual nor scientific. Its final work is to create a reasonable nature and an honest mind.

No student can learn even a little of everything. A student who has not developed an instinct for following what is true and turning aside from what is false has learned nothing. Even scientific medicine has always been prone to lose itself by following after false gods. It has always found the true path by returning to the human body. Of all new schools anatomy has ever been the root, not the anatomy of the oyster or the frog, but the structure of the human frame. That is the one safe preliminary scientific study. Anatomy, like geometry, can be learned by sheer force of industry. Its truth is apparent in itself, and does not depend upon authority. Of students who in the beginning are systematically bewildered by biological subtleties few ever afterwards find their way.

English medicine has always proceeded upon the belief that every student could learn something, and it provided for every student as much as he could learn. It also recognized that for the average practice a definite degree of knowledge sufficed if only the mind were open and the spirit honest. A man must judge for himself how much he is able and willing to learn. Accordingly, certain standards were set, or, rather, one standard was set with successive marks upon it, against which a student was free to measure himself.

In the United Kingdom there were in my time, and I understand it is so yet, twenty-four of these marks, and a candidate might choose any one as his measure of growth. Having attained to one he might aspire to another until his full stature was attained. Up to a certain point the teaching was identical. It became more special as the student advanced from licentiate to member, from member to fellow, or doctor. In the clinics at least all candidates met together, and each took as much as he could master. The teacher soon distinguished between the receptacles, and the overflow from one was received by the others. All teaching then was graduate teaching.

The history of medicine did not end with the Renaissance. It has ever since been, and is now, in progress. It is governed by causes which are immutable. In medicine, as in all other arts, life and death go hand in hand. When it appears to flourish most it has already begun the slow gradation of decay. In the backward abyss of time one discerns certain glowing points: the approach and descent are lost in the void of history.

Up to the Renaissance the whole story can be told in one sentence. Hippocrates stood midway between that event and the earliest Egyptian, with a period of 1700 years behind and before him: from the twin roots of anatomy and physiology medicine arose in Alexandria; it divided into three branches—dogmatic, empiric, methodic, to which Galen, Sextus, and Soranus have affixed their respective names: it took refuge amongst the Saracens, and was next discovered in the school of Salerno, where it remained in Graeco-Arabic guise until it was united again with its great Greek original. In that long period medicine had wandered from Cos to Alexandria, to Rome, to Gondisapor, to Salerno, and only met with science, as now we know it, in the person of our own Harvey; and the two grew into one in the line of Bichat and Laënnec, as Dr. Whittington has so acutely observed.

The subsequent story is modern; but, ancient or modern, medicine has always been a part of life, no better, no worse, and not different. When deep darkness settled down upon humanity medicine was equally engulfed. We ourselves have lived through one of these periods of efflorescence, and did not know it. The signs now are that this time of flowering is at an end. None can say how long the seeds will lie dormant or what the resurgence will be.

When the medical history of our own time comes to be written the point most clearly observed will be the laboratory. Uniformity of teaching will be disclosed as the guiding principle of our education, based upon the predominance of the machine as the motive of industrial life.

Eight years ago a voluntary appraisal of medical institutions—as if they were iron mills—was undertaken by an American device, known as the Carnegie Foundation for the Advancement of Teaching. What turned out in effect to be a "black list" was prepared. This list in the hands of a powerful rival was a deadly weapon, and it was used with effect; but with the elimination of the feebler schools much sincere teaching also perished.

No one dissented from the accuracy of the verdict upon the principles formulated and the evidence adduced; but the principles themselves were challenged, and the evidence was impugned on the ground of inadequacy. The report dealt with externals, material equipment, and uniformity was glorified.

In these eight years, and especially in the last four, we have learned much, and there is at the moment a delicious irony in reading Mr. Flexner's report. We can now accept with some complacency his charge against the English consultant, that "scientific distinction is a becoming decoration; it is not the breath of his nostrils." We too, like Mr. Flexner, have been amazed at "the speed with which a novel standpoint travels over Germany"; but we are now less enamoured of travelling standpoints and more content with our own which remain fixed. "This quick apprehension and incorporation of 'demonstrated truth' is responsible," Mr. Flexner has "repeatedly pointed out," for "the uniformity of the scientific institutes in respect to type, organization, and ideal."

We may well be forgiven if we do not now share his ecstasy in contemplating a perfect uniformity. Diversity is the law at least of English life, and at its peril the whole earth becomes of one language and one speech. From this dead level men begin to erect anew a tower of bricks and slime, whose top is intended to reach unto heaven, so that nothing can be restrained which they imagined to do. His giantism of uniformity is going somewhat crestfallen in these days, walking with less unconscionable strides. English medicine and English life may now take leave to be less apologetic about its existence in the world.

There were physicians in the world before Hippocrates, and there were teachers of medicine in England before the scientist immured himself in his laboratory: no one but an ignorant and Chauvinistic fool will decry and deride what is done outside of his own borders, or fail to give credit where credit is due. There is a deeper folly in following false gods just because they are alien. Moloch and

Juggernaut we have seen face to face, and we have not knelt down or taken to flight. It is not by mere chance that Paracelsus, the master quack of history, had for proper name Von Hohenheim; but it was a strange accident by which his first name happened to be "Bombast."

English medicine in the last thirty years has lost its pre-eminence merely because it stood still, declining to follow in the false path which was marked out by an alien school. This path with its signs, "efficiency," "progress," "science," has demonstrated itself to have been false, and English medicine may now resume its march by way of observation and contact with the reality of disease.

The genius of English medicine has always lain in its power to observe cases. Disease is a thing in itself, and can be recognized as easily as flowers of the field or the faces of friends when these are seen often enough. London is the place of all the world where cases may be seen. No other can compete. Laboratories may exist in any corner, and research can be carried on in the dark. Provincial towns have their own sphere, as the German towns had. They may well continue to be the resort of specialists, but London will stand unrivalled as the centre where cases can be seen. From cases all practitioners can learn something, and the few can learn much.

But medicine is not all of medicine. Craft and art have their place; and of graduate medicine hand work leading to technical skill is the principal part. To observe is not everything; to do is its fellow and consequence. The graduate is not now content with looking over the shoulder of another: he must work with his own hands. Of all men who profess an art or craft the recent graduate is the most ignorant, however learned in science he may be—more untrained than a nurse, more incompetent than a medical orderly. In this chasm lies the main use and success of the modern graduate school.

Men are no longer content to "walk." They demand a place where they can stand still, or sit down, to work with their own hands. This was the valuable part of the German discovery. The Vienna clinic in laryngology owed its fame to that old woman, Frau Gaille, who upon her own person taught the graduate the use of his tools. The London teacher may teach with the tongue of an angel, and yet be ineffectual unless he provide means for acquiring a handicraft as the old practitioner provided for his apprentice.

English medicine lost its pre-eminence in medicine merely because it declined to follow the fashion of the day. That fashion has passed with the nation from which it sprang, and the laboratory is assuming its former place as the adjunct and not the master of the ward. English medicine will then come into its own, and the clinical teacher will once more be the thing. There are men yet living who remember the great days of Wilks (1911), Paget (1899), Jenner (1898), Bowman (1892), Gull (1890), Fagge (1883), Watson (1882), Murchison (1879), Hilton (1878); and the tradition is still alive of Brodie (1862), Addison (1860), and of Bright (1858). So modern seem Hutchinson, Pavy, Matthews-Duncan, and Hughlings Jackson, that, though they be long dead, they yet speak to us.

The succession in English medicine has never failed, and will not fail even if at the moment it appears to be in abeyance. The history of physiology may be cited as proof. It is the simplest and most obvious. The first to give formal lectures on histology and physiology in England was William Sharpey at University College in 1836, and he continued to lecture until 1874. He begat Burdon-Sanderson, who succeeded him and then went to Oxford; Michael Foster who founded the Cambridge school; Gotch who succeeded Sanderson at Oxford; Schafer who succeeded Sanderson at University College and is now in Edinburgh. These men in turn begat the present school of English physiologists.

Sharpey taught physiology by exposition and discussion, by inciting men to observe the natural phenomena rather than by experiment, although he did not neglect it. To him physiology was one of the humanities. The modes in which life was manifested and maintained were, he taught, matters that should interest every intelligent man, and were of particular concern to those who aspired to be physicians. By him the best minds were directed to study disease as a derangement of function; and, directly or indirectly, all the English physicians in the mid fifty years of the nineteenth century were influenced by his teaching.

At this time the biological sciences were concerned almost exclusively with observation. The names of Owen, Hooker, Lyell, and Darwin prove it. The physicians belonged to the time, and they too were observers. In teaching they used the method of exclusion. Their diagnosis in the ultimate resort rested on *post-mortem* observation, and when the case was fatal they were nearly always right, or right in part. As William Jenner once said, "I usually find what I expect to find, but nearly always more than I expect."

In our own time this science of observation has fallen into decay, and physiology itself has been affected, due, as the Medical Research Committee as late as September 30th, 1918, reports, to a defect in the system of education, which has allowed the physiologist to remain too much in academic retreat and the clinician too far from the laboratory and its methods.

Scientific research in itself will not make a medical school, graduate or undergraduate; but a medical school without research is like a ship without a compass. Yet even with this useful instrument the course is never made in the direction to which the needle points. The course is shaped, and the compass keeps it true. A school without guidance of the scientific spirit towards the end that cannot yet be seen will quickly miss the things that should, and can, be seen. The lonely worker in the laboratory, who deals with truth in the abstract, is monitor of those who work publicly in the wards. He is looked upon with respect and fear. He is to the school what the eye of God is to the world.

Those who by taking thought would institute a formal system of graduate instruction in London would do well to remind themselves that such attempts in the past either ended in failure or had at most a partial success. The experience of the London Medical College and Polyclinic, of the London School of Clinical Medicine, of the North-West London Post-Graduate College, and of the London Post-Graduate Association will be remembered as proofs.

But if these experiments do not encourage, they need not deter. They had their uses. Down to the year 1884 the fortnightly meetings of the Pathological Society in the old hall in Berners Street were crowded with the keenest men in London, and drew an audience from the provinces; but when bacteriology, the infinitely little, and experimental medicine became dominant they faded away. Before the year 1852 there was a society which demonstrated What to Observe at the Bedside; but it dissolved when Argyll Robertson observed without its aid the somewhat obvious phenomenon which bears his name. Nothing is permanent.

Medicine being a part of life has been for the past four years a part of war, and it is as such that it is now known to several millions of men. Medicine has come out of the college and the consulting-room into the field, not with trailing robe but in soldier's garb, as a hardy, humble, and faithful servant. To these millions of men medicine is now identified with the medical corporal and the stretcher-bearer, from whom they never failed to receive quick and efficient aid.

These millions will in future look to medicine for service of the humbler kind, which will in turn remind medicine of the humble origin from which it is sprung. This should be a warning to those who would make of medical study an over elaborate procedure, a too scientific and dignified pursuit. It may even come about that perhaps after all Harley Street will not be considered the only delectable abode in the world, and that the dressing station of the field will take its place in civil life, where for a humble sixpence can be obtained relief which is now laboriously sought at an expense of two guineas and much time.

Medicine in London is at a standstill because men are waiting for the waters of the University to be troubled. They have been waiting for forty years, waiting for the machine, and neglecting the man. It is not without meaning that London has never been a medical school, but a congeries of schools, competitors for students, without any common meeting ground, or any common standard of teaching or attainment, except in so far as the Royal College of Physicians and the Royal College of Surgeons, which give diplomas, determine a standard by their requirements for examination. The physicians are not materially different, although the College of Physicians is governed by the whole body of Fellows meeting together; whereas the College of Surgeons is governed by a small council

elected by the Fellows of the College. Even when London was at its best there was no central body with authority and resource adequate to warrant the task of attempting to co-ordinate teaching and research. The University of London has long been a national or imperial university without a teaching staff; and although the medical schools are called schools of the university, they are yet independent bodies, and not one-fifth of the students are undergraduates of the university.

Some organization, of course, is necessary for graduate as well as for undergraduate teaching. The two are one. The Royal Commission on University Education in London in 1913 recommended as good a means as any—namely, that three hospitals with medical schools attached should be established as constituent colleges in medicine of the University of London as reorganized; that in each of these medical colleges there should be professorial chairs in the three main divisions of medicine, surgery, and gynaecology, with associate professors.

The kind of organization known as the "hospital unit" appeared to the Commission to be well fitted for attaining this end. In the words of their report, it consists of a professor with the control of wards; an out-patient department; assistants nominated by the professor with a view to completing his own knowledge and affording him the special assistance he requires to carry on research in the direction in which he is interested; and finally, laboratory accommodation in close proximity to the wards, not only for the service of the wards and the examinations and procedures connected with the diagnosis and treatment of the cases, but also for the purpose of research.

Nothing could be more simple or more complete. It is simply a question, in the words of the report, of appointing a university professor and arranging that his department shall be so organized that he will be able to do his work. A professor of literature or history must have his library; a professor of chemistry must have his laboratory and assistants. A professor of medicine requires the organization of the hospital unit, if he is to carry out his threefold duty of curing the sick, studying the problems of disease, and not only training his students in the technique of their art, but giving them university instruction in the science of their profession.

At a later date, after medical colleges of sufficient size and number to provide for all the university medical students in London had been established, there would, the Commission thought, be no objection to organizing a hospital of smaller size as a post-graduate school for the reception, partly of graduates from abroad, and partly of students from the other university hospitals who desired to pursue their studies.

This last is a disputable doctrine; for, let it be reiterated, graduate and undergraduate teaching are one. It has indeed already been disputed in the Memorandum on Medical Education in England, issued in the autumn of 1918 by the Board of Education. This Memorandum by Sir George Newman, the chief medical officer of the Board, tells impartially the good and the bad of the existing system, but for the present purpose it will be sufficient to notice that in it graduate instruction is reckoned as part of a complete medical curriculum. Some arrangement is demanded by which "all students shall receive special post-graduate training of one form or another before embarking on general practice, preferably in resident clinical appointments in general or special hospitals, Poor Law infirmaries, and dispensaries." This is the English ideal. With it is linked the injunction that some arrangement must be made by which "all practitioners shall find facilities available for periodically bringing their knowledge and practice up to date." Again we are told that post-graduate instruction must form an integral part of the curriculum of the ordinary medical school, with extension to special subjects in special schools. Finally we have a picture of an imperial graduate teaching scheme in England for graduates from the Dominions and foreign countries to serve as a teaching centre, to advise appropriate courses of study, and to facilitate their provision.

No institution ever reforms itself from within. Men are too loyal to each other, too closely bound by the bonds of interest and affection. If such a problem presented itself to the Army, it would be solved "from above" in four days. Sir John Goodwin, Sir Charles Birtchaell, or Major-General Foster, according to the area involved,

would detail an officer for the task. He would assign to each hospital the course for which it was most suitable, and he would see that it was carried on with joy. In this there is a hint for the Minister of Education, and for the London medical schools as well. What they will not do for themselves another may be found to do for them.

But lest something should be left unsaid, let it be affirmed that even in the idea "university" there is nothing sacrosanct. A university will not save unless it has the spirit and a willing mind. The good it does is done mainly by the prevention of evil. In its own turn it may develop the sectarianism of the school, make of three schools one, and in the professor lose the teacher.

Up to thirty years ago London was the medical centre to which all the world had resort. It lost that pre-eminence when the passion for teaching was destroyed by the appeal to mechanical experiment and the desire for uniformity. For more than thirty years earnest men have tortured themselves in the vain discovery of an alien method for the English mind. But the English mind would have none of it. Attend to the education of students, and the education of graduates will take care of itself—that was the final dogma of the Royal Commission on University Education.

London lost its pre-eminence in medicine because the breed of teachers died out, and the breed died out because it was not diversified and enriched by an allied strain. A medical school and hospital became a closed corporation, and men were promoted to teach merely because they were the oldest survivors of a system. There are in the world at any given moment very few teachers; for a teacher is an artist who transmutes, or mints, and sets in circulation, the ore which the scientist discovers, although in the rarest instances he himself may be artist and scientist too.

Teaching is the most precious of all gifts, and medicine without that aid perishes in all its branches. There is nothing more pitiable than the performance of a teacher who lacks the spirit. The performance is impious; the man is a charlatan; and the school where it is permitted is a mercenary school.

Upon those in London who are waiting, and upon those who are planning, it may be urged again that the Kingdom of Medicine also is within you. A school grows directly out of the mind of a man. Many years ago—nearly a hundred—there was a small school in a mean building in an obscure street of a small town. The root was there, transplanted from overseas like the Vine of Sibmah. At times it was gnawed to the earth, but it always grew again.

In the fullness of time there came a man. A man always does come in the fullness of time. He nourished and tended. By the winsomeness of his nature he won colleagues and students. A great school—great even amongst the schools of the world—was developed, and it remained great so long as it was resolved to lead and not to follow. Now, alas! it is without a Principal, and even the chairs of anatomy and physiology are unfilled. This man was Sir William Osler, in whose honour I am privileged to make this piece of words. From McGill he went to Philadelphia; to Baltimore; to Oxford. Wherever he went he left behind the perfect work of his hands, his mind, his heart.

Within the past four years something has happened. Whatever it was it did not happen by chance. It was due to the inexorable progress of events towards their appointed end. God does not pay every week, but at least He pays in full measure.

We have not yet begun to realize that the whole fabric of life is shaken and must come down to make way for the things that cannot for the present at least be shaken. We are like other blind Samsons, supporting for a little time upon our poor shoulders a fabric that is doomed, and groping about for materials of repair.

Such catastrophes are not new. Humanity will not dwell in the mountains where it belongs. It is always making excursions into the easy plains, and will not return until it is destroyed, leaving only a remnant to escape out of the overthrow.

These are no times for the making of formulas even in medicine. The best we can do is trust to the genius of the race. It will carry us through, as it has borne us down the tide of history these thousand years. It may well be that the day of the scientist even in

medicine is over, seeing the calamity that science has brought upon us; and that men will forsake its pursuit, to frequent the shrine and consort with the saint; for magic, religion, and medicine have arisen out of the same protoplasm, as Sir William Osler himself has declared.

This essay was contributed to the volumes presented to Sir William Osler, Regius Professor of Medicine at Oxford, on July 11th, the eve of his seventieth birthday. The presentation was made by Sir Clifford Allbutt, Regius Professor of Physic at Cambridge and President of the British Medical Association, in the name of a large body of subscribers on both sides of the Atlantic.

RAPIDLY FATAL SPINAL CARIES.

BY

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I MET with the cases of rapidly fatal spinal caries here described during the three years in which I was officer in charge, medical division of 30th General Hospital, B.E.F. The condition is rare, and I have been unable to find a record of similar cases in the literature to which I have access.

In each case the anamnesis was taken with the greatest care, and there was no recollection of anything to point to old caries, or to warrant an opinion as to when the existing illness began.

CASE I.

Pte. J. W. M., aged 26, left Felixstowe, where he had been training for nine weeks, for France on April 23rd, 1917. He arrived in Calais three days later. On April 28th he felt some pains in his back, but carried on until April 30th, when he reported sick to his medical officer, and was given light duty and medicine. On the following day he again reported sick, as his legs had become weak. He was admitted to hospital on May 1st, 1917. The orderly officer found that he was unable to stand owing to paresis, but could feel pin-pricks in both legs. When I saw him at 6 p.m. there was complete flaccid paralysis of both legs. Knee and ankle jerks were absent, cremasteric and abdominal reflexes feeble, and the plantar reflexes flexor. There was loss of sensation to cotton-wool and pin-prick as high as the xiphisternum. There was absence of sensation to tuning-fork over both tibiae. The motor and sensory reflexes of both arms were normal. The pupils were equal, and reacted to light. By lumbar puncture a clear straw-coloured cerebrospinal fluid was obtained which, when centrifugalized, yielded a deposit of erythrocytes and leucocytes in normal proportions. On May 2nd the anaesthesia had extended up to within 2 in. of the umbilicus—that is, up to the area of the fifth thoracic nerve. The temperature ranged about 105° F. during the five days of his illness. Lumbar puncture was performed on four occasions, and each time the cerebrospinal fluid was straw-coloured from blood haemolysis. In the later specimens polymorphonuclear leucocytes and a few micrococci were found. The patient became delirious, unconscious, and died on May 5th.

Post-mortem Examination (by Major Anthonisz, R.A.M.C., Pathologist to the Hospital, Adviser in Pathology).

The body is of a powerful well-developed man showing no emaciation. The brain was examined and no evidence of disease was found.

On opening up the spinal canal a considerable amount of thick yellowish pus was found situated extradurally, extending up as far as the fourth dorsal and down as far as the tenth dorsal vertebra. On removal of the cord, blood-stained disintegrating material was found lying upon the posterior common ligament in the region of the ninth dorsal vertebra, and was proved to be connected with caries of this vertebra, the upper and lower parts of the bone being most affected. When examined from within the thorax the sides of the vertebra were also found to be eroded and carious, the right side being more affected than the left. The cord itself showed no evidence of disease macroscopically, and on opening the theca no pus was seen.

On opening the thorax both lungs were bound down by their bases to the diaphragm by old fibrous adhesions. The left lung was also adherent to the pericardium near its base, and to the chest wall over its apex and outer border. The latter adhesions were easily broken down and were apparently of recent origin. There was no effusion into the pleural cavity. Miliary tubercles were present in the upper and lower lobes of both lungs. These tubercles were grey in colour, and some of them much larger than a pin's head. They were situated under the pleura and scattered through the substance of the lung. The lungs were congested in parts, but there was no consolidation, cavitation, caseation, or other evidence of old tubercle.

No evidence of tubercle was found in the abdomen. The spleen was large but otherwise healthy. In smears and cultures from the pus Gram-positive staphylococci were seen.