NEW ERA DAWNING.

But we welcome a new era dawning on us. Liverpool, Birmingham, Sheffield, and other great centres begin to regard the local university as an institution entitled to support from the public means—for instance, by subsidy from public rates. Such subsidies can be used also for studies which do not come within allotment from the smaller subsidy from the central Government—medicine, for instance. Proud of the young universities—to which yours of Toronto is a time-honoured veteran—communities and local governments are encouraging research within our universities. They do not expect such research to be able to pay its own way, but they recognize that indirectly it does pay the community that gives it a home. They feel it a duty which they owe themselves. Is not the university a part of their own life, and is not research a part of the university's life blood? They feel it a right due to their own higher selves. It stimulates progress. Supported by the large-handed sympathy of the community and the local government, it means quicker advance, both material and mental, it means invention, and it means medical discovery. *Qui facit per alium facit per se*: that is a motto worthy of a State.

USES OF LABORATORIES.

What, then, are finally the uses of these laboratories now opened by your University? They will assist in training men for various honourable callings, especially for that most ancient one of medicine. They will assist, no doubt, also to render life, by practical applications of science, superficially still more different from what it was only a short generation ago. They will assist to bring home and distribute to your community treasures of knowledge from all the quarters of the globe. They will assist—and it is a thought dear to a high-spirited people—themselves to add to the sum total of the treasures of knowledge of the whole human race. "*Noblesse oblige*" appeals not only to chivalrous individuals, but to chivalrous nations.

Yet their highest office seems to me, perhaps, not even these high ones, but a more difficult still. Genius cannot by any community, however wealthy and powerful, be made to order. In biblical language, it is the gift of God. All a community can do toward obtaining it, be our riches and willingness a thousandfold what they are, is to ensure the rare and glorious plant a meed of freedom, light, and warmth for blossoming upon our soil. Who can doubt that in this population here genius exists—not sown, it is true, broadcast, for nowhere is it thus—yet existent, scattered up and down? This it is for the community to foster, to discover.

By help of these finely-built and complete laboratories this much in one direction can be done. The problem to which a wise country turns is the discovery less of things than of men. By these laboratories, adequately supported, your community can create opportunity for the exercise of powers which come from sources within itself, but are utterly beyond its power to produce at will. Their loftiest function is creation of this opportunity. For that aim the studies in them must be followed with no single narrow technical purpose, but must be wide of scope and free of access to every rank of students. So shall these laboratories prove a corner-stone for the upbuilding of a temple of knowledge, and a touchstone for the best ore of intellect within the bounds of this great land.

An Address

ON

THE MASTER-WORD IN MEDICINE.

Delivered to Medical Students on the Occasion of the Opening of the New Laboratories of the Medical Faculty of the University of Toronto, October 1st, 1903.

By WILLIAM OSLER, M.D., F.R.S.,

Professor of Medicine, Johns Hopkins University.

I.—THE UNIVERSITY OF TORONTO: PRESENT—PAST.

BEFORE proceeding to the pleasing duty of addressing the undergraduates, as a native of this province and as an old student of this school I must say a few words on the momentous changes inaugurated with this session: the most important, perhaps, which have taken place in the history of the profession in Ontario. The splendid laboratories which we saw opened this afternoon, a witness to the appreciation

by the authorities of the needs of science in medicine, make possible the highest standards of education in the subjects upon which our art is based. They may do more. A liberal policy, with a due regard to the truth that the greatness of a school lies in brains not bricks, should build up a great scientific centre which will bring renown to this city and to our country. The men in charge of the departments are of the right stamp. See to it that you treat them in the right way by giving skilled assistance enough to ensure that the vitality of men who could work for the world is not sapped by the routine of teaching. One regret will, I know, be in the minds of many of my younger hearers. The removal of the departments of anatomy and physiology from the biological laboratory of the University breaks a connexion which has had an important influence on medicine in this city. To Professor Ramsay Wright is due much of the inspiration which has made possible these fine new laboratories. For years he has encouraged in every way the cultivation of the scientific branches of medicine, and has unselfishly devoted much time to promoting the best interests of the Medical Faculty. And in passing, let me pay a tribute to the ability and zeal with which Dr. A. B. Macallum has won for himself a world-wide reputation by intricate studies which have carried the name of this University to every nook and corner of the globe where the science of physiology is cultivated. How much you owe to him in connexion with the new buildings I need scarcely mention in this audience.

But the other event which we celebrate is of much greater importance. When the money is forthcoming it is an easy matter to join stone to stone in a stately edifice, but it is hard to find the market in which to buy the precious cement which can unite into a harmonious body the profession of medicine of two rival medical schools in the same city. That this has been accomplished so satisfactorily is a tribute to the good sense of the leaders of the two faculties, and tells of their recognition of the needs of the profession in the province. Is it too much to look forward to the absorption or affiliation of the Kingston and London schools into the Provincial University? The day has passed in which the small school without full endowment can live a life beneficial to the students, to the profession, or to the public. I know well the sacrifice of time and money which is freely made by the teachers of those schools, and they will not misunderstand my motives when I urge them to commit suicide, at least so far as to change their organizations into clinical schools in affiliation with the central University, as part, perhaps, of a widespread affiliation of the hospitals of the province. A school of the first rank in the world, such as this must become, should have ample clinical facilities under its own control. It is as much a necessity that the professors of medicine and surgery, etc., should have large hospital services under their control throughout the year as it is that professors of pathology and physiology should have laboratories such as those in which we here meet. It should be an easy matter to arrange between the provincial authorities and the trustees of the Toronto General Hospital to replace the present antiquated system of multiple small services by modern well equipped clinics—three in medicine and three in surgery to begin with. The increased efficiency of the service would be a substantial *quid pro quo*, but there would have to be a self-denying ordinance on the part of many of the attending physicians. With the large number of students in the combined school no one hospital can furnish in practical medicine, surgery, and the specialties, a training in the art an equivalent of that which the student will have in the science in the new laboratories. An affiliation should be sought with every hospital in the city and province of fifty beds and over, in each of which two or three extramural teachers should be recognized, who would receive for three or more months a number of students proportionate to the beds in the hospital. I need not mention names. We all know men in Ottawa, Kingston, London, Hamilton, Guelph, and Chatham who could take charge of small groups of the senior students and make of them good practical doctors. I merely throw out the suggestion. There are difficulties in the way, but is there anything in this life worth struggling for which does not bristle with them?

Students of Medicine.—May this day be to each one of you—as it was to me when I entered this school thirty-five years ago—the beginning of a happy life in a happy calling. Not one of you has come here with such a feeling of relief as that which I experienced at an escape from conic sections and logarithms and from Hooker and Pearson. The dry bones became clothed with interest, and I felt that I had at last got

to work. Of the greater advantages with which you start I shall not speak. Why waste words on what you cannot understand? To those only of us who taught and studied in the dingy old building which stood near here is it given to feel to the full the change which the years have wrought, a change which my old teachers, whom I see here to-day—Dr. Richardson, Dr. Ogden, Dr. Thorburn and Dr. Oldwright—must find hard to realize. One looks about in vain for some accustomed object on which to rest the eye in its backward glance—all, all are gone, the old familiar places. Even the landscape has altered, and the sense of loneliness and regret, the sort of homesickness one experiences on such occasions, is relieved by a feeling of thankfulness that at least some of the old familiar faces have been spared to see this day. To me, at least, the memory of those happy days is a perpetual benediction, and I look back upon the two years I spent at this school with the greatest delight. There were many things that might have been improved—and we can say the same of every medical school at that period—but I seem to have got much more out of it than our distinguished philosopher friend, J. Beattie Crozier, whose picture of the period seems rather hardly drawn. But after all, as some one has remarked, instruction is often the least part of an education, and, as I recall them, our teachers in their life and doctrine set forth a true and lively word to the great enlightenment of our darkness. They stand out in the background of my memory as a group of men whose influence and example were most helpful. In William R. Beaumont and Edward Mulberry Hodder we had before us the highest type of the cultivated English surgeon. In Henry H. Wright we saw the incarnation of faithful devotion to duty—too faithful, we thought, as we trudged up to the 8 o'clock lecture in the morning. In W. T. Aikens a practical surgeon of remarkable skill and an ideal teacher for the general practitioner. How we wondered and delighted in the demonstrations of Dr. Richardson, whose infective enthusiasm did much to make anatomy the favourite subject among the students. I had the double advantage of attending the last course of Dr. Ogden and the first of Dr. Thorburn on *materia medica* and therapeutics, and Dr. Oldwright had just begun his career of unselfish devotion to the cause of hygiene. To one of my teachers I must pay in passing the tribute of filial affection. There are men here to-day who feel as I do about Dr. James Bovell—that he was one of the finer spirits, not uncommon in life, touched to finer issues only in a suitable environment. Would the Paul of evolution have been Thomas Henry Huxley had the Senate elected the young naturalist to a chair in this University in 1851?

Only men of a certain intensity rise superior to their surroundings, and while Dr. Bovell had that all-important combination of boundless ambition with energy and industry, he had that fatal fault of diffuseness in which even genius is strangled. With a quadrilateral mind, which he kept spinning like a teetotum, one side was never kept uppermost for long at a time. Caught in the storm which shook the scientific world with the publication of the *Origin of Species*, instead of sailing before the wind, even were it with bare poles, he put about and sought a harbour of refuge in writing a work on *Natural Theology*, which you will find on the shelves of second-hand book shops in a company made respectable at least by the presence of Paley. He was an omnivorous reader and transmuter, and could talk pleasantly, even at times transcendently, upon anything in the science of the day, from protoplasm to evolution; but he lacked concentration and that scientific accuracy which only comes with a long training (sometimes, indeed, never comes), and which is the ballast of the boat. But the bent of his mind was devotional, and early swept into the Tractarian movement, he became an advanced Churchman, a good Anglican Catholic. As he chaffingly remarked one day to his friend, the Reverend Mr. Darling, he was like the waterman in *Pilgrim's Progress*, rowing one way, towards Rome, but looking steadfastly in the other direction, towards Lambeth. His *Steps to the Altar* and his *Lectures on the Advent* attest the earnestness of his convictions; and later in life, following the example of Linacre, he took orders and became another illustration of what Cotton Mather calls the angelical conjunction of medicine with divinity. Then, how well I recall the keen love with which he would engage in metaphysical discussions, and the ardour with which he studied Kant, Hamilton, Reed, and Mill. At that day to the Rev. Professor Bevan was entrusted the rare privilege of directing the minds of the thinking youths at the provincial University into proper philosophical channels. It was rumoured that the hungry sheep looked up and were not

fed. I thought so at least, for certain of them, led by T. Wesley Mills, came over daily after Dr. Bovell's four o'clock lecture to reason high and long with him.

On Providence, Foreknowledge, Will and Fate
Fixed Fate, Freewill, Foreknowledge absolute.

Yet withal his main business in life was as a physician, much sought after for his skill in diagnosis and much beloved for his loving heart. He had been brought up in the very best practical schools. A pupil of Bright and of Addison, a warm personal friend of Stokes and of Graves, he maintained loyally the traditions of Guy's, and taught us to reverence his great masters. As a teacher he had grasped the fundamental truth announced by John Hunter of the unity of physiological and pathological processes, and, as became the occupant of the Chair of the Institute of Medicine, he would discourse on pathological processes in lectures on physiology, and illustrate the physiology of bioplasm in lectures on the pathology of tumours to the bewilderment of the students. When in September 1870 he wrote to me that he did not intend to return from the West Indies, I felt that I had lost a father and a friend, but in Robert Palmer Howard, of Montreal, I found a noble stepfather, and to these two men and to my first teacher the Rev. W. A. Johnson, of Weston, I owe my success in life, if success means getting what you want and being satisfied with it.

II.—ON WORK AND WORRY.

Of the value of an introductory lecture I am not altogether certain. I do not remember to have derived any enduring benefit from the many that I have been called upon to hear, or from the not a few that I have inflicted in my day. On the whole I am in favour of abolishing the old custom, but as this is a very special occasion, with special addresses, I consider myself most happy to have been selected for this part of the programme. To the audience at large I fear that much of what I have to say will appear trite and commonplace, but bear with me, since indeed to most of you, how good so ever the word, the season is long past in which it could be spoken to your edification. As I glance from face to face the most striking single peculiarity is the extraordinary diversity that exists among you. Alike in that you are men and white, you are unlike in your features, very unlike in your minds and in your mental training, and your teachers will mourn the singular inequalities in your capacities. And so, it is sad to think, will be your careers; for one success, for another failure; one will tread the primrose path to the great bonfire, another the strait and narrow way to renown; some of the best of you will be stricken early on the road, and will join that noble band of youthful martyrs who loved not their lives to the death; others, perhaps the most brilliant among you, like my old friend and comrade Dick Zimmerman (how he would have rejoiced to see this day!), the fates will overtake, and whirl to destruction just as success seems assured. When the iniquity of oblivion has blindly scattered her poppy over us, some of you will be the trusted counsellors of this community, and the heads of departments in this Faculty; while for the large majority of you let us hope is reserved the happiest and most useful lot given to man—to become vigorous, whole-souled, intelligent general practitioners.

It seems a bounden duty on such an occasion to be honest and frank, so I propose to tell you the secret of life as I have seen the game played, and as I have tried to play it myself. You remember in one of the *Jungle Stories* that when Mowgli wished to beavenged on the villagers he could only get the help of Hathli and his sons by sending them the master-word. This I propose to give you in the hope—yes, in the full assurance—that some of you at least will lay hold upon it to your profit. Though a little one the master-word looms large in meaning. It is the open sesame to every portal, the great equalizer in the world, the true philosopher's stone which transmutes all the base metal of humanity into gold. The stupid man among you it will make bright, the bright man brilliant, and the brilliant student steady. With the magic word in your heart all things are possible, and without it all study is vanity and vexation. The miracles of life are with it; the blind see by touch, the deaf hear with eyes, the dumb speak with fingers. To the youth it brings hope, to the middle aged confidence, to the aged repose. True balm of hurt minds, in its presence the heart of the sorrowful is lightened and consoled. It is directly responsible for all advances in medicine during the past twenty-five centuries. Laying hold upon it Hippocrates made observation and science the warp and woof of our art.

Galen so read its meaning that fifteen centuries stopped thinking and slept until awakened by the *De Fabrica* of Vesalius, which is the very incarnation of the master-word. With its inspiration Harvey gave an impulse to a larger circulation than he wot of, an impulse which we feel to-day. Hunter sounded all its heights and depths, and stands out in our history as one of the great exemplars of its virtues. With it Virchow smote the rock and the waters of progress gushed out; while in the hands of Pasteur it proved a very talisman to open to us a new heaven in medicine and a new earth in surgery. Not only has it been the touchstone of progress, but it is the measure of success in every-day life. Not a man before you but is beholden to it for his position here, while he who addresses you has that honour directly in consequence of having had it graven on his heart when he was as you are to-day. And the master-word is Work—a little one, as I have said, but fraught with momentous sequences if you can but write it on the tables of your heart and bind it upon your foreheads. But there is a serious difficulty in getting you to understand the paramount importance of the work-habit as part of your organization. You are not far from the Tom Sawyer stage with its philosophy "that work consists of whatever a body is obliged to do, and that play consists of whatever a body is not obliged to do." For most of us it means a hard battle; the few take to it naturally; the many prefer idleness and never learn to love to labour. A great many hard things may be said of the work-habit. Listen to this—says Robert Louis Stevenson:

Look at one of your industrious fellows for a moment, I beseech you. He sows hurry and reaps indigestion; he puts a vast deal of activity out to interest, and receives a large measure of nervous derangement in return. Either he absents himself entirely free from all fellowship, and lives a recluse in a garret, with carpet slippers and a leaden inkpot; or he comes among people swiftly and bitterly, in a contraction of his whole nervous system, to discharge some temper before he returns to work. I do not care how much or how well he works, this fellow is an evil feature in other people's lives.

These are the sentiments of an overworked, dejected man; let me quote the motto of his saner moments: "To travel hopefully is better than to arrive, and the true success is to labour." If you wish to learn of the miseries of scholars in order to avoid them read Part I, Section II, Member 3, Sub-section xv, of that immortal work, the *Anatomy of Melancholy*, and I am here to warn you against these evils, and to entreat you to form good habits in your student days.

At the outset appreciate clearly the aims and objects each one of you should have in view—a knowledge of disease and its cure, and a knowledge of yourselves. The one, a special education, will make you a practitioner of medicine; the other, an inner education, may make you a truly good man, four square and without a flaw. The one is extrinsic, and is largely accomplished by teacher and tutor, by text and by tongue; the other is intrinsic, and is the mental salvation to be wrought out by each one for himself. The first may be had without the second; any one of you may become an active practitioner without ever having had sense enough to realize that through life you have been a fool; or you may have the second without the first, and, without knowing much of the art, you may have endowments of head and heart that make the little you do possess go very far in the community. That with which I hope to infect you is a desire to have a due proportion of each.

So far as your professional education is concerned, what I shall say may make for each one of you an easy path easier. The multiplicity of the subjects to be studied is a difficulty, and it is hard for teacher and student to get a due sense of proportion in the work. We are in a transition stage in our methods of teaching, and have not everywhere got away from the idea of the examination as the "be-all and end-all;" so that the student has constantly before his eyes the magical letters of the degree he seeks. And this is well, perhaps, if you will remember that, having in the old phrase commenced Bachelor of Medicine, you have only reached a point from which you can begin a lifelong process of education.

So many and varied are the aspects presented by this theme that I can only lay stress upon a few of the more essential. The first step towards success in any occupation is to become interested in it. Locke put this in a very happy way when he said give a pupil "a relish of knowledge" and you put life into his work. And there is nothing more certain than that you cannot study well if you are not interested in your profession. Your presence here is a warrant that in some way you have become attracted to the study of medicine, but the speculative possibilities so warmly cherished at the outset are apt to cool when in contact with the stern realities of the

classroom. Most of you have already experienced the all-absorbing attraction of the scientific branches, and nowadays the practical method of presentation has given a zest which was usually lacking in the old theoretical teaching. The life has become more serious in consequence, and medical students have put away many of the childish tricks with which we used to keep up their bad name. Compare the picture of the "Sawbones" of 1842, as given in the recent biography of Sir Henry Acland, with their representatives to-day, and it is evident a great revolution has been effected, and very largely by the salutary influences of improved methods of education. It is possible now to fill out a day with practical work, varied enough to prevent monotony, and so arranged that the knowledge is picked out by the student himself, not thrust into him willy-nilly, at the point of the tongue. He exercises his wits, and is no longer a passive Strassburg goose, tied up and stuffed to repletion.

How can you take the greatest possible advantage of your capacities with the least possible strain? By cultivating system. I say "cultivating" advisedly, since some of you will find the acquisition of systematic habits very hard. There are minds congenitally systematic; others have a lifelong fight against an inherited tendency to diffuseness and carelessness in work. A few brilliant fellows try to dispense with it altogether, but they are a burden to their brethren and a sore trial to their intimates. I have heard it remarked that order is the badge of an ordinary mind. So it may be, but as practitioners of medicine we have to be thankful to get into this useful class. Let me entreat those of you who are here for the first time to lay to heart what I say on this matter. Forget all else, but take away this counsel of a man who has had to fight a hard battle, and not always a successful one, for the little order he has had in his life. Take away with you a profound conviction of the value of system in your work. I appeal to the freshmen especially, because you to-day make a beginning, and your future career depends very much upon the habits you will form during this session. To follow the routine of the classes is easy enough, but to take routine into every part of your daily life is a hard task. Some of you will start out joyfully, as did Christian and Hopeful, and for many days will journey safely towards the Delectable Mountains, dreaming of them and not thinking of disaster until you find yourselves in the strong captivity of Doubt and under the grinding tyranny of Despair. You have been over-confident. Begin again and more cautiously. No student escapes wholly from these perils and trials; expect them and be not disheartened. Let each hour of the day have its allotted duty, and cultivate that power of concentration which grows with its exercise, so that the attention neither flags nor wavers, but settles with a bull-dog tenacity on the subject before you. Constant repetition makes a good habit fit easily in your mind, and by the end of the session you may have gained that most precious of all knowledge—the power to work. Do not under-estimate the difficulty you will have in wringing from your reluctant selves the stern determination to exact the uttermost minute on your schedule. Do not get too interested in one study at the expense of another, but so map out your day that due allowance is given to each. Only in this way can the average student get the best that he can out of his capacities. And it is worth all the pains and trouble he can possibly take for the ultimate gain—if he can reach his doctorate with system so ingrained that it has become an integral part of his being.

The artistic sense of perfection in work is another much to be desired quality to be cultivated. No matter how trifling the matter on hand, do it with a feeling that it demands the best that is in you, and when done look it over with a critical eye, not sparing a strict judgement of yourself. This it is that makes anatomy a student's touchstone. Take the man who does his "part" to perfection, and who has got out all there is in it, who labours over the tags of connective tissue and who demonstrates Meckel's ganglia in his part—this is the fellow in after years who is apt in emergencies, who saves a leg badly smashed in a railway accident, or fights out to the finish, never knowing when he is beaten, in a case of typhoid fever.

Learn to love the freedom of the student life, only too quickly to pass away, the absence of the coarser cares of after-days, the joy in comradeship, the delight in the new work, the happiness in knowing that you are making progress. Once only can you enjoy these pleasures. The seclusion of the student life is not always good for a man, particularly for those of you who will afterwards engage in general practice, since you will miss that facility of intercourse upon which

often the doctor's success depends. On the other hand sequestration is essential for those of you with high ambitions proportionate to your capacity. It was for such St. Chrysostom gave his famous counsel,

Depart from the highways and transplant thyself into some enclosed ground, for it is hard for a tree that stands by the wayside to keep its fruit till it be ripe.

Has work no dangers connected with it? What of this bogie of overwork of which we hear so much? There are dangers, but they may be readily avoided with a little care. I can only mention two, one physical, one mental. The very best students are often not the strongest. Ill-health, the bridle of Theages, as Plato called it in the case of one of his friends whose mind had thriven at the expense of his body, may have been the diverting influence towards books or the profession. Among the good men who have studied with me there stand out in my remembrance many a young Lycidas, "dead ere his prime," sacrificed to carelessness in habits of living and neglect of ordinary sanitary laws. Medical students are much exposed to infection of all sorts, to combat which the body must be kept in first-class condition. Grosseteste, the great Bishop of Lincoln, remarked that there were three things necessary for temporal salvation—food, sleep, and a cheerful disposition. Add to these suitable exercise and you have the means by which good health may be maintained. Not that health is to be a matter of perpetual solicitude, but habits which favour the *corpus sanum* foster the *mens sana*, in which the joy of living and the joy of working are blending in one harmony. Let me read you a quotation from old Burton, the great authority on *morbi eruditorum*. There are many reasons why students dote more often than others. The first is their negligence; other men look to their tools, a painter will wash his pencils, a smith will look to his hammer, anvil, forge; a husbandman will mend his plough-irons, and grind his hatchet, if it be dull; a falconer or huntsman will have an especial care of his hawks, hounds, horses, dogs, etc.; a musician will string and unstring his lute, etc.; only scholars neglect that instrument, their brain and spirits (I mean), which they daily use.

Much study is not only believed to be a weariness of the flesh, but also an active cause of ill-health of mind in all grades and phases. I deny that work, legitimate work, has anything to do with this. It is that foul fiend Worry who is responsible for a large majority of the cases. The more carefully one looks into the causes of nervous breakdown in students, the less important is work *per se* as a factor. There are a few cases of genuine overwork, but they are not common. Of the causes of worry in the student life there are three of prime importance, to which I may briefly refer.

An anticipatory attitude of mind, a perpetual forecasting, disturbs the even tenor of his way and leads to disaster. Years ago a sentence in one of Carlyle's essays made a lasting impression on me; "Our duty is not to see what lies dimly at a distance, but to do what lies clearly at hand." I have long maintained that the best motto for a student is, "Take no thought for the morrow." Let the day's work suffice; live for it, regardless of what the future has in store, believing that to-morrow should take thought for the things of itself. There is no such safeguard against the morbid apprehensions about the future, the dread of examinations and the doubt of ultimate success. Nor is there any risk that such an attitude may breed carelessness. On the contrary, the absorption in the duty of the hour is in itself the best guarantee of ultimate success. "He that regardeth the wind shall not sow and he that observeth the clouds shall not reap," which means you cannot work profitably with your mind set upon the future.

Another potent cause of worry is an idolatry by which many of you will be sore let and hindered. The mistress of your studies should be the heavenly Aphrodite, the motherless daughter of Uranus. Give her your whole heart, and she will be your protectress and friend. A jealous creature, brooking no second, if she finds you trifling and coquetting with her rival, the younger, earthly Aphrodite, daughter of Zeus and Dione, she will whistle you off and let you down the wind to be a prey perhaps to the examiners, certainly to the worm regret. In plainer language, put your affections in cold storage for a few years, and you will take them out ripened, perhaps a bit mellow, but certainly less subject to those frequent changes which perplex so many young men. Only a grand passion, an all-absorbing devotion to the elder goddess, can save those with a congenital tendency to philandering, those flighty Lydgates who sport with Celia and Dorothea, and upon whom the judgement ultimately falls in a basil-plant of a wife like Rosamond.

And thirdly, one and all of you will have to face the ordeal of every student in this generation who sooner or later tries

to mix the waters of science with the oil of faith. You can have a great deal of both if you only keep them separate. The worry comes from the attempt at mixture. As general practitioners you will need all the faith you can carry, and while it may not always be of the conventional pattern, when expressed in your lives rather than on your lips the variety is not a bad one from the standpoint of St. James, and may help to counteract the common scandal alluded to in the celebrated diary of that gossip old parson-doctor, the Rev. John Ward: "One told the Bishop of Gloucester that he imagined physicians of all other men the most competent judges of all others' affairs of religion; and his reason was because they were wholly unconcerned with it."

III.—ON CONSUMING YOUR OWN SMOKE.

Professional work of any sort tends to narrow the mind, to limit the point of view, and to put a hall mark on a man of a most unmistakable kind. On the one hand are the intense, ardent natures, absorbed in their studies, and quickly losing interest in everything but their profession, while other faculties and interests fust in them unused. On the other hand are the bovine brethren, who think of nothing but the treadmill and the corn. From very different causes, the one from concentration, the other from apathy, both are apt to neglect those outside studies that widen the sympathies and help a man to get the best there is out of life.

Like art, medicine is an exacting mistress, and in the pursuit of one of the scientific branches—sometimes, too, in practice—not a portion of a man's spirit may be left free for other distractions, but this does not often happen. On account of the intimate personal nature of his work the doctor, perhaps more than any other man, needs that higher education of which Plato speaks, "that education in virtue from youth upwards which enables a man eagerly to pursue the ideal perfection." It is not for all nor can all attain to it, but there is comfort and help in the pursuit even though the end is never reached. For a large majority the daily round and the common task furnish more than enough to satisfy their heart's desire and there seems no room left for anything else. Like the good, easy man whom Milton scores in the *Areopagitica*, whose religion was a "traffic so entangled that of all mysteries he could not skill to keep a stock going upon that trade," and handed it over with all the locks and keys to "a divine of note and estimation," so it is with many of us in the matter of this higher education. No longer intrinsic, wrought in us and ingrained, it has become, in Milton's phrase, a "dividual movable," handed over to the daily press or to the hap-hazard instruction of the pulpit, the platform, or the magazines. Like a good many other things, it comes in a better and more enduring form if not too consciously sought. The all-important thing is to get a relish for the good company of the race in a daily intercourse with some of the great minds of all ages. Now, in the spring-time of life, pick your intimates among them and begin a systematic cultivation of their works. Many of you will need a strong leaven to raise you above the level of the dough in which it will be your lot to labour. Uncongenial surroundings, an ever-present dissonance between the aspirations within and the actualities without, the oppressive discord of human society of which we have to see so much, the bitter tragedies of life, the *lachrymae rerum* beside the hidden springs of which we sit in sad despair—all these tend to foster in some natures a cynicism quite foreign to our vocation and to which this inner education offers the best antidote.

Personal contact with men of high purpose and character will help a man to make a start, to have the desire at least, but in its fullness this culture—for that word best expresses it—has to be wrought out by each one for himself. Start at once a bedside library and spend the last half-hour of the day in communion with the saints of humanity. There are great lessons to be learned from Job and from David, from Isaiah and St. Paul. Taught by Shakespeare, you may take your intellectual and moral measure with singular precision. Learn to love Epictetus and Marcus Aurelius. Should you be so fortunate as to be born a Platonist, Jowett will introduce you to the great master through whom alone we can think in certain levels, and whose perpetual modernness startles and delights. Montaigne will teach you moderation in all things, and to be "sealed of his tribe" is a special privilege. We have in the profession only a few great literary heroes of the first rank, the friendship and counsel of two of whom you cannot too earnestly seek. Sir Thomas Browne's *Religio Medici* should be your pocket companion, while from the *Breakfast Table* series of Oliver Wendell Holmes you can

glean a philosophy of life peculiarly suited to the needs of a physician. There are at least a dozen or more works which would be helpful in getting that wisdom which only comes to those who earnestly seek it. A conscientious pursuit of Plato's ideal perfection may teach you the three great lessons of life. You may learn to consume your own smoke. The atmosphere of life is darkened by the murmurings and whimperings of men and women over the non-essentials—the trifles that are inevitably incident to the hurly burly of the day's routine. Things cannot always go your way. Learn to accept in silence these minor aggravations; cultivate the gift of taciturnity, and consume your own smoke with an extra draught of hard work, so that those about you may not be annoyed with the dust and soot of your complaints. More than any other man the practitioner of medicine may illustrate the second great lesson, that we are here not to get all we can out of life for ourselves, but to try to make the lives of others happier. This is the essence of that oft-repeated admonition of Christ, "He that findeth his life shall lose it and he that loseth his life for my sake shall find it," on which hard saying if the children of this generation would only lay hold there would be less misery and discontent in the world. It is not possible to have better opportunities to live this lesson than you will enjoy. The practice of medicine is an art, not a trade, a calling, not a business—a calling in which your heart will be exercised equally with your head. Often the best part of your work will have nothing to do with potions and powders, but with the exercise of an influence of the strong upon the weak, of the righteous upon the wicked, of the wise upon the foolish. To you as the trusted family counsellor the father will come with his anxieties, the mother with her hidden griefs, the daughter with her trials, and the son with his follies. Fully one-third of the work you do will be entered in other books than yours. Courage and cheerfulness will not only carry you over the rough places of life, but will enable you to bring comfort and help to the weak-hearted, and will comfort you in the sad hours when, like Uncle Toby, you have "to whistle that you may not weep."

And the third great lesson you may learn is the hardest of all—that the law of the higher life is only fulfilled by love or charity. Many a physician whose daily work is a daily round of beneficence will say hard things and will think hard thoughts of a colleague. No sin will so easily beset you as uncharitableness towards your brother practitioners. So strong is the personal element in the practice of medicine, and so many are the wagging tongues in every parish, that evil speaking, lying, and slandering find a shining mark in the lapses and mistakes which are inevitable in our work. The opportunities are numerous, but there is no real reason for discord and disagreement, and the only way to avoid trouble is to have two plain rules. From the day you begin practice never under any circumstances listen to a tale told to the detriment of a brother practitioner. And when any dispute or trouble does arise, go frankly ere sunset and talk the matter over, in which way you may gain a brother and a friend. Very easy to carry out you may think. Far from it—there is no harder battle to fight. Theoretically there seems to be no difficulty, but when the concrete wound is rankling, and after Mrs. Jones has rubbed in the cayenne pepper by declaring that Dr. J. told her in confidence of your shocking bungling, your attitude of mind is that you would rather see him in purgatory than make any advance towards reconciliation. Wait until the day of your trial comes, and then remember my words.

And in closing may I say a few words to the younger practitioners in the audience whose activities will wax, not wane, with the growing years of the century which opens so auspiciously for this school, for this city and for our country? You enter a noble heritage, made noble by no efforts of your own, but by the generations of men who have unselfishly sought to do the best they could for suffering mankind. Much has been done, much remains to do; a way has been opened, and to the possibilities in the scientific development of medicine there seems to be no limit. Except in its application as general practitioners, you will not have much to do with this. Yours is a higher and a more sacred duty. Think not to light a light to shine before men that they may see your good works; contrariwise, you belong to the great army of quiet workers—physicians and priests, sisters and nurses—all over the world, the members of which strive not neither do they cry, nor are their voices heard in the streets, but to them is given the ministry of consolation in sorrow, need, and sickness. Like the ideal wife of whom Plutarch speaks, the best doctor is often the one of whom the public hears

least; but nowadays in the fierce light that beats upon the hearth it is increasingly difficult to live the secluded life in which our best work is done. To you, the silent workers of the ranks, in villages and country districts, in the slums of our large cities, in the mining camps and factory towns, in the homes of the rich and in the hovels of the poor—to you is given the harder task of illustrating in your lives the old Hippocratic standards of learning, of sagacity, of humanity, and of probity. Of learning that you may apply in your practice the best that is known in our art, and that with the increase in your knowledge there may be an increase in that priceless endowment of sagacity, so that to all everywhere skilled succour may come in the hour of urgent need. Of a humanity that will show in your daily life tenderness and consideration to the weak, infinite pity to the suffering, and a broad charity to all. Of a probity that will make you under all circumstances true to yourselves, true to your high calling, and true to your fellow man.

The Bradshaw Lecture

ON

TUBERCULOSIS OF THE NERVOUS SYSTEM.

Delivered before the Royal College of Physicians of London.

By E. F. TREVELYAN, M.D.LOND., B.Sc., F.R.C.P.,
Honorary Assistant Physician, Leeds General Infirmary; Physician, Leeds
Sanatorium for Consumptives; Professor of Pathology,
Yorkshire College.

My first duty is to acknowledge the honour done to me in asking me to give this lecture and to express the hope that I may prove worthy of it.

I propose to address my remarks (1) to the forms which the tuberculous infection may assume in the nervous system, (2) to the mode of infection of the brain and meninges, (3) to some points in diagnosis connected with spinal puncture, and finally to the possibility of recovery. I have to express my obligations to my colleagues on the staff of the Leeds General Infirmary for permission to use the records of 114 fatal cases which have occurred during the past twenty years in that institution. I must also thank Dr. Ursula Chaplin for much able help in laboratory work.

THE FORMS OF TUBERCULOUS INFECTION.

The various forms of tuberculosis of the nervous system consist of tuberculosis of the dura mater, tuberculous meningitis in its more general and limited forms, tuberculous masses in the brain and cord, and a possible miliary tuberculosis of the brain itself.

An old question raised many years ago by Rilliet and Barthez¹ has been much discussed lately, as to whether it is possible to have a tuberculous meningitis without the presence of tubercles, or, at any rate, with only a minimal tubercle formation. Such an affection has been compared to certain benign tuberculous affections of joints and serous membranes, and the name of "tuberculous meningopathy" has been suggested to distinguish it from the ordinary fatal form of tuberculous meningitis. Poncet,² Patel,³ Sepet,⁴ Galliard⁵ are the chief exponents of this view, and the subject has been well summarized by Bouclier⁶ in a recent Lyons thesis. Among the Leeds cases there are 14 in which thickening or exudation is noted at the base of the brain without visible tubercles. Cerebral symptoms were present before death in 12 of these cases, and abundant tuberculous lesions elsewhere in the body in all. I think it is fair to conclude that tubercle formation was at its minimum—or even absent, in some of these cases at any rate—and that the changes noted were a manifestation of the tuberculous infection, and were responsible for the symptoms. It has been suggested that the poisons of the tubercle bacillus may cause this more exudative or serous form of meningitis. Armand Delille⁷ has separated a poison which produced in his experiments productive tissue changes. In three instances of intracranial injection of measured quantities of tuberculin I found no local effects, but progressive wasting, ending, in one guinea-pig, in death. More information is obviously wanted about this benign form of tuberculous meningitis and its anatomical counterpart.

The limited meningitis described by French authorities