

**Introductory address to the students at St. Bartholomew's Hospital,
October 1, 1866 / by W.S. Savory.**

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W. S. Savory

INTRODUCTORY ADDRESS

TO

The Students

AT

BARTHOLOMEW'S HOSPITAL,

OCTOBER 1, 1866.

BY

W. S. SAVORY, F.R.S.

ASSISTANT SURGEON TO THE HOSPITAL, AND
LECTURER ON PHYSIOLOGY IN THE MEDICAL SCHOOL.

c

LONDON.—1866.

INTRODUCTORY ADDRESS

By

ST. BARTHOLOMEW'S HOSPITAL

LONDON:

GILBERT AND RIVINGTON, PRINTERS,
ST. JOHN'S SQUARE.

W. S. BAYFORD, F.R.S.

LECTURE DELIVERED AT ST. BARTHOLOMEW'S HOSPITAL

ON THE 14TH OF FEBRUARY 1851

LONDON-1851

INTRODUCTORY ADDRESS,

&c.

NOT long ago, a gentleman, who was about to deliver a course of lectures for the first time, expressed to a friend the difficulty he felt concerning the introductory lecture. He had prepared, he said, all the others very well, but he did not know what to talk of in the first one as an introduction to the course. "Oh!" replied his more experienced friend, "any thing will do for that." "But," it was urged, "there is just my difficulty. When the subject is prescribed for me, I have only to treat it to the best of my ability; but now I am embarrassed by my range of choice." "Well, don't give yourself too much trouble," was the cynical rejoinder, "for they won't expect any thing in an introductory lecture. They know very well that it is only a preface to work."

There is no doubt some truth, and much mischief,

in this. If one have nothing to say, it is wisest to hold one's tongue, even though there be no preface—if an introductory lecture be given at all, it should be for some good and useful purpose. And therefore I sympathize now with my friend in the embarrassment he felt. However reassuring it may be to be told that nothing is expected of you, having ventured to ask your attention for an hour, I am anxious to avoid, so far as I am able, waste of your time.

Yet let me confess that my sense of the responsibility of the task I have undertaken to-day is lessened by the reflection that, after all, nothing I can say is likely to be of much avail in influencing the future career of any one of those whom I now have the opportunity of addressing. Even if I possessed the power of producing for the moment a deep impression, still I know that impression would in almost every instance very soon become effaced. Here and there, perhaps, a great and lasting influence might be wrought by good words wisely spoken, and no doubt it is worth while to waste many in the hope of planting some; but I cannot expect even such exceptional success as this. No; the influences which have hitherto operated, and which will continue to move you, must be more potent and abiding than words, though spoken with an authority to which I can lay no claim, or with a force which I cannot command. The remembrance of a well-known voice may sometimes check the commission

of an unworthy act, but our characters are not so readily moulded, our destiny is not so easily or abruptly changed. And I am sure you will be relieved to hear that I do not purpose to spend the time allotted to me in giving you good advice. But I will forthwith assume—nay, I verily believe, that you have come hither with a genuine desire to learn, with an honest resolution to study.

But let me say a few words upon the subject of your future work—Medicine, employing this word now in an inclusive sense.

Whatever position Medicine is entitled to hold amongst the sciences, this is certain—it is not an exact science; and I venture to think that much of the great interest, aye, of the charm of its study depends upon the kind of evidence with which it has to deal. I believe that if you obtain clear and definite ideas of the relation of Medicine to other sciences, you will work at it more intelligently; and while you will avoid, on the one hand, exaggerating the power of your art, you will, on the other, know best how to vindicate the just claims of your profession.

It may be said that there are essentially two kinds of evidence:—

That which is, in its nature, conclusive or absolutely certain, and which can leave no doubt on any reasonable mind. Thus there is the direct evidence of our senses. Here the only source of fallacy would be in our senses themselves. So, again, there is the evidence called mathematical, by

which any fact or truth is demonstrated beyond all question.

Then there is that which is, in its nature, probable. Probable evidence is of the widest possible extent, and varies infinitely in degree, from evidence of the most doubtful kind possible up to evidence so probable that for all intents and purposes it becomes conclusive. Thus, as an illustration of different degrees of it, our belief is stronger—that is, the probability is greater—that July will be warmer than January, than that any particular day or week of either month will be wet or fine, or that at any given period the wind will blow in a particular direction.

Probable evidence is the common every-day evidence with which we are constantly concerned, the evidence upon which we are continually acting. Nay, if we did not depend upon it, our very existence, so long as it lasted, would be most wretched. We take our food in peace and comfort, not because we absolutely know, to a mathematical certainty, that it will not poison us, but because the probability is so great otherwise that it amounts to what is called a moral certainty. We breathe freely, and without thought or care, not because we can be absolutely sure, but because we are convinced, that the air contains nothing that will materially hurt us. The risks we run in such cases as these are, practically speaking, of no moment; but observe that, after all, our sense of security depends only on extreme probability. And when the importance of the issue at stake is less, we

are content to run much greater risks ; we are willing to depend on much lower degrees of probability. Even more than this : in order to accomplish some end, or to gratify some desire, we often voluntarily expose ourselves in various ways to considerable risks, providing only, so long as we are rational, for a fair proportion of probability in our favour. Thus when we go to a distance for duty or pleasure, we place ourselves at ease on the railway without fear, or, I suppose as the rule as yet, previous insurance, although we are by no means sure that we shall reach our destination sound and unshaken. But we expect to do so.

This great question of probability is at the root of the difficulty of realizing the uncertainty of life. It is almost in vain that the truth is continually sounding in our ears, that expressions of it are ever on our tongues. We admit the fact, but do not accept it. While we are in health, we know that the probability is that we shall live, and we proceed accordingly. We know not what a day may bring forth ; yet who but the most wretched and the worst lies down at night without plans for the morrow ?

Much of this evidence, when in its strongest form, we are wont, I say, to regard as absolutely certain ; but it is important nevertheless to bear in mind that it is not actually so. For instance, we assume it as certain that no living person will attain to an age very far in excess of the ordinary limits of human life—say of a hundred and fifty or two hundred years.

But although this is in the highest degree probable, yet it cannot be said to be absolutely certain. For ordinary purposes every one is satisfied with degrees of probability below this. The tables and business of insurance offices represent very fairly the practical value of different degrees of probability for the ordinary affairs of life.

Now out of the fact that probable evidence varies almost infinitely in degree, some important considerations arise.

There is the different influence which the same evidence will produce on different minds. Different men are very differently affected by evidence. The amount of evidence by which men are convinced, the degree of probability upon which they will act, varies as their characters. This is commonly expressed in some of our most familiar phrases. It is said of this man that he is easily convinced; of that one that he is very cautious, and so on. In fact there are all means between the extremes of the weakest credulity and the most stupid scepticism.

Then comes the credibility of testimony. The same witness will be believed or not according to the probability of the fact to which he testifies. If a man of whom you know little or nothing tells you of some event, the occurrence of which you would regard as highly probable, you accept his statement without hesitation; whereas if he spoke of some occurrence which you regarded as extremely improbable, you would reasonably doubt the accuracy of what he

stated. But you would justly attach weight to his testimony in proportion as you knew him, by past experience or otherwise, to be trustworthy, a man of capacity, and so on.

Thus when strange statements are submitted to us, and we have no means of investigating the question for ourselves, we balance in our minds what we conclude is the improbability of the alleged fact, on the one hand, against the character and authority by which it is supported on the other. Now this, of course, involves and largely concerns our own capacity for judging of the nature of the event. Cullen observes: "Neither the acutest genius nor the soundest judgment will avail in judging of a particular science in regard to which they have not been exercised." He adds: "I have been obliged to please my patients sometimes with reasons, and I have found that any will pass, even with able divines and acute lawyers." Thus it is with homœopathy, because, as it was once happily said in reply to the assertion that every man had a right to an opinion, the right to express an opinion does not of necessity imply that the capacity exists to form one. All men, it has been remarked, are as the vulgar in what they do not understand.

The value of evidence which is not in its nature conclusive is almost always relative. When we are told of something new and strange, we try it by other previously ascertained and well-established facts; and whatever may be its fate with us if it be not opposed

to these, we cannot accept it if it cannot be reconciled to them. These are the chief grounds upon which we reject the doctrine of spontaneous combustion of the human body; for it is, as Liebig has admirably shown, in direct opposition to unquestionable truths.

Thus, too, in this way we can best answer those who are apt to get very angry with us if we do not listen to the wonders to which they testify—to tales of spirits which rap, or of tables which turn, or of globules which cure, for instance. We do not merely say that their gross improbability far outweighs the testimony which is offered in their favour, but that they are impossible because they are opposed to incontrovertible facts.

Now observe, Medicine is not an exact science. It is concerned with probable truths.

Our business is to minister to the cure of disease, to the repair of injury, and so to prolong life, and to render it as useful and as agreeable as possible—to prevent or remove or mitigate the ills that flesh is heir to. We are therefore immediately concerned with the nature and treatment of disease.

But the nature of disease for the most part, often during life, and sometimes even after death, is doubtful. The diagnosis of a particular case, or the determination of the disease which exists, is very often only more or less probable. Perhaps indeed it seldom happens that one can be absolutely certain beforehand, beyond all doubt or question, of the nature of the disease

which actually exists, although we may in the great majority of cases, from the weight of probable evidence, make our diagnosis a moral certainty, and therefore amply sufficient for all practical purposes.

So also the treatment of disease is for the most part doubtful, for the remedies we employ are in their action more or less uncertain. Some are very equivocal, others almost sure; but, on the whole, when skilfully prescribed, it is highly probable that many of them will act in the way anticipated.

I cannot think less of Medicine as a study because it is not an exact science. On the contrary, if it were, it would, for me at least, lose much of its present interest. We are very often told that Medicine is, at the best, an uncertain science, obscure in its principles, and doubtful in its practice. Difficult enough we know; but is the reproach of its difficulties to fall on those who have to grapple with them? Uncertain! Granted that, for the most part, we have to do with probabilities only—nay, sometimes, it may be, with mere conjecture. But who does not every day of his life depend on probabilities and act upon conjecture? Probability, as Butler says, is the very guide of life. In Medicine, as in the daily occurrences of life, probabilities vary from moral certainties to possible contingencies.

It seems hardly reasonable when for disease or pain the aid of Medicine is sought, to complain that the means employed for relief or cure are rather uncertain in their action, or somewhat doubtfully

selected; that, after all, recovery cannot be secured, but is, by the aid of Medicine, only rendered highly probable, or at least more so than before. I say it seems hardly reasonable to urge this objection when every day and all day long we stake our very lives, nay, what we cherish more and hold dearer than our lives, upon probabilities—when the most momentous issues in the world are fearlessly and confidently based upon probabilities. But it may be said that the question of probability is a very wide one, from almost absolute certainty to the merest chance. But in this regard I contend that the art of Medicine, in the hands of a skilful practitioner, stands well; and, moreover, while unfortunately it often happens that the prospect of being able to do much good is very doubtful, it fortunately very seldom happens that we need run much risk of doing mischief.

But, again, out of this arise many interesting and some important considerations.

Doctors differ—because they are men and have to do with probable evidence. I do not think you will call upon me for illustrations of this.

Although it is not difficult to express to others, who have not been educated on the subject, any conclusion or opinion we may have formed on the nature of a case, it is often by no means easy to explain to them the grounds upon which such opinion is based. Thus courts of law are too often not courts of justice in regard to medical evidence, nor, I think, can they be so long as their business is conducted as at present.

Quackery greedily feeds upon our doubts and differences; but on this subject there is time now only to remark that its prevalence is a proof how little the difficulties and requirements of the healing art are appreciated by those who have not studied it.

The uncertainty of Medicine is too often employed as a shelter for ignorance. The plea is often urged by those who know very little about it, for not knowing more. They affect to doubt what they will not be at the pains to investigate.

But considerations more important than these press on us.

It is because Medicine is not an exact science that the man of observation and experience in the practice of his art has so enormous an advantage over others, and why it is that he knows so much more than he can teach; for although he cannot arrange his knowledge into aphorisms, or induce general principles from his collection of facts, he can apply it with skill to the investigation and conduct of individual cases. He has learnt how to hit; he can only teach you how to aim. Professional skill cannot be transmitted from one to another. It can be gained only in one way and in one place—by work at the bedside. Let me put this before you in the words of one of the great masters of Medicine, who worked and taught in this hospital—aye, and teaches still, for his spirit and example animate his pupils now. “In entering this place,” says Dr. Latham, “even this vast hospital, where there is many a significant, many a

wonderful thing, you shall take me along with you, and I will be your guide. But it is by your own eyes, and your own minds, and (I may add) by your own hearts, that you must observe, and learn, and profit. I can only point to the objects, and have little more to say than 'See here, and see there.' "

But then this word "experience" is very loosely employed. Much is called experience which deserves a very different title. Experience is not to be confounded with opportunity. It comes of the use which has been made of the opportunity. "This word in its strict sense," says Whately, "applies to what has occurred within a person's own knowledge." We must be very sure about the knowledge we assume.

Much, very much useful knowledge, we may, however, acquire from others, although its value will bear no comparison with what we work out for ourselves. But then we have this advantage, that testimony or teaching may be accepted conditionally until tried by our own experience. In the reception of facts upon the testimony of others we are influenced by the authority upon which it is supported. Facts, of course, vary in their weight, and in proportion to this should the evidence upon which they rest be ample and secure. Still more critically should the evidence of a fact be examined if it is to be the foundation of an important conclusion. Facts must be honestly collected and thoroughly established before any attempt is made to induce from them general principles.

But there is mischief in the other direction. I allude to rashness in experimenting in ignorance or disregard of evidence already existing. The present period of our professional history is remarkable for the many novelties which are being continually proposed and practised in the treatment of disease and injury. One is almost bewildered by the multitude of new plans and schemes which are being daily brought before his notice. Have you seen this?—have you tried that? are questions perpetually put to us. What are you to do? One thing is clear: you cannot try every thing which is proposed, even if you had nothing else to think of. But if you do not, you are told you can know nothing about it, and are wantonly missing a grand opportunity of advancing a splendid plan of treatment. You attempt to reason on the subject, and to apply to it the test of general principles. But you are answered that these are all very well in their way, but not conclusively established, and that the only means in this stage of progress of determining the value of the novel scheme is to try it. Now against this dogma I am anxious to protest. If time were illimitable, and human beings nothing better than frogs, the course thus urged upon you might be a plausible one. But as it is impracticable, from want of time, to try every thing, even if you were so disposed, you are compelled to choose between what you deem worthy of examination, or

experimental investigation, and the rest. And I contend that we are not justified in the practice of any measure—unless it be upon ourselves—in which there is not reasonable probability of doing good, or at least ample security against the risk of doing mischief. But how are you to tell that till you try? Why you must use your judgment, which has been educated for the purpose, in the matter. Your knowledge, strengthened by your previous experience, must be your guide in enabling you to decide what to attempt and what to decline. Surely never was there greater need than now, in these days of sensation, of what has been called “dry light.”

There is, of course, the opposite extreme of growing jealous of any disturbance of our ideas, which, like wine, are apt to be cherished according to their age, and so of becoming unduly prejudiced against what is likely to upset them. But we are most prone to begin life with the first error, and to end it, if it become long enough, with the last. This is due, amongst other causes, no doubt partly to temperament, but partly, I suppose, to the fact that as we get older there grows up in us a gradually increasing distrust of novelties, because it has been our fate to witness the premature collapse of the great majority of those which, for a time, were fashionable. Wise and honest men will avoid either of these extremes, like skilful pilots, steering safely between the rocks.

This shows the necessity, not only of as much professional knowledge as can be acquired, but of the most careful mental training.

Some of the legislators on the all-important subject of education seem to think that its sole purpose is the acquisition of knowledge. With much complacency they lay it down that this is to be studied, and that is not; that so much of this is to be learnt, and the rest need not be attempted; that this is useful, and that is not, according to their own ideas of the application of knowledge to what they call practical purposes. These practical men do not appear to see that the mere acquisition of knowledge is, perhaps, the lowest use of education. They do not appear to recognize any higher purpose. Why the word itself forcibly proclaims its great design, that it is to be the means by which the intellect is led out or trained and cultivated. Just as well might it be said that the sole advantage we derive from the years we have lived is experience of worldly affairs, and take no heed of the moral discipline which is the priceless legacy of past hopes and fears, joys and sorrows, regrets and resolves, and the cares which cling to us as the very shadows of our minds; as well might we ignore all this influence as regard education only in the sense of so much information acquired, and take no account of the culture of the intellect, which is its final purpose, and should be its chief aim.

Every one will recognize a twofold purpose in

education, but while the acquisition of knowledge is every where insisted on, the culture of the mind has attracted little attention. The one is anxiously inquired into, the other practically ignored. What we learn and know is important enough. What we are or may become is far more important still.

Let me ask your attention then for a few moments to the influence of education from this point of view.

The mind—understanding by that the sum of the intellectual faculties simply—is the function of the brain. Whatever opinions may be entertained respecting the relation of mind to brain, it seems to me that we are not only justified, but reasonably compelled, to regard the intellectual powers, or the mind as expressing their sum, as the function of the brain. At all events, express it as you will, the relation of function to structure is the same here as elsewhere, and subject to the same laws. There is the same dependence of one upon the other; the same effects are produced by rest and exercise—exercise here, as elsewhere, is essential to health and strength. And here, as elsewhere, we have to inquire what kind of exercise is best. Are our muscles better worth cultivating than our brains?

When a man is in training for some athletic performance, all this is carefully considered. It is not merely that he is made strong, and active, and enduring, but these qualities are developed in a definite direction, according to the task before him. He exercises especially this or that particular set

of muscles, to run, or pull, or fight. But if the purpose be, not the performance of some particular feat, but the due and equal development of every part, the training must be directed accordingly—strong muscles must not be neglected, but especial attention must be given to weak ones, the aim being the perfection of physical strength and vigour.

Now, the brain can be trained like the muscles, and will answer to the call in a similar manner. There is overwhelming evidence of this. See what comes of especial training in one particular direction.

Have you ever watched, for instance, an experienced clerk casting up accounts? Why, the sum is told before there appears to have been time even to glance at the figures. This comes of practice; but if it were not such a matter of common observation, the world would stare and call it genius. But look where you will, you find quite as strong, though not perhaps to a superficial view such striking, illustration of the same result. Do you think that the constant study of complex problems brings no facility of solution? Do you doubt that the judgment is strengthened by use? Do you deny that the imagination is heightened by exertion?

Men differ by nature in mind as in body. But I submit that mental, like manual, work depends more upon education than original conformation. Hands differ; but works of art are the result rather of ac-

quired skill than of natural dexterity. Brains differ ; but natural ability, however great, must be well trained in order to do good work.

Now for the practical application of this.

If a man's future occupation in life is one which will make an especial demand upon a particular faculty, no doubt the best way of preparing for that pursuit will be by the especial exercise of that faculty. Indeed, as he pursues his occupation, the particular faculty in demand will become developed by exercise beyond the others. Thus practice makes perfect. He, therefore, succeeds best in what he has to do who yields to the demand and embraces every opportunity of cultivating this or that particular power. Thus it may be the cultivation of the memory, or of the imagination, or of the judgment, or simply of observation till it becomes most rapid and accurate, or the power of abstraction in spite of disturbing influences, the power of concentrating for a time the attention upon any single subject to the exclusion of all others.

And thus, gentlemen, we should train ourselves for the duties of our profession. What is the nature and extent of the demand which it makes upon us? Observe that it is distinguished as an intellectual pursuit by this : that while it makes no excessive demand upon any one faculty in particular, it calls for a due and almost equal cultivation of them all.

I could hardly name any faculty which, for the purposes of our profession, should be prominent

beyond the rest. I am sure I could not name one the due force of which could be well spared. Therefore I submit that the education which will best adapt us for the duties of the profession is one which will train and develop fairly and harmoniously all the faculties of the mind—one in which especial care is bestowed upon the culture of those which appear to be deficient: not to assume, for example, that where the memory appears bad there is a want of it; but to use the deficiency only as a hint to exercise the memory especially, until at least it reaches to a fair level. In such training, also, all extravagances should be duly repressed. All tendency to exaggeration in observation or laxity in deduction should be avoided. We especially should be on our guard against the development of all mental eccentricities. Shortly it may be said that the aim should be rather to remove defects than to cultivate excellences. While natural tastes are not to be repressed, all distastes are to be overcome.

And herein lies, I think, the great advantage of Medicine as an intellectual pursuit. It at once demands and gives full scope and opportunity for the cultivation of many and various faculties of the mind, and involves the neglect of none. It would be difficult to conceive a more healthy intellectual training than a professional education fairly carried out. For surely it is most desirable to possess, as far as possible, an evenly-balanced, well-proportioned mind—one in which the faculties are thoroughly developed

and harmoniously adjusted, no one being unduly above or below the rest; where the mental eye, to borrow a happy figure, is achromatic. A mind, otherwise weak, but with some one faculty extraordinarily developed, may accomplish great intellectual feats which may evoke the admiration or command the gratitude of men, just as a monstrous limb or muscle may accomplish feats of strength which astonish the multitude and make the achievement famous. But in either case there is really deformity—not the perfection of nature.

I suppose there is no such thing as an altogether healthy, perfect, and complete mind. As the Country Parson says, we are all, more or less, "screws." There is always some excess or deficiency or twist somewhere. But, as he says, just as very few horses are altogether sound, as very much—practically, all that is required—may by judicious driving be got out of those which are in some way unsound, so the faculties of average men, if properly managed, may serve to accomplish all the purposes to which they need to be put.

For observe, that not only are the intellectual faculties strengthened by exercise, but by constant practice is acquired the ability of bringing them at any time into instant and efficient action, even under circumstances of difficulty, or in spite of disturbing influences which are apt to throw them into confusion when not well drilled and disciplined.

We all know how hard it is to learn or think in the

midst of distracting circumstances, how much study and meditation are assisted by quiet and solitude, how one train of ideas will obstruct another, how objects of sense oppose concentration of thought. I suppose it is an open question whether we should have had the *Principia*, had barrel-organs become peripatetic in the time of Newton; and perhaps it is not too much to say that the greatest poem in our language we owe in part to one of the heaviest of human afflictions, for surely in some measure to the blindness of Milton was due the sublimity of his song:

So, gentlemen, he who would do justice to himself and his profession must, as a student, cultivate with all zeal and diligence those sciences upon which the practice of our profession is founded, those sciences which investigate the phenomena of life, the laws of health, the causes and effects of disease: I mean the natural sciences—anatomy, chemistry, physiology, and pathology. A certain amount of knowledge of these subjects, you all know, is necessary to every one; but beyond this, these should be studied because they are eminently adapted to exercise the mental powers, to train the mind for the active duties of the profession. A certain amount of each must be learnt as a matter of necessity, but they should be studied in a very different spirit from this. I believe the time you spend upon them will be repaid tenfold by the comparative facility with which you will afterwards grasp the phenomena of disease, by the greater skill with which you will observe, interpret, and amend.

And there is another reason, akin to this, why I would urge you to acquire some knowledge of the natural sciences. I am fully aware that you will have neither time nor opportunity to investigate them thoroughly; but if you only do justice to them as a means to the great end you have in view, you will learn enough of them, of their principles, to give you an insight into the works of nature that will augment in no small measure the enjoyment they afford. Surely knowledge here is not power only, but exquisite pleasure. The study for a while of the works of nature in their perfection is not only the happiest introduction to that which must be the study of your life—the causes which frustrate her designs in the last and noblest of them, and the means by which the operation of those causes may be averted or overcome,—but, as our days run out in constant association with pain and disease, we shall find, I think, in occasional excursions in these attractive paths most wholesome and befitting recreation for our moral not less than for our intellectual nature. Such pleasures should complement our duties in making us wiser and better men.

These must be studied because Medicine is not an exact science. We are constantly falling back upon general principles which are established by means of these sciences, and which therefore cannot be understood by one who is ignorant of them. This is the difference between rational practice and empiricism. With the scientific man empiricism is a last resource.

The unscientific man has no other resource whatever. When one is at his worst, he is on a level with the other at his best.

These should be studied with increasing labour, I believe, because Medicine in the future, even more than in the past, will depend upon its association with the natural sciences. Living upon them, it will grow and flourish; cut off from them, it must degenerate and decay.

I do not care to discuss at length the position which Medicine may be entitled to hold amongst the sciences, but I speak with pleasure of the progress which it has made during the last few years—progress far and sure, although not altogether obvious to outside observation. For the nature of this progress is not in the discovery of empirical formulæ for the cure of particular maladies, but in the enunciation of general principles, which can be applied, not only to the management, but to the prevention of disease.

The cause of this progress is to be found in the cultivation of the sciences upon which rational Medicine is founded. It were pitiable not to acknowledge freely all that has been done for us by labourers in the field of natural science. The physician and pathologist, aye, and the student of human physiology, might have been baffled for ever by the intricacy of the problems they attempted to solve, had not streams of light poured in from the sciences which must always be associated with theirs. Yes; in proportion as we appreciate all that has been done by

physics, chemistry, vegetable and animal physiology, in the investigation of life and the conditions of health, so shall we learn to understand the principles by which we must contend against disease, and struggle to avert death. Think for a moment of the past, clinging, in the midst of the thick darkness which enshrouded it, to the mystery of a vital principle, and dreaming of diseases as ghostly entities seeking to enter in and to destroy. Contrast this age of thought with that which prevails amongst us now—with the great idea of the unity and transformation of force, beautiful in its simplicity, sublime in its amplitude, though as yet only revealed to us by glimpses. Compare the past with the present doctrine that diseases are abnormal modes of action, and that in perversion of force and change of structure or composition is to be found the key to the interpretation of their phenomena.

In no spirit of depreciation of the labours of the past are its dogmas thus held up to set forth the achievements of the present day, but with the simple desire, not only to illustrate the progress which has been made, and to justify the expectation that yet greater triumphs are in store for the future, but to indicate the way in which the work must be carried on. This, I submit, is not by the student of medicine isolating himself in his vocation from the labours of others by taking pathology as the starting-point of his clinical pursuits; but rising, first of all, to the vantage-ground which the natural sciences offer, he

will, and can thus only, set forth with a clear and comprehensive idea of the direction in which he should proceed.

But whatever the subject of our studies may be, it behoves us to distinguish clearly, and to appreciate early the distinction, between learning and grinding. The phrase *grinding* is an expressive one. Many a man grinds, or is ground, without having any idea of the process to which he is submitting himself, being under the delusion that he is learning all the while. I do not know whether it be possible to learn any thing from a grinder, but I know that you may grind, if you do not look to it, in any school or college. Grinding is to study what empiricism is to practice—cramming by rote or prescribing by routine, without knowing or inquiring after the why or the wherefore. The difference between grinding and learning is the difference between what is counterfeit and what is real. In the currency of knowledge, a grinder is an utterer of base coin. The true and legitimate object of study is not to cram by rote a few dogmas for an examination, or even to inform oneself of conclusions merely, however just and sound they may be; but to learn fairly is to ascertain the facts or to follow the reasons upon which such conclusions are based—in a word, to work intelligently instead of mechanically. Nor, after all, does this involve so much additional labour as it may appear to do at first sight, for what is thus accomplished is done once for all, and to good purpose. It is not

likely to be forgotten, because it is too deeply engraven on the memory to be worn off easily. On the contrary, second-hand information very soon wears out, perhaps the sooner the better, and provided it lasts until examinations are passed, its purpose is fulfilled; but in the end it is not worth the trouble it costs.

But even if we put grinding out of the question, it is of the first importance that we should bestow pains upon the mode in which we acquire knowledge. If the chief aim and end of study is not knowledge merely, but rather wisdom,—if by study, apart from the information gained, the mind is developed and disciplined,—it cannot be a matter of indifference how the process is carried out. Books, for instance, are good or bad in more senses than one. A volume may be full of information, and yet far inferior to one that contains much less. For the great value of a book to the student depends on the manner in which its subject is treated—upon the style in which its lines of thought are carried out—in a word, upon the way in which the matter is handled by the author and presented to the reader. This is the merit which makes some of the works of our great masters classical.

But what is true of books, which I have mentioned here merely by way of illustration, is at least equally true of the knowledge for which you will not depend on others, but which you will acquire for yourself. To learn how to learn is a great study in itself, and

if you give your mind to it, you will get something more and better than knowledge out of your work, whether it be in the theatre, dissecting-rooms, or wards.

For the same reason, if you aspire to original work, let it be of as high an order as possible. All work, even all honest work, does not, you know, reach to the same level. There is high and low art in medicine and surgery, and high and low science too. Nevertheless, all work, whether high or low, so long as it is honest work, tells. The worker is usefully employed while his heart is in his work; unworthily engaged when his thoughts turn upon himself; still worse when he begins to calculate what can be made out of it, for it then degenerates into advertisement. Many of you will not perhaps have much time or opportunity hereafter to devote to science, but you will spend your lives in the practice of your art, and it is not unreasonable to hope that in the course of years you may work out of it something worth telling to others. We have, you know, begun to issue a yearly volume of Hospital Reports, depending on the contributions of former pupils of our school.

Out of the nature of the science and art with which we have to do arises this, that our work in it can never become a matter of mere routine. The relation between cause and effect is oftentimes so indefinite, the disturbing influences which intervene are so numerous and various, that each case becomes

a study in itself. It has been said of injuries and of certain diseases that they are especially interesting, because no two cases are exactly alike. But this may be said most truly of all diseases. No two are ever precisely alike. Groups of diseases, like leaves on a tree, are connected closely by strong family features, but like leaves, each individual case has peculiarities of its own which mark it from every other. Nature seems to avoid mere repetition in her modes of action as in her creations, and you will find, if you look far enough, that diseases will vary as your patients' faces. There is, therefore, something to learn from every case, if you will only seek for it. You have not done enough when you have determined its nature and treatment. Look farther still, and see what else can be made out of it. When a man ceases to be a student of his profession, the sooner he ceases to practise it the better. I do not mean for a moment to imply that the investigation and management of every case are equally difficult—far from it; still less that one's previous experience should go for little or nothing. On the contrary, here, as much as any where, practice, and practice only, can make perfect. But what I would warn you against—no matter what your ability, accomplishments, or skill may be—is this, carelessness by the bedside of a patient. Make it a rule, to be broken as seldom as possible—for in spite of all your resolution it will be broken too often,—but make it a rule either to examine a case thoroughly, or to leave

it alone entirely. Get into the habit of making each case while actually before you of paramount importance. Haste, or hurry, or the suspicion of indifference, is an insult to your patient, and an offence against the profession. We can never have an excuse for doing less than our very best. We may hear too much of skill and experience. We cannot see too much of care and pains.

I really believe that a large proportion of the blunders we make in practice arise simply from want of care and pains, from heedless observation and slovenly investigation. Indolence and dislike of trouble are so natural to our frail humanity, that it becomes necessary to keep a very jealous eye on the way in which we discharge our duties; to be forever enforcing the habit of leaving nothing undone that we can by any possibility do; to have continually before us the precept, "Whatsoever thy hand findeth to do, do it with thy might."

Success in practice depends on painstaking—on a careful and complete examination of a case, leaving no means of investigation untried, omitting no scrutiny which might by any possibility throw a single additional ray of light upon the nature of the case. This is the point on which one man so often excels another. In practice the difference between different men is greater in this respect than in any other. One man detects something which another has overlooked, because he has more carefully sought for it. He does that which some one else has left

undone. He advances a step farther in the inquiry, and thereby, perhaps, makes a discovery which another has missed, or elicits some additional fact which it had not been thought worth while previously to bring out. New light is thrown upon the case. Its nature becomes more clearly revealed, and a more prosperous plan of treatment is pursued. The best result of this is that the patient recovers. The worst result is that, perhaps, some one is annoyed, even a little disgusted with himself for the omission. If it had been a question of skill, perhaps he could submit; but his peace of mind is grievously disturbed to think that after all it was only a question of care and pains. It is often extremely difficult, or altogether impracticable to interpret facts aright. It is often very easy to ascertain them. You will often fail to diagnose: never fail to explore. Doctors, it is true, differ in skill. It is true, also, that they differ very widely in the pains they bestow upon the investigation of cases.

I speak only of the faults of indolence—of those which are due to carelessness or negligence. I will not insult you by dwelling upon the absurdity—to use no sterner phrase—of pretence and affectation by the bedside, and all the contemptible tricks and blunders that come out of it. These, indeed, are “supreme shams.” Jumping at conclusions is always dangerous exercise—at the bedside especially so. There of all places he who affects to be a genius is very sure to play the fool. If any one is ever

tempted to exhibit his superiority over his fellows, to show how very clever he is, how much more he can see with one eye than other men with two, let him in the name of our common humanity seek some other arena for this display.

Gentlemen, do all we can, we shall not avoid falling into many errors—so many, that if we pay proper attention to them, and try to learn all that they can teach us, if we look well to our own, we shall have no time or disposition to dwell upon the shortcomings of others. If I were assured of any one here that it would never be his fate to make many and great mistakes, I should feel very sorry for him, for it would be very clear that he would never have much to do. No; labour as you will, infallibility is beyond your reach; but the more thoroughly you work, the less numerous and important will your failures be.

I wonder whether there is any one in this theatre who likes work—that is, who is fond of work as work, who is eager for work, not for the good it brings, but for the pleasure it gives. I doubt it. At all events, if it be not actually work itself, it is the sense of obligation involved in it which is irksome. Often, indeed, one does work with pleasure, as a matter of free choice, which forthwith becomes tiresome when it is made a matter of necessity. You will, I hope, by dint of energy and perseverance, become so accustomed to work as at length to persuade yourselves that you really enjoy it, or at all events infuse the pleasure of contemplating work

done into the earnestness with which you labour. No doubt some men work with far less effort than others. Some can set to work easily at any time; others are more conscious of having to exert themselves in order to begin. Much, too, of course depends on other temptations. It is easier to work when there is no disposition to be otherwise employed, and those who care least for what is called pleasure have in this respect a great advantage. But I take it for granted that hard work involves more or less effort in all, and that, as a rule—to which, however, there are splendid exceptions—men only work from necessity. It is chosen by most as the alternative to want.

I may assume, then, that the great majority of you are not passionately in love with work as work, but that being intelligent and rational—we all start with credit for this—and fully alive to the alternative, you have come hither to work, in order at least to learn a useful and honourable means of earning your livelihood.

Now, happily for all, the best work may be done in this way, for there exists no proportion between the facility with which men work and the result; nay, the work which is most difficult is, as the rule, the most successful. What is done with an effort—provided always that effort be thoroughly up to the mark—is worth doing; whereas one ought to be suspicious of labour which costs no pains.

If, then, we naturally shrink from work and avoid

effort, which is nevertheless necessary, it behoves us to adopt means by which the difficulty may be overcome. We dare not trust our inclination in the matter, but we have a will, and this must make a way. We must resolve, and from first to last carry out the resolution, that, come what may, while health and strength are ours, a certain portion of our time shall be devoted to work: I mean a certain fixed portion, with which nothing must interfere. We dare not trust to ourselves to rise each day and determine to work so much or so little as we feel inclined. If we do this, our work will be in danger of becoming very small, and not by slow degrees; but we must forthwith arrange our time and carry out the arrangement. I would strongly recommend this plan to you. Take the hours of a day, and allot them to work, recreation, food, and sleep. And, in so doing, don't draw up a scheme of martyrdom which may be contemplated with equanimity or pride, but in attempting to carry out which you will break down in a week; but begin moderately, and, if you will, put on additional pressure as you go. Don't take it all out of yourselves at starting, for the course is a long one, and almost all the way up-hill.

Now the orderly plan upon which the business of the hospital and school is arranged will greatly assist you in constructing and carrying out this scheme. I will venture to advise you to try it for this winter session, and I think when it closes you

will approve of the result. I know it will relieve a conscientious man of much care and anxiety. He will not be continually disturbed by the suspicion that he is not spending his time faithfully. Every holiday or pleasure will not be marred by the reflection that it is stolen from work. But so long as the time which has been deliberately and beforehand allotted to work is not encroached on, he will feel that he is entitled to, that he has earned the recreation, and the enjoyment of it will be unalloyed. I believe this to be the easiest way of working. I am sure it is the most satisfactory. I think it is the best.

There are some, in truth I hope there are many, especially among those who are here for the first time, who will regard this view of work and duty as a low one. I hope there are many who enter the profession with exalted and just ideas of its duties and its aims. I trust there are many who look forward to its studies with delight and enthusiasm, and who are resolved to practise it in a spirit superior to any sordid or selfish motive. Be it so. Cherish that spirit, cultivate those ideas by all means. Well and happy will it be for you if they stand the wear and tear of your professional life. They may do so. They ought to do so. But it were only candid to admit that you will meet with much to distort or even to efface them. And this, too, from some who ought to know better. You will find there are men slow to give you credit

for lofty motives. They will call your ideas, which are above their own, mere sentiment—a dreadful term of reproach among men of the world; and taking your measure by their own standard, will tell you that as you grow older you will get wiser, and come to think less of fame and more of fees. It is painful, very painful, when we are young, to have good or high motives called in question. It is most painful to have our idol pulled rudely down or desecrated by a vulgar touch. Resist these ignoble influences. Have faith in your profession, and be true to it.

But this is danger from without. There is greater danger from within. Work, for such a good purpose, from its novelty, may be enticing at first; but it is too apt, as time goes on, to degenerate into mere drudgery. It seems, day by day, to tell so little. As week after week passes by, there is so little to show for it. There is so much of the same thing over and over again, and the reward seems so distant, that weariness grows upon us, and we are apt to fall by the way. Then comes the struggle. Temptations allure us on all sides. Specious arguments from others or from oneself, of the disproportion of the labour to the reward, of the inability of merit to ensure success, are more and more readily listened to. At last it is allowed that it is not worth while to go on, and so one gives way. Or it may be that there is not even this struggle with conscience; but, without a glance at

the future, one surrenders without discretion to the temptations around him.

Now I believe the best practical safeguard, at least for all ordinary men, against this loss to be in the rigid adoption of the plan I have proposed: to divide your time into fair proportions; to give a due but not excessive portion of it to work; and to resolve that, from first to last, nothing under your control shall interfere with that. Suspend your judgment of the result until the session closes, and then, if you can conclude that it has not answered your expectation, you will be at liberty and better able to devise an entirely new and original one for the future. But I am so assured that it will answer, that I could almost wish you were not at liberty to adopt any other now. It will afford a sense of security to the industrious. It will save a man prone to be indolent from the most irreparable of all losses, the loss of time.

Gentlemen, I could not venture to recommend this plan to you so confidently if it were my own, or in any sense new or original; but I know that it has been thoroughly tested. It has answered well amongst us from the time of Alfred the Great.

And for the rest, working thus fairly and honestly, have faith in the future. "Whatsoever a man soweth, that shall he also reap." "Do men gather grapes of thorns, or figs of thistles?" But sow diligently, and you shall reap bountifully.

One word more in this direction, and I have done.

Have you fairly considered and are you fully informed of the engagements you have made in entering this school and hospital? Can it be possible that any one, in extreme carelessness, has omitted to recognize the great moral obligation by which he is bound? A student of any school has, of course, a perfect right to look to its teachers for sufficient instruction. He has an unquestionable right to expect that a full and free opportunity will be afforded him of learning his profession, and every student is morally bound to make good use of the advantages which are offered him. But the obligations of a student of St. Bartholomew's are by no means thus defined. We are all proud, but not so proud as jealous, of the prestige of our noble hospital. By adoption you will inherit your share of this. You cannot perhaps appreciate its full value now, but it will be your own fault if you do not hereafter. Yes, gentlemen, we may speak becomingly of the reputation of our hospital, for it was made before we were. If it cannot be our privilege to advance it, it is our duty to take care that it does not suffer at our hands. This is the great trust we have accepted, and which we are bound by every sense of duty and of honour not to betray. Here it is not enough to be carried passively on, to avoid failure and disgrace, but we must be active in our generation, not, if we can help it, passing by without adding something, though small it may be, to the store; so, like pilgrims on their way, we shall leave some memorial at the shrine

of our saint. But failure and disgrace—I am ashamed to mention these. That man would indeed raise but a mean standard of work who thought of nothing beyond getting through his examinations. But if any one of you should fail in the performance of duty, you involve not yourself alone, but the whole school, in the disgrace. Yes, every student who has ever gone wrong has cast a blot upon some page of the history of his hospital, and it is our pride that our past pages have been but seldom soiled. Examinations are not your goal, gentlemen; they are only turnpikes in your professional path. Beyond them lies the great field for your exertion—active practice; and remember ever, that, go where each man may, he never ceases to be one of us. Let him in every moment of professional trial think of his school and of the men who have adorned it; let him think of those who have worked with him, and who can never cease to feel an interest in his welfare. It would indeed be a narrow and partial view of our institution to regard it as bounded by these walls around us. St. Bartholomew's Hospital is to be found every where, and we rejoice to know that its name and fame are not more jealously guarded and tenderly cherished here than in the provinces and our colonies. We rejoice and are proud as we recall those who represent us elsewhere. What a roll of names I might unfold to you; and in what honourable because responsible positions our men are to be found. Thus, gentlemen, you must weigh your

responsibility—thus you must take the measure of your duty. Pray let no one think of himself as here for three or four years only, to get what he may, and leave undone what he will, as a matter which concerns none but himself. It cannot be so. St. Bartholomew's will henceforth be written against your name. Be worthy of it.

Be not unworthy of the profession you have chosen. As you now stand upon the threshold of it, let me ask you these questions. Are you content to move on without looking forward and upward; or are you ambitious of excellence? Do you enter the profession merely as a means of earning an honest and honourable livelihood, or have you been attracted to it by the charm which is to be found in its studies and pursuits?

Every profession has great advantages and some objections. Every profession has its enthusiasts and its slaves. But it has always appeared to me that ours is especially distinguished by this: it scarcely admits of a third class—of indifference in those who practise it. One can hardly hold a middle place in it. He must be either attracted or repelled. What has been said of science may be, I think, emphatically said of our profession. She is a jealous mistress, tolerant of no rival, but claiming entire devotion. As you approach her, so will she receive you. Sordid motives, doubtful intentions, she will repay only with contempt; but she will welcome warmly him who comes to her with honesty of purpose and singleness of heart.

I have seen somewhere a picture which represented an ample room by night with several beds in it, each containing a sick person. Most of these were restless, while here and there an eager countenance bespoke some pressing want. In the midst of them, moving down the room as lightly as an angel, bearing in one hand a lamp which she carefully shaded with the other, was seen the familiar figure of a woman. Her dress was plain and very simple. There was no sign of rank or suggestion of wealth about the lady, but she was beautiful, and her eyes, as the light fell on them, were bright with truth. Her mission was not doubtful. She was on an errand of love and mercy, and every face in its wretchedness was turned trustingly to her. Such, I said to myself as I looked upon the figure—such a symbol should be chosen for the profession of Medicine.

THE END.