

On medical education : being a lecture delivered at King's College, London, at the opening of the medical session 1846-7 : to which is added, a lecture delivered on the same occasion in the year 1842 / by William Augustus Guy.

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ON

MEDICAL EDUCATION:

BEING

A LECTURE

DELIVERED AT

KING'S COLLEGE, LONDON,

AT THE OPENING OF THE

MEDICAL SESSION 1846-7;

TO WHICH IS ADDED,

A LECTURE DELIVERED ON THE SAME OCCASION IN
THE YEAR 1842.

By WILLIAM AUGUSTUS GUY, M.B. CANTAB.;

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS;
PROFESSOR OF FORENSIC MEDICINE, KING'S COLLEGE;
PHYSICIAN TO KING'S COLLEGE HOSPITAL;
ETC. ETC.

LONDON:

HENRY RENSHAW, 356, STRAND.

1846.



ON
MEDICAL EDUCATION:

A PRACTICAL

KING'S COLLEGE LONDON

MEDICAL SESSION 1867

TO WHICH IS ADDED

A LECTURE DELIVERED ON THE SAME OCCASION IN

THE YEAR 1867

BY WILLIAM AUGUSTUS GUY M.D. F.R.S.

LECTURE ON THE MEDICAL EDUCATION OF THE FUTURE
DELIVERED AT THE ANNUAL MEETING OF THE MEDICAL SOCIETY OF LONDON
ON THE 10TH OF JANUARY 1867

LONDON :

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ADVERTISEMENT.

SOME hesitation would have been felt in publishing the first of these Lectures, had it not been for the encouragement of those whose wishes the Author is bound to respect. Though some of the opinions expressed are directly opposed to the usages and sentiments of the most influential members of society, the general tendency of the Lecture was thought to be favourable to the cause of rational education. The vindication of scientific and medical studies from the suspicions and accusations to which they have been so long exposed, the assertion of the claim of natural and experimental science to form a part of every scheme of education, and the extension of the Collegiate System to the Students of Medicine, are the topics which have the greatest present interest and importance.

A Second Lecture, delivered on the occasion of the opening of the Medical Session of 1842, and touching upon the same topics, is added. It was published in the "Provincial, Medical, and Surgical Journal," but, with the exception of a small number of copies struck off at the time, has not appeared in a separate form.

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LECTURE

DELIVERED AT

THE OPENING OF THE MEDICAL SESSION,

OCTOBER, 1846.

GENTLEMEN,

FOUR years only have elapsed since it fell to my lot to discharge the duty which this day, in virtue of the office I have the honour to hold for the year, again devolves upon me; and thus, a second time, and much earlier than I could reasonably have expected, I have the great pleasure, as the representative of the Medical Professors, and I trust I may add, of the Rev. the Principal, and the Authorities of this College, of offering a hearty welcome to those who are about either to commence or to renew their medical studies within these walls.

The custom of opening the Medical Session by a General Introductory Lecture is recommended by many considerations; and where, as in this place, one of the Professors is annually appointed, under the title of Dean of the Medical Department, to afford every instruction and assistance in his power, in writing and by personal attendance, to parents and pupils anxious for information, there is an obvious propriety in placing the performance of this duty in his hands.

The duties which devolve upon the Dean of the Medical Department naturally suggest the topics of the present discourse. Those duties bring him into communication, either

written or personal, with the parent on the one hand, and the pupil on the other; or with the practitioner, who is about to consign to new teachers one who has become scarcely less an object of interest and anxiety to him, than if he had stood towards him in a nearer and dearer relationship.

It is impossible not to sympathise with those who are about to take, for themselves or others, so important a step as the choice of a place of education, where so interesting a period of life must be spent, knowledge of such surpassing value acquired, and habits of such enduring effect for good or evil formed. It would afford me great satisfaction to be able to remove the anxiety or dispel the doubts which may assail any of the parties to whom I have referred; I shall, therefore, devote the greater part of this Lecture to considerations which seem best adapted to this purpose, and shall crave the indulgence of the rest of my audience, if, with this view, I address myself more especially to the junior students.

It is difficult to imagine a position of greater perplexity than that of the young medical student on his first arrival in London. In the short space of a few hours he has been transferred from familiar scenes and faces, to a city of strange places and strange persons; he has (at least in many cases) exchanged the quiet of the country for the noisy confusion of the largest city in the world; the society of home, and the pleasant intercourse with a large circle of acquaintance, for the chilling solitude of a crowd of strangers. With words of warm affection and kind encouragement still sounding in his ears, and looks of anxious sympathy still present to his eye, he encounters at every step the blank expression of indifference. An overwhelming feeling of isolation comes over him, and, for the first time perhaps in his life, he feels himself really alone.

The College is as new to him as the town; and though he derives some little comfort from mingling with those whose occupations are similar to his own, and from among whom he will soon select his friends and companions, the same sense of solitude clings to him and oppresses him. The studies, too, of the next three or four years wear the same strange

aspect, and he is perplexed by their variety and alarmed at their extent.

But I would fain believe that such feelings of depression are not unmixed with hope, or unchecked by manly resolution; that a spirit far removed from vain presumption, and chastened by an ever-present sense of duty, will lead him to seek in an immediate and steady application to his studies for that relief which it is the peculiar privilege of industry to bestow.

The same industry which will form his best and safest resort in the first moments of depression, will, I sincerely hope, be his chosen and constant companion through the whole of his career. Without industry, without steady and persevering industry, he can do nothing. The work he has taken in hand is not merely the acquisition of a certain amount of theoretical knowledge; it is not merely a passing contest for distinction; it is not merely a hurried and superficial preparation for the Hall, the College, or the University; but it is the preparation for the duties of a life—for the daily work of a difficult, important, and responsible profession. The knowledge to be acquired is not for the purposes of show or the gratification of taste, but for practical application to the prevention and cure of disease, and the alleviation of human suffering.

For this great and good work you are about to prepare by industriously availing yourselves of the opportunities which the liberality and public spirit of the Council of this College have provided. They have supplied you with every facility for obtaining theoretical and practical knowledge; you, on your part, have only to turn these facilities and opportunities to account.

It will be my agreeable duty to tell you what these facilities and opportunities are; and, at the same time, to offer some suggestions as to the course of study which you should adopt, the order in which you will have to attend your several lectures, and the claims which they will respectively make upon your attention. I may thus hope to be instrumental in removing some of that perplexity which cannot fail

to attend the novel position in which you are placed, and to set you on a vantage-ground, whence you may survey the wide field open to the exercise of your industry.

In speaking of the facilities and opportunities provided for the medical student in this College, it is very far from my intention to exalt this School at the expense of any other place of medical education. It is not my object to institute comparisons, but simply to put you in possession of information which may be useful to you as strangers in this place.

One of the leading objects of the Professors, in recommending to the Council the appointment of a Dean of the Medical Department, was to provide at all times, but especially on the approach of the Winter Session, a source of information open to all who might be in doubt or difficulty as to the course which they ought to pursue; and I take this opportunity of stating, that, during my year of office, it will give me personally, as it has done my predecessors, great pleasure to be the means of conveying such information.

The Professors had the same object in view in the publication of a Hand-Book, which is this year superseded by the College Calendar. The student may consult this little volume with advantage, for much useful information relative to the courses of Lectures delivered in the College, as well as for the regulations and requirements of the several examining bodies; and I hope that many of our new-comers will have the satisfaction of seeing their names mentioned with honour in future editions, as prizemen, scholars, and associates.

Another and more important provision has been made for removing the perplexities and smoothing the early difficulties of the junior students, in the appointment of a Tutor. It will be his duty, and I am sure I may add, his pleasure, to assist them in their studies, to remove their early difficulties, to advise them as to their course of reading, to test the progress they are making, and to give them all the advantage of his own comparatively recent experience as one of the most industrious, intelligent, and successful pupils whom it has been our privilege to educate. In mentioning the name of Dr. George Johnson, I must remind you of the additional

claim which he has upon your respect as an original and most successful cultivator of that new field of observation opened out by the microscope; a claim, however, which he shares with others, to whom, in the early part of your career more especially, you will be under great obligations — I mean the Demonstrators of Anatomy, Messrs. Simon and Bowman.

I must not quit this subject of the Tutor without alluding to the testimony recently borne to the importance of his office by the endowment of a Tutorship, in one of our provincial schools, by a warm friend and liberal benefactor of this College, Dr. Warneford; nor can I deny myself the pleasure of adverting to the gratifying fact, that in this, as in the establishment of the collegiate system, King's College has taken the lead among the medical schools of England.

The Library and Museums, to which the student will have constant access, and where he will find ample provision for the prosecution of his studies in the intervals of his lectures, may be mentioned among the facilities which have been provided for him.

But the Lectures themselves will, of course, form the principal means of instruction; and they are constantly assuming additional importance, by being more and more largely illustrated by experiments, preparations, models, diagrams, and tables.

The increasing use of these tangible and visible objects is fast converting the unillustrated discourses of former times into demonstrations submitted to the most accurate and faithful of our senses—a change productive of the best effects, and tending to foster that practical spirit which is the glory of this country, and the best feature of these times.

But the facilities and opportunities of which I speak with most satisfaction are those arrangements for Practical Teaching which have been lately introduced into our leading schools and hospitals.

The first form which these arrangements took was that of the Dissecting-Room—the oldest practical school provided for the medical student; a school which has always been regarded, and justly, as of the very first importance, and which

it has been the constant care of our able Professor of Anatomy to maintain in a state of efficiency.

With this view our anatomical staff will, this year, be increased by the appointment of two Assistant Demonstrators, Messrs. Nunn and Brinton.

It is not a little remarkable that our dissecting-rooms should have been so long holding out an example of practical teaching, and of the immense benefits derived from it, and yet no attempts at imitation should have been made till a very recent period by a science to the full as much in need of practical facilities and appliances as anatomy—I mean chemistry.

At length, however, the necessity is fully felt, and the practical laboratory is becoming as essential a part of a school of medicine as the dissecting-room itself.

In this College it is now of some few years' standing, and the zeal of Dr. Miller has recently added another practical school, where the advanced student of the medical as of other professions, may prosecute a continued series of chemical inquiries under the immediate direction of the Demonstrator and Professor of Chemistry, and stimulated to exertion by the prize recently founded in honour of our late distinguished and lamented colleague, Professor Daniell.

Equal care has been taken to render the Hospital a place of practical teaching, by the frequent delivery of clinical lectures, by daily observations at the bed-side, and by increasing as much as possible the offices, by filling which the student may obtain a familiarity with the treatment of disease and the manipulations of surgery. These offices are conferred after due examination, and without entailing on the student additional expense.

I have thus briefly glanced at some of the facilities which have been placed within the reach of the student; and I now proceed with equal brevity to present him with a scheme of the Course of Study which he will have to follow, and to offer some suggestions for his guidance during the career upon which he is about to enter. And here I must again apologize to such of my audience as have passed the period of their pupilage, or who, for other reasons, are little interested in

the details of medical education. The importance which attaches to the first steps of a new career must plead my excuse, if I seem to spend too much time in an attempt to guide them aright.

I have already alluded to the practical character which the course of medical instruction is assuming in all the leading schools of medicine, as a subject of congratulation, and a change in harmony with the spirit of our times; and I would urge you to avail yourselves, throughout the whole of your career, of all the practical facilities and opportunities which fall in your way. To a regular attendance on lectures, and a diligent perusal of such authors as may be recommended by the several Professors, you should add the practical labours of the dissecting-room, the laboratory, and the wards of the hospital. Lectures and books are but preparations for these personal exercises and experiences, as these again are for the actual practice of your profession.

Before I present you with the promised sketch of the course of study which you will be required to follow, I must remind you of the necessity under which the pupil lies of possessing a competent knowledge of the Latin language. If he should be conscious of any deficiency in this respect, he should lose no time in repairing it, by giving a part of each day to the study of the authors selected by the examining bodies. I would insist upon this daily study of the Latin tongue as greatly to be preferred to an exclusive attention to it, with a view to an approaching examination. By postponing the necessary preparation in this, as in other branches of study, the pupil is led to depart from that regular and steady devotion to the proper labours of the time being, which is, on every ground, so much to be desired and commended.

In insisting upon a competent knowledge of the Latin language, I am very far from urging the medical pupil to sacrifice even the least important of his medical studies to the acquirement of a critical knowledge of this or of any other language; and I cannot but regret that the obsolete usages of some of our examining bodies should tend, as they do, to attach undue importance to Latin composition and conver-

sation. To the clergyman a critical and profound knowledge of the ancient languages, especially of the Greek and Hebrew, is of the first importance, as the business of interpretation forms an essential part of his sacred functions; but regulations which tempt and encourage the medical man to devote his time to the speaking of Latin, and the composition of Latin theses and orations, must be looked upon with grave suspicion, as a substitution of the letter of antiquated customs for the spirit which gave them birth.

The only safe test of custom is utility—not utility in the abstract, but utility at the time and in the place at which and in which such custom prevails. The use of Latin in conversation and composition will not bear this test. It is, at the least, a waste of time. Not so, however, with the modern languages, especially French and German. If the student feels that he has any time to devote to the learning of languages, over and above that which is necessary to enable him to read Latin authors with facility, he will have no reason to regret having spent that time in the acquisition of French or German. Those languages will be useful to him in more ways than one; and they will probably be found to yield a return in kind for any expense which they may have entailed. This consideration is not to be overlooked or despised in any comparison which we may institute between the dead and the living languages.

There is another acquirement of a very different kind, to which, if the student is conscious of any deficiency, he ought to devote some attention: I mean Arithmetic. When he comes to attend lectures on chemistry, he will find, that, without a somewhat more extensive knowledge of figures than is generally brought from our public schools, he will often be at a loss. He will be bewildered by equivalents and decimals and proportions, and grow disheartened as he becomes confused. A little attention and application will enable him to supply his deficiency in this respect. He will find, moreover, that the use of figures is not confined to the laboratory, but that it is becoming every day more and more imperative in every branch of knowledge which makes any pretensions to

accuracy, and in none more than in that department of medical science which aims at the prevention of disease and the preservation of health.

The efforts which the student may find it necessary to make to supply the deficiencies of his early education should, however, on no account, be allowed to interfere with the regular course of his strictly medical studies. These have the first claim upon his attention, and it is not till that claim is satisfied that he can safely turn to other pursuits.

It must, indeed, be confessed, that the programme of the studies which the medical pupil is bound by the authorities to pursue, is such as, at first sight, to inspire some degree of apprehension. It is the largest and most comprehensive scheme of education in existence; and it has this peculiarity, that the examination (I speak now chiefly of the Hall and College) which is to test the student's competency to practise his profession, takes place at one and the same time in all the subjects which have engaged his attention. It is obvious that so large an amount of knowledge is not to be acquired and retained without industry, method, and economy of time; and it is equally obvious, that, even if a certain rota were not distinctly prescribed by the examining bodies, it would be absolutely necessary to attend these several Courses of Lectures in some regular order.

What that order is it will scarcely be necessary that I should point out. It follows naturally from the relation which one subject bears to another. No one can safely undertake a surgical operation without a previous acquaintance with the structure and arrangement of the parts upon which he is about to operate. Hence the study of anatomy must precede that of surgery. So, also, before we can safely prescribe a remedy, we must understand both the minute structure and functions of the part affected by disease, and the properties of the substance we propose to employ. The study of the practice of medicine, therefore, must be preceded by that of physiology on the one hand, and of chemistry and botany on the other. Our medical curricula have been formed on this obvious principle. Accordingly, during the first

Winter Session, the student is directed to attend a course of lectures on anatomy, a second on physiology, and a third on chemistry. To these, if he proposes to limit his education to the period of three Winter and two Summer Sessions — the minimum prescribed by one of our examining bodies—he must add a course of lectures on *materia medica* and therapeutics.

But I would strongly urge upon the pupil the importance of extending his term of education to four years at the least. The advantage to be obtained is well worth the sacrifice of time, and he may rest assured that he will have no cause to regret the additional year devoted to his studies. Assuming that he has already determined upon this wise course, he will have, during his first Winter Session, to attend lectures on anatomy, physiology, and chemistry: and as soon as he has made himself acquainted with the rudiments of osteology, he will be prepared for the practical studies of the dissecting-room.

Such is the programme of his studies for the first Winter Session. During the first Summer Session he should attend a course of lectures on botany, and a course of practical manipulation in the chemical laboratory.

By following this course, he will find himself, at the end of his first year, in possession of a large amount of elementary knowledge. He will have made some progress in all the sciences which constitute the foundation of medical and surgical practice. This foundation he will proceed, in his second Winter Session, to widen and strengthen by attending a second course of anatomy and physiology, and by a diligent attendance in the dissecting-room. Chemistry and botany, which were studied in the previous Winter and Summer Sessions, will now find their joint application in the course of *materia medica* and therapeutics, and the student may enter with advantage on his attendance in the wards of the hospital.

In the second Summer Session he may attend a course of lectures on comparative anatomy; and, if he have not already practised pharmacy as an apprentice, he should

avail himself of the opportunities of practical instruction offered in the Dispensary of the Hospital.

With the second Winter Session the attendance on anatomy and physiology and the labours of the dissecting-room ought to terminate, and, if due diligence has been shewn, there is no doubt that a competent knowledge of both these subjects will have been obtained. The Council of the College of Surgeons has, however, thought otherwise, and prescribed a third course of anatomy and physiology. But for this regulation, the third Winter Session might be devoted exclusively to the lectures on the three practical sciences of medicine, surgery, and midwifery, and the practical pursuits of the hospital; and the third Summer Session to a course of forensic medicine. The fourth Winter Session may be spent in attending a second course of medicine and surgery; and this, as well as the remaining Summer Session, in that diligent attendance at the bed-side which is to form the immediate preparation for the responsible duties of the Profession.

My object in laying before you this brief outline of the course of study which you will be required, or may be recommended, to follow, is rather to remind you of the vast extent of your studies, than to furnish you with information which may be readily obtained from other sources. I deem it of the very first importance that you should realize thus early the amount of labour which you will be called upon to perform; that you should feel at the very outset that you have no time to lose; that you should resolve to give yourselves forthwith earnestly and steadily, with punctuality and perseverance, to the work you have taken in hand. As I have already stated, it has been the constant aim of the Professors and authorities of this College to provide you with every possible facility for the prosecution of your studies, and for the practice of those manipulations which will be so constantly in request when you come to enter on the business of your profession.

To facilities and opportunities the Council have been anxious to add encouragements, in the shape of prizes, certificates

of honour, and scholarships; the prizes as rewards of merit in individual subjects, and the scholarships as acknowledgments of more general and comprehensive attainments in the subjects treated in the lectures of the year in which they are awarded.

The highest and most valuable distinctions are thus reserved for those who have pursued with most success the course of study prescribed by the examining bodies and recommended by the Professors; and the strongest encouragement is held out to the student to make himself master of the whole circle of those sciences, a knowledge of which is justly regarded as essential to the character of the accomplished physician and surgeon.

I must not quit this subject of the scholarships so recently founded by the liberality of the Council, without adverting to the advantage which they are likely to confer on the profession, by adding to the often scanty resources of the industrious student, and thus enabling him to obtain for himself a more complete and extended medical education. When we reflect how often, in all professions, the consciousness of limited resources, and the anxious desire to lighten the burden which a professional education imposes on a parent, have given rise to the most strenuous and successful efforts, we may venture to hope that these scholarships, like the more numerous endowments of our ancient universities, may be the means of fostering that opening talent which is destined to shed a lustre on our profession.

It is a source of great satisfaction to the Medical Professors, that the first proposal to found a Scholarship in connexion with this College emanated from themselves; and that they have thus led the way to that more general system of endowment which has been lately extended to all the departments of the College.

By the establishment of prizes, certificates of honour, and scholarships upon a large and liberal scale, the authorities of the College have furnished a motive to industry which may be expected to address itself with effect to a

large number of our pupils. On referring to the Calendar recently published, I find that no less than twenty-eight of these distinctions were conferred on nineteen students, at the end of the last Winter Session; and this number will be increased at the next distribution by additional prizes and certificates of honour in physiology, surgery, medicine, and midwifery, to which I may add, prizes for proficiency in chemical manipulation, and in the medical and surgical studies of the hospital. I have already mentioned, as of recent establishment, the Daniell Scholarship, founded to give encouragement to the higher order of attainments in practical chemistry.

But though the system of prizes and endowments has a salutary effect in stimulating and sustaining the industry of the student, and though its influence is felt by a large number of our pupils, it would not be safe or desirable to trust to a system of reward and competition as the chief or only engine by which to move the sluggish and fix the wavering. Such a system, from its very nature, must be partial in its operation. The majority of all bodies of young men is inaccessible to the action of these moral stimulants. The diffident, the slow of apprehension, and the infirm of purpose, either keep altogether aloof from competition, or abandon it long before the day of trial. They require to be guided and assisted in the laborious career into which the more ambitious and enterprising are attracted by the prospect of distinction and reward—a prospect which must be regarded, in any case, as a secondary inducement, and which ought not to be allowed to usurp the place of a sense of duty and obligation.

It is this sense of duty, strengthened by a consideration of the responsible nature of the profession which he has embraced, that can alone preserve the medical student, whatever his character or capacity, from the temptations to idleness and negligence, which, if he yield to them, will soon be followed by assaults still more difficult to resist, and still more fatal to his present welfare and future prospects.

I am not of the number of those who view with peculiar alarm the student's residence in London. I believe the fears

often entertained by parents and guardians to be exaggerated and founded in misapprehension. I think that it would appear, on close investigation, that, in the large majority of cases, the vices and disorders attributed to the temptations of the great metropolis are really importations from the country town. The disorderly student is merely the riotous apprentice, released altogether from a controul which he had long disregarded and set at naught, or a vigilance which he had had too many opportunities of eluding. The incomplete occupation of his time, and the irregular surveillance to which he was necessarily subject, exposed him to temptations far greater than those which await him amid the engrossing occupations of the school and hospital, combined, as they are here, with the regular and punctual observances of the collegiate system. There is this additional advantage, too, attending a residence in London, that it abounds in the means of innocent relaxation, and holds out at least as many harmless attractions as it does dangerous temptations. In the country town, on the other hand, while the temptations are scarcely less numerous, the means of innocent relaxation are reduced to a very small amount.

In instituting this comparison between the dangers and temptations incident to a residence in town and country respectively, I am very far from being influenced by a desire to put forward opinions opposed to the prevalent belief. The issue of the comparison, far from being a matter of idle curiosity, has an important bearing on a leading question connected with medical education: I mean the question whether it is most to the advantage of the medical student himself, and of the profession to which he belongs, that his education should begin with an apprenticeship, and be followed by the usual course of medical study in some metropolitan or provincial school of medicine; or whether the system of apprenticeship, which is gradually falling into disuse, should be altogether abandoned, and the pupil commence his medical studies at the college or hospital.

In expressing an opinion in favour of this last alternative, I would by no means represent the system of apprentice-

ship as one of unmixed evil, or the opposite system as one of unqualified superiority. Nor would I willingly lose this opportunity of paying a tribute of respect to those medical men, who, under a deep sense of the responsibility which attaches to them, make the interest of the apprentice their constant care, and afford him every facility and assistance in the prosecution of his studies. Still less would I overlook the great advantages afforded to the hospital apprentice in the union of a wide and constantly-accessible field of experience with the instruction and superintendence of one, who, having recently completed his own studies, and passed his own examinations, is still possessed of all that minute and detailed information which is so essential to successful teaching. The situation of the apprentice in London, or in the large provincial towns possessed of medical schools, is also highly favourable, as it combines with the comforts of a home and large opportunities of experience, great facilities for acquiring elementary knowledge.

But it is not by exceptional cases, however numerous, that the merits of a great question are to be determined. We must take a broad and comprehensive view of the rival systems, balancing carefully their respective advantages and disadvantages, and taking care that prejudice has no part in the decision.

A comparison instituted in this spirit would, I believe, issue in favour of a medical education commencing at the College and Hospital. Among the advantages of this system I would specify the habit of regular application to study, and of submission to discipline, carried from the school to the College, taking the place of the five years' apprenticeship, with its scanty occupation, its irregular instruction, and its necessarily imperfect surveillance; a residence in the metropolis, with its works of art, its exhibitions of machinery, its scientific institutions, its many innocent amusements, contrasted with a residence in a country town, so deficient in the means of innocent relaxation; and, lastly, the association with a large number of young men engaged in the same studies, animated by a wholesome *esprit de*

corps, and possessed of equal or superior talents, contrasted with the comparative isolation so often productive of a fatal self-conceit. Such are some of the advantages attendant on the system of consecutive school and College education.

I am aware that the advocates of the system of apprenticeship will support it on the ground that it affords to the pupil facilities not otherwise attainable, that it introduces him at once to the practical operations of pharmacy and the minor operations of surgery, and after a time to the treatment of disease. This argument is deprived of much of its force when we consider the little time required to master the practical details of pharmacy, compared with that which is unprofitably spent behind the counter; the small number of the minor operations of surgery which is practised, and the unnatural process which makes the treatment of disease to precede the instruction by which alone medicine can be made a rational art, and the practice of it a reasonable proceeding.

Common sense and daily experience point to the instruction in principles followed by their practical application, as the best and safest sequence; and medicine ought most certainly to form no exception to the general rule. The practical character which, as I have already had occasion to notice, medical education is everywhere assuming, renders the system of apprenticeship less necessary than it was; and, if it should be found that the facilities afforded by the hospital are not sufficient to prepare the student for the responsibilities of private practice, a modified system of apprenticeship, resembling the condition of the unpaid assistant, might be most advantageously made to follow the obtaining of a diploma.

I throw out these few suggestions not as exhausting a very interesting and important subject, but with a view of inviting attention to a leading question connected with medical education—a question which is not without interest in this College, where it is not unusual for the pupil, after having received his first rudiments of education in the School, and completed his preliminary training in the de-

partment of literature and science, to enter at once upon his medical studies, without the intervention of an apprenticeship. Believing this course of proceeding to be, on the whole, advantageous, I cannot but regard it as worthy of all encouragement; and I think that the considerations which I have thrown out in reference to the comparative security of a residence in the metropolis, may be looked upon as supplying an additional argument in its favour.

But this course of education presupposes, as an essential condition of its success, a system of discipline combining College residence, daily religious observances, a regular attendance in the College-hall, an early closing of the College-gates, a well-organized plan of surveillance, and authority to check and punish all offences against good manners and the rules of morality—a system, in fact, modelled upon, but not following too closely, that established in our old English universities, and which, whatever its defects, has the sanction of experience and the stamp of success.

This system assumes the responsibility of the parent, and asks for ready acquiescence at the hands of the student, on the ground that it aims solely at his advantage, by the sacrifice of the time and convenience of those by whom it is administered. Nothing but an anxious and conscientious desire for the welfare of the student could induce the authorities of the College to impose or to undertake the ungrateful task of reproof and correction. Fortunately the experience of this place shows how very rarely this painful exercise of authority is necessary, and how very generally the true meaning and spirit of the collegiate system is apprehended and appreciated. When properly understood it is nothing more nor less than the delegation of the undoubted authority of the parent over the minor; and, in the case of those who have passed the age at which parental authority is understood to cease, the voluntary submission to rules and regulations which every young man of common sense would impose upon himself, but which every one who has learnt by experience his own occasional

want of self-controul, would wish to see administered by any hand rather than his own.

The collegiate system, then, which, as applied to medical education, was first put in practice within these walls, would seem to be peculiarly adapted to the gradual disuse of the system of apprenticeship, and the altered character of medical education consequent upon the change.

The success of this great experiment has been complete, though it has hitherto been carried out on a more limited scale than could have been desired; and its effect on the character and conduct of the medical pupil has been precisely such as the experience of our ancient universities would have led us to expect.

It is a matter of common observation, that a residence at our English universities, even when it is not the means of adding materially to the literary or scientific attainments of the student, has an effect, difficult to describe but easy to recognize, on his manners and deportment. It makes him emphatically a gentleman. And this it does, not by virtue of the studies in which he engages, but by the extended intercourse with young men of his own age, his equals and superiors; by the formation of an *esprit de corps*; by the influence of a sound public opinion; and, above all, by that self-respect which a voluntary submission to a moral and religious discipline insensibly creates. Under the wholesome influence of this system of collegiate discipline, the character of the medical student is undergoing a most salutary change; the prejudice which had been created against him is fast wearing away; and he is earning for himself a character more in harmony with that of the profession to which he belongs.

When we reflect on the social importance of our profession, the influence which it must ever exercise on individuals and on the public, the access which its members enjoy to every rank of society, from the highest to the lowest, and the delicate nature of the duties which it has to perform, it will be difficult, if not impossible, to exaggerate the importance of a

system of education, which, while it provides in the most liberal manner for the intellectual training of the medical student, and holds out to him every possible inducement to exertion, surrounds him with wholesome restraints and decent observances, and constantly reminds him of his highest duties and most abiding interests.

To the rising generation of medical students, brought under this wholesome influence, surrounded by facilities and encouragements, and subjected to mild and reasonable restraints, the Profession looks with confidence and hope. The character of the medical student has become (I will not say with what degree of justice) a by-word for vulgar riot and dissipation. Be it your task to rescue it from this foul reproach. The Profession has been, and still is, too full of rivalry and contention. Be it yours to cultivate a spirit of peace and concord. Medical men have been long labouring to bring about a reform which shall conciliate rival interests, annihilate unnecessary distinctions, and substitute order and unity for the present perplexing maze of authorities and regulations; in a word, they have sought to infuse a catholic spirit into a profession which, rightly considered, has something of the sacredness of a religion—but in vain. It is clear that the time for so desirable a consummation has not yet arrived. Be it yours to hasten it by a conduct and demeanour governed by the spirit of the much-wished for change. Society, especially that part of it which exercises the widest influence over public opinion, shows a disposition to view with distrust and alarm the growing devotion to scientific pursuits, as tending to foster a spirit of doubt, if not of unbelief; and it has singled out the medical Profession as more peculiarly an object of suspicion. Let it be your part, as men of science no less than as medical men, to remove this suspicion, if well-founded, and to give it no support if based on a misconception of the natural tendencies of science, and a misapprehension of the actual facts of the case.

For my own part, I believe that the mistrust of science in general, and the accusation so confidently urged against medical studies in particular, are altogether founded in error.

They are among the leading fallacies and prejudices of our times,—remnants of the spirit which of old incited bigotry to the persecution of philosophy,—symptoms of a jealousy not unnaturally felt by men immersed in studies which tend to substitute a poetic admiration of the past for a practical devotion to the business of the present and the future.

Between these two classes there has always been an antagonism felt, if not expressed. The scholar, with a firm belief in the value of that word-knowledge which has engrossed all the energies of his youth and early manhood, struck with a profound admiration of the nations which have carried purity of language to its highest pitch of perfection, and deeply interested in a history which abounds in the traits of wisdom, patriotism, heroism, and genius, lives naturally in the past, and looks with comparative indifference on the present and the future. The man of science, on the other hand, without altogether denying the value of word-knowledge, and acknowledging the claims of the past to our admiration and respect, asserts the still higher claims of the present and the future, finds in the pursuits of science his chief pleasure, and in its practical applications to the business of life, a sacred duty and a high privilege.

The largest and most influential body of educated men in England, the clergy, are, for obvious reasons, the great support of scholarship. A knowledge of the ancient languages is, as I have already intimated, essential to the right performance of their sacred duties; and by a very natural generalization, they, as the educators of the upper and middle classes, have extended the system of classical education to all who come within the scope of their teaching. Thus it is that classical knowledge has come to be regarded, by the great mass of the nation, as an essential part of the education of a gentleman—as having a mysterious power of elevating and refining the tastes, and, what is more important in reference to the present question, as being conducive to the interests of religion.

The dead languages, and those branches of knowledge which were most successfully cultivated by the philosophers of Greece and Rome, being thus made the first object of atten-

tion in boyhood, and occupying a prominent place in the more advanced education of early manhood, and in the preparation for the sacred duties of the priesthood, it is but natural that, with this attachment to literature, should spring up an aversion to the pursuits of science, a distrust of its tendencies, and a readiness to adopt any opinion to its prejudice which might appear to have a fair foundation in fact; and more especially if it were alleged, as it has been, that scientific pursuits tend to foster a spirit of scepticism and unbelief.

This appears to me to be neither an uncharitable nor an unreasonable explanation of the ready credence which has been given to the accusations brought against science in general, and the scientific studies of the physician in particular—accusations which, as I sincerely believe, derive as slender a support from fact as from the nature of things.

In asserting my belief that these accusations have no real foundation in fact, I would not be understood to deny that sceptics and atheists have been found in the ranks of men of science, and among the professors of the healing art. I would merely affirm that the same melancholy fact is true, to at least the same extent, of the pursuits of literature; and, though I am not fully prepared to balance the one against the other, I have little hesitation in expressing an opinion that the pursuits of science would be found in this respect the more harmless of the two. At any rate I am prepared to go to the length of denying the truth and justice of the accusation brought against the study of science and of medicine, as far as it pretends to be founded in fact.

I have still less hesitation in expressing an opinion that the accusation to which I have referred derives no support whatever from the nature of things. It is no injustice to literary pursuits, to state that they have no direct and obvious tendency to encourage modes of thinking favourable to religion; but it is acknowledged on all hands that scientific inquiries are peculiarly suggestive of such trains of thought. Natural history, and sciences of observation in general, deal directly with the works of creation, are constantly busied in tracing design, and as constantly pointing to an Almighty Designer;

and I would appeal even to those who have unconsciously imbibed the prejudice (for I must be allowed so to term it) to which I have referred, whether anywhere out of the inspired volume are to be found such eloquent and heartfelt acknowledgments of the being, power, and goodness of the Deity, as have flowed spontaneously from the pen of the anatomist, the naturalist, the geologist, the astronomer?

The same tribute, too, is due to those who have cultivated sciences of experiment, as distinguished from those of mere observation, and who have found in the phenomena of dead matter, and the powerful agencies by which all its surprising changes are brought about, the same evidence of design, the same impress of an Almighty hand.

These sources of religious emotion are as unfailing as they are pure. Even admitting, as I most willingly do, that some studies of a literary nature—historical studies more particularly—are calculated to give rise to similar trains of thought, still for the living student of history its leading facts admit of no increase of number; but the sciences of observation and experiment open a field of inquiry to which it is impossible to set a limit. With every new region we explore, with every new and improved instrument we invent, new wonders dawn upon us. The telescope resolves the film of light into worlds and systems of worlds; the microscope peoples with swarms of living and moving creatures the drop of water or the grain of sand; while reason, aided by observation and experiment, knits together scattered and apparently unconnected phenomena, and, by establishing wider generalizations and more comprehensive laws, not merely opens out a larger prospect of the works of creation, but sheds upon them a clearer and a brighter light.

Nor are scientific pursuits to be commended solely as sources of religious emotion, and, therefore, as useful auxiliaries to religion. This is but one of two uses which revealed themselves to the high priest and prophet of natural and experimental science, who foresaw and foretold, that, while it would be the means of erecting “a rich storehouse for the glory of the Creator,” it would minister to “the relief of man’s estate.”

How strongly ought this, the second use of science, to commend it to those who, throwing off idle and unfounded prejudice, shall acknowledge that it does really furnish a rich storehouse for the glory of the Creator! The relief of man's estate! In this, too, Science goes hand in hand with Religion, investigating man's actual condition, displaying the physical causes of his destitution and degradation, bringing into the open light of day the evils under which he labours, denouncing the barbarous negligence and ignorant wastefulness which condemn him to poverty in the midst of riches,—to want while surrounded with the elements of abundance,—to disease and premature decay while amply supplied by nature with all the appliances that minister to the preservation of health and the prolongation of life.

But, not content with displaying his actual condition, Science devises the means for its improvement. She gives scope to labour, and economizes time by the invention of tools and machinery; creates abundance by developing all the resources of the land; brings cheap and wholesome amusement into successful competition with low and debasing vice; and, acting always in the spirit of the Divine command, bends all her efforts to the prevention of that poverty which almsgiving, (an obedience to the letter,) if it do not create, does nothing more than palliate.

Of all the means which have been suggested for the prevention of poverty, the most certainly effectual would be a comprehensive system of sanatory regulations. This system is enforced by every consideration of justice, mercy, and true economy, and, I am happy to say, has found some of its most earnest and active advocates among the members of our own profession.

There is one other use of scientific studies which I cannot omit to mention, though at the risk of detaining you somewhat longer than I could have wished—I mean their use as a mental training; to which it is the more necessary to allude, as in most schemes of education it is strangely overlooked. If education be a preparation for the business of life, then it ought to make provision for the exercise of all

those faculties and powers which are called into use in the pursuits and occupations of manhood.

But it is melancholy to reflect how large a proportion of those who are destined to hold influential and responsible positions in society are constantly entering upon the duties of life without any previous training of the faculties which are to be called into daily and hourly exercise; the reasoning powers undisciplined by those mathematical studies which supersede by use the dry and barren rules of logic; the senses unexercised by any of those sciences of observation which add to the exact study of nature the habit of arrangement and classification so important in all the business of life; and equally unpractised in those sciences of experiment which so happily combine the most unexpected revelations of the great secrets of nature, with the most subtle and refined processes of analysis, and the most strict and convincing trains of reasoning.

Deeply convinced, as I am, that this practical training of all the faculties of the mind, by studies peculiarly fitted to exercise them, ought to form a constituent part of all education, (not excepting even the education of that profession to which classical studies are peculiarly important,) I cannot but congratulate the members of my own profession on the coincidence of the scheme of study which has been laid down by the examining bodies with that which reason and common-sense would prescribe. I think, too, that, if time permitted, I might adduce many and striking examples of the admirable preparation which the studies of the medical man have formed for other practical and scientific pursuits, to which circumstances or his own inclination have led him.

I feel, that, in the short and imperfect observations which I have been led to make on the true influence of scientific pursuits in reference to religion, I lay myself open to the charge of having discussed the subject with a brevity unsuited to its surpassing importance. But those who feel with me that science (and medical science more especially) has been most unjustly suspected and aspersed, and are aware of the hold which the prejudice against it has taken on the pub-

lie mind, will not be surprised that I should have seized this opportunity of vindicating its character and upholding its claims.

If at any time such considerations may be permitted and encouraged, it will not be thought that they are now out of place; for never before in the history of the world did science make such rapid strides,—never before did its practical applications assume such vast importance,—never did its true tendencies and bearings become a question of such engrossing interest.

Nor is this place inappropriate to the discussion of such topics. Its situation in the metropolis of a great empire points it out as in the highest degree favourable to the pursuits of science, — as destined to take a lead in scientific education,—as a centre from which shall go forth to every part of England and the world no insignificant proportion of those who, in their several spheres, shall be engaged in applying the great principles of science to the “relief of man’s estate.”

If Science be indeed, as I have feebly endeavoured to represent her, a worthy handmaid of Religion,—if her true mission be to show forth “the glory of the Creator,” and to minister to “the relief of man’s estate,”—where will she find a more appropriate dwelling-place than here, where religious instruction and moral discipline have been set forth as inseparable from all education?

If, in vindicating science in general, and the study of medicine in particular, from what I conceive to be unjust and unfounded aspersions, I have weakened arguments which I have heard advanced even within these walls, I have the satisfaction of feeling that the general argument in favour of moral discipline and religious training, as applied to students of every denomination, will still remain in all its unshaken firmness, while scientific and medical studies will have been rescued from that exceptional position to which they have been degraded, and in which they have been too long suffered to remain.

LECTURE

DELIVERED AT

THE OPENING OF THE MEDICAL SESSION,

OCTOBER, 1842.

GENTLEMEN,

SINCE the first establishment of this College, it has been customary to preface the business of the Medical Session by a general Introductory Lecture—a plan attended with such obvious advantages, that it is now adopted by most of the large schools of London. Of these advantages not the least is, that it enables the Professors, through him on whom it devolves to act as their representative, to lay before you such considerations as are most likely to be useful to the members of our class; for of these the present audience chiefly consists, and for these we are bound in duty, as we are led by inclination, to entertain the liveliest interest.

But, though the majority of my audience consists of the junior members of the Profession, I am aware that I am honoured by the attendance of some of its older members, and by that of a few of other professions; and I feel that I am bound so to shape my discourse, as that, whilst it is useful to the larger class, it may not be altogether uninteresting to the remainder.

Influenced by this consideration, I have chosen, as the subject of to-day's lecture, the difficulties which beset the study and practice of medicine—a subject fraught with instruction for the pupil, suggestive of useful reflections to the practitioner, and, as I would fain hope, possessing some attraction for the members of other professions.

The profession of medicine, Gentlemen, is not only one of the most important, one of the most honourable, and one of the most responsible, but the most difficult which offers itself to your choice. If this observation, which I put thus boldly and prominently forward, shall have the effect of intimidating any one, and of leading him to believe that he may have acted unwisely in choosing such a profession, I trust that the remarks which I am about to make in the course of this Lecture will remove his fears, will re-establish confidence, and will have this good effect — of inducing him to apply himself to his studies with that zeal which they are so well calculated to inspire, and with that perseverance which never fails of being crowned with success.

The difficulties of which I speak beset the medical man at every part of his career. He encounters them, as a pupil, in the school and in the hospital, and he meets with them in after life, whether he devote himself to the practice of medicine as an art, or to the study of medicine as a science, or, combining both of these, convert his opportunities of experience into the means of establishing those general principles, and those accurate standards of comparison, which may become, for his own and for after ages, the guides and the landmarks of experience.

I propose to examine each of these difficulties in turn, beginning with those which beset the path of the Pupil. The studies to which he devotes himself are twofold—those of the School or College, and those of the Hospital. In the School or College, the pupil will have to attend certain courses of Lectures on subjects more or less closely and directly connected with the practice of the healing art, as well as to acquire a practical familiarity with some of the more important sciences treated of in the Lecture-Room.

That those who are about to enter upon their medical studies may form some idea of the amount of labour which they will have to undergo, I will merely state, that, according to the existing regulations of the medical corporations, no pupil can present himself for examination, without having attended at least sixteen courses of lectures upon nine distinct

branches of science ; that some of these courses comprise no less than one hundred and forty lectures ; that two of them (anatomy and physiology) are considered of so much importance, that an attendance upon three several courses is enjoined ; and that in one winter session the student must of necessity attend no less than five different courses of lectures, and as many as four of them on the same day.

This statement, however, formidable as it may appear, exhibits but a part of the labours of the medical pupil. In addition to the attendance upon all these courses of lectures, and the private study necessary to fix them in the memory, he must spend a considerable part of every day, during, at least, two winter sessions, in the Dissecting-Room, in order to obtain a practical knowledge of anatomy: he is strongly recommended, and by some of the examining bodies required, to gain the same practical familiarity with the manipulations of chemistry ; and, if he have not passed through an apprenticeship, he must exercise himself in pharmacy. There are certain operations and manipulations also, described in the lectures on surgery, midwifery, and forensic medicine, which are so important, that the student will be naturally anxious to practise them with his own hands.

But this is not all. During a great part of the time that he is engaged in attending lectures, and in acquiring a practical knowledge of the subjects which I have mentioned, the student must be in attendance, during some hours of every day, in the wards of the Hospital, where he is to acquire such a knowledge of disease as shall enable him to enter upon the practice of his profession with honour to himself, and with safety to the public.

Now all this attendance upon lectures, with the private study which must necessarily go along with it, all these practical pursuits of the School or College, and all the lessons of experience to be learned in the wards of the hospital, are to be compressed into the narrow compass of three, or, at the most, of four, years ; for by far the majority of medical pupils complete their studies in three winter and two summer sessions, and comparatively few devote four years to the study of their profession.

After what I have now stated, it will be easy to point out the source of the difficulties which the medical student encounters in the School or College. It is to be found, on the one hand, in the great number, extent, and variety of the studies which engage his attention ; and, on the other, in the short period allotted for the completion of those studies. When it is considered, that, in addition to all this scientific knowledge, he must possess the same acquaintance with Classical Literature which is regarded as an indispensable qualification for the members of other professions, I shall, as respects the student, have fully justified the assertion with which I set out, that the profession of medicine is by far the most difficult in existence.

In this view of the nature of the difficulties which the student has to encounter, there is, however, nothing to dispirit him. There are some pursuits which cannot be followed with success without a degree of talent that does not fall to the lot of all. Thus, there are many men, not otherwise deficient, who can make no progress in the mathematics ; others who fail not less remarkably in classical study ; whilst, in the professions which call the inventive faculty into play, comparatively few men attain even to mediocrity. The early studies of the medical pupil, on the contrary, call no faculty into exercise which is not possessed in a sufficient degree by men of average understanding and intelligence. The knowledge which he is expected to possess, though of vast extent, requires the exercise of no peculiar talent. The greater part of it is obtained by the simple exercise of the senses on objects presented to him, and carefully described by the teacher, and retained by an ordinary exercise of the memory ; and should he encounter the slightest difficulty, there are always those at hand whose duty and whose pleasure it is to remove it.

I repeat, therefore, that there is no room for distrust or despondency, provided the pupil determines to pursue his studies with diligence and regularity.

That the difficulties attending the studies of the College, though great, are not insurmountable, will appear from the

success which every year crowns the efforts of our industrious students, not merely in gaining a competent knowledge of the several subjects treated of in the lectures, but in attaining such a degree of proficiency as entitles them to receive flattering marks of distinction at the hands of the venerable prelate who, for so many years past, by his presence here, has condescended to enhance their value. But the very students, whose distinguished success proves the possibility of conquering these difficulties, would themselves be the first to acknowledge that their honours are too often gained at the serious expense of neglecting the practical studies of the hospital, or that, if these are not neglected, it is attributable to their good fortune in being able to devote a longer time to their studies than is usually given to them.

Let it not be supposed that the fact of by far the greater number of medical students obtaining from the various examining bodies authority to practise their profession, furnishes any proof that the difficulties of which I have spoken have been by them surmounted. Those who have watched the practical working of our present system, know full well how often these difficulties are skilfully avoided, how rarely they are fairly met and resolutely overcome; and that no examination but one which presents to the pupil the objects of his study (whether of the College or hospital), and makes his familiarity with them the test of his proficiency, can serve to distinguish between the superficial knowledge, scraped together only to be forgotten, and that which, having been consigned by the senses and reason to the safe keeping of the memory, is there laid up for the future service of its possessor.

One important corollary may be drawn from all that has been said on the extent and difficulty of the studies of the College, namely, the paramount importance to the medical student of habits of industry; for the want of which no talent, however brilliant, can compensate. Many excellent works of imagination have, doubtless, owed their existence to short-lived bursts of enthusiasm; but knowledge is only to be acquired by patient study. Let the pupil, then, aim at the

formation of habits of steady application, attending his lectures with scrupulous punctuality, adopting a strict method in his private studies, giving to all his practical pursuits a zealous and sustained attention, and setting his face steadily against all temptations, whether from within or from without, which would allure him from the straight path into which his duty, no less than his interest, would lead him.

Before I quit this part of my subject, I would address one other word of advice to the pupil. Though he may have made up his mind to pursue his studies with the requisite perseverance, and though he perform his resolution to the full, he may yet fail of his object, if, forgetting the many claims on his attention, he devote himself too exclusively to one or more favourite objects of pursuit. He should recollect that there is not time enough to become a minute anatomist, or a profound physiologist, or an expert chemist; and that, in aiming at a high degree of proficiency in any of these sciences, he must, of necessity, neglect other subjects, which, to one who intends to become a practitioner of the healing art, are of much higher importance. By this unwise preference of one subject over another, where all are requisite, and all in their turn important, the industrious and deserving pupil has sometimes shared the fate and suffered the mortification of the idle and dissolute. This advice applies, without any exception, whatever the department of the Profession to which the student is ultimately destined.

I now proceed to say a few words on the studies of the Hospital. The lectures delivered in the School or College, even on those subjects which seem most remote from practical application, are intended to prepare the pupil to profit by the opportunities of experience afforded him in the wards of the Hospital. The lectures on therapeutics, on the practice of medicine and surgery, and those on the diseases of women and children, which form part of the course on midwifery, are the more immediate preparation for Hospital attendance; and I would impress on the pupil the great importance of attending diligently to the instructions of the Professors in these departments. By so doing, the difficulties which he must of

necessity encounter at the bed-side will be materially diminished, and the advantages greatly enhanced.

The studies of the Hospital, like those of the College, embrace a vast number of details, and demand a proportionate amount of application. It is by no means easy to convey to the younger pupil an accurate idea of the extent of the knowledge to be acquired, or of the time necessary for the attainment of it. Our more advanced pupils, however, who have already completed the studies of the College, possess, in their experience of those studies themselves, a measure of the amount of labour which awaits them in the wards of the Hospital. They have only to call to mind the great variety of topics embraced in the courses of lectures which I have already pointed out, as forming the more immediate preparation for the studies of the Hospital, and to reflect, that of all these topics they are expected to acquire such a practical knowledge as shall form a secure foundation for their own safe and successful treatment of disease, in order to perceive the full extent and difficulty of the task which they have undertaken to perform.

They can scarcely pass a day in the wards of the Hospital without perceiving the vast difference existing between the best descriptions of disease which they have read in books, or heard in the Lecture-Room, and disease itself. These descriptions may be as faithful as pen or tongue can make them, but they still want the vivid reality and minute colouring of nature. At the best, they are merely an assemblage of those phenomena which occur in the most marked forms, or in the majority of cases of disease, and they must often bear but a faint resemblance to any individual case. Now, it is with individual cases that the practitioner has to do; and it is only by repeated observation of the same disease, as it is varied by sex, age, peculiarity of constitution, previous habits of life, and many other modifying causes, that he obtains experience. It is these original and acquired differences between man and man, added to the varying intensity of the causes of disease, and the different, and even opposite, modes of treatment adopted, that render disease so intricate a study,

and medicine in so especial a manner a science of observation. From what I have now stated, it will appear that a long attendance at the bed-side is necessary to prepare the student for the practical duties of his profession, and that without this, the most accurate knowledge of all the sciences taught in the School, aided by the most diligent study of the best practical authors, will avail him little or nothing.

The difficulties which the pupil encounters in the wards of the Hospital are similar to those which he has already met with in the studies of the College. These, as I have stated, turn chiefly on objects submitted to the senses in the form of preparations, models, experiments, or diagrams, which objects of sense are carefully described by the teacher. The studies of the Hospital give still more constant employment to the senses, and, at the same time, call into play the reasoning faculties, which have, in the studies of the College, a more limited, though still an extensive, application. In every case of disease the symptoms present are but an index to the internal changes which constitute the essence of the disease, and these faculties must be constantly exercised in tracing the symptoms back to their source, and in fixing upon them their right interpretation.

In the necessity for a constant and active exercise of these higher faculties of the mind, we recognize the source of greater difficulties than those which the pupil encounters in the studies of the College. But there is one consideration which prevents me from classing this among the principal difficulties which the pupil encounters in the Hospital; and that is, that he constantly receives the most valuable assistance from the observations of the physicians and surgeons of the Hospital at the bed-side of the patient, as well as from the more formal clinical lectures delivered at short and stated intervals. These familiar instructions, forming, as they do, a connected commentary on disease at every stage of its progress, give such important assistance to the pupil, and tend to form by degrees so secure a habit of observing and reasoning, that difficulties lessen almost imperceptibly, and soon entirely disappear.

It would be easy to discover, in the studies of the Hospital, other sources of difficulty; some of these, indeed, will be considered when I come to speak of the study of medicine as a science, and its practice as an art; but the one great source of difficulty to which I would invite the attention, not of the pupil only, but of the Profession generally, is the disproportion existing between the amount of knowledge to be acquired, and the limited time allowed for its acquisition. To this source I have already traced the only difficulties attending the studies of the College, which the complete arrangements for teaching and the zeal of the Professors cannot remove; and to the same source I refer the only real difficulties which, in spite of the improved arrangements for clinical teaching now adopted in most of our hospitals, still lie in the way of the student.

The chief difficulties which the pupil encounters in the College and in the Hospital being thus traced to one and the same source, the practical inference already insisted upon gains additional force—namely, that steady, persevering, unwearied industry is the bounden duty, as it is the undoubted interest, of the medical student. Without industry in the College, he will be ill prepared for the studies of the Hospital; without industry in the wards of the Hospital, I know not how he can dare to take upon himself the grave responsibilities attending the practice of his profession.

Still, with all the pupil's industry and application, the time usually devoted to study is insufficient to enable him to accomplish all he ought to aim at. Let him reflect that he requires not only knowledge, but the appearance of knowledge—not sound principles merely, but the power of readily applying these principles to individual cases. During the early part of his career as a practitioner more especially, and before he has had time enough to gain with the public the reputation of experience, it is of the first importance to his own success in life that he should approach disease with the air of one who is practically conversant with it, that he should put his questions as if he were in the habit of asking them, and use his hands as if he were in the habit of employing

them. By this means he will sooner gain credit for experience, and enjoy the confidence of the public, which follows fast upon such a reputation. This result, so important to his success, is only to be obtained by a long and patient attendance at the bed-side.

But I would urge the student to industry by a higher motive than that of self-interest—the motive of duty. It is his duty to be prepared for every emergency which may arise in the branch of the Profession which he has chosen, and even in those which he does not profess to practise. The general practitioner, more especially (and for this department of the Profession the majority of medical students are destined), must be ready to act in every emergency the part of the physician, the surgeon, and the accoucheur. Let me advise the pupil, therefore, to pay regular and zealous attention to the studies of the Hospital; not the listless attention of the mere spectator and walker of the wards, but the fixed, thoughtful, and earnest attention of the man who feels that he is preparing himself for the performance of weighty, and difficult, and responsible duties.

I would also strongly recommend the student to avail himself of the opportunity of studying disease more closely and methodically, and of gaining the habit of skilfully employing his hands, which is afforded him in the clerkships and dresser-ships to the in and out-patients of the hospital—employments which are open to competition, and conferred, after due examination, upon the most deserving pupils, without entailing any additional expense. I have some pleasure in speaking of this system of free competition, as I believe it to be a very important advantage secured to the industrious and deserving pupil.

In this place a similar caution suggests itself to that which I have already endeavoured to impress upon the mind of the pupil, when speaking of the studies of the College; and that is, to beware how he gives an undue preference to one practical study over another. The error into which he is most apt to fall, and against which he most requires to be cautioned is, that of giving too exclusive attention to the study of surgery. Even if he intend to practise only that branch of the Profes-

sion, it admits of grave doubt whether it deserves more attention at his hands, during the period of pupilage, than the practice of medicine; but if he be destined for the general practice of the Profession, he must be aware that diseases of a strictly medical nature will form a preponderating majority of the cases which he will be called upon to treat. I need scarcely add, that nothing which I have now said is intended, in the slightest degree, to disparage the profession of the surgeon; I am merely anxious to do justice to the merits, and to insist on the more frequent application, of my own branch of the Profession.

I have hitherto spoken of the studies of the College and of the Hospital separately; I would now view them in connexion, and I appeal to all who have had any experience of medical education, whether the time which the majority of pupils devote to their studies is sufficient. To this question there is—there can be—but one answer, and that in the negative. There is much more to be done than can be well done in the time. The greatest facility in acquiring and retaining knowledge, and the most persevering industry, must still leave much undone. Some of the studies of the College or of the Hospital must be neglected, and there is, I fear, little difficulty in saying to which the preference will be given. As the more immediate object with the student is that of passing the examinations which are to qualify him for practice, he gives almost all his attention to the studies of the College, leaving the great work of obtaining experience to the time when he can no longer avail himself of the valuable assistance so liberally provided for him in the wards of the Hospital.

In seeking a remedy for this state of things, so injurious to the character of the Profession, and so hostile to the best interests of the public, we find ourselves in this dilemma. Either the studies of the College must be abridged (for it is obvious that those of the Hospital admit of no curtailment), or the period of College study and Hospital attendance must be lengthened.

Though one or two influential names are to be found among those who advocate an abridgment of the number and length

of the courses of lectures delivered in the College, I have little hesitation in preferring the other alternative as less objectionable.

The members of the medical profession have ever been regarded as men of extensive attainments and liberal education. In former times, when physicians drew all their knowledge of disease from the works of the medical writers of Greece and Rome, they were reckoned among the most learned men of the age in which they lived. When the several sciences, which are now regarded as essential parts of a medical education, began to be cultivated, some knowledge of them was necessarily added to that of the classic authors ; but that knowledge played a very subordinate part and held a low place in their estimation. Now, however, that those sciences have attained a more complete development, and that their value is fully recognized, they have justly taken the first place ; while the learning of the ancients has fallen into comparative insignificance, so much only being retained as enables the physician to understand the terms derived from the dead languages, and to refer without difficulty to the few works which have come down to us from those remote times. With this important revolution in the studies of the physician the character which he bears in society has changed, and instead of being valued for his learning, he is now esteemed for the great extent of his scientific attainments and the amount of his general information. Of this reputation no one who has the interest of his profession at heart would wish to see him deprived. The only valid excuse which offers itself for narrowing the sphere of his scientific acquirements seems to be their interference with more important practical pursuits. Add another year to his residence in London, and there will be no necessity for curtailing any one of his scientific studies ; shorten the period of apprenticeship by one year, and the whole difficulty vanishes.

But there is one consideration which is of more weight even than this—to wit, that the medical pupil cannot be fairly regarded as in training merely for the practice of his profession. This, it is true, is his first duty ; but there is another object

at which a wise system of medical education must always aim—that of enabling him to use his experience in the service of his profession. That he may be in a position to do this, a complete education is necessary, and such an education must have the effect of adding to the number of those (and there are too few of them in all professions) of whom it can be said that by their own labours they have left the world wiser than they found it. All who are engaged in teaching must be furnished with the extensive knowledge of which I speak, and of those who are not, there are few who may not find themselves in a position to make use of information which they could not have derived from the merely practical studies of their profession. This observation applies especially to medical men engaged in the foreign service of their country.

But the best defence of an extended system of education is to be found in its effects. No one who has read the history of medicine with attention can fail to have perceived that the greatest ornaments of the Profession have been men who were skilled in all the learning and science of their time, and of whom it might be well said, as it was of one of the most eminent of their number, that “all Apollo was his own.”

The length to which these observations have extended reminds me that I must hasten to the second part of my subject. But I cannot leave the consideration of the studies which pertain to the period of pupilage without saying a few words appropriate to the re-assembling of our old pupils, and the first attendance of our new ones; for to these the foregoing remarks have been addressed, in the earnest hope that they may prove useful to them. To our older pupils, we (for I venture to speak to them in the name of my colleagues) would address a word of encouragement to persevere in the course of steady industry on which they have so happily entered, and to continue to display in their intercourse with each other that gentlemanly bearing, and in their behaviour towards the authorities of the College that courteous and respectful feeling, which makes the task of the teacher so easy, and the condition of pupilage so honourable—to continue, in fact, to distinguish themselves by that correctness of deport-

ment which has gone far towards redeeming the character of the medical student from the stigma which has been so long, and, I fear, not altogether unjustly attached to it. And if, among our older pupils, there are any who in times past have been either unmindful or negligent of the great advantages which the liberality of the Council and the zeal of the Professors have placed within their reach, we would conjure them, ere it be too late, to reflect, that, as a knowledge of medicine is not to be acquired without great and constant application, so the practice of medicine is not to be safely or honestly undertaken without extensive and accurate knowledge.

After the deserved commendation which I have bestowed on the older pupils of our class, I cannot give better advice to those who are about to commence their studies than that they should follow the example set them by such of their seniors as are most remarkable for diligence, and for a strict attention to their moral and religious duties. I am happy to be able to say that there will be no difficulty in finding many such models for imitation.

Once more let me impress upon the minds of all our pupils the necessity for regular and sustained application. I know that habits of steady industry are not easily formed at any age, least of all in the season of early youth; and that much strength of purpose and decision of character are necessary to enable a young man to keep in the straight path of duty.

Our ancestors were deeply sensible of this, and in their wise anxiety for the welfare of the young, they invoked the aid of discipline, not for their own convenience's sake, but for the good of those on whose early education so much depended. Accordingly, in our ancient universities, the students were trained to habits of regularity by the daily attendance in the college chapel, by the daily presence in the college hall, and by the early closing of the college gates. The authorities of the universities placed themselves *in loco parentis*, and invested themselves with the authority and responsibility of the parent. The observances which they enjoined were those which would find place in a well-regulated family; the advice they tendered, and the reproofs they found occasion to administer, were

such as an anxious parent would have addressed to his child ; and they felt that in all they did they were merely enabling the student to put in practice his own better resolutions, and to follow more steadily the dictates of his own reason and conscience.

This wise and wholesome discipline accepted voluntarily at the hands of the authorities, as the very condition of being admitted to the benefits of education, was enforced on all alike, from the scion of the noble and wealthy house down to the poorest and meanest scholar supported at the expense of his college ; and all derived from it the same advantage, for all felt, that, by submitting themselves to authority, they were in reality obeying the dictates of their own better natures, and receiving invaluable aid in putting in practice their own best resolves.

Thus did the student by his own deliberate act bind himself not so much to obey others as to control himself, and to regard all the observances of the college as if they had been self-imposed.

This relation in which the under-graduate stood to the college was the parent of feelings widely different from those which spring from compulsion. The submission was a "proud submission," the obedience a "dignified obedience," the subordination "that subordination of the heart which could keep alive even in servitude itself the spirit of an exalted freedom ;" the same feelings, carried into all the relations of man with man, became the "unbought grace of life," in the relation of the subject to the state "the cheap defence of nations," and in each man's own breast "the nurse of manly sentiment and of heroic enterprise."

Such, and so ennobling, are the effects of that self-discipline implied in the very notion of a voluntary and cheerful submission to authority ; such they have been in our ancient seats of learning ; and such, in our comparatively short experience, we have found them here ; and on no class of the pupils of this College has its effect in raising the character and improving the habits been more conspicuous, than in those destined for the profession of medicine.

It is a subject of no ordinary gratification to the Professors and to the authorities of this College, that here a system of discipline was first adopted for the medical student, and that within these walls that sentiment which has found an echo in almost every large school in London was first proclaimed—that a collegiate system of education—of intellectual and moral training—with all its wise and wholesome restraints, was the only system which could do justice to the student, satisfy the anxious requirements of the parent, and form a fitting preparation for the duties of so difficult and so responsible a profession.

I now proceed to the Second Part of the subject which I have chosen,—the Difficulties attending the Study of Medicine as a Science, and its Practice as an Art. I use the term “medicine” as synonymous, or nearly so, with “disease.” By the science of medicine I mean an orderly and well-arranged collection of all the accurate and precise knowledge which we possess of disease; and by the study of medicine as a science I understand the active cultivation of that knowledge with a view to increase its amount. I shall, perhaps, be better understood, if I substitute, for the phrase *study of medicine as a science*, the explanation which I have now given of the phrase itself. I propose, then, to say a few words on the difficulty of obtaining an accurate and precise knowledge of Disease.

It is impossible to understand disease, without a previous knowledge of health. Anatomy and physiology teach this knowledge, — the one treating of healthy structure, the other of healthy function. As the structure of the several parts of the body is an object of sense, there is no difficulty in obtaining a sufficient knowledge of it, provided frequent opportunities of dissection are placed within our reach. It is not so easy, however, to obtain an accurate knowledge of the functions of the several parts of the frame.

This is the province of the physiologist, who aims at acquiring this knowledge by an examination of the ultimate structure of parts beneath the microscope, by experiments

on animals, and by observations on the human body both in health and disease. There are considerable difficulties attending each of these modes of inquiry.

The fallacies of the microscope in the hands of the inexperienced or too imaginative observer are so notorious, that I shall content myself with merely reminding you of the different and even opposite views of minute structure and function, which are taken by two observers, each of whom finds adherents among those who are more or less accustomed to the use of the instrument.

Experiments on animals have conferred important benefits on the science of physiology, but it is obvious that the conclusions deduced from them must often admit of imperfect application to the functions of a frame differing in so many respects from that of all other living beings.

Observations on the human body itself are attended with equal, if not greater, difficulties. Direct experiment is here out of the question; and disease (except in the case of the nervous system, or, to speak more correctly, of the nerves themselves) is but an occasional, indirect, and imperfect instructor. Healthy function, then, must be studied mainly in healthy persons. Now many serious obstacles stand in the way of obtaining accurate knowledge from this source. The extent of the study is one grand difficulty, for to obtain exact information we must make numerous observations on persons of both sexes, of every age, and of every variety of constitution; and there are few men who possess the patience and perseverance requisite for such inquiries; nor is it easy to find fit opportunities for prosecuting them. The more simple observations, as they require only to be repeated on a sufficient number and variety of persons, are within the reach of industry and perseverance: they demand method and accuracy, but they present no insurmountable difficulties. There are certain functions of the body, however, (I would instance that of respiration,) which form an exception to this rule, as they can scarcely be examined without the use of instruments, and it is almost impossible to make our observations on a suffi-

cient number of persons to obtain the accurate knowledge of which we are in search. The application of chemistry to the analysis of the various secretions of the body is attended with similar difficulties.

There is still one other source of fallacy, and consequently of difficulty, in this observation of healthy functions, and that is, that persons labouring under slight derangements of health are apt to be classed among the healthy. This source of fallacy can scarcely be effectually guarded against.

Furnished with this imperfect knowledge of health — imperfect for the reasons now assigned — the physician enters upon the study of disease. The functions of which he knows so little are now disordered, not separately, but in groups, and new phenomena, which are not healthy functions simply increased or diminished in intensity, but changed in character, arise, and are variously blended so as to present a most difficult and intricate subject of study. His first care is to give a name to this assemblage of phenomena, in order that he may be able to refer to the descriptions of authors, and profit by their recorded experience. Here we encounter another difficulty, in degree, if not in kind, peculiar to the study of medicine—a difficulty in writing accurate histories of disease.

The difficulty of description is always proportioned to the number of objects which the description embraces; and in this respect disease may vie with any subject of study, however intricate. A correct history of disease must include the past, the present, and the future. The previous habits of life of the patient, the diseases under which he has laboured, and the various influences to which he has been exposed, make up the past: his existing symptoms, of which some are gleaned from his own imperfect description, others from the observation of the physician, with all the minute distinctions which constitute the diagnosis, form the history of the present; and the detail of daily progress, blending, as it does, the natural changes of the disease itself with the effects of remedies, and in fatal cases the final ex-

amination of the body, make up what may be termed the future.

I need scarcely dilate on the difficulty of attaining to anything like accuracy in the description of a compound fact consisting of so many particulars, curiously and intricately involved, so as to be unravelled only by the most careful use of the senses, and the most subtle exercise of analysis.

If it be difficult to write accurate histories of disease, it is still more difficult to make use of them when written. The very minuteness of detail which makes the history complete, renders the work of analysis so laborious that few have the courage to apply themselves to it; so that the materials which have been accumulated with such infinite pains are laid by as unmanageable, the subject-matter of journals which lie idle on our shelves, or of bulky volumes of manuscript which repose neglected in the cupboards of our hospitals.

The habit of case-taking has doubtless trained many a young pupil to a careful observation of disease; but the cases themselves have done little towards establishing those general principles for the formation of which they were the acknowledged materials. This is but another proof of the difficulty of a profession, whose facts are so cumbrous, that it requires no ordinary degree of courage to make use of them.

It is from these histories that faithful descriptions of disease must be written; that is to say, such a description as shall embrace all the leading features of each complaint, with the more remarkable deviations from its usual course. I need not enlarge, after what I have just said, on the necessary imperfection of such descriptions, and the great difficulty of composing them.

These descriptions, collected and arranged, make up our treatises on the practice of medicine; and the classification of diseases according to their natural affinities, our nosology. This classification of diseases partakes of the difficulty attaching to the history and description of them, as is

proved by the many abortive attempts made in rapid succession, by men possessed of extensive experience and signal acuteness, and most certainly equal to any ordinary work of arrangement. The fact, that, after so many unsuccessful attempts at a reasonable and useful classification of diseases, we are by common consent throwing aside all nosological systems, and adopting an artificial arrangement which involves no theory, and presupposes no general and pervading principle, is an evidence not only of the obstacles which lie in the way of all such attempts, but of the difficulty inherent in the study of disease.

Before I quit the consideration of the difficulties attending the observation of disease, I must stop to pay a passing tribute to those to whom we owe our present precise knowledge of the principles of diagnosis. The labours which have rendered the name of Laennec immortal, followed up with such marked success by his own countrymen, and many worthy rivals on this side the water, have conferred on that part of the science of medicine which has to do with the identification of diseases, benefits of the most substantial kind, and have proved that, difficult and uncertain as the science of medicine is, there are still some parts of it which admit of a degree of precision not to be surpassed by the most favoured sciences. The more certain discrimination of diseases which has resulted from the possession of these physical signs, has also had a most important reaction on the practice of the healing art; and as skill in the use of the instruments of diagnosis is obviously not to be acquired without the most frequent practice and the most extensive experience, the public is furnished with an obvious and tangible reason for preferring the well-educated medical man to the ignorant pretender.

Having glanced thus briefly at what relates to the observation of disease, I proceed to say a few words on the difficulties which the physician encounters in obtaining accurate information with regard to the operation of remedies. The first source of difficulty can scarcely escape the at-

tention of any one who reflects for a moment on the subject—I mean our necessary ignorance of the power of the *vis medicatrix naturæ*. The human body is so constituted, that it possesses within itself the means of repairing the effects of violence, of resisting to a certain extent the influence of deleterious external agents, and of regaining its health when affected by disease. The healing of extensive wounds, the provision made for directing towards the surface of the body the fluids effused in consequence of internal inflammation, the prompt recovery from severe diseases by means of critical discharges,—these, and other familiar examples which might be cited, show how much the body is capable of effecting for itself by its own unassisted efforts. Now the real amount of this healing power, and the degree in which it might be safe to trust to it, has never yet been, nor can it ever be, ascertained. The medical man does not dare to withhold from the sick such remedies as his own experience has appeared to sanction, or which have the general reputation of being useful, lest he should be thought to sacrifice to scientific curiosity the well-being, or even the lives of his patients.

Notwithstanding, however, the impossibility of making direct observations on the amount of the *vis medicatrix naturæ*, accident, or the neglect of patients or their friends in seeking medical advice, or the administration by the ignorant of harmless remedies, and, above all, the *médecine expectante* of the ancient authors, and of the modern French school, have taught us something of the vast influence which this power exerts in the cure of disease. At any rate, we know enough both to distrust our own judgment, and to explain the success of each of the unnumbered remedies which credulity receives at the hands of ignorance and imposture.

Our necessary ignorance, then, of the extent to which the body is capable of repairing the injuries which it receives, and of curing its own diseases, is the first and great obstacle opposed to the attainment of accurate information

with regard to the effect of remedies. Another obstacle, in some degree allied to the foregoing, is the difficulty of making comparative experiments. Let us suppose that two remedies are, by high authority, recommended for the cure of the same disease, the medical man has almost as much difficulty in bringing his mind to such a state of indifference with regard to both of them, as would justify his alternate employment of either, as he would have in leaving the patient to the unassisted efforts of nature; and, even supposing that he has made up his mind to the trial, it is extremely improbable that his own experience will supply him with a sufficient number of cases admitting of strict comparison with each other in all respects, to enable him to solve the question.

It might be possible to arrive at this desirable knowledge by contrasting the experience of two practitioners administering different remedies in the same disease; but, in order to do this, their cases must admit of strict comparison, must be reported with scrupulous accuracy, and submitted to careful scrutiny. It requires, moreover, a rare absence of all selfishness, and a disregard of reputation, little to be expected of any class of men, to submit to a comparison which must result in showing that the treatment which one of the two had adopted was comparatively unsuccessful. Then there is the utter impossibility, in the case of the greater number of remedies, of being sure that what we prescribe is really administered, or that, if given, it was possessed of the virtues usually attributed to it. The collection and preparation of remedies, and the adulteration which so many of the more expensive and valuable medicines undergo, place fresh difficulties in the way of an accurate knowledge of the effects of treatment.

These brief and necessarily imperfect observations will serve to show the nature and amount of the difficulties attending the study of medicine as a science, or, in other words, of the obstacles opposed to the attainment of an accurate knowledge of disease.

It is not sufficient for my purpose, however, to prove that medicine, in this respect, is an extremely difficult profession ; I am concerned to show that it is the most difficult profession. This assertion is borne out by a few simple and obvious considerations.

Regard the human body as a mere mass of lifeless matter. It belongs to that form of matter which is least understood and most difficult of study—the organized ; and to that class of organized beings which is the most complicated—the animal ; and it stands at the head of that long ascending series which reaches from the scarce discernible separation between the lowest form of vegetable and animal life up to the highest perfection of animal organization.

Place this frame in the hands of the anatomist, and he will tell you that all the powerful and subtle machinery by which man has gained his still imperfect mastery over nature is as nothing compared to this : he shall write you a volume on the hand, and own, when it is done, his subject unexhausted : he will point to the circulating system, and tell you that he knows not which most to admire, the admirable simplicity of its pipes and conduits, the surprising ingenuity of its centre, or the intricate arrangement of its remote extremities : he shall trace the nervous system from its centres, so strongly and skilfully defended from external injury, to the minute and intricate net-work which it weaves about every texture of the frame ; and he shall own, that, though he discovers in the one a centre and source of power, and in the other a provision for its universal distribution through the frame, he can form no conjecture as to the nature of that power, nor recognise in that mysterious arrangement of matter any analogy, however remote, with the ingenious contrivances by which man extracts from matter the means of its own subjection to his will, and transmits the mandates of that will almost with the velocity of thought itself. Let him give to observation a wider scope, and take in the whole range of the animal creation, and he will tell you that at every point of the long series which reaches from the polype up to man, he has found with

increasing perfection increasing complication, until, in the human frame itself, he reaches the crowning point of both.

This, and much more, he learns by the use of his unassisted senses. The microscope opens a new world of wonders to his sight; every drop of fluid, and every particle of matter, reveals a complex composition or a most intricate arrangement; for each secretion an appropriate structure, for each structure a peculiar distribution of vessels, and a distinct ramification of nerves.

The history which anatomy has begun, chemistry finishes. With what confidence does the chemist approach the examination of the human frame! His knowledge of unorganized matter how profound and extensive! his power coextensive with his knowledge! At his bidding the very elements burst the strong bond which binds them together, and hasten to resume their original form; invisible agents attend to do his bidding; he makes the subtle element of heat his minister, and the flashing lightning his willing messenger; but when he approaches the human frame, furnished with this knowledge, and armed with this power, his knowledge owns a limit, and his power receives a check. He will tell you that the greater part of the fluids and solids of the body may be resolved into four simple elements, and that these, combined in various proportions, and blended in the several parts with substances derived from the inorganic world, compose its entire fabric. But he is profoundly ignorant of the means by which these elements are combined and held together; nor do all the manifold resources of his art enable him to compound one drop of its fluids or build up one atom of its texture. In dealing with inorganic matter, he finds that that which he has analysed he can in many cases recompose; but, with the exception of a few simple products of secretion, he can imitate no single process of all the subtle chemistry of life.

Suppose the frame, thus wonderfully and fearfully made, to be endowed with life, and all this marvellous machinery set in motion: the heart beating; the chest heaving with the alternate movements of respiration; the blood circulating in an

uninterrupted stream through unnumbered vessels ; the glands pouring out their various secretions, some destined for separation from the body, as being useless or noxious, others applied to further purposes in the economy ; the old and worn out particles of matter continually replaced by new ones ; and the nervous system everywhere present, presiding over every function with so wonderful a precision, that to give it the character of an intelligent and voluntary agent is scarcely a stretch of imagination. What a wonderful history, too, is that which, beginning with conception, traces the frame to the full maturity of the embryo, and from birth through the several periods of infancy, childhood, youth, manhood, and decrepitude, till it once more mingles with the dust from which it was made, and with the earth from which it drew all its materials of support !

But the human body, thus intricate in structure and function, is the tenement, and the nervous centres are the material instrument, of a mind which perceives, and thinks, and feels, and wills ; which strongly affects the body by all its more violent emotions, and is, in its turn, disturbed by every severe disorder of the frame.

This complicated union of mind and body, this sentient, thinking, intelligent being, is exposed to a thousand varying influences from within and from without ; and though it is so constructed as to bear extremes of heat and cold, and to derive supplies of nourishment from almost all things which have been previously endowed with life, yet heat and cold, abundance and scarcity, pure and impure air, labour and indolence, temperance and excess, activity and inactivity of mind, joy and grief, prosperous and adverse circumstances—indeed, every influence, whether favourable or unfavourable, to which man is subject, produces some effect upon his frame ; and these several influences, combining in various ways and proportions, lead to that infinite variety in the external appearance of mankind, which experience proves to coexist with internal differences not less remarkable.

It is not difficult to understand how a frame, which presents

such infinite varieties in health, should, when affected with disease, become a study of surpassing difficulty; and I think that no further arguments can be necessary to establish the position that medicine, considered as a science, is, beyond all comparison, the most difficult and the most complicated in existence.

If medicine had not been so difficult a science, it could not have been cultivated for so many ages, without attaining a higher degree of perfection. Among so many thousands constantly engaged in the study and practice of their profession, there must have been some master-minds, capable of grappling with ordinary difficulties and of overcoming them. Surely a science which numbers amongst its zealous cultivators an Hippocrates, a Boerhaave, a Sydenham, a Harvey, a Haller, a Hunter, a Bell; which boasts of such men as Jenner and Laennec; with a long roll of names deserving of record as men of consummate learning, extensive scientific attainments, unwearied industry, and practised acuteness, must continue imperfect, not from the fault of its members, but from its own inherent difficulty.

The real nature of the difficulties which attach to medicine as a science will further appear if we compare it with other sciences which have attained a great degree of accuracy. The physician, unlike the mathematician, is not the creator of his own science; unlike the astronomer, he has no simple relations of matter to deal with; nor can he, like the chemist, make any two things which he examines counterparts of each other. The instruments which he uses are few as compared to the objects which he is called upon to examine; there is little place for experiment, comparatively few opportunities for accurate observation, great obstacles to the use of numbers, and, above all, he possesses no numerical theory.

Having said thus much on the difficulties attending the study of medicine as a science, I may be expected to say something of the means by which these difficulties may be removed.

We all know that there is no royal road to knowledge, and that industry is the necessary condition of all scientific attain-

ment. In no science is that quality more required than in the science of medicine, which is in all its parts one of observation—*Ars medica tota in observationibus*. Industrious observation, then, is the first requisite ; but it must be observation in the true, and not in the vulgar, sense of that word—not a mere passive exercise of the senses, but the union of thought and perception ; of thought electing an object, maturing a plan, guarding against every source of error, inventing instruments, improving methods, arranging and classifying the facts collected, and, lastly, submitting them to a searching analysis. The simple employment of the senses is not observation, nor is the frequent exercise of them experience ; it is in the true sense of these terms that the one is the parent of the science, and the other of the art, of medicine.

We must employ a language, too, free from all ambiguity—the language of numbers—not as if it were a language peculiarly adapted to this or that science, and to no other, but as being the universal language of all knowledge which deserves the name of science ; we must cease to argue about the numerical method (or, as it is incorrectly styled, medical statistics), as if there could be any doubt of its use in medicine, as in every other department of knowledge : above all, we must make the more perfect sciences models to our own ; we must examine into the real cause of their superiority, and submit ourselves to the teaching of their example. We must cease to separate ourselves, as we have done too long, from the fellowship of other sciences, but must strive to renew and strengthen the tie which should bind them all together, so that medicine may again become, as it is here, a part of philosophy.

It is not the least advantage of this College, as a place of scientific and practical teaching, that under one roof, and under the sacred sanction of one common principle, it has brought together every department of learning and science ; and that, whilst it can boast of having successfully prepared many a youthful mind for the spirit-stirring competition of our ancient universities, it can offer to them in return facilities for practical teaching, which can exist only amidst the busy haunts of

men, and nowhere in such perfection as in the metropolis of a mighty empire.

We, the Professors of the medical department of this College, feel it to be no common privilege to be associated in the great work of practical teaching with men who, by the skilful employment of the very methods which we know to be essential to the advancement of our own science—the invention of accurate instruments, the institution of ingenious experiments, the patient exercise of observation, and the skilful use of numbers—have done so much to enlarge the boundaries of knowledge, and to extend and confirm man's dominion over nature. Nor are we indifferent to the still greater privilege of being perpetually reminded, by the assertion of the great principle on which this College is founded, that man's mastery over nature is of infinitely inferior importance to his victory over himself; that without this all his learning may tend to no better purpose than to "blow up self-conceit and nourish pride," and his philosophy, with all its enlightenment, still leave "a veil of midnight on his heart."

But it is not enough that, by seeking a closer union with other sciences, we strive to profit by their example, and to obtain increased facility in using their methods: we must ourselves aim at the formation of a more just estimate of the value of scientific researches; we must strive to reform the crude notions of the practical, which would place it in a minute observation and tedious description of single cases, instead of in general truths and broad principles and accurate standards of comparison. We must discourage that impatience which longs to turn to purposes of immediate utility the scientific researches, which, though stimulated by a love of truth and a laudable curiosity, were undertaken in the certain confidence that all truth is in its nature practical, and that if it have no immediate application to purposes of obvious utility, it tends to render other truths more fruitful, by removing out of their way the fallacies which would impede their growth. All improvements in the general and professional education of the medical man tend not only to the for-

mation of this juster estimate of the value of scientific research, but to increase the number of those who, by rendering the science of medicine more certain, make the practice of the healing art more easy.

The length to which this Lecture has already extended, and the space which I have devoted to an examination of the difficulties attending the study of medicine as a science, warn me to be very brief in my observations on the difficulties which beset the practice of medicine as an art. I the less regret this necessity, inasmuch as it is now universally admitted that medicine is a scientific, and not an empiric art. It follows, therefore, that if the science be imperfect, the art must be difficult ; and the nature of that difficulty will be readily seen if we retrace the process by which our scientific knowledge has been obtained.

By observations made under circumstances of peculiar difficulty, on beings of whom each was different from his fellow, and on functions, and symptoms, and diseases varying within wide limits of intensity, with infinite labour and pains, the unstable fabric of our knowledge has been built up. In applying this knowledge to individual cases, we must, of necessity, encounter, over again, all the varieties from which our original results were obtained ; and state these results as accurately as we will, using figures as our language, we shall have general rules and standards of comparison admitting only of the most general application to individual cases ; so that much must ever be left to that individual experience and practical tact, which dies with its possessor, and which finds a place in the arts in exact proportion to the imperfection of the sciences on which they are founded.

If time had permitted, I should have alluded to the necessity imposed on the medical man of acting in most cases on the spot, without any possibility of referring to authorities to assist him in forming an opinion, or choosing a line of practice ; and I should perhaps have expressed the natural regret which all medical men must feel, that the public should add

to the necessary difficulties which lie in the way of the medical man, but especially of those who are young in the profession, by giving to the bold and reckless and ignorant empiric that confidence which they deny to the man of education and real experience. But I quit this tempting theme, and with it the subject of the difficulties attending the study and practice of medicine, in the hope that the few and imperfect observations which I have been led to make, may encourage every member of the Profession to that industry by which alone the difficulties of so vast a science can be overcome.

A lecture devoted to a discussion of the difficulties attending the study and practice of medicine, though it may nerve the energetic and enterprising to the efforts by which such difficulties are overcome, may perhaps leave in the minds of the less confident a feeling of doubt and anxiety, and throw a gloom over the commencement of their studies. I have endeavoured to guard against this result by showing, that, though the richest endowments of nature, and the best gifts of education and study, are honoured by being employed in the service of our science, yet average talent, backed by patient industry, will suffice to furnish the medical man with the knowledge and confidence necessary for the practice of his profession.

But, should any misgivings still linger in the mind of the student, I would lead him away from the contemplation of the difficulties to the more cheering view of the excellent nature of the profession which he has embraced. Is he fond of learning, he will find ample scope for the exercise of his memory; is he attached to scientific inquiries, there is scarcely a branch of science which does not figure in the programme of his early studies; is he doubtful of the real nature of his talents, and of the pursuits best adapted to his character, he will meet with so great a variety in his preparatory studies, and in the after practice of his profession, that he will find no difficulty in making an appropriate choice; or has he the high ambition of being useful to mankind, by adding to the existing stores of knowledge, he will nowhere find so wide and interesting a field for his exertions.

Such is the provision made for the employment of the intellect. There is at least equal scope for the exercise of the social feelings. Does he wish to do good, what a wide field for the exercise of benevolence ! Does he prize the gratitude, the good-will, and the friendship of his patients above the gold which pays him for his services, what an ample return of kindly feelings does he receive !

Again, as regards his own self-improvement, how well adapted are all his studies and pursuits to that great purpose ! The most perfect and wonderful of the works of nature, from which natural theology derives her most convincing proofs of the wisdom, power, and goodness of the Deity, forms his first and principal study. He examines its mechanical contrivances in death, he watches the play of its functions in life, he sees in how many instances it preserves and repairs itself, how admirably it is adapted to the external objects by which it is surrounded. But this is not all : he gleans from the daily exercise of his profession instruction denied to all others. He sees the punishment which follows sin, and falls on every form of intemperance ; he sees virtuous habits rewarded, even in this life, by the blessing of health, and a considerable immunity from bodily suffering ; he witnesses the agonies of conscience in the wicked, the calm yet humble self-approval of the good : life and death unite in teaching him lessons of religion, and his are the solemn and awful legacies of the grave.

And yet, with all these moral and religious advantages, the members of the medical profession are thought to be peculiarly prone to infidelity.

It is difficult to say how or where this popular opinion took its rise ; and it is certainly impossible to produce proof either for or against it. This at least we know, that mere intellectual culture, though carried to its highest point, offers no security against unbelief, and that in every department of science and literature striking examples of infidelity are to be found. The anatomist, as he explores the wonders of the human frame ; the astronomer, as he traces the harmonious

movements of the heavenly bodies; the historian, as he follows the course of time, and marks the rise and fall of nations—each in turn may be blind to the hand which formed and guides all material things, and to the will that determines the destinies of mankind: and, just as the astronomer can out-balance the name of Laplace with that of Newton, and the historian is at no loss to find great names among the believers in religion to place against those of a Hume or a Gibbon, so may the physician find, for every instance of unbelief, more than one bright example of humble and rational faith.

Leaving this question, as it must be left, undecided, I would merely state, that the general belief to which I have alluded is decidedly opposed to the spirit in which the best, the most learned, and the wisest men whose names adorn our literature, have spoken of the members of our profession. One author, Pope, speaks of them as “the most amiable companions, and the best friends, as well as the most learned men.” Dr. Johnson celebrates their “great liberality and dignity of sentiment, their prompt effusions of benevolence, their willingness to exert a lucrative art when there is no hope of lucre.” Dr. Parr characterizes them as “the most enlightened professional persons in the whole circle of human arts and sciences;” and Cowper mentions by name the “virtuous and faithful Heberden,” and

“A Cotton, whose humanity sheds rays,
Which make superior skill his second praise.”

The character of the physician, thus rendered immortal in the undying literature of his country, is that which he bears at the present day. Foremost in every work of benevolence, forgetful of self, the undaunted and unwearied attendant at the bed of sickness, present at every scene of suffering, and absent from no labour of love; supporting our public charities by his purse and by his influence, and giving his time and the benefit of his experience to the poor with a distant and uncertain prospect of reward; he crowns all his claims to

public gratitude by labouring with singular disinterestedness for the preservation of that health, the loss of which is the means of his own support and the very source of his professional income.

It is this latter attribute of the medical character on which every one who honours and loves his profession will dwell with most complacency, and it is this which emboldens me to close my Lecture with a brief allusion to the most interesting and important topic of the day—the public health.

There is a right, Gentlemen, second only to that which no Englishman can think or speak of without a glow of exultation—a right which England has proclaimed as the law of her wide empire, purchased with her wealth, promoted at the cost of the lives of her bravest citizens, advocated by her diplomacy, and enforced wherever her own strong arm could reach—the right of every man, whatever may be his country or his colour, to the enjoyment of personal freedom—I say there is a right second only to this, far above all political and conventional rights, but rarely recognized and never yet openly asserted—the right of every man to breathe the pure air, and to share the fair light of heaven; to live as long, and enjoy while he lives as much health as is consistent with the frailty of his frame, and the curse, so rarely in the case of the poor man changed into a blessing, that by the sweat of his brow he should earn his bread. If health be a blessing, if without it all other blessings, even freedom itself, are valueless, surely it must be a right too; and it must be the first duty of a government to take care that its poorer subjects are not robbed of this blessed right by avarice, or negligence, or even by their own depraved choice.

It has now been proved almost to a demonstration, that the pestilential diseases which are raging through the length and breadth of the land, in the rural village no less than in the crowded city, which destroy annually more lives than this country has lost in her bloodiest wars, which make the fourth part of the labourer's life the prey of sickness, and shorten it by about the same fraction of its probable dura-

tion—it has been proved that these pestilential diseases may be banished by the simplest means, and at an expense much less than the cost which they entail upon the public—the cost of fever and small-pox hospitals, and workhouse infirmaries, and pauper burials, and widows, and orphans, and cripples,—the helpless victims of private avarice, and public negligence. Such are the brighter tints of a picture of which no words can paint the shadows. The soul sickens, and the mind recoils with horror from the moral degradation which springs, like a twin monster, from the fruitful source of all this physical suffering. Can these things be permitted in a country which has made such sacrifices for liberty? Surely it is slavery of the most abject kind to be shut up from the light of heaven, surrounded by filth and corruption, and placed in circumstances where sin is harder to be avoided than disease itself!

These things cannot last; but if we remain deaf to the loud cry of suffering poverty, then shall poverty itself, by the very law of its nature, become its own avenger; for the offspring of those condemned to all this complicated misery shall become a moral plague; the old and the middle-aged, who have lived long enough to love peace, and to know the value of delusive promises, who give stability to society and strength to governments, shall cease from among our labouring population, and be replaced by the young, the inexperienced, the turbulent, and the disaffected. These things, too, are matters if not of demonstration, at least of the strongest inference.

Let us hope, then, that the time is not far distant when these evils will be redressed; when the wide and open street, the well-drained city, the spacious and airy cottage, and, above all, a healthy and robust population, shall be the chosen trophies of our civilization, and the noblest monuments of our humanity. Let England, proud of her warlike deeds, no less than of her peaceful triumphs, the liberator of Europe from the tyranny of a conqueror, and of the whole world from the intellectual bondage of ages, who boasts the first and foremost

men in every science, and the most skilful in every art, when she rehearses her immortal names, remember that not the least among them is that of Jenner; and let the success which has attended the imperfect application of his great discovery encourage her to enter upon that good work which shall end in chasing pestilence from our shores! This labour of love, this act of justice, this enterprise of true economy, this work of physical and moral regeneration, will have the earnest and cordial support of that profession which is ever active where good is to be done, and which makes it its proudest boast that all its works are works of mercy.

THE END.

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