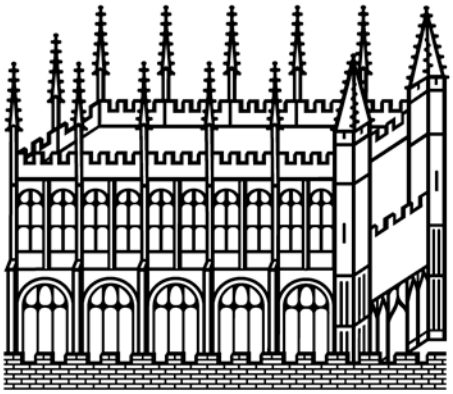

AN

INTRODUCTORY LECTURE

DELIVERED ON THE OPENING OF THE SESSION

OF THE

Medical School,

CHARING-CROSS HOSPITAL,

LONDON,

OCTOBER 1, 1852,

BY

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&c. &c.

LONDON:

JOHN CHURCHILL, PRINCE'S STREET, SOHO.

1852.

TO THE RIGHT HONOURABLE

THE EARL OF BURLINGTON, LL.D., F.R.S.,

&c. &c. &c.

CHANCELLOR,

THE VICE-CHANCELLOR,

AND

FELLOWS OF THE UNIVERSITY OF LONDON,

THIS ADDRESS,

HUMBLY INTENDED TO ADVANCE THE INTERESTS OF A SOUND GENERAL EDUCATION,
AND OF CORRECT PRACTICAL PRINCIPLES IN THE MEDICAL PROFESSION,
AND THUS TO EFFECT IN ONE DEPARTMENT
THAT WHICH IS SO EFFICIENTLY PROMOTED IN ALL SCIENCES
BY THE FOUNDATION OVER WHICH THEY PRESIDE,

IS MOST RESPECTFULLY DEDICATED,

BY THEIR OBEDIENT SERVANT,

THE AUTHOR.

AN

INTRODUCTORY LECTURE.

GENTLEMEN—

IT would scarcely be fitting if so rare an event as the opening of a Session should take place without some formality.

AS STUDENTS, many of you have, during the past months, laid aside the book and the scalpel, and with your angling rod have wiled away your hours on the bank of some favourite stream; or, it may be, have wandered over ground trodden by you in your boyhood's days, and endeared to you by many cherished associations. You have revelled in all the joyous peacefulness of your earlier homes, and regaled on the pure air, and the yet more tangible good which Nature has plentifully provided in her country nooks. During this period, I can conscientiously acquit you of any intention to study—aye, of even the remotest inclination towards it; and believe that the very remembrance of the Charing-Cross Hospital anatomical room would be ejected with ineffable *dégoût*. *Now*, however, the scene is changed, and you are called upon to doff the easy jauntiness of the young country squire, and to assume, at least for the time, the demure and care-worn aspect of the laborious student.

AS TEACHERS, it affords us great gratification to meet you once again, and to see your ranks thronged with new faces, and to offer to you a hearty welcome to the School and to the benches, which you will find well marked with the enduring memorials of your illustrative predecessors; but we cannot forget the ease in which we have lately luxuriated, and, in spite of ourselves, we cherish a lurking desire to continue it, and look a little shy at the labours which a long six-months' Session is about to impose upon us. Since, however, we must, willingly or unwillingly, be again united to the turmoil of professorial engagements, it is only fitting that the wedding-day should offer the occasion presented by all wedding-days, of trying for a few moments to beguile ourselves into a very happy future.

I need not to remind those Students who have passed a Session here that we are ever under the kind yet vigilant inspection of one whom we are delighted to honour; of one whose post of observation is above our heads, and whose varied excellencies well entitle him to that distinction; of one to whom we owe this theatre in which we are met to-day, and the foundation of the School with which it is our happiness and honour to be connected; of one whose unceasing exertions have raised without encumbrance the noble building of which this forms a part, and who is still adding to its extent and influence. (NOTE.) Through the means which he originated very many have passed from those benches to positions of distinction and usefulness in the world; hundreds of thousands have been the recipients of medical and surgical skill, which you well know is of the highest order; and these, from all the counties lying within a comprehensive circle, cherish the name of the Charing-Cross Hospital with the deepest gratitude. We are still favoured with the presence of the same guiding mind; and it is fitting that you and I should open the Session with a hearty recognition of the virtues of our excellent director, Dr. Golding.

A formal introduction of the Session being thus highly proper, some of us, had we been consulted, would have preferred one in which savoury morsels and flowing draughts play a prominent part, rather than a dry discourse; but the universal custom in this matter seems to imply that, of the two evils, the Introductory Lecture will best bear the morning's reflection. This is the well-beaten path trodden by my predecessors, and is therefore easy of access; but it is far less easy to offer new objects to your attention, or to present familiar things under a novel aspect. The position, therefore, which I hold to-day, although one of honour, is not one of ease; and when I bear in mind the hearty bursts of applause which the discourse of last year drew down, I cannot but fear lest my few remarks should fall upon your ear as something very flat and unprofitable. There is, however, relief in the reflection, that some of those who hear me to-day were not present on that occasion, and cannot therefore make odious comparisons; and to such I may now direct my especial attention.

The circumstances under which an Introductory Lecture is given remain much the same from year to year; the same class of auditors needing advice and encouragement in respect of their studies and personal conduct, and the same studies to which their attention must be unvaryingly directed. Science, however, is not sleeping, but is rapidly adding to her triumphs in her efforts to

ameliorate the condition of men; and in our profession we are favoured with many new lights, to enable us to penetrate yet more deeply her mysteries. As these improvements are multiplied year by year, this occasion may be a fitting one on which to shew their great value, and a reference to them may agreeably diversify the ever-recurring topics of an Introductory Lecture.

But before proceeding further, permit me to remind those Students especially who now enter this School of the great importance of at least maintaining, and in some instances, I may add, of increasing, their acquaintance with the elements of a sound general education. We cannot doubt, I think, that, during the past century, the regularly-educated physician or surgeon had far greater scholastic acquirements than are commonly found in practitioners at the present day. The great authorities in Medicine and Surgery were then to be studied only in the Greek and Latin languages, in which they had been originally written. Such were Hippocrates and Aretæus amongst the ancients, with Haller and Sydenham amongst the moderns. The Latin language was in frequent use, and especially in Germany, for conveying to the reader or hearer whatever was of real value in every department of our science. A colloquial acquaintance with it to some limited extent was required by the usage at the Universities, and the inductory thesis on the occasion of graduation must, according to law, have been written in the same language.

The then existing necessity would induce a tolerable acquaintance with that language amongst all scientific men. That necessity has somewhat passed away. The progress of science, with increased accuracy of observation, permits us no longer to regard Hippocrates and Sydenham as our text-books; and, moreover, these, with nearly every other work of merit, may now be read in our own language. The Royal College of Physicians alone claims the right to question you, at your examination, in the Latin language; but this has degenerated into a mere formality. In all our examinations for Degrees we may present our written statements and theses in the English language; and thus Students whose classical attainments are of a low order may attain even to distinction in our profession. Still, with all the convenience attending the present system, it cannot be regarded otherwise than as an evil—an evil which public opinion, aiding our public examining bodies, is diligently seeking to remedy, and to replace by a plan of procedure which is an improvement upon that of our fathers of the last century. Thus, the Royal College of Physicians still retains

the Greek and Latin Examinations; and since it is about to abolish the grade of extra-licenciates, and to improve the examinations generally, we may reasonably hope that a competent knowledge of the *Greek* language will in future be required from all its Candidates. The UNIVERSITY OF LONDON has already exerted great influence over the general education of Medical and Legal Students, by requiring from them a fair acquaintance with the Ancient Classics, and has enlarged and rendered their classical knowledge more practical by examinations in French and German, which languages, in addition to our own, are rapidly supplanting the ancient Latin. The requirements from Graduates in Laws is all that can be desired, since, with an unimportant exception, the Graduate must previously have matriculated, and have also graduated in Arts, in both of which examinations the Greek, Latin, French, or German languages occupy a prominent position. It is not quite so satisfactory with regard to the examination of Medical Graduates: they are required to matriculate, but are excused the preliminary graduation in Arts. We hope that this requirement is intended to be transitory, and that, ere long, the omission to which I have referred will be supplied, and that a degree in Medicine will soon imply the possession of a degree in Arts also. That this desire exists on the part of those who are seeking for the degree is also evident, from the number of those Bachelors of Medicine who have obtained the Arts degree; no less than five of the candidates for the degree of M.B. at the last examination being already Bachelors of Arts. We trust that this worthy example will not be lost upon those whom we have the honour to advise. The ROYAL COLLEGE OF SURGEONS and the APOTHECARIES' COMPANY have nobly followed in the path of the Institutions to which I have referred. The former now requires from candidates for its fellowship *by examination* evidence of an acquaintance with the Greek, Latin, and French languages; and we must rejoice, with some degree of wonder, at the number of Students who have subjected themselves to the voluntary examination in Greek, and other subjects, to which they have lately been invited by that eminently useful body the Apothecaries' Company.

On this ground, which is confessedly a low one, let me entreat you, with all earnestness, so to arrange your medical studies as to afford sufficient leisure for the retention and increase of your classical attainments. You will find very much practical wisdom in the writings of Haller and Harvey, and of Hippocrates, far more than enough to encourage you to read them in their original

tongue. Technical expressions now abound most luxuriantly in each of the branches of your study, and these have been almost uniformly derived from the Ancient Classics. They have not been, as yet, introduced into common use, and therefore must be acquired by every Student. Their acquisition is always a matter of difficulty; but that difficulty is greatly lessened if the Student be in any degree familiar with Latin and Greek. Of two men who earnestly set about the acquisition of any of the modern sciences, the one who is a tolerable classic is likely to outstrip the other who knows little or nothing of these languages. We owe to the Germans most of the anatomical and physiological discoveries of the present day; and a competent knowledge of the German and French languages is really necessary to any one who would attain to high places in science.

You are in the midst of classical wealth in this great metropolis, and may obtain every requisite help in the prosecution of these studies, without any great outlay in time or money.

I may now take higher ground, and invite your attention to this subject, by the plea that a sound classical education opens to you stores of general learning, which are sealed books to others, and enables you to hold direct intercourse with those whose fame will ever remain, and who are yet the models of our poets, our orators, and our historians. Whilst this course of procedure would add to your store of knowledge, it is also fitted to improve your taste, refine your imagination, give propriety, and even elegance, to your diction, and incite you to acts of emulation. The expressions of 'Scholar' and 'Gentleman' are unhappily not convertible terms, since, in our utilitarian day at least, a man may be a gentleman without being a scholar, and in all times to be a scholar was not necessarily to be a gentleman; yet just as a scholar is elevated in our esteem by being a gentleman, so is a gentleman by being a scholar. Moreover, scholastic acquirements, when conjoined with propriety of conduct, are a very sure introduction into a cultivated and intellectual circle in general society—a circle which is not often entered by those wanting scholarship, unless they have attained to eminent distinction in some of the higher walks in science or general literature.

I hope that I do not need to hint any apology for introducing this subject to your attention; and if the subject be an important one, its importance in your case is greatly enhanced by the consideration, that now only can you have the opportunity to cultivate an acquaintance with it. The bustle and the joltings of

every-day life, and the incessant efforts which most of us must put forth for the acquisition of our daily bread, are very inimical to the cultivation of classical knowledge. You may not as yet feel the full force of this difficulty, but you may take the word of all those who are now fairly launched upon the broken sea of daily life, that if you do not gain this advantage now, you will not acquire it at a future day. Do not forget the many years of labour which you have already devoted to the acquisition of that degree of knowledge which you already possess. How deplorable it would be should you submit to the indignity of retracing your steps from the threshold of the temple which you have through many long years striven to enter! One retrograde step now leads to progressive retrogradation: it knows no halting-place but the barren heath of ignorance. In almost every instance it is irrecoverable.

Thus much in reference to classics. Permit me to say a word in favour of another branch of your general education, viz. mathematics and the applied sciences. I would not have you cultivate classics to the exclusion of mathematics, both pure and mixed, for I deem the latter of even greater value in our profession. But I would not be misunderstood. I do not consider that the advantage of a knowledge of pure mathematics is to teach you to square the circle, nor that of physics to exhibit to you the perpetual motion. The acquisition of a limited number of problems and theorems may be of great service to you in the continued prosecution of your mathematical studies, and in your application of mathematical laws and principles in the study of physical sciences; and I would not by any means dissuade you from the attainment of it, but, as medical practitioners, it is not the acquisition of all the known formulæ which could render you any very essential service. It is the habit of close, patient, and methodical study, and of careful inductive reasoning to which such studies pre-emininently tend, that I would earnestly commend to your attention. This habit is necessary to one aiming at distinction in any other profession. The whole civilized world is now deeply lamenting the death of one who, in another profession, was an eminent example of success resulting from careful inductive reasoning. Wellington was not gifted with a brilliant genius, the effulgence of which enabled him to blind and lead captive an opposing adversary. In that respect he was confessedly far inferior to the giant-mind against which he fought, and which he eventually conquered and subdued. All the biographers of the great Duke agree in stating that he owed his success to the calm and patient working-out of effects which he

had very clearly traced in his own mind from causes then operating, or the occurrence of which at a future day his inductive powers and well-informed mind enabled him confidently to predict. The warrior who is successful by his military tactics must be a man who can steadily and shrewdly trace effects to their causes, and develope causes into their ultimate effects; a man who, whether he be highly civilized or a barbarian, would excel in mathematical studies. The General who cannot see traced distinctly on the mind all the principal events which will result from the operation of any given cause, must be one who acts without a plan, whose conduct is perpetually vacillating; in other words, a quack.

The Judge and the Advocate should possess the highest powers of argumentation, and the closest habit of reasoning; since their daily duty is to detect and invent subtleties, and to impose and expose fallacies. But imperative as may be this degree and kind of mental cultivation to the soldier and the lawyer, it is not greater than that which is perpetually demanded from the Surgeon and Physician. To distinguish effects from causes, and to determine the precise dependence which the members of any series of effects and causes have upon each other, is our great duty, both in the investigation of disease, and in the application of the remedy. What is the acknowledged characteristic which elevates the highly-cultivated above the semi-ignorant practitioner? Not so much the greater extent and accuracy of the information he may possess, as the habit of searching out hidden causes, in opposition to the practice of merely prescribing for symptoms. If the highest places in our profession be at the command of those who can readily learn a multitude of facts, almost *en masse*, every medical school could yearly offer many as competitors who are lost in the multitude in their subsequent career. Was it the great extent of information (invaluable as that may be) which chiefly distinguished Haller, Sydenham, and Harvey, Bichat, Hunter, and Cuvier; or, amongst cotemporaries, does Professor Owen owe his unrivalled position to that circumstance only? Certainly not. It is the power of generalization, by which principles can be evolved from facts, and a daily habit of discerning between causes and effects, that have marked these men as the leaders in their several departments. The man who treats symptoms as such is an empiric: the man who labours to discover and to remove the cause is a philosopher. The one, noticing thirst and heat of skin, proceeds to administer diaphoretics; whilst the other patiently challenges every part of the

system, to discern latent inflammation, or local causes of irritation, and, having found them, seeks to remove them, knowing well that the effect may be expected to subside when the cause has been removed. The one, on observing a congested state of the lungs or brain, and œdema of the legs, hastily prescribes diuretics; the other strives to ascertain if there be granular degeneration of the structure of the kidney. This habit is necessary at every step in our professional career; and in not even the simplest case can we efficiently discharge our duty to our patients and ourselves without it. It is the very basis on which the practice of our art rests. The cultivation of it has raised our profession to the dignity of a noble art: the absence of it would degrade us to the position of charlatans.

Gain, by every means, an accurate knowledge of facts; enlarge their number to the utmost possible extent; but, beyond this, strive to attain to a habit of discerning the dependence of facts upon each other, and the whole upon great general principles. This habit of mind is to be acquired only by careful and early training, and most effectually by an enlightened study of mathematical principles.

There is, however, an extensive class of men, both in and out of the profession, who hold in very light esteem an acquaintance with the subjects of which I have now spoken, and who cannot understand in what way a competent knowledge of the Greek language can help you to cut off a limb, or an acquaintance with trigonometry aid you in curing a fever. The fable of the fox and grapes would be applicable to many of these; for it seems to be in harmony with our present nature to affect, or really to despise, that which, not being essential to us, we do not possess, and the more so, if, whilst others boast of its value, we have not the aptitude or opportunity to attain it. Yet even this class of persons scarcely ventures now-a-days to question the utility of an elementary acquaintance with some of the physical sciences, which have an immediate connection with pure mathematics, being, in fact, simply the application of mathematical laws to an elucidation of the operations of nature. It is therefore very evident that the mathematician has a great advantage over others in the study of many subjects to which your attention will be constantly directed in this theatre. An example or two will prove the truth of this assertion.

The *mechanics of the human body* is a subject of great interest, and has probably furnished many hints in the improvement of those agencies for which the present day is so remarkable. The animal frame must exhibit a greater variety of mechanical contri-

vances than can be met with in any other department of nature. Many of these are readily observed, and, being within the reach of the mechanical student, afford him the most perfect models for his imitation. The varied actions of the muscles are in perfect harmony with the laws which govern the action of levers universally, for those laws have been deduced from the operation of nature, of which we have here the most perfect illustration. The motions of the limbs, of the jaw, and of the trunk, are all explicable by the aid of the laws of mechanical agencies, and these laws have been evolved from pure mathematics.

The science of *Acoustics* is applied, in the study and practice of the profession, in investigating the anatomical and physiological characters of the ear in man, and in the numerous gradations in the animal series, and also in the physical examination of the internal organs, and especially of the lungs and heart. We know but little, even at the present day, respecting the former, but have made very marked progress in our acquaintance with the latter. This method of diagnosis has now outlived the querulous remarks of those excellent persons to whom I have just referred; and very many of those who for years decried its value now fill their pockets with a big stethoscope, and use it on all occasions. In offering these observations, I would not be thought desirous to hold up to ridicule those who have not had the advantages which the gigantic strides of the present day offer to medical students. On the contrary, I feel that it should remind us, whether young or old, that we are advancing in years, and are daily grasping more convulsively the principles which we imbibed in our youth, and are eyeing with increasing distrust the new lights which the onward movement of things presents to us. Rather let us regard such distrust in others with kindliness, remembering that, whatever may be our present attainments, if we live long enough, we too shall be left far in the rear.

Some acquaintance with the laws of acoustics has been necessary to all those who have laboured to give due significance to the healthy and morbid sounds emitted by the lungs and heart. The sounds themselves, whether in their relation to special diseases or not, may be discovered by any practised ear without the aid of this science; but it is one thing to become cognizant of the existence of a fact, and another to appreciate its true import. We owe our present degree of this appreciation to the assistance of this science, and we must still look to her aid in the attempt to resolve certain doubts which envelope the subject. That apparently

simple, and yet truly difficult, problem of the source of the sounds of the heart is to this day unresolved, and will probably remain so until the laws which govern acoustics are better understood, or until their application to the living animal frame has been more thoroughly investigated. Thus, by the aid of the knowledge and labours of others, you may learn to distinguish, and, so far as may be, appreciate, the value of these most important aids in the detection of disease; but so far your knowledge will be that of empirics, not that of the philosopher, whose aim is to leave science somewhat the more truthful for his labours.

Again: we have now entered upon a bright day of investigation, resulting from a profound acquaintance with the laws of *Optics* as exhibited in the microscope; a day which bids fair to be far more brilliant in scientific discovery, and especially in relation to medicine and its collateral pursuits, than any which has as yet shone upon the world: not that either the science itself is quite new, or that the instrument is only of yesterday's invention. Lieberkünn, not less than three centuries ago, invented microscopes, and made them in numbers, as may now be seen in the British Museum; and even these were sufficiently good to enable him to make anatomical discoveries which will ever render his name illustrious in science. But it is since the labours of Dr. Goring, thirty years ago, and the discovery of the optical qualities of the diamond in 1824 by Sir D. Brewster, that the highest mechanical skill has succeeded in giving to us an instrument so nearly approaching to perfection as to enable us to explore almost every department of animal life, and so simple in its use that a mere boy may overcome all its difficulties in a few days or weeks. The benefits resulting from the introduction of the microscope in the study of anatomy, physiology, and practical medicine, are so palpable, in many cases—as, for instance, in the examination of urinary deposits—that the most determined opponent could only attempt to explain away the facts presented to him; and it is very probable, from this self-evident advantage, that the opposition which has been raised to its introduction will be shorter lived than that which haunted the daily steps of the stethescope. We cannot long doubt the existence of that which is made palpable to our senses, nor the advantage of that mode of procedure whereby alone such objects can be observed. Yet the science of *histology* is new, very new, and therefore confessedly imperfect, even in the hands of its ablest professors; and beyond this it is probably encumbered with a multitude of errors. These defects are, how-

ever, inseparable from the earlier history of any new science; and, as they diminish in number daily, we can have no manner of hesitation in discerning the ultimate triumph of so splendid a discovery. This is your opportunity to master all its truths, and to shew that you are desirous to keep pace in some degree with the advances of the day. An elementary knowledge of the laws of optics is far more necessary to you in your study of histology, than an acquaintance with those of acoustics in your investigations into the diseases of the internal organs; and without this you cannot hope to rise beyond the mere acquisition (valuable as that is) of details.

If we would seek to understand the nature of the circulation of the various fluids in the body, we must also know somewhat of another science—that of *Dynamics*. It is remarkable that the amount of force exerted by the heart upon the ejected blood has not to this day been satisfactorily discovered. It is only a very few years ago that a distinguished professor of anatomy in London felt it to be needful to institute a new series of experiments in elucidation of this subject. Borelli estimated this force at the enormous value of 180,000 pounds avoirdupois, Hales at 50 pounds, and Keill at 5½ ounces; differences so remarkable, as to lead us to infer, either that in their day the principles of dynamics were not understood, or that there was some inherent difficulty in their application to the living frame.

Permit me to allude to one other physical science—one which is now falling within the especial province of the Physician—one with which the world now requires you to be somewhat acquainted—that of *Pneumatics*.

The present sanitory movement must eventually fall much into the hands of medical men, a body whose duties eminently qualify them for that position. Yet, in the number of the "Athenæum" for June 26th, you may read an article tending to shew that medical men have a direct interest in the continuance of epidemics, and of every other occasion of disease, and therefore that they ought not to be employed in any attempt to remove them. This I hold to be a calumny, and unworthy of so liberal a paper. I doubt much if our interest is necessarily served by the continuance of intramural interments, of cesspools, of filthy water, and of impure air; and if it were so served, it is notorious that medical men have ever been the foremost to expose such evils, and to urge their removal. We are accustomed to foster our love of approbation by boldly stating that there is no body of men who labour so

much for the public weal, and there is none to whom so few acknowledgements are awarded; and I take leave to assert that our detractors will find it difficult to prove its falsity.

Of the causes of disease just mentioned, I will refer to one more particularly, that of impure air. The efficiency of this cause is indisputable; and, amongst other sanitory measures, it is proposed, through various mechanical agencies, to remove this impurity, and to afford to every dwelling a constant supply of pure air. This is not simply a question for chemists, but for the attention of the practical physician, who, with a benevolent heart and an enlightened mind, may devise a remedy. We have an excellent example presented us by your respected and talented teacher and physician, Dr. Chowne, who, at a very great personal inconvenience, has unweariedly prosecuted a long series of experiments, with the happy result of having invented an instrument which bids fair to rank among the most philanthropic inventions of this eminently philanthropic day, and is calculated to remove impure air, and to supply pure air continuously, silently, surely, and economically. It is no little credit to this school that one of its professors should have evinced so great an amount of theoretical and practical acquaintance with the science of pneumatics; and I feel assured that the example will not be presented to you in vain.

I have now ventured to commend to your attention certain classical and mathematical studies; but since they are not prescribed by our legislative bodies, you may not be earnestly disposed to accept them, although you may be ready to admit their utility. We need to feel that a necessity is laid upon us to pursue some course of study which our judgments may cordially approve; and if that be simply an emission of our own will, it may be sufficiently potent. You must have felt this on many occasions. Permit me to suggest a necessity. Do not rest satisfied with the bare attainment of that status in the profession which the laws of our country impose upon you, but willingly and with energy aspire to a higher position.

Accept the voluntary examination now offered to you by the Apothecaries' Company, in which you may evince an acquaintance with the Greek language and other subjects.

You purpose, without exception, to become members of the Royal College of Surgeons. Let me suggest to you that there is now a higher position in the College—that of the Fellowship. To be a Fellow as well as a Member has become an indispensable weapon of defence since the publication of the late Charter, through

which a large proportion of the existing members will obtain that distinction on the payment of fees only. This concession cannot be claimed by you; and as you would not occupy a position in the Corporation inferior to that of very many of your compeers, seek to enter it by the narrower gate of admission by examination. Now that you are fresh from your classical and mathematical studies you may find a convenient opportunity to pass the highly creditable preliminary ordeal.

Having prosecuted your studies with intelligence and diligence, you will discover that the same amount of information which you will have gained in order to the obtainment of your necessary legal qualifications, will satisfy the requirements of an University education in medicine and surgery, and enable you to obtain a degree in Medicine. The portals of the University of London are open to you from this School; and whether you purpose to practice as Physicians, Surgeons, or General Practitioners, I would urge you to take advantage of your present period of study to enter the list of its Graduates.

These are honourable aims, and such as should induce you to use your time well, and to prosecute your studies with method and completeness; so may you rise to the position of those whose ambition it is to be singled out from the mass of Medical Practitioners.

I now proceed to invite your attention to a very few general remarks in relation to the medical studies presented to you in this School; and in doing so I shall limit myself very much to that department which has been placed in my hands, and to the aids which modern science has afforded us in the study of it; knowing well that the merits of the other subjects will be discussed with greater vividness than I can command, and that you will receive from my talented colleagues, in turn, much wholesome advice in relation to their special pursuits.

The department, then, to which I would refer especially, is that of Anatomy, an extensive and fundamental one, and one to which you are called by your Regulations to devote a longer period of attendance than to any other. Its importance is, therefore, well recognised by our legislative bodies, as well as by the Profession at large, and, I may add, by the educated public also. To what circumstances, then, does it owe this acknowledged importance?

First, and most palpably, to its connexion with surgical operations.

Even those who now enter this School do not need to be in-

formed that no considerable portion of the body is composed of one structure only, but that, besides the bones and muscles which constitute the mass and give form to a limb, we find blood-vessels, the unexpected opening of which may destroy life by the pouring out of the vital fluid. It is therefore imperative that the Surgeon should know where such vital structures are placed, so that he may avoid them in his operation, or, if he must cut them, that he may do so completely, and then close up their open ends by ligatures. There are also nerves, organs through the influence of which we move and feel, which must be avoided, or wholly divided, and, being divided, if the Surgeon were to place a ligature around them in the belief that they were blood-vessels, the patient's life would probably be sacrificed.

The value of anatomical knowledge in operative Surgery is also well observed in those operations in which we explore or open the deep-seated cavities or organs of the body, as in puncturing the bladder in any of the recognised modes for the extraction of stone, or in opening the cavity of the abdomen in search of a strangulated hernia. But without detaining you on this head, I would briefly advert to two series of operations which have been performed in this Hospital during the past year; the one for cleft palate, by your accomplished Surgeon, Mr. Avery; the other for the excision of the upper and lower jaws, by my esteemed colleague, Mr. Hancock. The first mentioned operation was devised by Mr. Fergusson, and is based purely upon a profound acquaintance with anatomy. The obstacle to the cure of cleft palate is the difficulty with which the separated edges can be kept in close approximation. Professor Fergusson attributed this difficulty to the retraction of certain small bundles of muscular fibres (the palatine muscles) inserted into the soft palate, and he proposed their division; a proposition which appears sufficiently simple now that it is made, and which is well calculated to illustrate the value of accurate anatomical knowledge in the improvement of surgical operations.

The operation demands some manual dexterity, as well as a true knowledge of the relations of the parts; and many of us could bear testimony, if it were not presumptuous to do so, to the skill displayed by Mr. Avery on those occasions, to the success which followed, and to the kind anxiety evinced that all the spectators should thoroughly comprehend its nature. The theatre, crowded with Practitioners (many of them eminent for their operative skill), as well as Students, proved the extreme importance of the operations for the excision of the jaws, and the well-earned reputation of the operator. You can never forget the fearful nature of those

operations, nor the chill which crept over you as you witnessed the havoc made with the human countenance. You do not, perhaps, as yet fully know the great difficulty which attends the performance of those operations, and the many vital structures which it was necessary to divide; but you can have no difficulty in believing that the greatest manual dexterity would only suffice to destroy the victim, if unguided by a correct knowledge of that other science of which Mr. Hancock was formerly a Professor.

Secondly, Whilst, therefore, an acquaintance with Anatomy is as essential to a surgical operator as are his very hands and instruments, it is not less so to the Surgeon or Physician who would seek the cure without the extirpation of the disease. Many of you, I doubt not, take advantage of the unrivalled opportunities which are offered to you in the neighbouring Institution, the Westminster Royal Ophthalmic Hospital; and in your examination of the thousands of cases you must have been much impressed with the close approximation of the tissues of the eye, each differing widely from every other in anatomical and physiological characteristics, and each having its own distinctive marks of disease, and its own special dangers.

You have learnt how necessary it is to distinguish inflammation of the conjunctiva, which may be trifling, from the like affection of the next more deeply-seated structure, the sclerotica, which may be serious; of inflammation of the cornea from that of the iris, which are adjoining structures; of ulcer of the cornea from effusion of lymph into the anterior chamber; and, lastly, of amaurosis from cataract. These diseases, with others attacking the various tissues of the eye, shew perhaps, more readily than any other, the essential value of anatomy, both in distinguishing and in treating disease.

This is an illustration from the practice of Surgery; let us now take one from the practice of Medicine; *e. g.* inflammation of the substance of the brain and that of its membranes, the one more certainly fatal, the other more clearly active; inflammation of the pericardium, or bag of the heart, and of the heart itself; of the lungs and their serous investment, the pleura; of the peritoneum lining the cavity of the abdomen, and of the tissue of the intestine lying directly underneath it. Before the anatomical structure of these various parts was well understood, it was common to confound the disease of the organ with that of its envelope; and thus the terms, inflammation of the brain, heart, lungs, and bowels, comprehended all the diseases just mentioned. For some years past

these diseases have been duly distinguished; and we now know that the symptoms, origin, course, treatment, duration, and prognosis of diseases of the organ and of its envelope are greatly diverse.

Then, again, in the cases of hidden disease of the abdominal viscera, how difficult ofttimes it is to assign to the proper organ the symptoms which have arisen. In the immediate neighbourhood of the pit of the stomach, for instance, we find the stomach, the liver, the gall-bladder, the intestine, and the pancreas, besides a host of nerves and blood-vessels, and the general covering of the whole, the peritoneum. In many chronic cases of disease it is only by the most minute attention to the symptoms as they arise and succeed each other, and an intelligent, ocular, and manual examination of the parts, that even an approximation to the truth can be attained. Without a knowledge of the organs, and of their precise limits and relations, we should be plunged into a very chaos.

Thirdly, The value of anatomical knowledge is self-evident in relation to the anatomy of *Morbid Structures* (Pathological or Morbid Anatomy); for how may we determine if they are morbid at all, if we know them not in their healthy state? or how may we determine the *precise* changes which have occurred in their structure, if we are ignorant of their most minute component parts? That we have made so little progress in our acquaintance with disease of the nerves may be probably owing to the absence of any very intimate knowledge of the structure of those important organs, and especially of the nervous substance of which they are necessarily composed. Even in this day—a day eminently distinguished for investigation into anatomical causes and effects of disease—we are compelled to class together a great variety of complaints of which we know very little, and label them "nervous affections." It may probably be owing to this defect that we have learnt, as yet, so little of the intimate condition of the brain in cases of insanity; and science seems to indicate that this defect must be removed ere we may attain to a correct knowledge of the etiology and treatment of that fearful disease. So, again, with reference to diseases of the kidney. In the thick darkness which still envelopes this subject, the Physician feels that his sole guide is the anatomical investigation into the intimate structure of that organ which has been made within a very years by an accomplished contemporary, Professor Bowman. It is quite clear that these investigations have already shed very much light upon this too obscure, yet important and interesting subject.

Having now illustrated the advantages resulting from anatomical knowledge, I shall conclude my address, by referring to the mode in which the study of Anatomy may be best prosecuted at the present moment. We are greatly assisted in the prosecution of these studies, in both healthy and diseased structure, by two youthful sciences (to one of which I have already referred)—Organic Chemistry and Histology; and we owe to their conjoined aid very many of those discoveries which have shed so much lustre upon the present age. Not that they are supplanting the patient and industrious habit of dissection, which must ever mark distinguished anatomists; but they are giving to the patient investigator the means of correcting the errors of his predecessors, and of carrying his examinations to the utmost limits.

It may appear almost incredible to many students, that organs so gross and palpable as muscles ordinarily are, should have escaped the careful discriminating inspection of anatomists who have laboured in this field down to the present day, whether aided or unaided by the sciences just mentioned; yet, within a few years, Guthrie and Wilson have discovered the muscles which now bear their name; several of the muscles of the internal and external ear have been described; the muscularity of the coats of arteries, of the intestines, of the iris, of the bronchi, and of the uterus and vagina, has been set at rest; and even within the last few months your lecturer on Surgery, aided by Mr. Hogg, a greatly-esteemed former pupil of this School, has contributed one of the most valuable discoveries of his time, in his description of a muscular coat investing the whole of the urethra down to its lips, and the corpora spongiosa and cavernosa, and which I shall describe in this course of lectures as Hancock's layer. This last discovery, at least, could never have been effected, had it not been for the aid afforded by the microscope in skilful hands.

To the same instrument we owe the recent splendid discoveries of the true structure of the liver by Mr. Kiernan, and of the kidney, already referred to, by Mr. Bowman; of the anatomical composition of bone, of mucous and serous membranes in general; and, above all, of the great general fact of the cellular origin of all vegetable and animal structures whatsoever. By its aid (in connexion with organic chemistry) we have learned much of the nature of the blood, the fruitful source of healthy and diseased structure, and also of all the various secretions and excretions of the body, and, not the least, of the many pathological changes which occur under the influence of disease in both the solids and the fluids of the human system.

Our diagnosis of an inflamed part is not now restricted to the gross marks of altered size, colour, and consistence; for independently of all these, and of every other feature evident to the naked eye, we can demonstrate its product. In our description of a malignant structure, it no longer suffices to point out the resisting texture and white fibrous bands of carcinoma, or the brain-like bleeding substance of fungus hæmatodes, or the blackened spots of melanoid cancer; for these descriptions are not sufficiently precise, and therefore are apt to be fallacious: but let a speck of it be placed in the field of the microscope, and, with almost infallible certainty, its true character will appear.

A distinguished surgeon has recently offered some pertinent remarks on this subject, in a paper printed in Guy's Hospital Reports, Vol. VII. Part I., which I commend to your careful perusal. The writer is distinguished above most men, in having, late in life and in the midst of professional engagements, undertaken the difficult task of obtaining a practical acquaintance with both these sciences, and such an acquaintance as has enabled him to communicate most acceptable information to others. He gives his opinion of the value of the microscope, and of organic chemistry, in the following words—

"I am only anxious to shew that, although late in life, I am nevertheless convinced, that no longer can either the study of anatomy or pathology be prosecuted by mere dissection as a means of displaying the normal structure and tissues of the human body, nor can the morbid changes to which these tissues are obnoxious from disease be understood by only examining the specimens which are accumulated *en masse* in the collections of our hospitals. It is quite indisputable that the smallest portion of a diseased structure placed upon the field of the microscope will tell more in one minute, to an experienced eye, than could be acquired in a week's examination of the gross masses of disease as preserved in any museum.

"It is true, that, in an anatomical point of view—as far as refers, that is, to the relative position of disease to any important organ—much benefit may be derived from the preservation of such specimens; but as to the nature of the disease itself, the condition of the tissues implicated in the abnormal change, or the nature of the resulting effusions, I believe no correct estimate can be formed without the aid of the microscope and chemistry."

Can I too urgently commend these aids in the acquirement of anatomical knowledge to your attention? It will afford me great

gratification to add my humble efforts to the labours of my colleagues, in assisting you to follow so admirable an example as that thus offered to you in the person of Bransby Cooper. You will experience the benefit of this mode of study, not only whilst you are students, but also when you have entered upon the practice of your profession; for you will then regret to find that very many difficulties beset your path in the treatment of disease, and you will gladly court the help of any thing, or of any one, even promising to remove your doubts. These difficulties beset the path both of the accomplished and the ill-educated practitioner, and both need all the assistance which the two sciences referred to can offer. Instances of the benefit which has resulted in the diagnosis and treatment of disease are multiplying daily, and the following, which have occurred within the last few months, may suffice for illustration.

A surgeon was sorely puzzled, a few months ago, to determine if the cavity of an abscess situate in the perinæum communicated with the rectum. This was a problem which greatly concerned the treatment of the case, and the probe could not solve it. He carefully examined from time to time the nature of the discharge, and occasionally observed certain minute solid points intermingled with the ordinary purulent secretion. These he very properly preserved, and forwarded one of them, scarcely larger than a pin's point, to Professor Queckett, the eminent Histologist at the Royal College of Surgeons. Mr. Queckett readily determined that it was a vegetable structure, and that it contained oil. Whilst pondering this matter in his mind, he noticed a friend eating seed-cake, and, seeing a carraway-seed, took it, and examined it with the microscope, and found that it was the very substance which had been forwarded to him. Thus the discovery of the minutest point of a carraway-seed in the discharge from the abscess proved that the cavity communicated with the rectum, and the problem was at once solved. The patient was accustomed to eat seed-cake. This was a happy reward for the intelligent watchfulness of the surgeon, and his example is worthy of your imitation.

A lady, suffering greatly from indigestion, passed daily, per rectum, a large quantity of laminated solid substance in flakes of large size, much to her own distress, and to the amazement of her medical attendant. Several medicine bottlesful were collected, and one was forwarded for examination to Professor Queckett, who

discovered that it consisted of portions of the coats of arteries and of fasciæ, the undigested parts of mutton-chops, of which the lady had been directed to take freely. The careful exclusion of such indigestible portions of food permitted the patient to take that which was of benefit to her, and to avoid a continued cause of indigestion.

Lord C., a youth aged 12, consulted Sir P. Crampton, of Dublin, for an affection of the throat, which, without presenting any cause for alarm, was a source of discomfort. Sir Philip referred him to a distinguished surgeon in this city, (who frequently honours this theatre with his presence,) for the purpose of extirpation of the disease by the knife. This latter gentleman, having far more than an ordinary degree of talent for observation, and fully appreciating the value of microscopic examination, detached a morsel with his finger nail from the back part of the throat and took it to Professor Queckett. On examination, it was proved to be a malignant disease. The surgeon relied more upon this revelation than on the evident health of the patient, and refused to operate. In a few months the patient died of the malignant disease, as was proved by the *post-mortem* examination. In this instance the microscope averted much needless suffering and danger, and rendered a case perfectly clear which would otherwise have been very obscure.

The subject of the fatty degeneration of tissues, and especially of muscular fibre, now attracts universal attention, on account of the light which it is calculated to shed on the nature and treatment of disease.

Mr. Adams, of the Orthopedic Hospital, is occupied in a very elaborate and interesting series of anatomical investigations, to determine the relation which this condition of the tissues bears to clubfoot, and, with the aid of the learned Professor of Histology referred to, has made the unexpected discovery, that it precedes the occurrence of the deformity, and is therefore a cause, rather than a result, of clubfoot, and of the inaction of the muscles which attends it.

Drs. Ormerod and Quain had already proved that this waste of tissue of the heart is a frequent cause of sudden death, and that its existence may be ascertained by certain detailed symptoms. Dr. Barnes had also intimated that the fatty degeneration of the placenta is a common cause of abortion; and my accomplished colleague, Mr. Canton, has also demonstrated the existence of this disease in the opaque circle observed in the circumference of the corneæ of old persons, the arcus senilis. I call your particular atten-

tion to Mr. Canton's discovery, since we have reason to hope that it will supply a great desideratum, viz. an external and readily recognisable sign of a stealthy and important internal disease.

In conclusion, permit me to state that a knowledge of human anatomy alone, correct and complete as it may be, will not suffice for the requirements of the present day. Your attention must be directed to Comparative Anatomy—the anatomy of the mighty series of existences which an almighty and benevolent Being has created for our exclusive benefit—at least so far as to enable you to unravel the intricacies of the human fabric. It appears wonderful, on reflection, that all this extended animal series of existences is built after one general plan, and that the composition of its most complete structure, man, can be determined only by the aid of a knowledge of the structure of greatly inferior creatures.

Let us be thankful that a more enlightened and extended acquaintance with the works of nature, and the prevalence of a higher state of feeling, have dispersed that disposition to materialism, which was but too evident in those given to scientific pursuits at the beginning of the present century. Let us not be less devout than Hippocrates and other heathen sages, who, in their writings, made continued reference to the gods; but let us rather investigate the wonderful mechanism of the animal frame in the spirit of the writers of the Bridgewater Treatises, and, in all our investigations, look through nature up to nature's God.

NOTE. (*Vide* p. 4.)

I LEARN, from the valuable Introductory Lecture delivered by Dr. Shearman, our Nestor and Consulting Physician, at the first opening of the School, that this Institution, founded first as a Dispensary in the year 1818, and subsequently as an Hospital in 1828, was then the eighth London Hospital; and that it was the only one which had been erected for nearly a century, although the population had more than doubled itself during that lengthened period. Since the date of its foundation a majority of the present metropolitan Hospitals have been built, amongst which may be named—

University College Hospital,
The Royal Free Hospital,
King's College Hospital,
The Metropolitan Free Hospital,
The German Hospital,
St. Mary's Hospital,

besides those devoted to the treatment of special diseases, as—

The Consumption Hospital, Brompton,
The Consumption Hospital, City of London,
St. Mark's Hospital,
The Westminster Ophthalmic Hospital,
The City Ophthalmic Hospital,
The Free Hospital for Women and Children,
The Hospital for Cancer,
The Hospital for Sick Children.
