**Introductory lecture delivered at the Vine Street Royal School of Medicine and Surgery, Manchester, October 1st, 1855 / by Henry Browne.**

# INTRODUCTORY LECTURE

DELIVERED AT THE

## Nine Street Royal School

OF

# MEDICINE AND SURGERY,

## MANCHESTER,

*October* 1*st*, 1855.


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Manchester:

FLETCHER AND TUBBS, JOHN DALTON STREET.

MDCCCLV.

# INTRODUCTORY LECTURE.

GENTLEMEN,

WE are met to inaugurate the thirty-second of the winter campaigns through which this school, and its founder, have successfully passed. Had our progress been always in fair weather, to speak figuratively, we might have become enervated, like the conquerors of southern regions; but storms and winds, let us hope, have made us only the more hardy. And, though our losses have been heavy and continued, let us be stimulated to effort by the remembered virtue of our honoured predecessors. May the motto of our school, *crescit eundo*, be ever maintained, and let it hold good by reverse at least as much as by success.

These thoughts have been suggested by the unavoidable absence this day, in consequence of sickness, of him who was to have addressed you. Let us, then, not *augur* unfavourably from this circumstance, but view it as an instance of the emergencies which medical men, of all others, are liable to be called upon to meet at any time. We shall not be losers by waiting twelve months for the discourse which has been prepared for the present occasion, and which will then be still further matured.

Without other apology than that I am here on an

emergency, having had very insufficient time to prepare satisfactorily for such an important duty, I proceed.

The present time is one of no ordinary excitement, and chiefly so to medical men. We have witnessed, so to speak, scenes that many fondly thought impossible in the nineteenth century. We have witnessed thousands of our bravest countrymen, and of our allies, and yet more of our enemies, destroyed by cruel disease, and thousands besides cut down by the more merciful cannon. Our colleagues in the military service, including several of your former comrades, have had to meet death arrayed in all the terrors of numbers and fearful forms; and well have they maintained the long and hard-earned character of the profession! Without the stimulus and excitement of actual combatants, they have calmly and fearlessly succoured the wounded under the heaviest fire, in the closest parallel; on the battle field, with the never-to-be-forgotten Thomson, they have sacrificed their lives for the fallen foe, as well as friend; and, in the pestilential wards, in the dead of night, and with shattered health, they have laboured with a noble self-devotion, only surpassed in persevering continuance by angelic spirits in woman's form. Many, very many, have fallen, and call upon you to take their places. Who would not do so?

But there must be preparation in quiet, by long continued, and, it may be, almost unnoticed toil, before it can be the duty of most of you to respond to the call; and it is that work of preparation which we are commencing to-day, or recommencing, after a brief period of necessary relaxation.

Your seniors well understand your enthusiasm, and well do they know how much you will need it. For warning and not for discouragement they would remind you of casualties in the awkward squad as well as in the ranks. Of all the students who register in London, Mr. Guthrie tells us, only about one-third ever graduate; and this is exactly the proportion of really perseveringly steady men,

men who are at their post daily and punctually. Surely, there is something in the coincidence of these numbers that speaks of cause and effect. But a word to the wise is sufficient, and therefore I need not carry out the figure between the moral foes, which in the form of procrastination and love of ease—more to be feared at first than actual vice—too much resemble the malaria of the marshes, and the aim of the rifleman.

There are difficulties enough in the undertaking you have commenced, without adding those which must at once arrest it, and to some of these, with the encouragements that will help you to meet them, I beg to call your attention, as the subject of the present lecture. It is the part of wisdom to reflect on the nature of every enterprise before its commencement; and to weigh well all that concerns it—the worthiness of the object, and the worthiness of our motives in seeking it. To attempt this, would require a reference to moral and religious considerations, which are far too important and weighty for discussion on the present occasion. I wish to confine myself almost exclusively to the intellectual difficulties of the study of medicine, and the rational encouragements that suggest themselves in its faithful prosecution. In the spirit of the remarks already made, I would have you grow bold by looking the enemy in the face, and not to weary should it be one, or two, or three winters, ere you take the fortress you are now investing.

1st. The amount of minute detail required to be stored up by the medical student, and the abstruse nature of so many of the phenomena he is called upon to observe, furnish the first difficulty.

Medicine is not the whole of natural philosophy, as in the time of the sages who adopted the terms physic and physician, any more than music embraces all the arts presided over by the muses; but medicine is now firmly established as one of the branches of natural philosophy, and is so related to each of the rest as to render a tolerable

acquaintance with them essential. The present extent of each one of the associated sciences, however, is so great, that no one can hope to make any progress except by almost exclusive attention to the special object of his choice.

Passing by, then, preparatory education, which should be that of a scholar, the acquisition of the preliminary branches of medical science itself — anatomy, physiology, materia medica, and botany— requires a powerful verbal memory. The changing nomenclature of botany and chemistry, with the rapidly advancing strides of the latter, and the application of the microscope to structural anatomy, as well as to both chemistry and botany, have brought this numerico-verbal difficulty to an extreme degree. Histology, or the science of minute structure, itself but newly named, is already a branch of knowledge containing many subdivisions. Thus, we have Queckett on Vegetable and Animal Histology, Kölliker on Human, and Wedl on Pathological Histology. Nearly every organ has been minutely and separately investigated afresh by the microscope. Following the steps of Kiernan and Bowman, who have so clearly revealed the structure of the liver and kidney, we have Dr. Black on the Lungs, C. Handfield Jones on the Stomach, and Gray on the Spleen. Hassal's work on the Adulterations of Food illustrates the application of the microscope to the materia medica, with most important practical results.

Then, as to the abstruse nature of the phenomena to be observed, what exceptions can be made in favour of any? It is possible to be an anatomist, and to be a microscopical anatomist, and it is possible to be a chemist as well, and yet to be ignorant of the mutual relation of organised structure and chemical laws. How inscrutable is the power of the vegetable cell the simplest and first of the structures of which physiology treats! Without any extraneous force, it slowly, yet most powerfully, gives up its oxygen, in a manner the most contrary to all that can be artificially imitated in the laboratory. We may call the force chemical, but it goes quite as far beyond what is commonly so called, as chemical

exceeds what is physical, and spontaneously demands and receives a distinctive term as vital power. How little do we know with certainty of muscular contractility, the most mechanical of somatic actions! Is its proximate cause the passage of an electric current, or the discharge of electricity, and the consequent freedom of molecular attraction, or neither the one nor the other? If these things puzzle, what shall we say to the *modus operandi* of causes of disease, and of remedies; or, last of all, to the nature of the relation of the pure spirit of man with its temporary frame-work!

Sir James Macintosh severely criticises the pure metaphysician who neglects observation and induction; but the pure materialist is deserving of greater censure. For as an eminent writer on Psychology remarks (Feuchtersleben), "the idea of the human organism can be duly comprehended only in relation to the higher destination of man and his spiritual nature." He goes on to say that that which is spirit, indeed, cannot belong to the province of the physical philosopher, neither can spirit be diseased excepting metaphorically; but, from the mutual relations of matter and spirit, phenonema are developed which belong strictly to observation. The science and discussion of such phenonema constitutes Psychology, the most difficult, and yet the most engrossing, of all intellectual exercises.

2nd. When the student proceeds to learn how all these numerous and abstruse materials are brought to bear upon individual cases, in actual practice, a second difficulty is experienced. How can generalisations be made from such necessarily imperfect observations? And how can an individual instance be recognised so as to be correctly classed? This is the difficulty of inductive logic, and is nowhere felt so severely as in the practical branches of medicine—surgery, midwifery, and medicine proper,—simply because of the nature and number of the facts to be dealt with, as already explained.

In the recognition and treatment of disease it is not one complex problem that has to be solved, but many; and very

often, apparently, contradictory phenomena have to be explained. The meaning of each alteration of form, e.g., has to be determined by the surgeon, whether fracture, dislocation, effusion, or tumour, and that whether simple or malignant. If this be difficult, where the eye and the touch can reach everywhere, as it were, how much more hidden is internal pain, without heat, redness, or swelling, pain that we know may be reflected, and so not indicate directly the seat of evil. What disease may not be accompanied by vomiting? How various are the causes, the pathological causes, of hiccup? In mental disease, who fully understands the action of psychical states, and who is certain in his attempt to trace their effects?

The most acute writers have tried to solve the difficulty of inductive logic. J. S. Mill asks :—"Why is a single instance, in some cases, sufficient for a complete induction, while in others myriads of concurring instances, without a single exception, known or presumed, go such a very little way towards establishing an universal proposition? Whoever can answer this question knows more of the philosophy of logic than the wisest of the ancients, and has solved the problem of induction."

Notwithstanding all this, in practice the medical man is expected to be prompt and decided, and the more confident and oracular his opinion, the greater are the honours he receives as a son of Esculapius. On the other hand, a man who knows much more, but is too modest to "rush in" and make "bold guesses," has to take a far inferior place. The combination of decision and honest candour is but rarely found, yet the combination is essential for the successful exercise (successful, I mean, in a popular and pecuniary sense) of that which is necessarily a mixture of science and art. A man's knowledge might be compared to a globe of light, well defined, and placed in perfect darkness. As the light increases so does the observed extent of darkness, for one superficies is the limit of both. The philosopher is, perhaps, too apt to look so exclusively into the unknown

as to forget the distance he has attained from the centre.

After all, there is an instinctive power which each one possesses in a greater or a less degree, which enables him to understand and act aright at once, without knowing anything of the process by which his conclusion has been arrived at. Women have a much more instinctive knowledge of character than men, and the possession of *tact* or *savoir faire* is not to be despised. Even mathematical problems may be worked out by it. The late author of the "Traditions of Lancashire" (Mr. Roby, a banker of Rochdale) could, generally, at a glance, tell the sum of any square column of figures, but if, from being at all discomposed or diverted, he had to employ the ordinary method, he was rather slow than otherwise.

Reason, as we can alone exercise it, is at best but a slow, and tedious, and imperfect, means of attaining truth. Even in astronomy, the purest of sciences, "the creed of philosophers" is not safe from attacks coming from high quarters, and the existence of "more worlds than one," the distances, and even the existence, of universes, is questioned in a manner that has called forth the indignant rebuke of a mathematician and scholar.

But I am almost anticipating the second division of my subject,—the rational encouragements which may be weighed against the difficulties inherent to the study of medicine.

It would be surprising if the enumeration of all that has to be done in the next twelve months only did not make the thoughtful grow pale; but when each day is made to record its own proper work, and duties are not allowed to accumulate by procrastination, the whole will be certainly accomplished, even as the bundle of sticks in the fable was easily broken when they were taken one by one. Besides, no young man of spirit will hesitate to do what others have done before him; for most, I presume, set out far too complacently, resolving soon to distance others.

The artistically beautiful manuals of the present day assist the comprehension of many things at a glance, that

would otherwise be ill understood after the perusal of pages.

Then, again, very much is gained by increasing accuracy in the terms used, and methodical arrangement. This is no where better seen than in organic chemistry.

By the recognition of organic types the similarity of properties in many different complex bodies is explained; and by the admission of organic compound radicals, negative and positive, homologous series are formed which embrace the greater number of organic bodies. Professor Gregory says:—

"We can now see that the progress of science must inevitably reduce the whole of organic chemistry, in which, we must remember, only the same three or four elements are perpetually met with, to a collection of homologous series, in which every compound will have its natural place, indicative at once of its origin, its immediate derivation, and its properties, both physical and chemical. This is so much the case that the student, if he have a clear conception of the nature and relations of the series we call homologous, will have a far better idea of organic chemistry than he could have without this, even if we had space to describe the innumerable organic compounds, which, without this guiding principle, would form, as they have long done, a perfect chaos of isolated facts, which no memory could retain, and to which it would be impossible to give a rational or connected form."

The great superiority of method over desultory study is well illustrated by the success of those who faithfully attend to the appointed curriculum. Let no one seek the wards of the hospital before he has heard something about medicine and surgery, and let no one attend lectures on either of these subjects till he is acquainted tolerably well with anatomy and physiology. To attempt success in this way would be as difficult as to master the relations of nerves and arteries before the muscles between which they run are known, or to remember the muscles before the markings of their attachments to the bones have been seen.

Just now *routine* may be a little in the shade, but, to the

student, implicit obedience to it, as well as to the *ipse dixit* of the master, has a moral, as well as a practical end; and one most valuable to those whose genius would tempt them to contemn vulgar control. He who has not learned to obey is not fitted to rule.

As the preliminary topics pass by, and practical subjects take their place, especially when, in the wards or surgery, more and more is left to the discrimination of the student, the absorbing interest of the exercise of new powers put forth for the welfare of others will help to make amends for the increasing sense of responsibility occasioned by the second difficulty mentioned.

It is a serious matter to have the welfare and lives of others committed to our fidelity and judgment, especially when absolute certainty as to what is best to be done cannot be attained; and nothing can warrant the acceptance of such responsibility excepting a consciousness of having wilfully neglected no opportunity of obtaining an insight into the nature of disease.

The difficulty of attaining certainty in any pathological or therapeutical problem is, however, only felt in the extreme degree already stated, when a new fact or proposition has to be made out for the first time. Many labourers are then often required to amass evidence during many years. But when we act on the authority of others, there are diagnostic tests which, in the majority of cases, afford a satisfactory degree of assurance. In the head, it is true, delirium may depend equally upon inflammation and exhaustion; and jaundice may accompany the most serious or the slightest disorder of the liver—the same symptom depending upon totally opposite pathological conditions. Yet even in these instances, perhaps the most difficult in medicine, there is often no doubt felt by him whose practice is founded upon pathology, and not upon individual symptoms. In other organs, however, which can be reached by physical examination, or whose secretions can be submitted to chemico-microscopical analysis, as the

lungs and kidneys more especially, the practitioner may obtain, in most cases, the conclusive evidence of ocular demonstration.

The history of medicine furnishes us with much encouragement, from the invariable success of those who have sincerely studied and taught the truths of science; for the records of faithful observers, and careful generalisers, however ancient, have proved of imperishable value. It is customary to refer, in proof of this, to the early natural philosophers, as to Pythagoras, for example, who rescued medicine from degrading subserviency to superstition, and to Hippocrates, himself a Pythagorean; yet we ought to go much further back, and do justice to the institutions of Moses. The public of Manchester are indebted to Canon Richson for having brought these institutions prominently forward as models for modern sanitary legislation. They furnish a subject which has for a long time afforded to my mind one of the strongest evidences of the Divine origin of the Sacred Scriptures. The date of the writings of Moses is 1491, B.C., exactly 1055 years before the birth of Hippocrates in 436, *in which interval*, often called the prehistorical period, we have the mythical accounts of the Centaur Chiron, and his pupil Esculapius, the god of physic, to whom temples were reared, and priests consecrated!

Since Hippocrates, in the earliest period of the history of medicine, till the time of Galen, whose reputation was unrivalled during the twelve centuries of the Middle Ages, we have Celsus, Pliny, and Diascorides, who distinguished themselves by being thoroughly imbued with the spirit of that philosophy which Bacon first systematised.

In more modern times, Harvey and the anatomists, Sydenham and others, to Cullen, have had their names inscribed in the temple of true science, as of men who will for ever honour those that walk in their steps of patient investigation and cautious theory. All others, whether dogmatists or empirics, iatro-mathematicians, chemists, vitalists, or even eclectics, all, in fact, who have adopted any exclusive theory,

have, as such, successively displaced each other; not to mention those disgraceful parasites who have always abounded, and ever adopted some new theory, simply to fatten themselves upon the credulity of their fellow-men.

Whoever, therefore, will humbly, as a "minister," and not a "master" of nature, add unto the store of recorded phenomena, may rest assured that though his name may perish, yet that his work shall remain in all its benefit to the present and succeeding generations.

There are many such labourers in our day; and, at the risk of alluring you away from the solid structures of truth, to the actual builders, who may not, as yet, have had their work fully approved, I will mention a few, and it can be only a few, as living examples worthy of your imitation.

The anatomy of man might at first appear an exhausted field, but that it is not so, even in its preliminary details, those who have had the privilege of dissecting the beautifully injected and preserved subjects in this school, will bear ample testimony. Of microscopical anatomy no demonstrations could be more elaborate than those to which you will also have an opportunity of attending. I might go on through the whole list, but let these taken first in order suffice. The encouragement of example is better than precept, and that encouragement you will all have under whatever teachers you enrol yourselves.

From comparative anatomy there is much to be yet gained. In this department of labour Owen stands out as a prodigy of acuteness and industry; whose homologies of the skeleton might rank with the homologous series of the chemist, in proof of the unity with which all things have been designed by Infinite Wisdom. Physiology is much indebted to comparative anatomy. Dr. T. Williams has recently shown how the first appearance of any organ may afford valuable suggestions as to its special functions. For instance, the liver is found in the lowest forms of animal life, and therefore, he argues, must be concerned in the earliest formation of the nutritive fluids. Nearly a century

ago Hewson argued that the spleen is concerned in the more perfect formation of the red corpuscles; and the *amphioxus*, the lowest of the fishes, whose blood is white, has no spleen. The *myxine* and allied genus *bdellostoma*, it should be stated, have no spleen, and yet have red blood. I have already mentioned several worthy labourers in minute physiological and pathological structure, and might add many others, of whom none have produced more splendid illustrative works than Otto Funke, Donné, and Lebert.

The chemical field is still more productive, and it is occupied by many men of indefatigable industry. In our own city, honoured by Dalton's labours, besides efficient and most happy instructors, we have several who take a lead in discovery. On the continent, physiological chemists, strictly so called, are incessant in their toil, but I am constrained to say that their fame is tarnished by the frequent practice of experimenting on living animals. Such proceedings must harden the heart, and unfit a man for medical practice. On scientific grounds alone it is objectionable, for new conditions are introduced which often obviously vitiate the whole proceedings, and always may do. Dr. Todd's remark, seems to me unanswerable, that nature answers no interrogatories put to her by torture. Man is the minister and interpreter, but not the inquisitor and persecutor of nature. A late celebrated British physiologist suffered inexpressibly in his last moments, from the recollection of vivisections he had made for the purpose of determining the functions of the cerebral nerves; though he bore severe and prolonged pain, of the same nature as that which he had inflicted, with unusual intrepidity and firm christian hope.

To return, however. Not to do more than mention the chemistry of digestion, the effects of various principles in hastening and retarding metamorphosis, as investigated chiefly by Böcker, and the estimation of the daily ingesta and egesta, much has been ascertained respecting various

unhealthy and poisonous conditions of the blood. The retention of chlorides during inflammation is the most recent. Scherer has found leucœmic blood to contain gluten, and an intermediate substance between it and the albuminous group. Indigo has been found in the urine by Hassall and others.

Now all these discoveries confirm what analogy renders most probable, that we may find in disease any of the active compounds, which, as the products of vegetation, act so remarkably on the mental, as well as the corporeal part of our nature. Opium, with its proximate constituents, quinine, strychnine, theine, and, in short, nearly all vegetable compounds, are elaborated, during various processes of deoxidation, from carbonic acid, water, and ammonia. Fibrin, albumen, and casein, it is true, met with in the seeds of plants, require the addition of mineral salts. These products furnish the food of man and animals, and in the animal laboratory go through another series of metamorphoses, the great distinguishing feature of which is, that they are all processes of oxidation, or of combination with water. In health the excreta appear as teleoxides, but, in disease, where the processes are hurried, or the fluids thrown off prematurely, bodies less and less oxidised make their appearance. All these, doubtless, exist first in the blood, such as gelatin, chondrin, cholic and choleic acids, glycocine, taurine, creatine and hippuric acids, with many others, either observed or surmised. It is quite possible, therefore, that in many cases principles identical with the poisonous principles of plants may be evolved, which will then manifest their presence by special toxic effects.

In this manner spectral illusions, delirium, melancholy, and all the forms of insanity, may arise, without any structural changes which an ordinary examination can reveal. If so, we need wonder no longer at the contradictory and negative evidence of physical disease in many cases of examination made after death preceded by mental disorder.

The same may, doubtless, be true of poisons introduced

from without, but, as yet, the chemistry of morbid poisons remains hidden from us. We know the conditions under which many diseases are generated, and may conclude, by analogy, that some poisonous compound is set free at some stage of decomposition; but that is all. Yet for practical purposes even this knowledge is sufficient.

Meteorology is a science of much promise with reference to practical results. The official report on cholera contains some valuable observations on the state of the atmosphere during the epidemic of last year, by Mr. Glaisher and others. The chief of the phenomena were the prevalence of mists and fogs, with stillness of the atmosphere, till S.W. breezes removed the mists and also the epidemic; high range of the barometer; increased nocturnal temperature; diminished electricity; and absence of ozone. Other observations by Dr. Snow, on the effects of water supply, are equally valuable. Observations on ozone continue to be made with important results. Dr. Clemens, of Frankfort, believes its absence to be one of the causes of the spread of hospital gangrene, and recommends the ozonometer as a test of efficient ventilation.

Amongst the busy practitioners of each branch of our profession an equal amount of activity and zeal is everywhere manifested.

In our own city I need only remind you of the recent refounding of St. Mary's Hospital, and of the honours which one of its persevering promoters has obtained in the lists, with the most eminent of northern accoucheurs.

In the Infirmary, so noble a public ornament to our city, you will find surgeons, who, by their devotion to conservative and plastic surgery, their success in removing deformities by forcibly straightening limbs, and their novel and scientific management of disunited fractures—works of the past year alone—take rank side by side with such men as Fergusson and Syme, Langenbeck, and Bonnet. To the officers of the Eye Hospital the same honour belongs, for simple, yet well considered, and successful operations.

The practice of pure medicine, too, is making, shall I say, equal progress. Apoplexy, for example, as taught by Todd, is no longer indiscriminately treated by bleeding. The pneumonia of fever, as taught by Stokes, receives a stimulant and supporting treatment, instead of venesection and calomel. The latter is but one of many instances that treatment must by no means be made to turn on an examination of physical signs alone. And the former is likewise but one of many illustrations that neither must the treatment be guided by the prominent symptoms of disease. In both, diseased states of the blood are recognised as preceding structural change; and in both, therefore, remedies are prescribed which shall eliminate that which is poisonous, and supply what is deficient.

After such a review, necessarily so very imperfect, how untrue, and how unjust, it manifestly appears to designate the established practice of medicine and surgery as "The Old School," meaning, by implication, that it is becoming antiquated, and chargeable with all the imperfections of the past. It has too many imperfections and difficulties still to grapple with, but these will never be removed by any happy dream, or odylic revelation; neither will men ever be rendered independent of patient perseverance and common sense.

In conclusion, I trust you clearly apprehend the nature of the intellectual difficulties with which you will have to contend in your arduous undertaking; and that you as clearly appreciate the help that method and inductive reasoning will afford. In addition, the records of the ancients, and of moderns, besides the living examples around you, must make you feel confident of success, so long as you follow in their steps.

Each of my colleagues, to whom I now commit you, will, in his special department, afford you all the facilities in his power. We shall rejoice in your onward march, and shall ourselves be stimulated to increasing efforts, by your diligent attendance and manifested interest.

May your highest aspirations be more than realised! And may your motives also be noble and elevated! Worldly riches, in great degree, are rarely reached by medical service, but honours are in the grasp of all. Yet let not ambition be your ruling passion, an ambition that, when it has reached its utmost goal, will find the heart withered by deferred hopes and tortured with envy. That man is honoured and honourable who seeks to do his duty, daily and constantly, however unnoticed or superseded. But there are rewards that never fail, and there is a service in which none are passed by, a service in which it is possible to obtain the highest honours from the lowest place.

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