Prof A. F. Holmes

Valedictory Lecture

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Holmes (A. F.)

# VALEDICTORY ADDRESS

TO THE

## Graduates in Medicine of M'Gill College

ON THEIR RECEIVING THE DEGREE OF DOCTOR OF MEDICINE & SURGERY,

**Conferred by Convocation, 4th May, 1854.**

box 4



BY A. F. HOLMES, M.D.,
Professor of Medicine, and Dean of the Medical Faculty.

GENTLEMEN,—At the close of our mutual labors, and before we sever the relation so long subsisting between us, let me address to you a few words. I have said "sever relation;" I do not mean sever our connexion, for that, I hope, may become still closer by the new relationship in which we now are about to stand.

When you first placed yourselves under our direction, you had two objects in view—instruction and graduation—the former as the means of attaining to the latter; the latter as a testimonial of successful pursuit of the former. One of these objects, viz., graduation, it was in our own power to bestow; the other required your active co-operation; for no matter what amount of instruction we had in our power to give, it would have been of little avail had not your minds been prepared and ready to receive it. Pursuing, then, the same object, whether as instructors or instructed, we might naturally be expected to, and I trust have, become mutually interested in each other; so that while YOU in after life, may look back with satisfaction on the period of study spent with us, and with kindly wishes for the prosperity of your alma mater, WE may hereafter, in hearing of your eminence in your profession, rejoice that you "Hail from McGill College."

The course of study which you have pursued is an arduous one. Four years, when looked forward to, seem a long period, but your own experience has taught you that it is by no means too long to conquer the various topics comprised in a good medical education. And yet, after all your labor, whereunto have you attained? You have only, as it

were, arrived at the portal of a vast enclosure. You have only reached the starting point of the race you are to run: you are furnished with arms, you have a complete panoply; yet you have not yet proved them, and will often find them cumbrous and difficult of management, till time and repetition shall have given you the facility of manipulation which you see in the hands of your seniors.

In fact, however prepared to commence the duties of your profession you lack EXPERIENCE, and this is a branch of knowledge which *we* cannot teach you, but which must be acquired by an intelligent and persevering use of those tools with which we have furnished you.

I well recollect, many years ago, when I first entered on the study of medicine, how wonderful it appeared to me that my preceptor could so rapidly decide upon the remedies required by his patients; a few hints and a glance or two seemed to enable him to seize the whole subject. It looked like intuition. The whole subject seemed to flash upon his mind without the labored operations usually required to reason out a complicated question, and to come to a conclusion. But, gentlemen, experience has long ago taught me how this is done, as it will undoubtedly in due time teach you.

It is of much importance in pursuing your profession, that you should estimate it properly. Medicine is not an exact science; the varied and often conflicting opinions of its professors give abundant proof of that. It has even been called disparagingly a "conjectural science," which no doubt it sometimes is, and indeed must be, till knowledge becomes perfect. There are, however, few branches of knowledge to which we can apply the appellation of "exact." It is in mathematics and the portions of other sciences dependent on them, that we can look for anything deserving of the name. In these we may be certain in our deductions, but in none other. What branch of knowledge is not shifting and changing? If it be a complaint that medicine, which has been studied for between two and three thousand years, is still unsettled and imperfect; may we not say the same of other branches? Can we not turn with confidence to the other Faculties of our College and ask, Are you better off than we? Are your foundations more firm, or your principles more stable? Look at education in general, a pursuit which must have occupied the minds of men ever since men were united in social relations, and yet do we find it at the present day pursued on a well-established basis. On the contrary, have not the "new lights" discovered the incapacity not only of old established institutions, but even of long-established rules.

Again, what is of more importance to the well-being of man than a proper knowledge of the laws that should govern international relations; still, as a science, political economy is but juvenile, and yet under its dic-

tation, maxims rooted in the prejudices and apparent interests of communities are rapidly giving way. Look, again, at "the glorious uncertainty of the law," and ask its expounders if the medical profession deserve to be twitted with being the followers of a conjectural science.

In fact, medicine is only on a par with knowledge in general. All knowledge is imperfect, and this imperfection must be received as an element in our proceedings. We can only act according to the knowledge we possess. We cannot foresee the future, nor act beforehand upon knowledge which our posterity shall possess. In one sense, at least, the children shall be wiser than their fathers. How much saving would there have been, could this impossibility have been otherwise! Where would have been those splendid aqueducts which the old Romans raised, and whose ruins remain as monuments at once of their public spirit and of their ignorance? How many of the canals which intersect our mother country (and I may almost say our own,) would have been left unmade could their projectors have foreseen the period of railroads?

But with all this acknowledgment of the imperfection of knowledge; the liability of that which we suppose we have done *well* being in future exploded and destroyed, we cannot stand still. It is not by folding our arms and waiting, that we shall acquire what we desire, but by strongly willing, and putting forth our power to explore every corner of the vast field of knowledge, and to exhaust all means at our disposal.

I think I have proved that Medical Science is at least not lower than the level of other Sciences, but I think I may go further and assert that there is an apology for medicine which does not exist in regard to several other of our pursuits. What are the subjects with which medicine has to deal? Those confessedly which are least understood. They are Life and Death; or, as I should more properly say, life, for death is only the negation of life. But what is life? Who, of all this assembly or of any assembly in the world, can tell me what life is? It is true I can tell where life is; I can judge of its presence by its manifestions, by its effects; but this does not give me its nature or its essence. Now when it is the business of medicine to counteract the tendency to death, to strive to preserve life, how can medicine be otherwise than imperfect, seeing the very subject of its operations is not comprehended? The nature of life itself being unknown, we are unable to discover in what way its influence pervades our various organs, so as to bestow upon them their endowments of sensibility, irritability, and sometimes almost of intelligence; and in this want of data, is it at all strange that we should often be unable to predicate a just decision as to the present or the future condition of our patients, or of the effects of our remedies upon them.

Gentlemen,—It is a great thing to know how much or how little we really know; for not only shall we be led to supply our acknowledged want, but we shall be able to apply what knowledge we have much more effectually to useful purposes. When we are in ignorance, we are very apt to allow prejudice to usurp the place of wisdom, and fostering our delusion so as to oppose an effectual bar to our improvement. How many evils and follies and crimes have originated from this cause? Medicine has not been free from them. It was from the prejudice of an erroneous theory that it was once customary to treat a case of small pox with blankets and heated air and drinks. It was from a similar erroneous prejudice that the cure of wounds was sought by cramming them with lint, the treatment of all others most detrimental to them. You will often, probably, be asked to give the reason of occurrences; nor will this inquiry always be kept within reasonable bounds. Nothing is more easy to ask than, What is the reason of a thing? yet, often, nothing is more difficult than to give a proper answer. A child may puzzle a philosopher, and it is often the ignorant who are most pertinacious in requiring an answer; but their very ignorance makes them contented with the most superficial reasons, and often the most flimsy are quite satisfactory. The Hindoo believes the earth rests on a tortoise, without asking what supports the tortoise; so, in our practice, we find that a mere learned name will often set at rest many difficult inquiries, and this is both fortunate and unfortunate—fortunate, because it often saves the labor of cogitation, and the often unpleasant confession that you do not know;—unfortunate, for it often prevents us from being *candid* with our patients, because we feel that our candour in declaring we do not know (perhaps what no one else knows) may be interpreted as if we were improperly ignorant of what it was our duty to know.

There are two errors to be avoided: an overweening prepossession that we are very wise, which leads to dogmatism and quackery; and a want of self-reliance, which leads to inefficiency. In our approaches to one or other of these errors, a great deal will depend on temperament; both of them, however, lead to one result, a system of routine—the one asserting the supremacy of its knowledge, will not condescend to alter; the other, fearful of untried consequences, prefers the beaten track. Routine is not the part of a scientific physician, whose decisions and directions should always have a basis of reason; it is manifestly unfitted for emergencies, and frequently injurious in ordinary cases; it leads to the treatment of mere symptoms, or is guided by mere names. I have often endeavoured to impress upon you that the inferiority of the physician over the quack existed chiefly in his acquaintance with the various phases of disease incident upon the differences of constitution,

state of body, and circumstances in which it was placed. I have also often warned you not to suffer yourselves to be led away by the mere name of disease, so as to treat all cases coming under that name in the same manner; but always to regard disease not only as modified by the circumstances which attend it, but often requiring a treatment opposite to that which at another time might be most advantageous.

Medicine should be as far as our knowledge will allow a scientific study. I have alluded in some former remarks to the rapidity with which an old practitioner will understand the nature of a case and prescribe its appropriate remedies; but it is not always so. Many times with most earnest attention are we obliged to scan the aspects of a case. Many times do we cautiously balance the plans of treatment most appropriate. Often do we wait in anxious solicitude the effects of the medicines we have thought necessary to prescribe. We are sometimes unable to decypher the indications of disease. Often we are unable to foresee the results of our treatment. The investigations required to treat a case are often extremely extensive. We must seek the medical history of the patient for years back, even to his progenitors; also, his habits and the circumstances in which he has been placed; all present symptoms must be examined and their importance analysed. Having thus obtained a knowledge of the disease, we have next to investigate in what way we shall be best able to remove it. Here we have to weigh all the circumstances which make one plan preferable to another, and here we are often led to treat the same disease at different times in different modes, *i.e.*, inflammation, which sometimes requires severe depletion, while at others we uphold the strength with stimulants and wine.

Gentlemen,—In the course which you have gone through, you have necessarily learned many things which were elementary; and many that seemed more directly practical; and you were led, perhaps, to look upon the former as mere steps for the attainment of the latter, and therefore to be disregarded when the purpose was fulfilled. Your conclusion, though in some respects correct, would, on the whole, be erroneous, and the examinations you have gone through will have shewn you that your professors required quite as much elaboration in your elementary as in your practical studies. I desire now to impress upon you that much of this elementary knowledge is of direct practical bearing, and must not be laid aside, as if its end was wholly attained; but must continue to be cultivated and refreshed from time to time.

Let us take, ex. grat., the department of Chemistry. You are perfectly aware that without a certain knowledge of chemical laws and combinations, it is impossible to get accurate notions of many of the func-

tions, and most of the materials of the body. The great operations of digestion, respiration, and secretion, and their products, cannot be understood without this knowledge, nor can the materials which, under the name of food, enter our bodies, and form the subjects of these operations, and hence become of such high importance in reference to health. Chemical research has revealed to us the interesting fact, that our food, whether derived from a vegetable or an animal source, is identical in its nature. It has shewn us that much of our food, though necessary for other purposes, is not qualified to repair our wasted frames, and that we may even die though supplied with abundance of what is usually thought nourishment, as was exemplified in the case of the too zealous Dr. Stark, who fell a victim to his perseverance in the use of non-azotized materials.

The daily, nay constant, waste and repair of the tissues of our bodies furnishes another example of the importance of chemical knowledge to enable us to understand ourselves. Every one, unavoidably, becomes experimentally acquainted with the need of food to support the strength and power of the body; but few, perhaps, out of the profession, are aware that this is effected by the continued addition to our tissues, through the medium of the blood, of those particles of food that are fitted to nourish them, and that, after these particles have served their purpose, and have become effete, they are again removed through the same channel of the blood, and consigned to their appropriate emunctories. This wonderful process of waste and repair continues from year to year, renewing us completely, and making us living Paradoxes—the same, yet not the same—same as to identity, different as to material—the same being from childhood to old age; yet every particle altering continually.

But to furnish you with another example. What more beautiful illustration can be afforded of Divine contrivance than the chemical apparatus which nature gives us for sustaining our animal heat, and enabling us to bear the colds of these northern regions, or even to enjoy health and comfort, when the thermometer is 50° or 60° below zero, as was experienced by the searchers of the North West Passage. This important process is effected by the passage of our food, after certain elaboration, into the blood, and then, as it circulates through every fibre of the body, by its gradual change in consequence of union with oxgyen: so that it undergoes a process of oxidation quite the same, as the change that takes place in the fuel of our stoves and common fire places, making us, in fact, examples of spontaneous combustion, though not precisely in the common understanding of that term, which is applied to designate a much doubted fact, that may hereafter, perhaps, obtain its confirmation from the mode in which na-

ture keeps up her fires in the body, the flues of which are perhaps liable to become over-heated by undue accumulation of fuel, as well as the more visible ones which we run through our dwellings.

But you may say these examples, though striking proofs of the need of chemistry to enable us to understand the functions of the healthy body, are not practical, inasmuch as they do not refer to the diseased body. They are highly important as physiological truths, but they are not pathological. This is true, but if you understand not the physiological, how can you understand the pathological? Could you venture to undertake a nice operation of surgery without knowing the parts amongst which you are to cut? So how could you venture to meddle with diseased organs, the elements of whose functions you are unacquainted with?

But I need not rest my argument on this ground. I can show you that changes which are strictly pathological can only be recognized by chemical manipulations, and being recognized, can only be remedied by chemical appliances. You have all heard of the Humoral pathology, or of what, in the not very grammatical though very expressive phraseology of the day, are called blood-diseases. This humoral pathology, by the bye, furnishes a not uninstructive episode in the history of medicine. Received as manifest truth for many ages, it fell at last into disrepute, became the butt of ridicule to the moderns, and was referred to chiefly as shewing the absurdities of the ancient schools of medicine.

This once supposed "exploded dogma" has, however, again begun to raise its head, and counts among its abettors many of the best and safest of our practitioners; and this change is comparatively recent, for it was several years after I had completed my medical studies before this old doctrine began to reappear. My mind is apt to dwell upon this change as one evidence, among many others, of the imperfection of our boasted reason, and of the propriety of using modesty and caution in asserting even the most generally received of its conclusions.

It is true that in the olden time the humoral pathology was but a speculation, though certainly a happy one; it was not based upon experiment, the proper ground of philosophical deduction, and therefore fell. The humoral pathology of the present day may be expected to become an ascertained fact, inasmuch as it is based not on hypothesis, but on multiplied experiment and observation.

But to return. Blood diseases are so named because they consist in an alteration in the materials of which the blood is made up. That fluid consists, as you know, of certain constituents in certain proportions variable within certain limits, without affecting health; but beyond these becoming less fitted for the performance of its normal duties; and, be-

sides these changes among its own constituents in regard to proportions and to qualities, the blood is the great sewer, if I may so speak, through which the drainage of the body is effected. It is, moreover, liable to receive poisonous contaminations from without the body, introduced in a variety of ways. In these different modes, then, the condition of the blood may be altered, and origin will be given to the so-called blood diseases; the number of which seems rapidly increasing, as for instance, in the lectures of Dr. Todd we find alterations in the blood assigned as the cause of those derangements which seem most to favor the notions of the solidists, and to depend upon the condition of the moving fibre, viz, Spasmodic diseases.

The blood then, you perceive, is liable to alterations, which, by calling in the aid of chemical manipulation, may be ascertained, and lead to the application of remedies more appropriate than could otherwise be applied. It is true that this field of investigation has been opened so recently that great results have not yet been effected, but they loom in the distance inviting us by their magnitude to carry forward the work with energy and perseverance. Discoveries in this field are not unfrequent, promising abundant fruit to future investigation, and probably leading to most satisfactory conclusions both as to pathology and practice. Take as an example the recent discovery by Bernard of a normal function in the liver, not before suspected, the conversion of a portion of food into sugar. That eminent chemico-physiologist by analysing the blood entering the liver and that emerging from it as well as the substance of the liver itself, has proved that in health, sugar is constantly produced, recognizable in the blood till it has passed the pulmonary circulation, after which, in the normal state, it is no longer to be found.

Do you not at once see one of the direct practical bearings of this new fact? Will it not serve to clear up the great obscurity which has long hung over the very fatal disease called diabetes, and not only tend to elucidate its nature but by fixing on the precise points where the hitherto considered abnormal material of sugar is produced, and the point where normally it disappears, enable us to ascertain what the precise change is which prevents its disappearance at that point, and allows it still to circulate with the blood; and when that change is recognized may we not expect to be able to apply with effect remedies suited for the case?

The practical importance of knowing the chemical state of the blood is now recognized even in the nomenclature which is being introduced to designate its condition. Such terms as spanæmia, uræmia, pyæmia, toxicæmia, &c., with the even more analytical names of hypinosis and hyperinosis serve to shew the direction which the inquiries of patholo-

gists are taking. I might also call you to survey the new views taken of the pathology of gout and rheumatism, as well as the whole tribe of zymotic diseases, as a reason for not neglecting chemical pathology, but I shall confine myself in this connexion to asking your attention to the glimmer of light which has been thrown upon the nature and prevention of Tubercle, that scourge of humanity under the form of consumption, and other allied maladies. This is conceded to be a blood disease, and seems to arise from deficient elaboration of the nutrient particles poured into the blood, and intended to be there developed into the nourishing material of the body, but in some hitherto unknown way perverted into the tubercular deposit. Recently observed facts, aided by minute chemical and microscopical research seem to point to over abundance in the supply of oxygen to the blood as a cause of the development of tubercle, while its prevention, if not cure, would seem to have some relation to the diminished arterialization of the blood.

But I must not omit to point out what may seem plainer evidence of the practical importance of chemical knowledge, viz., the direct administration of medicines to produce certain chemical changes. You are, of course familiar with the class of remedies which act entirely on chemical principles. They bear a part, indeed, in the classifications of materia medica—the antacids, the lithontriptics, the antidotes have always been known to act, not as vital but as chemical agents, and they have long been, and still continue, in use to remedy what I may call the grosser chemical diseases of the body. But the recognition of the blood-origin of diseases, and the investigation into the precise changes which constitute them, or, in other words, form their "proximate causes," will lead, and has already led to the search after remedies which have the power of altering these conditions. Many remedies which now we employ empirically, or which are called specifics, we shall probably come to use in order to fulfil precise indications, and to induce particular changes. You all know how useful the tartrate of antimony is in inflammation of the pulmonary tissue. It is generally used, but its mode of action is also generally unknown. But when you hear that it has been ascertained by chemical experiment that antimony is potent in diminishing the quantity of fibrin in the blood, you will feel more satisfied in prescribing it, than if you gave it empirically as an agent which you had found to be useful. So, again, in regard to nitrate of potash, which has been given in large doses as a remedy for rheumatism: it is a powerful solvent of fibrin, and we know that in rheumatism that element of the blood is largely increased. The effects of iron in augmenting the red corpuscles become evident by the pallor of disease giving way to the roseate hue of health.

I have dwelt so long on chemistry, that I can but glance at another elementary study, viz., Physiology, which you should not neglect on the plea that it is not practical; for, as the chemistry of the body is liable to become deranged, so is it of the physiology. The knowledge of healthy structure and function is indispensable to a knowledge of their disordered states, and furnishes assistance in our most practical researches. Let us select for an illustration the cell-theory of growth. It is well-established that, commencing in a cell of the simplest kind, our subsequent growth and full development is by multiplication of such cells and their varied modes of union and expansion. Now this would seem at first to be a fact curious and interesting in itself, but having little bearing on medical practice; but when we look into the nature of abnormal growths, usually called tumors, we find their progress a copy of that of the normal tissue, and you then find your physiological knowledge applicable to the diagnosis of such tumors. As the natural tissue possesses peculiarities in its cell structures, so do abnormal growths distinguish themselves by varieties in the appearance of their cells. Nothing can therefore be of more practical benefit than to acquire facility in the use of the instrument by which alone such researches can be carried on—I mean the microscope. That instrument is no longer to be regarded by the physician as simply furnishing curious and important information as to the minutiæ of creation, but as a valuable assistant in obtaining a practical knowledge of many of our common diseases. Indeed the results of the use of that instrument in giving precision to the diagnosis of several diseases are of the highest importance. But I shall allude but to one of its discoveries, a very curious though not a pleasant one, the existence of minute parasites, both vegetable and animal, both on and within our very textures. The existence of the larger parasites, such as the various worms and others that may be nameless, has been of course known in all ages, but the fact that vegetable growths occur upon our skins and within our bodies, or that minute animals in large numbers occupy at times our very flesh and blood, has been revealed only recently and through the aid of the microscope. It is now known that one of the troublesome diseases of the scalp known as scald head (favus) is a vegetable fungus growing on the spot; that another (porrigo decalvans) is produced by a similar growth within the tubuli of the hair. Intractable cases of disorder of the stomach have been found owing to a minute fungus (sarcina ventriculi) growing within that organ Cases have occurred where the blood on examination was found loaded with animalcula, and others where microscopic worms (trichina spiralis) occupied a large portion of the muscular structure.

I have thus endeavored, and I trust successfully, to impress upon your

minds that the knowledge received in the elementary classes cannot lose its value even when you have acquired perfect acquaintance with that taught in the more advanced or practical departments; but that through your future clinical career you will need the aid of that knowledge which formed the first steps of your professional improvement.

I had intended to have addressed to you some ethical remarks in regard to your feelings and deportment towards your patients and towards your brethren of the profession, as well as to point out as a duty to yourselves that you should cultivate your talents, and use the opportunities you will enjoy for your own improvement, which will then be sure to result in the desire and effort to add to the general stock of knowledge, but I forbear and shall conclude by congratulating you on the honorable position to which you have now attained, and by hoping that the avenue this day opened to you may lead to a long course of usefulness to others, and of satisfaction and eminence to yourselves.

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