

A lecture introductory to the study of medical science : delivered at the opening of the medical classes of the Andersonian University, session 1835-36 / by Robert Hunter ; with an appendix containing an outline of the constitution of that university.

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A LECTURE
INTRODUCTORY TO THE STUDY
OF
MEDICAL SCIENCE.

DELIVERED AT THE OPENING OF
THE MEDICAL CLASSES
OF THE
ANDERSONIAN UNIVERSITY,
SESSION 1835-36.

BY ROBERT HUNTER, M.D.

PROFESSOR OF ANATOMY, &c. &c.

WITH
AN APPENDIX,

CONTAINING AN OUTLINE OF THE CONSTITUTION OF THAT UNIVERSITY.

GLASGOW:

W. R. M'PHUN, 86, TRONGATE;

J. HIMP KIN, MARSHALL & CO., LONDON; JOHN POLLOCK,
19, BLAIR STREET, EDINBURGH.

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INTRODUCTORY TO THE STUDY

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OF THE MEDICAL SCIENCES

SESSION 1855-56.

BY ROBERT HUNTER, M.D.

LECTURER IN ANATOMY, &c.

WITH

AN APPENDIX

CONTAINING A SUMMARY OF THE CONSTITUTION OF THE HUMAN BODY

GLASGOW.

W. R. NICHOLSON, THROGHATE.

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LECTURE.

GENTLEMEN,

It has fallen to my lot to open the Medical Classes of this University with a short Address, and I cannot tell the Duty imposed on me more aptly, I consider, than by directing your Attention to every Science connected with the Study of Medicine. Science, in its various branches, must be both useful

TO THE

STUDENTS OF THE MEDICAL SCHOOL

IN THE

ANDERSONIAN UNIVERSITY, GLASGOW,

THIS LECTURE IS INSCRIBED,

BY THEIR SINCERE FRIEND,

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LECTURE.

GENTLEMEN,

It has fallen to my lot to open the Medical Classes of this University with a short Address, and I cannot fulfil the duty imposed on me more usefully, I conceive, than by directing your attention to certain important topics connected with the *Study* of Medical Science. My remarks must be both brief and general. I do not appear before you at present as the teacher or advocate of any particular department of Medical Science. I am here the representative of all the Medical Teachers of this institution. My theme must therefore take an extensive range. Although I shall endeavour to communicate some faint idea of the subjects which Medical Science embraces, all of which are taught in this University, and all of which you will require carefully to study: still my greater aim at present will be to direct you into the proper method of studying the science. I shall, in particular, advert to the acquirements *preparatory* to the study of medicine:—to the *order* in which the different departments of medical knowledge may be brought most advantageously under your observation:—to the *principles* by which your *studies* and your *general conduct* should be regulated, and to the *benefits* which superior professional attainments will eventually produce upon *yourselves* and *society*.

Medical science is of vast extent as well as paramount importance, and for the attainment of the multifarious knowledge which it embraces, the mind of the student must be originally well-constituted:—previously educated in certain preparatory branches of knowledge, and fitted for protracted study. Medicine is both a learned and an honourable profession. The subjects which it embraces are more numerous and diversified than those of any other profession, and the investigation of such subjects tends, in an eminent degree, to elevate, to expand, to purify the mind. Of all sciences medicine is

the least insulated. It is incorporated and blended with almost every other department of natural knowledge, and the more intimately acquainted the medical student is with the other departments of knowledge, the less difficulty will he experience in the prosecution of medical science and the more likely also will he be to promote its interests and extend its boundaries.

Whether we view this world as made for the special benefit of man, as not a few imagine, or man formed like other animals, in accordance, merely, with the general constitution of nature, it cannot for a moment be doubted, that a beautiful harmony subsists between the structure of man, and the general economy of nature. We see this harmony strikingly illustrated in the mechanism of his organs of sensation, and the more minute our investigations run into every other part of his organization, the more close and beautiful will the harmony appear. Man is not an insulated being. To know him thoroughly you must know more than himself, and in attempting to learn what appertains to the healthy and diseased conditions of such a being you must be acquainted with a great deal more than what strictly belongs to medical science. A medical man whose knowledge is confined to things purely medical, must indeed be very ignorant: he must necessarily be unacquainted even with his own profession, for the science of medicine receives its most useful as well as splendid illustrations from kindred sciences.

As members of a learned profession, you must be acquainted with various departments of *literature* as well as science. Without a knowledge of the Latin and Greek languages, the very technicalities of your profession cannot be understood, and unless you are initiated into the modern languages of Europe, particularly the French, German, and Italian, you cannot keep pace with the knowledge of the present day:—you will be excluded from sources of information, the want of which you will have often much reason to deplore. I might speak also of the advantages of a previous training in *mathematical science*; for although the direct application of mathematics to the solution of medical problems is now happily exploded, yet a training of the mind to a rigid and strict method of reason-

ing is of incalculable advantage, and the best exemplifications of which are found in mathematical science. But mathematics, useful though they be, are of less importance to the medical student than a knowledge of the *laws of physios*, an epitome of which is found concentrated in man. Without some knowledge of the science of optics, you cannot comprehend the mechanical beauties of the organ of vision. Without a knowledge of acoustics, you cannot understand the intricacies of the organ of hearing, or the principles upon which the varied parts of that organ perform their functions. The circulation of the blood and respiration are no doubt vital as well as mechanical functions, but even the simplest parts of these functions, the mechanical, cannot be understood without a knowledge of hydraulics and pneumatics. The ordinary motions of our bodies even, easy of comprehension though they apparently be, cannot be understood or philosophically explained without a knowledge of what is called in natural philosophy, "the mechanical powers."

These are plain but irresistible arguments in favour of a preliminary training in literature and science. I might speak of the advantages of such knowledge to you as gentlemen mixing with society, and required from your situation to explain the causes of the varied phenomena that arise in nature:—as associating with other learned men, and whose good opinion could never be secured by your total want of such knowledge. If you have neglected therefore to cultivate these branches of knowledge, do not presume as yet to enter upon the study of Medicine, return to the schools of literature and philosophy, and after you have surmounted these obstacles which lie at the threshold of Medical Science, you will enter upon your Professional studies with a rational prospect of success.

Amongst your preparatory studies, I would also include *Mineralogy*, *Botany*, and *Zoology*. These sciences are much allied to Medicine. Almost all our medicinal agents are derived from them. Geology throws a broad light on Medical statistics, an interesting department of Medical Jurisprudence; and a knowledge of Zoology is indispensable to the study of Comparative Anatomy, and consequently is useful

in the study of human Anatomy, for these two are merely different branches of the same science. I am also strongly disposed to include among your preparatory studies the *Art of Drawing*, an elegant accomplishment in itself, and of great practical moment to the Medical student. In every department of Medical Science, you will be called upon to study the form, size, and relative situation of material existences, and what oral or written language can be compared to the delineations of the pencil in expressing such qualities and relations of things. Besides, the practice of this art engenders an accuracy of observation useful in every department of science as well as in Medicine.

But let me suppose that you have all obtained the requisite preliminary education, that you are prepared to enter effectually upon the investigation of Medical Science, the duty devolves upon me to place before you a short outline of that science, and to urge you to an unremitting, a conscientious investigation of it. The medical science of the present day, is very different indeed from that of the last century. Since the peace of 1815, more has been achieved by scientific men than had been effected for centuries previously. The scientific world was at that period enlarged, and the free interchange of thought and friendly communication which has since existed among scientific men, have had the most stimulating effects upon the human mind. Discovery has pressed hard upon discovery, and improvement upon improvement. Men of different nations are now found vying with each other, not in the murderous and unhallowed arts of war, not in fomenting the deadliest animosities, nor in fostering the lowest propensities of our nature, which wars are calculated to do; but they are now found striving with each other in promoting the useful arts, in disseminating knowledge, in extending the boundaries of science, and thus contributing to exalt the character of man, and add to the sum of human happiness. These are thy trophies, O peace! these, the blessed effects of thy benignant reign!

The co-operation of so many men in different parts of the continent and in this country, has given an amazing impulse to medical science. While many departments of the science

have been nearly carried to perfection, others which a few years ago were hardly known as distinct branches of science, have been raised to their proper elevation, and their importance to mankind satisfactorily demonstrated.

At an early period of our history, when the facts of medical science were few, one man might have been adequate to the task of teaching the whole science ; but now it is far otherwise. Medical science, as I have already stated, is not a single, insulated subject, but a variety of subjects, a multiplicity of sciences combined under a generic appellation, and many of them differing from each other as widely as the sciences of Astronomy, and Geology. The business of teaching all the departments of medicine, cannot therefore be confided to one man. Many men are capable of excelling in some one department, who can display no success in another, and the proper division of labour in the sciences as well as in the arts, is now admitted to be the best method of procuring the greatest quantity of work in a given time, and securing also the work of the best quality. By the subdivision of labour, medical science has been already much benefited ; and by a still greater subdivision, we have reason to anticipate still more important results. The human mind is limited in its powers, and since we cannot render one man equal to the successful and continued cultivation of the whole science, we must adopt another course, we must adjust the task imposed to the mental capabilities.

By the liberal and enlightened constitution of this University, ample provision has been made for the due subdivision of labour in teaching the sciences. The opinions of our revered Founder on the subject of education were greatly in advance of the period in which he lived ; and the public spirit and zeal of our Trustees and Directors in following up the benevolent intentions of the Founder are beyond all praise. In corroboration of this statement, I might not only dwell on the flourishing condition of our University at the present moment, but also on the important fact, that the constitution of our University has been made the model after which all our more modern scientific Institutions and Univer-

sities have been formed.* Without the smallest pecuniary aid from government, without even the cheering countenance of the great and influential of the land, with the support only of the public, our University has attained a greater degree of prosperity than its most sanguine friends could have anticipated. Founded as this University was, then, by one of the people, conducted as it now is upon the most liberal principles, the parent also, as we have stated, of all the liberalized scientific Institutions of the country, and the most successful as it has undoubtedly been in diffusing scientific knowledge among the lower and middle classes of society, it may be styled emphatically the University of the people. Where then can we, the Teachers of this University, look for patronage but from the public? Here endowments are unknown, our success must depend upon our own exertions; and the public are in some measure assured that the requisite exertions will be made.

But in addressing myself to you, gentlemen, I must confine my observations to the medical department of the University, which from causes that need not now be entered into, has met with more than ordinary encouragement and success; and, gentlemen, so long as the ample means which the University affords for teaching the various branches of medical science exists:—so long as our Directors shall fill the Professorial chairs with men so learned, ingenious and industrious in their respective departments as those I now see around me, and with whom I have the good fortune and happiness to co-operate, there can be no want of success.

But to return to the more immediate subject of this address. Medical science as it is now taught, has been subdivided into many distinct branches, all of which you will require to investigate with an ardour corresponding with their intrinsic importance. These branches will be brought under your observation as separate courses of study, and by thus examining them in detail and in succession, you will more easily attain a knowledge of them all.

That you may be enabled to form some idea of the work

* See Appendix.

that is before you, I shall shortly advert to the different branches of medical science you will require to study, and bring them under your observation in the order in which I think they may be most conveniently investigated.

Some of these departments are *primary* or fundamental; and others, indispensable though they be, are *secondary*, or subsidiary. The fundamental or primary branches are Anatomy and Chemistry. I call these, primary, not only, because they require to be known before the others can be properly understood, but because the light they shed upon the other departments facilitates materially their investigation.

But even of the two primary branches themselves, *Anatomy*, it must be conceded, holds pre-eminently the first place. What is the great end of medical science? Is it not to prevent, to cure, or to eradicate disease; and as all disease is inherent in some structure, the very first step therefore to the knowledge of any disease is a knowledge of the part or structure in which it resides; for if the structure affected is not known, the disease can neither be treated philosophically nor successfully. Anatomy, then, is of paramount importance. It is indeed so indispensable, that without it, all your other medical acquirements would be nearly useless. Anatomy,* in its proper and extended signification, means the science of organization, and to what a world of interesting and deep study does such a science naturally lead! It is a science that extends its sway over the whole dominion of organized nature, vegetable as well as animal. That part of the science which relates to animal organization is so very extensive that it has been divided into different departments, and in the continental schools these are taught in detail by their respective masters. Hence we speak of different kinds of Anatomy, as Comparative and Human, General and Special, Descriptive and Surgical, Developmental and Philosophical or Transcendental. Although all these departments of science are included to a certain extent in every well-conducted Anatomical Course of Lectures, still it must likewise be stated that that part of Anatomy

* The term Anatomy literally means *Dissection*, from *ανα*, apart, and *τεμνω*, I cut—dissection being an important, though not the only method of investigating this science.

which bears most directly upon the practice of medicine will chiefly occupy your attention. As a branch of natural science, Human Anatomy is of no mean interest. But when viewed in connexion with the healing art, its facts arrest and fix the attention, captivate the understanding and the heart, and assume a sacred importance, that when differently circumstanced, or placed in a different relationship, do not belong to them. Human Anatomy lies at the root of all your investigations into medical science—it is the foundation on which all your medical investigations rest—it is the polar star to which you are to trust amidst the darkness of practical difficulties and dangers—it is the air you breathe, without which you professionally die.*

As a primary department of medicine, *Chemistry* requires your early consideration, and fortunately for the young student a course of Chemistry is fraught with ever new and never-failing delight. Chemistry† is the science of the elementary constituents of bodies; it leads us therefore to an intimate acquaintance with every object in nature. It not only communicates a real knowledge of these objects, but what is more, it arms us with a power in modifying and

* *Text Books of Anatomy.* 1st. *Human Anatomy.* A. *General.* Craigie, David, M.D. *Elements of General and Pathological Anatomy.* Beclard, *Elemens d'Anatomie Generale.* Bichat, *Anatomie Generale.* B. *Descriptive.* Quain, Jones, *Elements of Descriptive and Practical Anatomy.* Cloquet, H. *System of Human Anatomy,* by Knox. Boyer, *Traité complete d'Anatomie.* C. *Surgical.* Velpeau, *Traité d'Anatomie Chirurgicale.* Harrison, R., *Surgical Anatomy of the Arteries.* Blandin, Ph. F. *Traité d'Anatomie Topographique.*

2d. *Comparative Anatomy.* Grant, R., *Outlines of Comparative Anatomy.* Blumenbach's *Comparative Anatomy* by Lawrence. De Blainville, *Principes d'Anatomie Comparée.*

3d. *Developmental Anatomy.* Velpeau, *Embryologie Humaine.* Mikel, *Manuel d'Anatomie, Generale, Descriptive et Pathologique,* by Jourdan and Brechet (*passim.*) Tiedmann, Fred., *Anatomy of the Fœtal Brain,* by Jourdan and Bennet.

4th. *Philosophical or Transcendental Anatomy.* Geoffroy Saint Hilaire, *Philosophie Anatomique.* Serres, M., *Recherches d'Anatomie Transcendante et Pathologique.*

† The Greek term *χημία*, or *χυμία*, which signifies Chemistry, is probably derived from *χύν*, to melt, as the melting or fusing of metals formed the principal business of the older chemists.

changing them, in turning them to advantage in the affairs of ordinary life, in the arts and in the sciences, that he who is thoroughly acquainted with Chemistry, though he know nothing more, can neither be accounted an ignorant man, nor a useless member of society. As a branch of medicine, Chemistry cannot be too highly estimated. Without a knowledge of Chemistry you cannot comprehend the nature of some of the animal functions—the composition of our most active medicinal agents—the nature of the morbid products generated by disease, nor see your way through the intricacies of jurisprudential medicine. If Anatomy shoots up and is incorporated with all the other branches of medical science, if in particular it is the *punctum saliens* of Physiology, the keystone of Surgery, Pathology, and Midwifery; Chemistry diffuses itself likewise among all those branches, and is more particularly blended and intermixed with Materia Medica, Practice of Physic, and Medical Jurisprudence. If the pyramid of medical science has its base widely spread upon the stable foundations of Anatomy, *Chemistry* cements the different pieces of which the pyramid is composed, and imparts solidity and durability to the whole structure.*

Enough has been said, I presume, to show the importance of Anatomy and Chemistry, and you would do well to be familiar with these branches before you enter upon the investigation of the others. Get thoroughly acquainted with the fundamental branches, and you will be prepared for the examination of the others, in any order most convenient for yourselves; but as the *order* in which they are studied may be made to facilitate their acquirement, I would recommend those branches to be first investigated that spring directly from Anatomy; and having mastered these, the branches that spring or draw their light from Chemistry, might next be attended to. In the first class I would include, 1st, Physiology; 2d, Surgery; 3d, Pathology; and 4th, Midwifery; and the second class would comprehend, 1st, Materia Medica; 2d, Practice of Physic; and 3d, Medical Jurisprudence.

* *Text Books of Chemistry*.—Elements of Chemistry, by Edward Turner. Thomson, Thomas, System of Chemistry of Inorganic Bodies. Manual of Chemistry, by Rose, translated by Griffin.

These are indeed subjects of high import and incalculable utility, and requiring for their cultivation vigorous efforts of the intellectual powers. Let us make a few observations on each department.

And first, of Physiology. *Physiology*, in its literal acceptation, means the knowledge of nature,* but in its more usual and restricted signification, denotes the science of organic actions or functions. As these actions appertain both to vegetable and animal structures, we speak consequently both of Vegetable and Animal Physiology, and as such functions may also display themselves in a healthy or diseased condition, we also speak of normal and abnormal, or which is the same thing, of healthy and morbid physiology. Structure and function are so closely allied that they must either be investigated together, or the investigation of function must immediately succeed that of structure. Hence we find Physiology frequently taught as an integrant part, or as an appendage of an anatomical course. Of late the physiological facts that have been brought to light by the experiments and observations of industrious and ingenious men have been so numerous, interesting, and important, that a separate course of study is required for their proper investigation; and what science can be named that comprehends so many subtle yet fascinating subjects of discussion as Physiology. We contemplate with a sublime pleasure the working of such a machine as a steam engine; but in the working of an animal organ, there is more to admire, than in all the complicated movements and results of that transcendent effort of human genius. A steam engine is nothing more than a philosophical and happy combination of mechanical powers, but, although there is much in an animal that is purely mechanical, there is also something which mechanics alone can never explain. The human body is, no doubt, a machine of exquisite mechanical structure, but it is also a living machine, and the vital properties of its various tissues, and combination of tissues, lead to higher and more refined investigations than those to which mechanical science can conduce. Can we look with apathy at an inferior animal waking from its sleep, springing, as it were, into new exis-

* From *φύσις*, nature, and *λογία*, a discourse.

tence, exhibiting locomotive powers as if under the influence of magic, reveling in the full enjoyment of all its senses, and displaying all the other energies of its nature? Or contemplating the extraordinary capabilities of man, who, besides displaying those powers that arrest attention in the inferior animals, exhibits likewise, those sublime, I had almost said, incomprehensible, moral and intellectual endowments, which raise him so far above every other animal, and fit him for purer pleasures and a higher destiny—can we contemplate these capabilities, I say, or come to the investigation of such sublime mysteries without emotion? Man is a living miracle of nature, and were he not so frequently before our eyes, would be viewed as the most astonishing of things.

Complicated, however, as are the functions of man, they may be systematically arranged into three classes. 1st, Those of vegetative or organic life; 2dly, Those of relative life; and 3dly, Those of reproductive life. The first class includes the functions of digestion, absorption, circulation of the blood, respiration and secretion, or those powers, under the influence of which the system is repaired and continuously supported. The second class comprehends the functions of the motive and sensitive organs—functions, the combination of which constitute relative life, or those powers which bring us into close and intimate relationship with external nature, and enable us to appreciate and enjoy that relationship. And lastly, the functions that constitute reproductive life, or those by which the new being is formed, elaborated, and rendered susceptible of an independent existence. Such are the subjects that engage the attention of the physiologist, and which have occupied the thoughts of medical philosophers of all ages, and although many brilliant discoveries have been made in this rich field of scientific research, yet the science is far from being completed. Your assistance is required. You must prepare yourselves, therefore, to lend a useful co-operation, or even to take a lead in the investigation of this department of medicine.*

In every well-conducted course of medical education, *Sur-*

* *Text Books of Physiology*.—Elementary Compendium of Physiology, by F. Magendie, translated by E. Milligan. Blumenbach's Physiology, by Elliotson. Tudemann, Fred., *Traité Complet de Physiologie de l'homme*.

gery takes an early and a prominent place. Surgery* was long viewed as the art, merely, of curing external diseases by manual operation, but of late it has been studied both as a science and an art. As a science it leads to the investigation of principles that appertain both to surgical diseases and surgical operations; and as an art it teaches the practical application of these principles, and demonstrates the most approved methods of performing every surgical operation. The principles of Surgery spring chiefly if not exclusively from Physiology, and the practice of Surgery is based directly upon Anatomy. The general principles of Surgery include the doctrine of Inflammation, and its *terminations*, or modes of ending; more particularly those technically denominated *adhesion, suppuration, ulceration, and mortification*; but all these are but so many operations of the animal economy, and differing less probably from the healthy operations of the system than at first view might be supposed—they are clearly referrible to the doctrines of Physiology. But the operative part of Surgery draws its light exclusively from Anatomy. In every surgical operation you interfere with some part of the body, and whatever may be the object aimed at by such interference, whether to remove a diseased part altogether as in the amputation of a limb, or to change the condition of some part, as in the reduction of a fractured or dislocated bone, or in the tying of a blood-vessel, your object cannot be safely attained without a knowledge of Anatomy.

Celsus has said truly that, amongst other qualities, a surgeon requires for the successful prosecution of his art, a good eye, a steady hand, and an intrepid mind.† It is perfectly obvious that a purblind, tremulous, and effeminate man, is quite unfit for the practice of Surgery. But with this admission freely given, we must not suppose that the corporeal endowment is

* Formerly written *Chirurgery*, from *χρῆς*, the hand, and *εργον*, work.

† The following is the description of Celsus:—"A surgeon" he says, "should be young, at all events not aged; his hand should be firm and steady, and never shake, he should be able to use his left hand equally with his right, his sight should be acute and clear, his mind intrepid and pitiless, (immisericors) so that when he operates upon a patient he may not hurry nor cut more or less than he ought, but finish the operation, as if the cries of the patient were unheard by him."—*Preface to Book VII.*

every thing in Surgery. More men are famed for corporeal than mental powers, and we have far more reason to inculcate the necessity of intellectual than corporeal attainment. With moderate corporeal powers, much may be achieved in Surgery, provided the requisite knowledge exists; and without the requisite knowledge, the steadiest hand and the finest eye will be unavailing. Knowledge, like a ministering angel in the hour of darkness, will illuminate your path, will strengthen your hand, will fortify your heart, and carry you triumphantly through difficulties and dangers. Let the attainment of this knowledge, then, be the chief object of your ambition. Without it you dare not venture upon any surgical operation, but with this knowledge in store, even without the full complement of Celsian requisites, you will bring the most difficult and dangerous of surgical operations to a successful termination.*

After you have studied carefully Surgical science, you will be prepared to enter upon the more extensive field of *Pathology*, Pathology† is the science of disease, and as disease exhibits itself either directly in the form of some structural change, or indirectly under the appearance of some functional derangement, Pathology consequently includes Morbid Anatomy, or the science of diseased structure, and Morbid Physiology, or the science of diseased function. It is the object of Pathology to establish the relationship between diseased structure and deranged function, and to trace every symptom of disease to its proximate or structural cause. The knowledge of a disease includes a knowledge of more than symptoms. These are but the signs or externals of disease, the shadows that indicate the existence of the substance. I do not say that the study of symptoms should be neglected. Far from it. Though they are not the disease itself, they are important

* *Text Books of Surgery*.—Dictionary of Practical Surgery, by Samuel Cooper. First Lines of the Practice of Surgery, by Samuel Cooper. Outlines of Surgery, by James Syme.

† From *παθος*, disease, affection, and *λογος*, discourse. It is thus strictly synonymous with *Nosology*, (*νους*, disease, and *λογος*, discourse,) although the former term is most frequently used in reference to *structural disease*, and the latter to *symptoms*, and to the *arrangement and classification* of diseases.

adjuncts; they are signals from within, which when their proper value is known, may be turned to the greatest advantage; they are the natural and expressive language of disease, but a language intelligible only to those who have carefully studied its import. So far from undervaluing the study of symptoms, I would say that your knowledge of such phenomena cannot be too extensive, provided you learn the real value of each symptom, which you can only do by tracing it to its true cause. Notwithstanding the strides that Pathology has lately made under the scientific direction of an Andral, a Laennec, a Cruveilhier, a Louis, and others, as a science it is still in its infancy; and when we recall to mind that all diseases originate in the molecules of our varied and complicated tissues, the extreme minuteness of these molecules—the difficulty of ascertaining consequently the textures primarily affected, and the order of succession in which the different textures are involved, you can readily believe that much time and laborious and prying investigation will be required to carry such a science to perfection.*

As a department of medical science, you will be called upon also to study the principles and practice of *Midwifery*. Obstetrical science which is another name for the same thing, embraces an important section of the medical history of the female part of the human race. It includes the anatomy, physiology, pathology, and surgery of what relates to the generative process; and in superintending the varied natural as well as morbid conditions of that process, the medical man, placed as a guardian at the portals of society, is capable of exercising a decided influence on the numerical condition, and on the well-being of the human race. This highly useful department of medical science leads to the investigation of the nature of the reproductive process, and to the condition of the female during the interesting periods of utero-gestation. It establishes rules and principles of practice applicable both to the mother and child during the painful and often dangerous

* *Text Books of Pathology*.—Craigie's General and Pathological Anatomy. Andral, G., *Precis d'Anatomie Pathologique*. Manual of Pathology, by L. Martinet, translated by Jones Quain.

process of parturition, and it leads to the study of puerperal diseases, and more generally to diseases incident to women and children. These are subjects of uncommon interest as well as great practical utility—subjects that will necessarily engage much of your attention during the whole period of your professional lives, and if you have a heart that can feel for the most amiable part of the human creation, or if you have a regard for your own welfare, no words will be required to urge you to the attainment of that knowledge which will enable you, in cases of emergency and overwhelming danger, to lend a speedy and efficient assistance, to be so immediately and so eminently useful.*

After you have investigated the foregoing departments of medical science, you will be prepared to enter upon the study of *Materia Medica*, Practice of Physic, and Medical Jurisprudence. I have named these branches of science in the order which I think they may with propriety be studied. As it would be preposterous to prescribe medicines, regarding the virtues of which you are totally ignorant, you must therefore get acquainted with the properties of the medicinal agents before you venture to apply them in the treatment of diseases, or in other words, in the Practice of Physic; and you must be conversant with these and every other branch of medical science before you can be prepared to comprehend the doctrines of medical jurisprudence.

As a department of Natural History, *Materia Medica* is highly interesting, and as a branch of Medicine, it is to the medical practitioner indispensably necessary. Experience has proved that many substances that exist in nature when introduced into the body are capable of producing extraordinary changes upon the living system. The science of *materia medica* takes cognizance of medicinal agents of every kind:—investigates the natural history and sensible properties of these agents:—the manipulations required in preparing them for use:—the quantities or doses proper to be used in given circumstances, and the modes in which they may be combined and

* *Text Books of Midwifery*.—Dewees, Will. P., *Compendious System of Midwifery*. Velpeau, *Traité Elementaire de l'art des Accouchemens*. Burns, John, *Principles of Midwifery*, &c.

most conveniently administered. *Materia Medica* is not only an interesting and useful but a most extensive department of medicine. It draws its resources from every kingdom of nature. With one foot resting on the sciences of Mineralogy, Botany and Zoology, and the other on the science of Chemistry, it waves its sceptre over the whole of animated and inanimate nature. Botany and Chemistry are but its handmaids, and although comparatively few medicinal agents have yet been selected from the innumerable objects that surround us, as our knowledge advances the number will increase, and the happy time will probably arrive when medicines of efficacy—when specifics will be had for every disease incident to humanity. Then, indeed, will the triumphs of medical science appear. Then indeed will the medical millennium be ushered in, when every man will sit under his vine and fig-tree, in the full enjoyment of health and happiness.*

The *Practice of Physic*, to which your attention must, in the next place, be directed, refers to the treatment of diseases denominated *medical* in contradistinction to those purely surgical. The principal object of medical science is the successful treatment of all kinds of disease; and as those diseases referred to in this department of medicine, comprehend the most numerous and most fatal of human maladies, too much attention cannot be allotted to this department of the science. To treat any disease successfully, you must know what the disease really is, its exciting cause or causes, how much nature can effect towards the cure, and what remedial agents you yourselves must supply. Pathology teaches us the nature or structural character of the disease, and the object of the *Practice of Physic* is to investigate farther its exciting cause or causes, for a knowledge of these is useful for prevention as well as for cure:—to discover the symptoms or signs by which a disease may be recognised or distinguished from other diseases, and to apply those medicinal agents, what experience has proved to be of greatest efficacy. *Practice of Physic*, as taught in the schools, is generally too much allied to systems

* *Text Books of Materia Medica*.—Thomson, A. T., *Elements of Materia Medica and Therapeutics*. Paris, J. A., *Pharmacologia*. Murray, John, *System of Materia Medica and Pharmacy*.

of nosology. The student is made to look at nature not simply with his own eyes, but through the dazzling and bewildering medium of artificial systems. These systems are generally the offspring of speculation. They lead the young student into error, and the man of practice learns to disregard them altogether. Every disease must be studied for itself, and to study it aright recourse must be had to the book of nature. Judicious lectures on the Practice of Physic are no doubt useful. They conduct the student into the right method of investigating the subject. They bring before his mind both important facts, and general principles of treatment. But useful though such lectures confessedly are, it cannot be too frequently impressed upon the mind of the student that the discrimination of disease must be the result of observations made at the bedside of the patient, and the more carefully these observations are made, the more accurate necessarily will be his knowledge of the practice of physic. In this city the student has ample opportunity for studying this department of science to advantage. Besides the daily lecture which constitutes part of the business of every medical school, he has our extensive and well-conducted Hospital thrown open to his use, where the Practice of Physic as well as of Surgery may be learned under the immediate superintendence of able and experienced men. With these facilities for improvement, you will be enabled to store up a fund of useful knowledge, and which may be turned by you to advantage, long after you have left the schools and entered upon the laborious and trying duties of professional practice.*

In the last place, your attention must be directed to *Medical Jurisprudence*, a department of science in which all that is intricate, as well as interesting in every other department of medicine are accumulated and concentrated. Medical Jurisprudence or State Medicine as it has been called, is only of very modern growth, and like legislation has arisen from the vices of men. Knowledge necessarily brings with it a refinement in vice as well as virtue. But if knowledge carry

* *Text Books of Practice of Physic*.—Copeland, James, Dictionary of Practical Medicine. Good, Mason, Study of Medicine, by Cooper. Cyclopædia of Practical Medicine.

with it some evil, the good which it produces always greatly preponderates. If knowledge carry with it "the bane" it furnishes also "the antidote," and every page of the history of Medical Jurisprudence is a splendid illustration of the fact. This department of science has a greater reference to the *social* than the *individual* state of man. It leads us consequently to the investigation of medical science under a new and highly important relation. It prompts the student to investigate aright every important medical incident that can fall under the cognizance of judicial authority. It teaches the proper methods of investigating the cause or causes of death, under whatever form or combination of circumstances that event may arise, and it leads still farther to the investigation of whatever can affect the physical condition of families, of states, of communities, of people, and nations. These subjects are obviously of a highly philosophical character, and fraught at the same time with uncommon interest. When we look at the effects of a medical practitioner, as he toils day after day in the routine of, what is called, ordinary practice, we see striking, though it may be humble instances, of the importance of medical science to the well-being of man; but when we behold the same individual, at another time, as the medical jurist, investigating a case of death by poisoning, a case of infanticide, or any of the nicer subjects which Medical Jurisprudence embraces, medical science then assumes a more imposing aspect; it then appears as the guide of the judge upon the bench, directing his course of procedure, and influencing his decisions:—as the instructor even of the legislator, suggesting laws that can improve the physical condition and character of man.*

Having thus attempted to place before you a brief outline of those branches of knowledge taught in this University, the aggregate of which constitutes medical science, it may not be improper to make a few remarks upon the proper mode of investigating medical science. Medicine, it is to be remembered, is a department of physical science, and to examine it

* *Text Books of Medical Jurisprudence.*—Beck, Th. R., *Elements of Medical Jurisprudence.* Christison, R., *Treatise on Poisons.* Orfila, M., *Leçons de Médecine Légale.*

aright, it must be studied practically. Theoretical knowledge is knowledge only in appearance. Medical knowledge, worthy of the name, consists of facts cognizable by the senses, and, I had almost said, of nothing more. "Homo, naturæ minister et interpres, tantum facit et intelligit quantum de naturæ ordine re vel mente *observaverit*; nec amplius scit aut potest." (Bacon.) Such facts require not only to be carefully and accurately observed, but they must be arranged and classified, and with extreme caution reduced to general principles. Still these classifications and principles are nothing without the facts themselves. The facts constitute not the foundation only, but the most substantial part likewise of the superstructure of medical science. Unfortunately there has been too great a disposition to leave practical investigation for theoretical pursuit—to make useless speculation take the place of sound observation. In the attainment of knowledge, the first step is the acquisition of undoubted facts. Pure conjecture should be entirely discarded. Were this simple proposition uniformly attended to by our medical teachers, medical science would soon be relieved from a weight of rubbish which presses it to the earth, and prevents it from displaying its fair proportions, its celestial energies. The inordinate love of theorizing has been the bane of medical science in all ages. In the earlier periods it polluted the very fountain of medical science, and the impure streams that still descend to us, demonstrate that the fountain has not yet regained its purity. When conjecture takes the place of observation, and imagination that of judgment, what useful results can be anticipated? Absurd vagaries will be substituted for facts, and ridiculous and dangerous errors for sound knowledge. Supposition or conjecture is not knowledge. A medical theory is little better than a dream, it may amuse indeed but it cannot instruct. I do not hesitate to say that every medical theory has been hurtful to medical science; and the more noted the propounder of such a theory, the more serious has been the evil. Medical *theory* bears the same relationship to sound medical science, that *romance* holds to true history. Verisimilitude rather than truth is the object of both, and we all know the difference between resemblance and reality. In

illustration of these views, I might place before you the history of Darwin and John Hunter. The former, a dazzling genius that conjectured much and *did* little, and whose name can rarely be mentioned in connexion with medicine but with regret; the latter, a sober philosopher who calmly observed and patiently interrogated nature, and whose name is identified with medicine, and as immortal as the science it adorns.

Having thus adverted to the principle by which we are to be guided in cultivating medical science, I shall now refer shortly, Gentlemen, to the manner in which the science ought to be studied by you. And here again, I would inculcate the propriety of studying *practically* every department of the science. Too many rely upon books and lectures for a knowledge of their profession, but no man by these means alone, can obtain a knowledge of Anatomy, or Chemistry, or indeed of any department of physical science. To know any branch of medicine thoroughly, you must know it practically. The time was when attendance upon lectures was deemed adequate to all the purposes of medical education; but more just and philosophic views of the human mind and of science have of late been evinced by the different medical corporations of this country. Medical education is now of a more practical description than it was some few years ago. It is now imperative on the student to study practical Anatomy, practical Chemistry, practical Pharmacy, and Clinical Medicine and Surgery. This is a decided improvement upon the old system. But the practical plan is not carried far enough. Medical education should be practical throughout, and to secure the requisite practical investigation by the student, no diploma in Surgery or Medicine should be granted, till the student has demonstrated not by *words*, but by *acts*, his practical knowledge of every department of the science. Such a law would have a most salutary influence. Practical and consequently, useful knowledge would abound, and the profession rendered still more respectable, would recommend itself more and more to the favourable consideration of the community.

In prosecuting the study of medicine the student is apt to

fall into the error of attempting to overtake too many branches of the science at the same time. I have known students attending in one session, six courses of lectures, besides hospital practice and Clinical Medicine and Surgery. If the mere act of seeing a class would secure the acquisition of knowledge, then I admit that such procedure would be followed by the happiest consequences; but if knowledge is to be acquired by deep study, and particularly if it is to be acquired by practical study, we cannot reprobate in too strong language the adoption of such a system. We all know, indeed, how sanguine the young man is when entering upon the study of any profession, and it may appear impolitic and imprudent to check his ardent aspirations after knowledge. But whilst we would rather urge on the student in the career of improvement, than attempt in any way to arrest his progress, it is our duty to give a proper direction to his efforts. A very little reflection will convince the student, that by forcing on his studies in the way to which we have alluded, he imposes upon himself a burden which he cannot bear:—that the energies of his mind will be overpowered and frittered away by too many distracting subjects operating upon him at once:—that instead of learning much, he will learn little or nothing, or if he perchance pick up some facts as they fall from his teachers, they can only in his mind be the semblance or verbal representation of facts, and even in this state they become jumbled together into a chaos of confusion. If the student would study successfully, he must not attempt too many things at once. The majority of men have limited intellectual powers, and knowing this condition of human nature, it is better that the student should do little, and that little well, than by attempting too much to do nothing successfully. The student I conceive should not engage in more than *two new branches* of study in any one Session. These he may do justice to, provided the requisite attention is bestowed. These he could study practically, and besides attending the lectures on the department of knowledge he is then investigating, would have some time also for reading and thinking.

Besides attending upon lectures and engaging in the practical investigation of science, a proper course of *reading*,

Gentlemen, is quite indispensable. From the high price of medical publications it cannot be expected that you can purchase all the books you require to read; the best systematic works on each department of medical science you must indeed procure. These are text books which must be constantly before you; but to do justice to your reading you must secure the use of a library, and I am happy to state that in this University an extensive and a well-selected library is attached to the medical school, and to which you can have easy access. But while I would strongly urge you to secure the privilege of reading from a medical library, let me warn you against the indiscriminate, the improper use of books. Your reading cannot be too systematic and select. While studying a particular department of science you should not only confine your reading to that department, but you should, if possible, make all your reading go hand in hand with the lectures, or with your practical studies. All the light you can procure will thus be concentrated upon the science you are at the time investigating. Justice will thus be done to your studies, and no time lost in literary dissipation:—a vice, for I can call it by no other name, which, if yielded to, will unfit you for practical and useful study. *Habits of study* are necessary to your future success. The life of a medical man should be one of continual study. If you have neglected to form these habits, let no time be lost, set about the undertaking immediately, and the more uninterruptedly you persevere in your studies, the sooner will these habits be formed. To attain this important object, I would recommend regularity of attendance upon your classes, assiduity in whatever practical studies you may be engaged, and, in particular, I would urge you to devote a stated period of each day to reading and reflection. This regularity of procedure may prove at first somewhat irksome, but let me beseech you, notwithstanding, to persevere. The first part only of the journey may seem uninteresting and tedious, but persevere, and the prospect will brighten as you proceed, till you experience in your progressive career nothing but delight. Study itself then will be a source of extreme gratification. “The hill of science,” says Milton, “is steep and rugged in its first ascent, but else so smooth, so green, so full of goodly

prospects and melodious sounds on every side, that the harp of Orpheus is not more charming."

The cultivation of the understanding, and the storing of the mind with useful knowledge, are indispensable requisites indeed for professional success; but it cannot be too strongly impressed upon you, that to attain professional pre-eminence a *moral training* is as necessary as the intellectual to which I have referred. In the exercise of his profession, the medical man is carried into the bosom of families—entrusted with individual and family secrets, and many delicate as well as grave and important matters confided to his honour. He requires, therefore, to be a man of seemly demeanour, whose passions are easily restrained and controlled by reason, and whose conduct is regulated by the strictest morality and nicest sense of honour. These moral qualifications shed a bright and steady lustre over the acquirements, and confer true dignity upon the character of the professional man.

Such then being the subjects which medical science embraces, and such the means by which professional respectability can rationally be attained, it remains for me only to advert to the advantages that will arise to society and to yourselves by the successful cultivation of medical science.

To attempt by any extended process of reasoning, to show the importance of sound medical knowledge to the wellbeing of society, would indeed be a work of extreme supererogation: it would be "painting the lily," and "gilding refined gold." "The system of medicine and surgery," says a forcible writer, "which is established in any country has a greater influence over the lives of its inhabitants than the epidemic diseases produced by its climate, or the decisions of its government concerning peace and war. The devastations of the yellow fever will bear no comparison with the ravages committed by the Brunonian system; and the slaughter of the field of Waterloo counts not of victims a tythe of the number of which the Cullenian doctrine of debility justly boasts."—(*Westminster Review for July, 1824, p. 74.*) Compare the barbarous character and fatal issue of surgical operations at the time of Ambrose Paré, with the surgical refinement and efficiency of the present day; and tell whether the progress of medical knowledge has not been

beneficial to mankind. Or glance at the history of "medical" diseases since the time only of Cullen, and say if we have not in our confessedly more just views of the nature of disease, in our less empirical, more philosophical, and more successful modes of medical treatment, arguments the most potent for the progressive improvement of medicine, and in favour of its importance to the wellbeing of man. Every discovery in medicine tends to increase our power over disease, and unless pain be a matter of indifference to those who feel it, every medical discovery and every improvement in medical science must tend to promote human happiness.

So long as health is an object of universal interest and individual solicitude, medical knowledge will be held in high repute, and its successful cultivators ranked among the benefactors of the human race. In the extensive domain of medical science you have a fair field for the legitimate exercise of your talents, and the noblest motives to scientific improvement. Professional knowledge may lead you to wealth and honours; or if from circumstances these are unattainable, it will lead to an inward satisfaction—to a peace of mind which wealth and honours cannot bestow. Such rewards as these are not, however, to be gained without great labour. The time was when every member of the profession with moderate ability and ordinary industry was certain of success. But circumstances have greatly changed. The profession is now stocked with able and learned men. The sources of promotion in our army, navy, and colonies are much dried up. You must not look now for success from adventitious means, you must depend upon your acquirements; and with substantial medical acquirements, your success cannot be problematical. Persevere you must, if you would succeed in your profession, and every motive prompts to vigorous and unremitting exertion. Many of you have been sent here by relatives and friends from a great distance, and neither trouble nor expense spared to qualify you for an honourable place in your profession; will you repay with ingratitude the outpourings of your relatives' kindness and affection? will you blast their fondest expectations? will you ruin, it may be, their peace of mind? No, surely; for by inflicting misery

upon them you entail wretchedness upon yourselves. It is your interest as it is assuredly your duty to study carefully your profession, and whilst you thus labour to promote your own interests you have the encouraging idea that in a corresponding degree you tend to promote the happiness of the human race.

APPENDIX.

OUTLINE

OF THE CONSTITUTION OF THE

ANDERSONIAN UNIVERSITY,

NEARLY AS DRAWN UP BY THE MANAGERS OF THE INSTITUTION IN THEIR STATEMENT LATELY MADE TO A COMMITTEE OF THE HOUSE OF COMMONS,
AT THE REQUEST OF THAT COMMITTEE.

THE Andersonian University owes its origin to the liberal and enlightened views on scholastic education, entertained by Professor John Anderson of Glasgow, who in 1796, bequeathed his whole property to form a University upon a plan of extensive education, acceptable to all ranks and professions, and unfettered by the usual restrictions and prohibitions of Academical Institutions.

The property of the University, and the power of administration, were vested in eighty-one Trustees, named by the Founder, who within six months after his death, in January 1796, set about carrying his views into effect, by obtaining a public subscription in aid of the funds—Appointing Dr. Thomas Garnett, Professor of Natural Philosophy, procuring a seal of cause incorporating (according to the legal mode of procedure followed in Scotland) the University with the usual privileges of a body corporate.

The Trustees of the University are divided into nine classes. All vacancies in their number are filled up by ballot; and certain descriptions of persons only, are eligible for election into each class. Thus one class is composed of Physicians and Surgeons—A second of Lawyers—A third of Clergymen, (the Established Clergy and Dissenters, being alike eligible.)—A fourth, of Tradesmen, that is, persons eligible to the Convenery or Trades' House of Glasgow, &c.

Over these eighty-one Trustees, are nine Visitors, who are vested with the power of inspecting the records of the University; of correcting any mismanagement of the Trustees, and enforcing faithful administration. These Visitors are the Lord Provost of the city of Glasgow, the eldest Baillie of Glasgow, the Dean of Guild there, the Deacon Convener of the Trades' House, the Preses of the Faculty of Physicians and Surgeons, and the Dean of the Faculty of Procurators there, the Moderator of the Synod of Glasgow, the Moderator of the Presbytery of Glasgow, and the Moderator of the Presbytery of Dumbarton, six a quorum.

The general management of the University is vested in nine Managers, elected annually by ballot, (from the whole Trustees) who meet once a-month or oftener, and report to four general meetings of the Trustees held annually. If a Trustee is absent from six such general meetings, he ceases to be a Trustee, and another is appointed to fill up the vacancy thence arising.

The plan of the University comprehends four Colleges, besides a School or an academy. These four Colleges are:—the College of Arts—the College of Medicine—the College of Law, and the College of Theology. Each College consisting of nine Professors, the whole of whom acting in one body, constitutes the Faculty of that College; and the four Faculties when united together as a conjunct body, forming the Senate of the University, who are authorized to grant honorary degrees, recommend candidates to the Trustees in supplying vacancies in Professorships.

In the College of Arts, the nine Professorships are of Physics, Ethics, Logic and Rhetoric, Greek, Senior Latin, Junior Latin, Civil History, Mathematics, and Chemistry.

In the College of Medicine, the nine Professorships are of Institutes or Theory of Medicine, Practice of Medicine, Anatomy and Theory of Surgery, Practical Surgery, the obstetrical art, Materia Medica, Botany and Natural History.

To these Professorships, named in the will of Professor Anderson, the Trustees, in accordance with the progress of medical

science, and necessity for furnishing to the medical student more ample instruction on certain branches of professional knowledge, have founded a Professorship of Medical Jurisprudence and Police, and also one of Veterinary Surgery, and have furnished the student with the means of obtaining a knowledge of Anatomical and Pathological drawing.

In the College of Law, the nine Professorships are, those of Roman Law, Law of Scotland, English Law, Law of Nature and Nations, Roman Antiquities, Ecclesiastical Law, Commercial Law, and the Practice in the Scottish Courts.

In the College of Theology, the nine Professorships are, those of Systematic Divinity, according to the Church of Scotland, Critical Explanations of the Scriptures, Church History, Oriental Languages, the Burgher System of Divinity, the Antiburgher System, the Relief System, the Gaelic Language, and Sacred Music.

The design and constitution of the Andersonian University, in its various departments, have served as a model to numerous institutions both in this country and elsewhere, for the more general diffusion of useful and scientific knowledge among all ranks of Society. Of these institutions established in this country, founded upon the model of the Andersonian University of Glasgow, among others may be enumerated—The Royal Institution of London, in the year 1800. The Dublin Royal Society, supported by an annual Parliamentary grant, while the Andersonian University, although applied to, and having furnished his Majesty's Government in 1806 with an account of its plan and objects, has never received a single donation or grant. The Belfast Royal Institution, the School of Arts in Edinburgh, the University of London, and King's College, the only two liberal scientific institutions in the empire which approach the Andersonian University in extent and comprehensiveness of design, and lastly the Mechanics' Institutions, in almost every town and city in the empire.

Previous to the year 1822, the number of the Professorships in the Andersonian University was limited, from the want of accommodation in the buildings first purchased for the use of the Institution. Various plans were suggested for providing Class Rooms for a greater number of Professors, but without effect. Ultimately, however, the Trustees disposed of these old buildings, and at an expense of upwards of L.9000 sterling, erected the elegant and commodious buildings now occupied by the University, and at the same time increased by purchases, the value of the Libraries, Museums,

and Apparatus to the extent of several thousand pounds. The Medical College is now complete, and a number of Professorships are filled up in the Colleges of Art and Theology, and if the same success attend the exertions of the Trustees and Professors, as during the last seven years, there is yet a prospect of the object of the able, public-spirited, and benevolent Founder being carried into full effect.

*To Dr Craigie with
greatest respect*

REMARKS

ON

THE ORIGIN, NATURE, AND IMPORTANCE OF
MEDICAL SCIENCE;

THE RELATION OF MEDICINE
TO OTHER BRANCHES OF KNOWLEDGE,
EXPOSURE OF CERTAIN IMPEDIMENTS TO ITS ADVANCEMENT,
AND SOME INSTRUCTIONS TO THOSE ENGAGING IN THE STUDY;

BEING THE SUBSTANCE OF

A LECTURE,

INTRODUCTORY TO THE STUDY OF MEDICAL SCIENCE,

DELIVERED AT THE OPENING OF THE

MEDICAL CLASSES OF THE ANDERSONIAN UNIVERSITY.

SESSION 1836-37.

BY A. J. HANNAY, M.D.,

PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE,
EXTRAORDINARY MEMBER, AND FORMERLY SENIOR PRESIDENT OF THE
ROYAL MEDICAL SOCIETY OF EDINBURGH, ETC., ETC.

GLASGOW:

W. R. M'PHUN, 86, TRONGATE;
JAMES STILLIE, HIGH STREET, EDINBURGH;
N. H. COTES, CHEAPSIDE, LONDON.

1837.

REMARKS

A LECTURE

BY A. J. HANNAH, M.D.

GLASGOW

GLASGOW :—PRINTED BY RICHARDSON, HUTCHISON, AND CO.

R35953

A. J. HANNAY, M.D.,

Professor of the Theory and Practice of Physic.

SIR,

WE, the undersigned Students of Medicine attending Anderson's University, being deeply impressed with the importance of the principles advanced in your *Introductory Lecture*, and feeling highly gratified with the clear, impressive, and powerful manner in which they were brought forward, and illustrated on that occasion—respectfully request you to send it to the press, each of us being desirous to possess a copy, in order to derive from its perusal that valuable information which it is calculated to afford, respecting the study and the principles of Medical Science.

JAMES SHORT THOMSON.
JOSEPH BELL.
ROBERT LEGGAT.
ALEXANDER LONG.
JOHN MARCHBANK.
WILLIAM DALZELL.
THOMAS SMITH.
GEORGE SUTHERLAND.
ROBERT FLEMING CULLEN.
JAMES HUTCHISON.
HENRY J. CRAIG.
GEORGE OGILVIE.
JOHN MUNRO.
WILLIAM CAMPBELL.
WILLIAM CHRISTIE.
NEIL M'LEAN.
JOHN ALLISON.
JOHN KING.
JOHN HARDIE.
LYON PLAYFAIR.
JOHN REID.
HORACE PURDIE.
GEORGE WATMOUGH.
JAMES MILLAR.
ROBERT MUIR.
JAMES YOUNG.
JOHN M'LEAN.
JOHN TAYLOR.
HARTLY S. LAYCOCK.
ANDREW M'LAREN.
ROWLAND BALDWIN EAST.
AUGUSTUS O. CURRIE.
JAMES BROWN.
EBENEZER J. BROWN.

JAMES MUSHPRATT.
ROBERT WYLLIE.
THOMAS KELLY.
PATRICK TRAINER.
JOHN F. HODGES.
A. J. GUNNING.
WILLIAM SMITH.
HENRY R. HOWATT.
WALTER W. LENNOX.
SINCLAIR BLUE.
HUGO REID.
THOMAS FORREST.
JAMES STEEL.
NEIL M'MILLAN.
DAVID ROSS.
THOMAS HUNTER.
ROBERT BURGESS.
BENJAMIN M'LAREN.
CORNELIUS O'LEARY.
JAMES HANNAY.
JAMES HUTCHISON.
GEORGE WYLLIE.
ROBERT BISSET.
ADOLPHUS CAINNES.
CHARLES M'CARGOW.
JAMES CAMERON.
ALEXANDER GRANT.
CHARLES DIAMOND.
ROBERT LOW.
J. BROWN.
DAVID WYLLIE.
DANIEL COULTER.
THOMAS NEILSON.

GENTLEMEN,

Your request has determined me to publish the Lecture I had the honour of addressing to you at the opening of the present session. I esteem your approbation of it as a very high reward for the time which I gave to its compilation. I regret that its publication has been so long delayed ; but circumstances, over which I had but little control, prevented me from acceding to your wishes until now.

GENTLEMEN,

I have the honour to be,

Yours, very faithfully,

ALEX. J. HANNAY, M.D.

65, ST. VINCENT STREET, }
February, 1837. }

GENTLEMEN,

WILLIAM GIBSON, ESQ.

Your report has determined me to
publish the Lecture I had the honor of addressing to
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according to your wishes until now.

GENTLEMEN,

I have the honor to be,

Yours very truly,

ALEX. J. HANNAH, M.D.

At the University of
February, 1857.

TO

WILLIAM GIBSON, ESQ.,

MERCHANT, GLASGOW,

AS A

Mark of Unfeigned Regard and of Gratitude,

FOR

MANY PROOFS OF DISINTERESTED FRIENDSHIP TO

THE AUTHOR.

TO
WILLIAM GIBSON, ESQ.,

MERCHANT, GLASGOW.

Author of "The Merchant's Friend" and "The Merchant's Guide."

MARY THOMAS OF DUNDEE, FRIENDSHIP TO

THE AUTHOR.

GENTLEMEN,

It affords me unqualified pleasure to state to you, and the friends of this University, that whilst the classes for Popular Science expand and flourish, its Medical School increases in usefulness and reputation.

It might have been reasonably expected, that the great increase of Medical schools in the neighbourhood, and in many parts of the empire, would have diminished our numbers. Though we have reason to believe, that from these causes, fewer, on the whole, frequent the schools for medical instruction in Glasgow, yet the registrations of our attendants experience no reduction, and the aggregate of pupils in the Medical School of Anderson's University, during the year that now closes, has not declined.

To many who know and witness the excellent abilities—the many opportunities of improvement carefully cultivated—the untiring zeal and industry which characterize my Learned Colleagues, as well as the completeness of our School, and of its system of tuition, this success might not appear so astonishing or unexpected. But to those acquainted with the grievous disabilities, under which we enter the field of competition with the endowed and chartered schools, it must, as I confess it does to me, appear a wonder that we are not entirely driven out of the field.

I can only attribute it to their forbearance, that with the advantages they have over us, this has not long ago been accomplished by these more favoured institutions, and our

privilege productive of no inconsiderable item of income, for all the trouble it occasions.

I do not deny that at one time, it was necessary to confer certain privileges on teachers of medicine in Universities, just as the trades in different towns had special rights and immunities, to protect and encourage their different callings. But certainly the necessity of all such restrictions has now ceased, and should be abolished to a certain extent—the matter may in all safety be left to the keen eye which human nature ever turns to its *temporal* interests and well-being.

In the ingenious essay of my colleague, Dr. Buchanan,* the parallel between the malignant influences of monopoly over trade, and that over the art of teaching is well sustained. In the midst of this great commercial community, we have an opportunity of witnessing the fresh stimulus which has been given to the principal departments of our industry, and the addition that has been made to the productive capital of our land, by the removal of the restrictive regulations under which several domestic trades have been hitherto left to languish—and particularly, by throwing open to the latent enterprise and unproductive capital of other classes, the lucrative branches of commerce, which were formerly engrossed by huge monopolies. Alas ! the monopoly under which we labour, still remains, and, whilst exerting every nerve to free ourselves from it, let us anticipate that when its removal is effected, as I am persuaded it must at no distant period be, the parallel will still hold good, and proclaim that all these

* Of Monopolies in Learning ; with Remarks on the present state of Medical Education, and on the Constitution of the Scotch Universities. By Andrew Buchanan, Graduate and Regent of the Faculty of Medicine in the University of Glasgow.

great interests are managed to the greatest advantage, when they are left to the sagacity—enterprise—industry—and energy of individuals.*

It were a useless waste of your patience to establish, by any formal reasoning on the point, that such monopolies and such exclusive privileges, are no longer required for the promotion of medical science—*it is now admitted on all hands*. The highest members of the profession, without these monopolies and exclusive privileges, have enrolled themselves as Teachers.

The Universities themselves have admitted it, in a way the most practical and unequivocal. I crave special attention to the fact—for it is a cardinal point in my argument—that the Universities of Glasgow and Edinburgh admit their peculiar privileges to be no longer necessary for the interests of medical science, and descend from the strict rigour of their monopoly, with manifest advantages to the profession and to the public; and they are worthy commendation for the act, whatever be the motive, which

* Just before entering the Hall, I was favoured with the following appropriate note from my distinguished colleague, the Professor of Chemistry, who returned a few days ago from a visit of some duration, to Germany. It is well worthy of attention:—

My dear Sir,—In answer to your inquiries, I beg leave to say that Germany affords a triumphant demonstration of the advantage of free competition in lecturing. All medical teachers are placed on the same footing as to privileges, and distinguished merely by the names of Extraordinarius and Ordinarius Professors. This freedom (to use the strong expression of a distinguished ordinarius professor at Berlin, whom I consulted on the subject,) has proved the salvation of the German Universities. For when an Ordinarius Professor proves deficient as a teacher, instead of its being a serious evil to his school, it often indirectly proves an advantage by attracting competent Extraordinarius Professors to the seat of the University, so that the students never lose by it.

Yours, &c., THO. GRAHAM.

I have no right to scan. They have liberally granted to the private teachers in the London and Dublin schools, the privilege of having their certificates recognized, as qualifying candidates for Diplomas in Surgery, and Degrees in Medicine.

I believe, however, that it is but little known to the community, that the teachers in Anderson's University, and the private lecturers in this city, and the pupils who prefer their tuition, to that of the teachers in Glasgow College, are excluded from participating in these bounties; that a student who never was within the walls of a University, can come from London and Dublin, with certificates from private lecturers or teachers there, and in six months obtain from Glasgow College a Degree in Medicine, or a Diploma in Surgery; whilst the certificates of Glasgow teachers, and the pupils bearing them, are utterly rejected, though they may have spent as many years as the other did months in their studies. In short, that the College confers privileges, on the citizens and teachers of Medicine in London and Dublin, (and Paris I understand) which she withholds from those at her own portals. I think Glasgow has a right to know why her own private teachers, and their pupils are excluded from this liberal boon.

The University was reared and endowed, "to irrigate" the City of Glasgow, and this district, with the blessings of science and literature. Who has a better right, then, to share in any bounties this or her other institutions may or can bestow, than her own citizens—their children—and the schools established for their education?

Let us examine for a moment, and with all the delicacy such a subject demands, whether any good grounds for this partiality may exist—whether it be not an act of injustice to

withhold privileges from the people of this city, which she bestows so freely on strangers. In granting the privileges in question, to the schools in London and Dublin, the University of Glasgow has bestowed them on teachers, whose qualifications and modes of teaching, the College can, from their distance, have only imperfect opportunities of ascertaining and estimating. While, on the other hand, they can very easily, and fully satisfy themselves, as to the abilities and methods of the teachers in the private schools in this city; many of whom are *Alumni* of their University, and are well known to most, if not all the Professors, to have had complete courses of preparatory study, and much experience in conducting medical education.*

To prove that no well-founded objections can possibly lie against us as teachers, I would appeal to the fact, that our instructions are held as qualifying for Degrees in Medicine at the Universities of

OXFORD,

CAMBRIDGE,

ABERDEEN, and

ST. ANDREW'S ;

As well as for Diplomas in Surgery by

The Boards which superintend the medical department of the Army and Navy, and East India Company; by

The Royal College of Surgeons of London ;

The Royal College of Surgeons of Edinburgh ;

And, I may add, by every licensing corporation in the kingdom, except GLASGOW COLLEGE !

* Besides, the London courses, which the College recognizes, are only of three months' duration, and in most instances only of three lectures a-week ; whereas, the courses given by the teachers of Anderson's University, and others in Glasgow, but rejected by the College, consist of five Lectures, and examinations every week for six months.

And farther, I think it would not be difficult to make Glasgow College itself, admit our ability to teach. But, we must not poach on their demesne, or come between the “wind and their nobility.” If we, however, betook ourselves to London or Dublin, and entered on our vocation as teachers there, our tickets would be accepted in terms of the latest regulations of the College; no doubt, in consequence of the atmosphere of these vast cities, possessing some such secret influence, as raises our energies up to the standard of excellence, attainable in the air, and under the balmy influences, enjoyed in that hot-bed of human intellect, bounded on the one side by the Havannah, on another by the High Street, and watered by the enriching streams of the Molendinar Burn.

Were I, for example, to remove to London or Dublin, and begin, this very season, a course of lectures, “my ticket” would be recognized by Glasgow College; though, whilst I teach in Glasgow, it is of no value. But the only thing which reconciles me to this, is, that were Sir Astley Cooper himself, or any gifted individual like him, to undertake the task in George Street, Glasgow, his powers too, would soon wither and droop—his intellect be “curtailed of nature’s fair proportions”—and his qualifications to teach pass unheeded, and his certificates, according to the present regulations of Glasgow College, be utterly rejected.

I may illustrate the hardship of these restrictions by a case. A Gentleman had, in part, attended the lectures of Professors in Glasgow College; a large proportion of his education however, had been conducted under private teachers in this city; he had not, therefore, a sufficient number of “College Tickets”—in common language, he had not “*fee’d*” all the College Professors, so as to enable him to get his Degree. After a time he found that it would be

to his advantage to have a degree. Though he had far more certificates than the College required, yet, as they were not from themselves, he could not be gratified with a Degree, without again "*feeing*" such classes as he had not the good fortune to have taken or "*fee'd*" before ; and thus a man who had a very complete medical education—had passed a most rigid examination before the Royal College of Surgeons of Edinburgh, and before the Navy Board—had been deemed qualified to serve, and had served his king and country for several years, in a professional capacity, must again become a student—again *pay money* for lectures he did not want or require, and lose his time and his emoluments—injure his prospects, and mar his advancement, ere he could obtain the honours prized by the profession, and esteemed by the public.

Besides, such restrictions are calculated to drive native talent from our borders ; and it would not be difficult to show that such has been the effect.

And will it be believed, that these restrictions are imposed by institutions, proclaiming by a solemn deed, the fitness, and granting the power, of teaching, to every graduate ? Yes ! the diploma granted by the Universities of Scotland to their graduates in medicine, certifies their ability, and confers on these graduates, in the most explicit language, the right of teaching ; and it has been distinctly shown, from the terms of their charter, and from the history of the University, that this special right and qualification of the graduates to teach were at one period respected and effectually recognised.* Now this solemn compact is to all practical intents broken or defeated, by refusing to recognize those taught by us as fit for examination.

* Dr. Andrew Buchanan, op. cit.

These arguments derive weight, farther, from the fact that they have been successfully urged with more than one of our Scotch Universities. The University of St. Andrew's deserves the warmest commendations of the private schools of Glasgow and Edinburgh; that ancient dispenser of literary and medical honours having put them on the same footing, as the University of Glasgow has done the teachers of Dublin, London, and Paris.

The University of St. Andrew's has the most ample and undisputed powers to confer Degrees in science. For long this University discharged its high function of granting degrees, in a manner so remiss, as to compromise its own dignity, and lessen the reputation of such honours.—What was of greater moment, the interests of society were thus sacrificed, for, to the charge of unqualified persons, were committed blessings which mankind justly prized higher than all other earthly enjoyments—the preservation of health and the cure of disease. They have now determined on administering this high and important function in a manner more favourable to the interests of Medical Science and of mankind.

There is not a more sacred trust reposed by society, in our licensing bodies, than that of exercising every precaution, to prevent any but those completely qualified, from receiving a degree or a diploma. And I have great pleasure in stating, that the University of St. Andrew's has now adopted and entered upon regulations, in respect to Degrees in Medicine, in every one of which the public interests have been carefully consulted. By steadily pursuing them, their Degree has already attained the highest consideration and respect. Being one of the Examinators called in by that University, I trust I may be excused if I shortly explain the principles by which

it has wrought out this regeneration, and conferred, at the same time, a privilege on the teachers and students of unendowed or private schools.

First of all, it may now be relied on by the public, that the qualifications of its graduates or Doctors in Medicine, shall be of the highest order. The course of study prescribed by the Senate, embraces every branch of medical science which is essential to the practitioner of medicine. They also demand of them, a knowledge of several collateral branches of study, which may be looked upon in part as accomplishments, but in many respects, as improving their minds, enlarging their resources, and so rendering them more efficient in practice. In short, it may be relied on, that the candidates for medical honours are required by the Senate of St. Andrew's to pursue a course of study *more extensive by far, than that required by the University of Glasgow.**

Besides producing certificates of a very ample course of study, the candidate is subjected to a most searching, but fair examination, in presence of the Principal and all the Professors of the United Colleges.

To aid them in the right discharge of this duty, the Senate have called in the assistance of the following gentlemen, whose names, I am sure, are a sufficient guarantee that the examination will elicit the truth as to the candidates' attainments, and that none, but such as have respectable qualifications, will obtain their Degree; that the examination shall be conducted with all impartiality and fairness, and that the interests of the public will not be overlooked, *for these gentlemen have no pecuniary*

* It is commonly said, and I believe it to be true, that Glasgow College demands of its graduates in Medicine, a course of study more limited than any other University in the kingdom.

interest in the passing of the candidate, no fee or reward, except the satisfaction of working out a plan that does justice to the teachers and pupils, of what are denominated, the private schools of Glasgow and Edinburgh, and to the many interests directly or indirectly involved therein.

ROBERT LISTON, Esq., Fellow of the Royal College of Surgeons, Edinburgh, Surgeon to the North London Hospital, and Lecturer on Surgery, London.

J. A. ROBERTSON, M.D., Fellow of the Royal College of Surgeons, Edinburgh, and Lecturer on Surgery and Materia Medica.

J. MACKINTOSH, M.D., Fellow of the Royal College of Surgeons, Edinburgh, and Lecturer on Midwifery and Practice of Medicine.

ALEXANDER LIZARS, M.D., Fellow of the Royal College of Surgeons, Edinburgh, and Lecturer on Anatomy.*

WILLIAM GREGORY, M.D., Fellow of the Royal College of Physicians, Edinburgh, and Lecturer on Chemistry.

ANDREW BUCHANAN, M.D., Member of the Faculty of Physicians and Surgeons of Glasgow, and Professor of Materia Medica in Anderson's University.

The liberal views of the University of St. Andrew's commend themselves to us in various ways. Many eminent and distinguished members of the profession never heard a lecture within the walls of a university. The voice of their country, even of Europe, may declare their attainments to be worthy of the highest honours. They imbibed the first principles of the science they now advance and

* Dr. Lizars has farther shown his respect for a St. Andrew's Degree, by submitting to the examination required and taking this honour.

adorn, from the most illustrious teachers of the day;* but these were not teachers in a University. The regulations of the Universities of Glasgow and Edinburgh demand, before they bestow their highest honours, or a Degree, upon men of this high standing, that they relinquish their avocations and attend as students, lectures addressed to the youngest pupils, for one year if they have been educated at London or Dublin; and for three or four years, if they have had the *misfortune* to receive their elementary education in the private schools of Edinburgh or Glasgow—another hardship inflicted on the private schools of these cities.

Now the University of St. Andrew's meets in liberal spirit the case of the gentlemen just described. It demands that they *have* a complete education, but does not enact that an education can only be complete when conducted within the walls of a University. Ample experience having shown that the best teachers, and, consequently, the most popular and best attended, were very often not to be found in the precincts of a University, but at private schools. The University of St. Andrew's, has therefore, with much justice, recognized the efficiency of Extra-Academic teachers, and accepted their certificates. It will be readily seen that this gives occasion to a spirit of competition, which under proper control, cannot fail to advance the Science and benefit the community.

Medicine, as a science, is yet almost in its infancy, so that new discoveries and modes of practice, affecting the health and comfort of all the members of the community, may be confidently anticipated. Exertion, therefore, as soon as it cannot be too eagerly called forth, the public having

* From Abernethy, Cooper, Bell, Allan Burns, Gordon, Murray, Barclay, Brodie, Brookes, Baillie, Laurence, Elliotson, Macintosh, Liston, Lizars, &c., &c.

the deepest interest in its advancement, and in distinctly knowing those by whom it has been advanced. Now it is surely a possible case that the medical teachers in Universities may sometimes be less zealous and less able than many private teachers, and that under the latter higher medical attainments may be acquired. If, however, the power of conferring Degrees in Medicine be limited to Universities, exacting attendance upon their own schools, either what may actually be the best medical schools must be deserted, or the persons who attend them and profit by them, must be excluded from certain professional honours; in other words, this would be to establish a monopoly, where monopoly, from every motive of humanity is most to be deprecated; and sacrifice to private emolument the welfare of all classes. Permit the University of St. Andrew's to carry its admirable regulations into effect, and the result will be the most salutary competition between the Medical schools of Universities and of private teachers, from which the happiest improvements in the science of Medicine may be introduced.

The Universities have nothing to fear. If they do their duty their medical schools will deservedly gain the public, and they possess advantages which their rivals do not enjoy. But if they should relax, why should they have an exclusive privilege—deteriorating the science which they are bound to promote, and preventing blessings which would be diffused amongst the whole human race? Upon this ground it is that there should be no interference with the privilege of the Universities to confer Medical Degrees, and that the public should be left to judge where knowledge of medicine can be most effectually procured.

Gladly would I have passed over these subjects in silence, Gentlemen—but duty forbids. To do all that

in him lies, to free science from every shackle, to remove every encumbrance that may hinder the free spread of sound and useful knowledge, is the incumbent duty of every one taking office in Anderson's University—it is the very spirit of his office. Our Institution first led the way in this great cause; and from what I know of the energy, capabilities, and determination of those now “labouring at the oar,” we have every reason to believe, that no opportunity of discharging this, and every other duty, will be neglected.

I now quit the only unpleasing part of my task, a notice of the disabilities under which we labour, and which materially affect our usefulness, and mar our progress. There is much, notwithstanding, to gratify and encourage every one engaged in carrying on this Institution. All may realize the happiness of being instruments, in furthering the generous projects of an exalted mind, of following out plans springing from the union of virtue and science—a union wherein they mutually illustrate each other—and such was exhibited in the Founder of this Institution.

With highly cultivated, and good natural talents, he had a heart overflowing with every generous sentiment. He luxuriated in the blessings and benefits issuing from an enlarged understanding and an educated mind. From these, he saw, must emanate many of the discoveries that have since, and are yet to ornament and benefit mankind—that minister more amply to the wants, comforts, and elegancies of society; whilst the discipline requisite for such attainments would render the human heart and mind more fit for the reception of their best guests, virtue and religion. For the promotion of these noble ends, he dedicated much of his time and all his fortune. He seems

to have been that portion of the moral and intellectual powers to which heaven from time to time applies its kindling beam—one of those agents which gives progressive impulse to the human mind—which carries it forward to higher degrees of reason and understanding—and achieves for mankind those countless blessings successively developed by an all-wise beneficence. This excellent character broke the last link that held enchained benignant science—tore off the shroud in which superstition had long enwrapt her, and showing her to admiring eyes and loving hearts, gave rise to consequences the most important to humanity. I need not tell you what influences this has had on the diffusion of knowledge and a taste for its progress, nor how numerous are those institutions in many countries which acknowledged this as their parent and pattern. There is a kindred spirit abroad over the surface of the earth, giving an impulse to the human understanding. Every department of knowledge feels its invigorating and kindly influence ; its powers appear irresistible, and under the approving smile of heaven, bids fair to ameliorate and elevate the condition of the species. Instances of this teem on every side. In the enlarged views now taken, and enjoyed in our political and religious institutions—in the more universal dissemination of the blessings of education, whereby the human mind is not only enlarged in its capacity, but endowed with a greater relish for piety and virtue. Such gifts I hail as the boon of heaven, and the fruits already growing from it must be hailed by every rightly constituted mind, as an earnest of higher degrees of progressive intellectual and moral improvement.

In the State of the world I find a guarantee that we shall never return to those times of degraded moral and intellectual power, when the human mind scarcely gave

note of its existence. The whole civilized world may now be regarded as one vast empire, the parts of which, though capable of internal movements not extending beyond their own limits, are kept in union and peace by a great watchful and preservative principle, unfavourable alike to external violence and domestic oppression. This union facilitates the communion of thought and of invention—propagates useful knowledge, practical experience, and virtuous principles, which are not, as formerly, deposited exclusively in a few heads, which may be struck off by ravages of the marauder, or the axe of oppression, or consigned to a few leaves of papyrus, which may be lost or consumed—but are spread among countless numbers of men and of printed books, beyond the power of any revolution, short of a universal deluge, to destroy.* Such are the fruits of this spirit: and the application I make of it to our subject, is, that seeing our science has participated in this general illumination—since it, too, having cast off the slough of hypotheses and fancies, now presents an extensive field of laborious, yet honourable research—that in having its study and advancement committed to us, we take upon us duties involving some of the best interests of our race, and for the discharge of which we are morally responsible. Need I show you then, that you should shake off all apathy and indifference in embracing the cultivation of Medicine as a science or a practical art, and that you should summon to your aid that enthusiasm, without a certain degree of which no man has ever been truly great. To rest satisfied with such attainments as shall merely qualify for the immediate practice of your profession, would argue a mind at once devoid of all generous and exalted endowment, and

* Edinburgh Review.

unqualified to pass the very threshold of a liberal science. Your labours in education doubtless are great, but they bear a rich reward; for, whatever may be advanced to the contrary, merit and talent are the most certain (though certainly not always sure) methods of obtaining success in the profession. Besides, a conviction of having exerted our talents to the best advantage is a rich source of consolation. And since misconstructions and disappointments are the unavoidable lot of some in every profession, (without the operation against them of unfair or disingenuous influences) such conviction will prove a retreat of peace and consolation—a sweet refuge of distress.

Moreover, the subject has many attractions in itself; a review of the interesting departments of knowledge Medicine comprehends cannot fail to interest our zeal and encourage enthusiasm. I might speak from what I have seen and experienced of that devotion to the pursuits of his professional studies which warms the heart of many a generous youth; did not I believe that, from your own feelings, you will know it better than from any description.

“ For such the bounteous Providence of Heaven,
In every breast implanting this desire
Of objects new and strange, to urge us on
With unremitted labour to pursue
Those sacred stores that wait the ripening soul
In truth’s exhaustless bosom.”

Medicine is an appellation which, in reference to the etymology of the word, implies the art of curing diseases. This were a definition by far too limited for a science so vast and comprehensive. Taken in that sense, which the extent of subject it involves, and the important ends it has in view, will fully warrant—Medicine may be regarded as

a science which treats of the organization of animated beings in all its wondrous modifications, affected by the influences of surrounding nature, and deduces certain laws and rules, for the preservation of health, or the cure of disease; in short, it is the Physical History of Man. You will observe, I have made two divisions in this definition. In the latter of these is comprehended the practical application of those laws, and this forms what is denominated the art or Practice of Medicine—whilst the collection and generalization of facts, from which these rules have been deduced, constitute the science or theory.

Now since man, and the wonder, and fearfulness of his organization, are the subjects of our study, it cannot fail to engage every generous mind approaching it, with ardour and enthusiasm.

“Call now to mind what high capacious powers
Lie folded up in man!”

He is placed over all the other classes of animated beings; and that science which treats of him will ever claim an exalted place amongst the almost infinite number of natural objects, in the study of which the human mind is engaged. But when we consider the paramount utility of Medicine, it comes before us with an overwhelming interest.

The origin of Medicine, appears to me to be more a curious, than a useful subject. It is one involved in conjecture and obscurity; for the beginning of arts, like that of nations, leaves but feeble traces of their early progress, and time smooths them over as the wave of the ocean defaces the wanderer's steps on its sands.

An acquaintance with some means of assuaging suffering, seems to be impressed, by instinct, on the brute

creation. It is possible that mankind may have derived their first knowledge of them from the same original. It appears to me, that the healing art is to be viewed as arising out of the nature of man, and as drawing its origin from principles and demands of the human race. Almost coeval with man have been his wants and his sufferings. To minister to the one, and alleviate the other, would enter largely and early into his duties and his cares. We thus see reason for an early origin of Medicine, and authentic records carry us back to no period when it was not. Sacred annals are silent, and the heathens, by referring the invention to the gods, do but tell us that the mortal inventor was unknown. This we know, however, that whenever man has asserted his humanity, we find indications of the employment of means, answering to the general notion of a remedy for disease.

The most savage communities have some traces of the healing art. They attach names to, and appropriate remedies for different diseases, and there are several substances applied by them in the cure of disease which enter not into the list of articles of luxury or food. In ignorance of the animal economy, and influenced by the degrading superstitions that shroud their minds, they consider disease the effect of some malignant spirits, who are to be appeased by atoning sacrifices, or exorcised by the rites of a barbarous religion. Such is the state of many parts of the uncivilized world at this day, and the picture of Medicine which the rude hordes of New Holland, and the sable inhabitants of the African desert present, may perhaps be viewed as a representation of that of mankind in their infancy.

We see, then, that Medicine arises out of the principles and defects of our nature, and we shall see also, that as

surely as the sensations and structure of the human frame were the same in remotest ages, so surely must the stern mother of invention have prompted mankind to means of gratification or relief; for when we contemplate the constitution of the human frame and the shocks it is exposed to, we cease to wonder at the frequency of diseases, the brevity of human life, and the consequent desire to ward off the one, and to prolong the other—a powerful principle of the human breast.

Investigation of the animal economy, (which we are entering upon) will show us innumerable powers exercising an influence over it. These are both external and internal. Some of the former are so necessary that we are inevitably exposed to them, as heat and the air we breathe in its various agencies. There is a constant disposition to change in the elements of our bodies. Processes are incessantly going on, by which they are wasted and repaired, and there are a great variety of actions ministering to these changes, or otherwise subservient to the general well-being and maintenance of the system. On the proper function of each of these, in various degrees, depends the health of the whole frame; and there is a bond—a “*sympathy*”—whereby the mal-administration or disorder of one brings others into suffering. When we examine, as we shall do, these powers and their influences over the complex organization and the springs of life—when we consider the indispensability of their application—how slight an application and trivial a cause may produce consequences the most momentous, and diffused with facility from less important to more vital organs by the sympathy subsisting among them, we cease to wonder at the infinite variety of form, at the frequency and the violent nature of the derangements these agents effect in the

animal economy. Hence disease, in all its shapes and agonizing pains—hence, too, the abbreviation of the span of human existence,—

Nascentes morimur, finisque ab origine pendit.

A consciousness of the high importance of the profession he embarks in the study of, cannot fail to encourage the youthful aspirant—to lighten the burthen of his labours, and infuse into the mind all that generous enthusiasm so necessary to the cultivation of our Science; and in the respective courses we are just entering upon, it will be the duty of each Professor—our earnest endeavour—to kindle this animating flame in every pupil, for on this we deem much of the success of our labours will depend.

In the remaining part of this lecture, I shall briefly reply to some of the charges which have been brought against the Science. I shall state the claims Medicine has to rank among sciences, abstractly from its practical utility—and conclude by laying before you an outline of the qualifications of him who would devote himself to the study and practice of Medicine.

The calumnation of Medicine is by no means a modern practice. Two thousand years ago Hippocrates deemed it his paramount duty to meet its enemies—to afford a refutation of their falsities, and such is the obstinacy of the human mind, that until this very day in our own land, there are men of scientific, and even medical authority who have the inconsistency, and I may say the imprudence, to regard Medicine as an art merely conjectural, and to stigmatize it as a mere collection of practical precepts, often applied at random, or at best an experience having no fixed basis or principle, and would vainly attempt to rob it of its estimation and honours. In this respect, Medicine is not singular; it is not

the only branch of knowledge that many affect to despise ; and our astonishment ceases at its treatment when we know calumny alike and rejection have been made of knowledge, of still more efficacious—of more enduring, and vital importance to man. They are similar, too, in another respect of their treatment by many, whilst health beams in their face, and all is external activity and thoughtlessness. Do sufferings confine them to the bed of disease and of penitence, they fly with anxious fears to the aids of the one and the sacred consolations of the other. It may be said this is the case only with minds enfeebled by age or participating in bodily infirmities. To refute this, our own circles may afford many instances, but in the celebrated Rousseau we have an example at once the most classical and interesting wherewith to refute this assertion. He uttered and entertained many opinions disrespectful to medicine. He not only proclaimed its inefficacy, but its injurious tendency ; he laid to its charge, that, failing to cure disease, it inspired man with sorrow, filled him with cowardice, pusillanimity, credulity, and dread of death ; and concludes he, if they cure the body they entirely destroy the courage and firmness of the man. Now medicine that cures diseases cannot surely be injurious, and I appeal to every one who hears me that, if instead of inspiring with a moral infirmity, it does not inspire the sufferer with courage—it is not true I positively aver, that patients become cowardly and credulous in the hands of a physician who, on the contrary, raises their drooping spirits, exhorts them to patience and resignation, and by the confidence he inspires reanimates their hopes. Indeed dire experience taught this proud son of worldly science the falseness of his views and the injustice he had done the healing art—for in the full possession of his exalted, but

sometimes ill-directed mental powers, he addressed to St. Pierre the most ample recantation. If, says he, I were to make a new edition of my works, I would qualify or soften what I have written against physicians. There is no profession that requires so many studies as theirs—in all countries they are the men most truly learned.

Ignorance or misapprehension of the attainments and discipline of mind necessary to constitute the enlightened physician, has often given rise to erroneous views and opinions of his science. “Perhaps,” says Vogel, “there is no science which requires so penetrating an intellect—so much talent and genius—so much force of mind—so much acuteness and memory as the science of Medicine. For the full attainment of its proper and ultimate object, it requires also indispensably the possession of stability of judgment, rapidity of decision, and immoveable firmness and presence of mind, readiness of recollection, coolness, flexibility of temper, elegance and obsequiousness of manners, and a profound knowledge of mankind, and of the secret recesses of the human heart. Of all this the most convincing proofs will immediately occur to us. Medicine not only comprehends so very extensive a range of knowledge, but its truths are often so profound, and so much concealed from a cursory inspection, so intricate, so much disguised, distorted, and obscured by a multitude of delicate and invisible causes, that nothing less than the all-commanding eye of the most enlightened understanding—than the all-penetrating and all-searching power of genius, can possibly recognize that which is in darkness—can follow that which is remote into the last traces that it imprints—can distinguish certainty from opinion and probability—can separate the essential from the accidental;

and, finally, can analyse and develop every subject of investigation so completely as to have no fear or doubt respecting any of its properties which are cognizable by human means. In short, if the judgment be not naturally good, and be not exercised and matured, in vain shall the dogmas of the schools be communicated to any one. The science is one of judgment and not of rules; a character peculiarly belonging to Medicine, for to the theologian is the sure volume of inspiration; to the lawyer the statutes of law, or the precedents of former decisions. What was yesterday true or binding in doctrine or authority is equally so to-day. But the physician or surgeon has no standard to direct him in the hour of doubt and of danger. The fathers or founders of his art may assert but cannot determine for him. Upon his own clearness of perception and soundness of judgment must his reputation, and the life of his patient stand or fall. It is of importance whilst considering this matter to distinguish the enlightened physician from the mere prescriber of medicines. We must not believe that the knowledge of the doses, or even the abstract virtues or chemical habitudes, or equivalents of medicinal bodies, alone constitute the physician. He requires a knowledge of the human frame, deep and intimate with all its textures and diseases, and no one who knows the laborious steps of "Experimental Philosophy" by which this has been attained, but will accord to the extensive branch of knowledge in question a distinguished rank among the sciences with which it claims a place, by the exercise of that "great engine," in common with every branch of experimental knowledge. If any science be so based, it is Medicine. If the almost inspired sentence of Bacon; "That man, the servant and priest of nature, only does and understands what he shall have observed in nature's

essence or order,"—be applicable to any science, it is to Medicine, for, as says Baglivi, "*tota ars est in observationibus*,"—the whole art is founded on experimental philosophy. No one will dispute this, or ever did so, who had carefully studied the labours of a Morgagni, a Hunter, a Bichat, a Laennec, a Baillie, a Broussais, and a host of others, whose opinions and views in our department of philosophy, shall be carefully displayed to you, during the courses of lectures now about to commence.

To Lord Bacon's philosophy, Medicine, in common with all the other sciences, is indebted for the overthrow of the scholastic system, and for the establishment in its stead of the method of induction from observation and experiment. As I believe, that to these principles, medicine owes its rank as a science, and its advancement as an art, I am induced to make a few observations on the nature and object, of the views and opinions of that great man.

Since the spirit of Lord Bacon's philosophy began to be rightly understood, science has advanced with rapidity unexampled in the history of all former ages. The great axiom of his philosophy is so simple in its nature and so undeniable in its evidence, that it is astonishing how philosophers were so late in acknowledging it, or in being directed by its authority.

It is more than two thousand years since the phenomena of external nature were objects of liberal curiosity to speculative and intelligent men, yet two centuries have scarcely elapsed since the true path of investigation has been rightly pursued and steadily persevered in—since the evidence of experience has been received as paramount to every other evidence; or, in other words, since philosophers have agreed that the only way to learn the magnitude of an object is to measure it—the only way to learn its tan-

gible properties is to touch it—and the only way to learn its visible properties is to look at it. Nothing can be more safe or more infallible than the procedure of the inductive philosophy as applied to the phenomena of nature. It is the eye or the ear witnesses of every thing which it records. It is at liberty to classify appearances, but then, in the work of classifying, it must be directed only by observation. It may group phenomena according to their resemblances in words, and announce them to the world in the form of general laws, yet such is the hardihood of the inductive philosophy, that though a single well-attested fact should overturn a whole system, the fact must be admitted. In submitting, therefore, to the rules of the inductive philosophy, we do not deny that certain sacrifices must be made, and some of the most urgent propensities of the mind fall under severe restraint and regulation. The human mind feels restless and dissatisfied under the anxieties of ignorance. It longs for the repose of conviction; and to gain this repose it will often rather precipitate its conclusions than wait for the tardy lights of experiment and observation. There is such a thing, too, as the love of simplicity and system—a prejudice of the understanding, which disposes it to include all phenomena under a few sweeping generalities—an indolence which loves to repose on the beauties of theory rather than encounter the fatiguing details of its evidences—a painful reluctance to the admission of facts, which, however true, break in upon the majestic simplicity that we would fain ascribe to the laws and operations of the universe. Now, it is the glory of Lord Bacon's philosophy to have achieved a victory over all those delusions—to have disciplined the minds of its votaries into an entire submission to evidence—to have trained them up in a kind of steady coldness to

all the splendour and magnificence of theory, and taught them to follow with unfaltering step wherever the sure though humble path of experiment and observation may lead them.*

The Preservation of health and the Cure of disease are not the only services that Medical science confers on humanity. No science has more powerfully contributed to the enlightening of mankind—to silence ridiculous creeds—to destroy scandalous and baneful prejudices, many of them a disgrace to the human mind—whilst it affords the most powerful collateral proof of the wisdom of a great Creator—fills our mind with awe and reverence of his exalted and incomprehensible nature.

Being a science of facts founded on observation, it accustoms the mind to the most severe and exact modes of thinking, and teaches us the propriety of exercising our minds, receiving nothing until analysed and tried in the balance of judgment, and never to substitute men and opinions, in place of truth and things.

We may remark also the signal part taken by those who cultivated our art at the revival of learning, and more recently the remarkable impulse given to the progress of every branch of science by those of our profession, more especially in chemistry, natural philosophy, and natural history; nor can we pass over in silence the brilliant discoveries which the genius of Harvey, Sthal, Boerhaave, Linnæus, Hunter, Jussieu, and Quesnay, made in the sciences, whilst investigating nature, to shed a new ray on Medicine, and to establish new remedies for human infirmity.

I have often thought, and still think, that no science ap-

* Chalmers.

pears more calculated than Medicine to afford lessons of a moral and philosophic nature. What an incessant source of profound and salutary reflections does the picture of human weakness and infirmity present to us! We behold no rank, no age, no fortune, enjoy immunities from disease and of death—no respect to the purity of blood—to riches—and to dignities, which, indeed, often prove a fruitful source of sufferings and disease—a bane which embitters the cup of human life. The physician then forms a just estimate of the vanity of human existence; and either from his own experience, or from that of others, is enabled to exclaim, “*Vanitas vanitatum omnia vanitas.*” Almost more than any other profession, he can regard human nature with an elevated look, and appreciate the benefits of a life, from which the gnawing cares of ambition and the wild play of passion are excluded.

A more grave and alarming charge has been laid to Medicine than any alluded to. Its calumniators, and even its friends, have occasionally asserted that the practical tendency of medical studies is to encourage irreligion—to darken the human understanding—to take from piety its best and its most sanguine hope—its longing after immortality. The refutation of this charge is easy, by appealing to facts; Harvey, Hales, Brown, Boerhaave, Heberden, Haller, Baillie, Abercromby, Abernethy, Bateman, and Good, are among the names of eminent medical philosophers that come to my recollection, and serve sufficiently to illustrate the frame of mind as to religion which has always attended genuine excellence in medical science.

He who pays attention to the office of a single organ in a living body—who examines the situation of the eye and the laws of vision, or the instruments by which the infinite variety of articulate speech is accomplished,

—experiences a delight analogous to one contemplating some refined piece of mechanism. But, in the latter case, his mind is engrossed with human invention only, and his admiration is diminished by the idea of imperfection which attaches to the work of human hands. When he regards the less complex, yet more perfect mechanism of animated nature, his thoughts are raised to the Supreme Intelligence which has fashioned elements, that the finite ingenuity of man cannot combine,—for objects that human sagacity but partially comprehends, yet which, when understood, display in their attainment, contrivances so perfect as to lead inevitably to a belief—that nothing results, fortuitously, from properties inherent in matter—that nature is the work of God. The studies of the Physiologist continually serve to illustrate the attributes of that Supreme Mind whose marvellous design he is busied in unravelling. “He reads in the careful provision for the perfectness and preservation of every species, and for the happiness of those which enjoy consciousness, a demonstration of an all-wise benevolence, and he deduces from that remarkable analogy which pervades the innumerable families of living beings, stamping all in their various gradations and diversities with one common mark and impress, a confirmation, if I may make use of such an expression, of his belief of the unity of the Deity.” From points yet more abstruse the veil seems partially withdrawn. The nature of life—the relation of the soul to the body are more than indistinctly unfolded to his view. Principles even of moral conduct derive support, in some instances, from the inquiries of Physiology, which explain the physical connexion between the improvement or degeneracy of races or of individuals, and the observance or neglect of rules derived from higher sources.

At every step is established some point of coincidence between the religion and morality of nature, and of Revelation.

The relations that subsist between the branches of knowledge, usually comprised under the term Medicine, and some other departments of human knowledge, are best illustrated by a few remarks on the qualifications which should be possessed by him, who proposes to make the practice of medicine his profession. These qualifications are either original or acquired. An intended practitioner of Medicine, in any of its branches, should possess a good constitution, as his practice is often laborious, especially in the country. His sight should be good, and his hand steady—more especially if he is to practice surgery. He should possess good temper and suavity of manners, that he may soothe as well as relieve his patient.

With respect to his acquirements, the medical student should have received a liberal education previous to his entering on the study of Medicine. He should be so far master of the Latin language as to be able to read it with ease and write it with correctness, as many excellent works, especially on the continent, and all medical prescriptions, are still written in that language. Greek is no longer regarded as a necessary part of a medical education, as the principal works written in that language have been translated; but it still must be regarded as a valuable accomplishment. Next to Latin, French is the most useful language; indeed, I feel assured that under present circumstances it is of equal if not of higher utility to the student of Medicine, as it is the key to information of the highest interest, value, and importance in medical literature. When time and opportunity allow, the German language should be acquired.

The elements of Mathematics, especially Arithmetic, Algebra, and Geometry, are of importance as introductory to Natural Philosophy, several departments of which, as Mechanics, Pneumatics, Optics, and Electricity, serve to illustrate the laws of muscular motion, the mechanism of respiration, the nature and laws of vision, and the effects of a powerful agent on the system. Logic and metaphysics must form a part of the studies of every man of liberal education. And who requires a more deep and thorough acquaintance with the operations of "the immaterial part," so much as he who should "minister to a mind diseased;" and it comes most ungraciously from the gifted professor of the London University, who has had the honor (and acquitted himself in a manner becoming the place and the occasion) of opening the present session of that Medical School, to disparage the studies in question.

Natural history in its several departments of Zoology, Phytology, and Mineralogy, is essential, as it makes him acquainted with the nature and properties of those animals, vegetables, and minerals, which, as parasites or poisons, become the causes of disease, or supply the stores of medicines in our "well-filled magazines of art." An extensive knowledge of Anatomy is indispensable to the medical student, and especially so, if he is to practise surgery. The surgeon must not only be intimately acquainted with the structure from observation, but must render himself familiar with it by actual dissection. I regard the attention bestowed on this department of medical study as still inadequate to its unutterable importance. Were I devising a *curriculum* of surgical or even medical education, I should exact attendance on anatomical lectures, demonstrations, and dissections, from the first to the last day of its duration. Other departments *may* be acquired after

the schools are left, but for this there is in general no opportunity. I entreat the younger part of my audience to remember this remark—it may save many a bitter regret. This, Gentlemen, is the knowledge which gives coolness and confidence to the surgeon in the most perilous operations—this is the thread upon which often hangs the life of a human being—a fellow-creature who trusts his life to you ;—and will not your honour, and every better feeling of your heart, now be engaged to keep from this moment alive an unquenchable desire for anatomical knowledge.

A competent knowledge of Comparative Anatomy is also very useful, and grows in importance every day by the lights it casts on the structure and functions of the human economy.

Chemistry, is another collateral branch of the greatest importance in a medical education, as it assists Anatomy in investigating the intricate structure of the body—aids physiology in explaining some of the principal functions, especially Digestion and Respiration, and forms a necessary introduction to Pharmacy, or the art of compounding medicines.

“ The object of Chemistry may be said, in general terms, to be the investigation of the properties and composition of all material substances, whether belonging to the animal, vegetable, or mineral kingdom. But still a broad distinction can be drawn between chemistry and the descriptive sciences embraced in natural history, which also regard the material world. These last sciences more particularly regard the *structure* or the manner in which the parts of a body are put together, but the ultimate constitution of bodies, the *materials* or the ingredients of which these parts are composed, form the objects of chemistry.”

When we have attained a degree of knowledge of the

structure and mechanism of our bodies, a natural desire will arise to know something of the wonderful appearances which they exhibit in life and action. The department of knowledge that instructs in these phenomena is called Physiology; which, in this University, is taught partly along with the anatomical lessons, and partly in that division of our labours taken up under the name of the Theory or Institutes of Medicine. In this last department, Physiology, or as it may be defined, the study of the nature and mechanism of the functions performed by individual organs, or by any series of them, is brought before the student at great length. Associated with it, in very natural union, is the study of the diseases of the economy, under the title of Pathology.

In the study of a subject so extensive and varied, the adoption of method and arrangement is of the highest consequence. The student of disease then, arranges his knowledge under certain heads, to secure full, complete, and exact consideration of every part. He makes himself acquainted with the very various *symptoms* or *phenomena* which attend diseased states of the textures or offices of the organs and of the fluids. The study of these characters and signs constitutes the division of the student's labours, to which the name of Symptomatology and Phenomenology have been given—for which clumsy words, the more harmonious term of Semiotics is now generally substituted. Subservient to it is Nosology, or the classification of diseases. Having carefully studied the symptoms of diseases, the student turns his attention to the circumstances which *cause* them; this important division of Medical knowledge is called Etiology.

The physician regards all the branches of professional education now specified as subservient to Therapeutics, or

the measures employed for the prevention and treatment of diseases. This branch of science comprises several divisions. Hygieology, or the rules and practices to be observed in the prevention of disorders, and the treatment of the sick by diet and regimen. *Materia Medica*, or the study of medicinal agents, which borrows the aid of that branch of chemical science, called Pharmacy, or the art of preparing medicines. Surgery, which has been defined to signify the cure of diseases on the exterior, or by manual applications; but which, from the amount of Physiological and Pathological knowledge contributed by those devoted to its study, as well as the high attainments requisite for its successful practice, may well be regarded as another name for the science of Medicine. Midwifery has been viewed as a branch of Surgery, but the extent and importance of its usefulness entitle it to a special and separate consideration, and constitute it a distinct branch of professional study. The deeply interesting and vastly important branch of legal or state medicine, commonly called Medical Jurisprudence, is just the application of the different branches—of all the light they shed—to the administration of justice and the legislation of a country.

It would be easy for me did your time permit to enlarge on the relative and absolute importance of each branch I have thus imperfectly specified, but what could I add to the finished lecture delivered in this place, on this occasion last year, and to which I refer you with pride, to supply any deficiencies I have made in this part of my duty.* Besides, each of my colleagues will afford you, in his own introductory lecture, ample information on the

* A Lecture introductory to the Study of Medical Science, delivered at the opening of the Medical Classes of the Andersonian University,

importance of each branch of study—on the relation it bears to other departments of knowledge—and the order in which each should be taken up in the series of your studies.

It might be imagined that the proudest triumphs of the physician's skill consist in the cure of diseases, and the restoration to health and vigour—but there are others, which, though not so specious, are no less prolific sources of satisfaction to the man of heart and good feeling. When we reflect on the many diseases, which, from their nature and severity are incurable—and on the fact that an illness beyond the reach of art must arrive to all, we cannot fail to duly appreciate the high value of a science that can render its assistance with effect, when all hopes of recovery have expired. Even then the tender hand of Physic often ministers relief to ills it cannot cure—assuages pains beyond the power of art to remove—and smooths the rough road which all are doomed to pass, with various degrees of trial and suffering. You would do well, then, to study carefully all the means by which the sufferings of the dying, or of an incurable kind, are to be lessened—and to view this part of your duties as highly worthy of your attention, as well from the effectual services it renders the victims of incurable disease, as from the high satisfaction which the proper discharge of those pleasing, though sad offices, must ever procure to the benevolent mind.

Lest, Gentlemen, the number of the studies I have enumerated, as forming the elements of, and preparation for, a Medical education, should alarm or deter you from making an advance, I may state, for your encouragement,

session 1835-36. By Robert Hunter, M. D., Professor of Anatomy, &c., &c. With an Appendix, containing an outline of the constitution of that University.

that without disparagement to any one of them, they are of different degrees of importance.

Some may be considered as preparatory—such are Latin, Greek, Mathematics, &c.; not one of these, however, with the exception, perhaps of Latin, is indispensable. Still far be it from me to put such acquirements below their proper value in a medical education. Indeed, did I not find in the history of medical science, men who, though without these preparations, were, by the powers of extraordinary genius, the successful *naturæ ministri et interpretes*; many who were invaluable practical men—I say, if I did not know these facts, I should certainly enumerate those branches amongst the indispensable qualifications of the practitioner of Medicine; and certainly, I may say, they should never be neglected. High cultivation and erudition have contributed, no less than its usefulness, to elevate the profession, from the remotest times of modern history; for early do we find the high standard of a Physician's education embodied in an adage or proverb—*ubi desinit philosophus ibi incipit medicus*. Many administer faithfully, judiciously, and successfully, to the sufferings of humanity, without any knowledge of the languages in question. Some have reached the pinnacle of professional fame, and achieved much in advancing science, without classical acquirements; they had natural powers which overcame every defect of education. But it is not the lot of every one to be gifted with the genius of a Hunter, whose own natural powers bore him into new and untried regions on stronger wing than even the highest cultivation can bestow on ordinary minds. And it may be reasonably asked, would not the great intellect alluded to, not only have had its own sphere of enjoyment enlarged, but its energies

expanded, by the steady discipline exacted in the attainment of classical learning ?

Some studies, though accessory, are regarded as altogether indispensable, such as Chemistry, Natural History, and Natural Philosophy. These highly important accessory branches, more especially Chemistry, are of constant application in the study of life and organization ; and without them we should remain ignorant of the nature of many Physiological and Pathological phenomena.

No collateral branch of education, in relation to the knowledge of the human mechanism, is more important than Physics, or Natural Philosophy. The Medical man is pre-eminently the engineer—the engineer of a machine in which mechanism in the greatest variety and in the highest perfection, is found.

Where is there to illustrate mechanics, a system of levers, and hinges, and moving parts, like the limbs of an animal body ? Where such an hydraulic apparatus as in the heart and blood vessels ?—such a pneumatic apparatus as in the breathing of the chest ?—such an accoustic instrument as the ear ?—such an optical instrument as the eye ?—in a word, such mechanical variety and perfection as in the whole visible anatomy ? All these structures the Medical man, of course, should understand, as a watchmaker knows the parts of the machine about which he is employed. The latter, unless he can discover where a pin is loose, or a wheel injured, or a particle of dust adhering, or oil wanting, &c., would ill succeed in repairing an injury ; and so also of the ignorant Medical man, in respect to the human body. Yet we shall have occasion to show you unquestionable and striking proofs and effects of a want of this knowledge, in the doctrines of Carson and Barry concerning the circulation of the

blood. They have had much labour in vain, which they might have spared, had they but known or been conversant with the veriest elementary facts or principles in Mechanical Science. It is not in regard to the mechanism of the human body only that the Physician requires to have a knowledge of Natural Science. How often does he require to know the conditions of the atmosphere—to be able to warm and ventilate buildings to the best advantage—take specific gravities—and there are other innumerable points, in which a knowledge of Natural Philosophy is absolutely indispensable. If, moreover, we wish to hold that rank in the scale of human society, which, from its utility as well as its superior attainments the profession has hitherto justly acquired, a knowledge of natural science is, I hold, indispensable—it is a part of a liberal education, and one which is daily spreading in extent, and increasing in importance. “In our cities, nay in the dwellings of every one of us, a man is surrounded by miracles of mechanic art; and with his proud reason is he to use these as careless how they are produced, as a horse is of the corn which falls into his manger?” A general diffusion of knowledge is now elevating the human character in all ranks of society, and making men also reflect how different their condition is from that of their remote forefathers. These generally forming small states or societies, had few relations of amity with surrounding tribes, and their thoughts and interests were confined very much within their own little territories, and rude habits. In succeeding ages they found themselves belonging to larger communities, as when the English Heptarchy was united; but still more remote kingdoms and quarters of the world were of no interest to them, and were often totally unknown. But every one now sees himself a member of one vast civilized

society, which covers the whole face of the earth, and no part of it is indifferent to him.

The knowledge of Nature in all its branches, is an indispensable requisite, in the cultivation of the mind. It is highly useful, were it only as an exercise for invigorating the understanding—it is a salutary discipline of the powers of the mind—and engenders habits of application and attention, whilst it calls into play the reasoning powers; besides, all arts and Sciences have a bearing on each other; and the History and Philosophy of animal life is surely as necessary an accomplishment to a physician, as any other branch of science or literature; and I should be tempted to think from this sense of the word Physician being peculiar to the English Language, that this notion especially prevailed in our country. The study of nature is surely the most salutary of all intellectual exercises in the practical arts, particularly as it comprises the knowledge of the mutual agencies about which these arts are conversant.

Mathematical acquirements are here comparatively little applicable, for the relations of quantity about which the exact sciences are conversant, do not apply to the laws of organic beings, and is a process of thought quite distinct from that termed inductive, employed in the investigation of nature. It is in preparing for the study of other useful branches of science, that the main practical utility of mathematical studies consists; and many minds have habits of self control, of steady and protracted attention, generated by such exercises.

The study of nature has had another tendency. It, I apprehend, has banished a superstition that long influenced the human mind, in regard to Medicine. Even Bacon did not disbelieve in amulets, sorcery, and magic; and Boyle seriously recommends the thigh bone of an

executed criminal, prepared in a particular manner, as a remedy in certain disorders. The study of nature has tended to abolish frivolous practices, rivetted in ordinary minds by early impressions, and imposing authorities, or hallowed by immemorial usage and tradition.

One hundred and fifty years have not elapsed, since authors who otherwise were respectable, believed in what is called the Doctrine of Signatures; that is, they believed turmeric to be good for the Jaundice, because it had a yellow colour. A fox being an animal that had a long wind, as the huntsman knows from the desperate runs he makes before he catches him, his lungs were dried, and powdered, and given in asthma. The testicles of a wild Boar were powdered, and given to cure barrenness; and kidney beans were highly praised in diseases of the bladder. The root of the Orchis from some fancied resemblance, is given to promote procreation; and I fear we have proofs in the belief of some in animal magnetism, and the metallic-tractors, that practitioners in our own time have a tendency to fall into like weaknesses, were they not, as they now are habituated to the contemplation of the genuine agencies of nature.*

The sciences more strictly Medical, and therefore indispensable, are General Anatomy, Physiology, and Pathology; particularly the Anatomy of the tissues and viscera in their healthy state, which has hitherto been too much neglected, and indeed only begun to be properly studied and duly estimated since Pathology has been more carefully studied; Materia Medica, Surgery, and Midwifery are likewise indispensable.

Let these be, then, your elementary studies during your attendance on the schools. Let some well selected

* Blane.

elementary treatise be the subject of your study, whilst you are entering upon the vast fields of Medical Science and Literature. It will be best to leave more general study to an after period. We shall point out to the best of our ability, the sources of information, whence you may draw a knowledge of the subjects we shall treat of in our respective courses. In short, we shall by every means in our power, encourage, direct, and animate you in the pursuit of those attainments necessary to profit by after experience and observation at the bedside of the patient. It is there, Gentlemen, that the observer must study disease—there he will have it displayed to him in its true character, divested of those false shades by which it is so frequently disguised in books—there, only, freed from the vagueness and illusions of systems, the student can acquire fixed and definite notions of disease.

Any eulogium of the vast advantages to be derived from careful notice of the symptoms of disease, during life, and minute attention to the relative changes effected on the organization, as seen on inspection of the dead body, is in these times uncalled for and preposterous. For it stands universally confessed, that by observation and judicious comparison of living phenomena, with *post mortem* appearances, a progressive impulse has been given to Pathology, and many signal improvements achieved in this branch of knowledge. But I wish to impress on the younger members of the profession, that whilst the science in general has been advanced, this method of careful study of disease in the living body, and of the effects of it on the dead, is the only sure path to *individual* and *personal* attainment; and though our labours may not be crowned with brilliant discoveries, yet I deem this the most invigorating training of one destined to

combat disease—the most effectual method of obtaining an exact, experimental, and useful acquaintance with those discoveries and truths, which fit the Pathologist in the highest degree for the practice of Medicine. Indeed I do not hesitate to say, that the first exercise of the novitiate in Physic, should be the observation of disease; *and a careful record of its symptoms.* It may then, of course, be best conducted under the eye of a master; but the student cannot, I maintain, apply himself too early to the observation of disease. What he sees and learns in this exercise give a deep interest to the studies called elementary; I have always seen (and I have taken pains to observe) that the young men who had been accustomed to this practice—who knew the external phenomena of morbid action, and of organic disease, take the deepest interest in Anatomy and Physiology—to such, the advantages of anatomical knowledge are most apparent—they give to it their most devoted attention, because it throws light on this or the other disease or morbid condition, with which their observation rendered them familiar; to them the prelections of the anatomical and physiological teacher are invested with an interest, that warms them into ardour and enthusiasm. The progress of such persons is infinitely more rapid and complete than those who do not enjoy the like advantages.

A very opposite method is followed in our schools: a tyro engages in the study of Anatomy—he attends the lectures from a sense of duty, or authority compels; but he does not discover the benefits to be derived from it; he may be told, but he does not experimentally know its important applications to disease, and the practice of the art—and having but little interest in what he does not appreciate, he loses a great part of the benefit

of attendance, there being little to rivet on his mind the many facts displayed in a course of Anatomy. Indeed it is commonly two or three sessions before he attends lectures in which the phenomena of disease are displayed. All this time he has been attending in the most lifeless and uninterested manner, the courses of Anatomy, required by the *curriculum* of education, prescribed in the institution from which he wishes to obtain his authority to practice. At length with very imperfect knowledge of Anatomy, he comes to the study of diseases, and the theories that have been advanced to explain them. He now sees his deficiencies in Anatomy, and finds out the deep interest that would have rivetted him to his anatomical studies, and fastened for ever on his mind the relative position and structure of many parts of the economy, had he but known the practical application of this acquirement. I appeal to competent persons, and ask if this has not been the experience of many—that on coming to the Physiological, the Pathological, and more especially the Surgical Class, they have first found their deficiencies and duly estimated a profound knowledge of Anatomy. Some can remedy the defect at this period; but, on the other hand, to many this discovery of their deficiencies comes too late—their curriculum is finished—the purse strings of Parents and Guardians are closed, and they *must* make a finish. I again repeat that all this might have been prevented if the pupil were taught from the very first of his labours, to study the external characters of disease—to *note* down regularly and carefully its symptoms and progress—and to witness and record inspections after death. Besides, by such exercises, he not only acquires knowledge of the highest importance, but he is learning also to express his thoughts in words. I regard the most

minute observation when trusted to the memory, without any careful written record of its impressions, as comparatively useless and ineffectual for the end in view: to obtain from it all the good, I can surely promise the pupil from it, *his observations must be minutely and carefully kept in written characters.*

The very act of minutely describing a case, implies more careful observation—enforces diligent study—and begets habits of attention, most gratifying to the sufferer; the recording of it, if faithfully done, secures a deliberate reconsideration of every point; as all must be again passed through the mind, and the case completely sifted. A man who observes disease to carry away its signs and characters, to transfer them to the pages of a well kept journal, not only observes with double attention, but seems and feels deeply interested in his patient; and thus honestly and insensibly acquires a reputation, for zeal in the healing art—obtains that confidence reposed by the public in all who discharge the duties of our profession attentively and steadily—and thus in studying faithfully and generously the good of others—advances his own, without the suspicion of selfish or unworthy motives.

I beg, then, to urge on the younger branches of the profession to commence early the practice, in question;—a practice which has advanced the Science, and cannot fail to improve and promote *every individual* who sets himself to it in good earnest. It is probable many unknown to me pursue this method, and reap its certain advantages; but I know many who do not practise this as they should; trusting their observation, such as it is, to no better treasury than their memory, or only making slight and capricious notes—never an accurate observation of every

function, and a full detail of every morbid phenomenon ; which neglect I have often seen regretted when too late :— that was at the exposure by dissection, of some important morbid change of structure, the existence of which they never once suspected ; though such could have been foreseen by the superior care and sagacity of others, or by their own more attentive and matured observation. And as an encouragement to the Student, I would hold out the fact, that though he may not always accomplish brilliant discoveries, yet his labours may not only benefit himself, but greatly advance the Science. The ingenuity, address, and application of another may have discovered, or suppose it has discovered, what the observation of an ordinary observer shall either confirm, or confute, which is sometimes no inconsiderable service : and, undoubtedly, the diligent observer may rely on this, that though his earliest essays may not possibly be in themselves of much value, yet they are inestimable as exercises leading to individual improvement, in observation and description.

I have just one remark to make, and that is in conclusion. I have often heard it said that we ought not to encumber the record of cases with tedious detail—that we should be brief and spirited ; but whilst I reprobate the introduction of extraneous matter, or too many general discussions, into cases, I believe it possible to be too meagre in our observation and detail of phenomena ; and though I admit brevity to be the soul of wit, I cannot allow it to be equally essential in cases of scientific relation. For it seems to be a great error to omit any fact, the existence of which is well ascertained, merely because we do not perceive its utility or importance. If facts be correctly stated, they can hardly be recorded too minutely ; and a future age may derive instruction from

that, which to the original observer seemed of little use.*

And to conclude this apology, I would add, that, "When the comfort, the health, and the lives of mankind are concerned, too much care cannot be bestowed on writing or perusing the history of disease."

I have often thought, that the societies which the more enlightened and distinguished of the students form for purposes of mutual improvement, might preside over this important method of instruction. That having associated with themselves for this purpose, a few advanced in the science, they might most advantageously devote, some at least of their sittings, to a review and criticism of the record of disease made by the members. This has been almost successfully done in the Medical School of Dublin. I throw this out as a hint to some of the Members of the Medical Society that hold their stated meetings in these walls—a society I strongly recommend to the attention of the Student. Such unions encourage individual industry; for man being pre-eminently a social animal, the greatest effects, whether for good or for evil, are always wrought out by numbers, acted on by one common impulse. It is this social sympathy which begets ardour in our pursuits, and gives rise to that enthusiastic devotion, without which, no one has ever yet become great. By coming together at stated periods, with all the decorum and solemnity so important an occasion requires, the members of the society mutually impress each other with respect for the studies in which you are engaged; and by means of the industry and the general approbation, excite, encourage, and so improve.

* Vide Dr. Cleghorn's letter to Dr. Watt.—Watt's cases of Diarrhoeas.

If, Gentlemen, let me in conclusion say, by turning your attention in our respective courses, to these important points, we can awaken an early turn for observation, and point the way to follow in the search of medical truth—if we can warm you with an enthusiastic ardour in the study of the science, it will recompense us richly for the pains, we shall gladly devote to your improvement and edification.

Let me remind you, Gentlemen, that in having this important science committed to our cultivation, we must be imbued with devotion to its study and progress; it was not by an apathetic investigation of the science, that the illustrious Hunter reared a monument to his fame, and benefitted mankind. I would entreat you, Gentlemen, in your studies in the great volume nature displays, to bear in mind this illustrious countryman—to lay hold on some of the sentiments and enthusiasm he inculcated, and set a brilliant example of; and hear as it were his spirit encouraging you to assiduity, zeal, and diligence in the grateful, yet exulting language of the Poet,

“I, bone, quo virtus tua te vocat, i, pede fausto.
Grandia laturus meritorum præmia.”

COURSES OF LECTURES, &c., PRESCRIBED BY THE FOLLOWING BOARDS.

Course of Study.	Fac. of Physicians and Surgeons of Glasgow.	College of Surgeons, Edinburgh.	College of Surgeons, London.	Apothecaries' Hall, London.	Univ. of St. Andrews.	Army.	Navy.
Apprenticeship	<i>Courses required.</i> Apprenticeship, or 12 Months	<i>Courses required.</i> Apprenticeship, or six months	<i>Courses required.</i> 5 years acquiring professional knowledge.	<i>Courses required.</i> Apprenticeship of five years	<i>Courses required.</i> Apprenticeship, or 6 Months	<i>Courses required.</i> Apprenticeship, or 3 Months	<i>Courses required.</i> Apprenticeship, or 2 1/2 years
Apothecaries' Shop	None	1 Course	None	None	None	None	None
Elements of Math.	None	1 Course	None	None	None	None	None
Natural Philosophy	None	None	None	None	None	5 Months	None
Natural History	2 Courses of 6 Mos. each	2 Courses of 6 Mos. each	2 Courses of 6 Mos. each	2 Courses of 6 Mos. each	1 Course of 6 Mos.	24 Do.	18 Months
Anatomy	1 Course of 6 Do.	1 Course of 6 Months	2 Courses of 6 Do.	3 Courses of 6 Do.	1 Course of 6 Do.	12 Do.	12 Do.
Practical Anatomy	1 Course of 6 Do.	1 Course of 6 Do.	1 Course of 60 lectures	1 Course of 100 lectures	1 Course of 6 Do.	12 Do.	6 Do.
Chemistry	1 Course of 3 Do.	1 Course of 3 Do.	None	1 Course of 100 lectures	1 Course of 3 Do.	6 Do.	None
Practical Chemistry	1 Course of 6 Do.	1 Course of 6 Do.	1 Course of 3 Months	1 Course of 100 lectures	1 Course of 6 Do.	4 Do.	6 Do.
Materia Medica	1 Course of 6 Do.	1 Course of 6 Do.	None	2 Courses of 100 lect. ea.	1 Course of 6 Do.	12 Months	6 Do.
Institutions of Med.	1 Course of 6 Do.	1 Course of 6 Do.	1 Course of 60 lectures	1 Course	1 Course of 6 Do.	12 Do.	15 Do. or 12 &
Practice of Medicine	1 Course of 6 Do.	1 Course of 6 Do.	None	None	1 Course of 6 Do.	6 Do.	6 months
Clinical Medicine	2 Courses of 6 Mos. each	2 Do. of 6 Ms. each, or 1 &	2 Courses of 60 lect. ea.	None	1 Course of 6 Do.	12 Do. or 6 mo. &	6 months
Surgery	None	1 Course of 6 Months	None	None	None	6 Do.	6 Months
Military Surgery	1 Course of 6 Months	1 Course of 6 Do.	None	1 Course of 60 lect. ea.	1 Course of 3 Mos.	4 Do.	6 Do.
Clinical Surgery	1 Course of 6 Do.	1 Course of 3 Do.	1 Course of 60 lectures	2 Courses of 60 lect. ea.	None	None	None
Midwifery	1 Course of 6 Do.	1 Course of 3 Do.	None	1 Course of 3 Months	None	None	None
Medical Jurisprud.	18 Months	18 Months, or 12 Do. and 6 Months	12 Months	18 Months	12 Months	18 Months	12 Months
Hospital	None	None	None	None	None	None	None
Dispensary	3 Months	None	1 Course of 3 Months	1 Course of 3 Months	None	3 Months	6 Months
Botany							

LIST OF LECTURES AND EXPERIMENTS IN THE FOLLOWING BOARD

Name of the student	Date of the lecture	Topic of the lecture	Date of the experiment	Topic of the experiment	Date of the experiment	Topic of the experiment
J. H. Smith	1890	Physics	1890	Physics	1890	Physics
J. H. Smith	1890	Physics	1890	Physics	1890	Physics
J. H. Smith	1890	Physics	1890	Physics	1890	Physics
J. H. Smith	1890	Physics	1890	Physics	1890	Physics
J. H. Smith	1890	Physics	1890	Physics	1890	Physics
J. H. Smith	1890	Physics	1890	Physics	1890	Physics

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