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Mc. Clintock (Jas.)

AN

INTRODUCTORY LECTURE,

DELIVERED IN THE

CASTLETON MEDICAL COLLEGE,

ON THE 10TH APRIL, 1843.

By JAMES McCLINTOCK, M.D.

PRESIDENT OF THE COLLEGE, PROFESSOR OF ANATOMY AND SURGERY, AND
LECTURER ON ANATOMY AND OPERATIVE SURGERY, IN PHILADELPHIA.

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CASTLETON MEDICAL COLLEGE, }
April 21, 1843. }

Professor J. McCLINTOCK,

DEAR SIR:

The class of the Castleton Medical College, highly gratified with your able and interesting Introductory Lecture, hereby most respectfully, through their Committee, the undersigned, request a copy for publication.

S. B. LOW, Vt.
DAN'L AYRES, JR. N. Y.
WM. H. BEATTY, N. Car.
W. M. BURBANK, N. H.
H. G. DARLING, Mass.
J. M. SMITH, Al.

Committee.

Castleton, Vt. April 21, 1843.

GENTLEMEN:

Your polite note of to day, requesting a copy of my late Introductory Lecture for publication, is hereby acknowledged. The address was prepared for your improvement, and it affords me pleasure to comply with your wish.

Accept for the class and yourselves, gentlemen, the best wishes of

Your friend,

JAMES McCLINTOCK.

Messrs. Low,
AYRES,
BEATTY,
BURBANK,
DARLING, and
SMITH,
Committee.

ADDRESS.

GENTLEMEN:

In commencing my duties in this Institution the present term, I cannot restrain the expression of my gratification at being greeted by so large a class of medical students. Such encouragements, amply compensate the Faculty for the labor and expense they incurred, in their efforts to afford such facilities to the votaries of our profession, as are rarely equalled, not excelled in this country. Three years ago this Institution was resuscitated from the state of asphyxia, in which it had lain for the three preceding years; its reanimation was witnessed and sustained by about twenty pupils; believing that there was, in the organization of the school, sufficiency of power to maintain the vitality thus feebly begun, the gentlemen connected with it continued their exertions faithfully, and the next year, 1841, they had the gratification to find their efforts rewarded, by a class of about thirty students. Encouraged by this increase, the parties concerned in watching over the interests of the school, augmented their exertions; they, by the outlay of large sums of money, and the devotion of assiduous attention, remodded the college building in such a manner as to make it one of the most convenient places of study I have ever seen. The anatomical museum was much augmented by the purchase of one of the largest private collections to be found. Since then, it has been receiving constant accessions by the deposit of

new and valuable preparations. The collection of chemical apparatus has been rendered one of the most complete in New-England, all the articles in it being new, and of the most modern construction. The department of Materia Medica, furnishes between three and four hundred specimens of carefully selected medicines, so that in this respect the college affords abundant facility for study. The other demonstrative branches are equally liberally furnished with every means of thorough instruction.

In the same period the Faculty has been enlarged, the course of instruction prolonged, the number of lectures increased, and every available means have been resorted to for the purpose of perfecting our college. The efforts made have been encouraged and sustained by the members of the profession, and their students, and we now, and always have, gratefully acknowledged our obligations to them. To prove that we have been liberally patronized, it is only necessary to mention the number of the members of our classes since 1841; in the spring of 1842, we had seventy students; during the fall session of the same year, our class numbered seventy-two, and as is known to all of you, our present number is over ~~eighty~~. *100*

While we freely acknowledge our obligations to the members of the profession and students of medicine, there are those around us to whom we owe an equal debt of gratitude. I allude to the inhabitants of the village of Castleton, who, by the liberality of their contributions and constant assistance, have enabled the Faculty to place the college in its present improved condition. But, though I award all praise to the citizens of Castleton generally, there is one of them, a teacher in this Institution, who deserves more than a mere passing notice. You will anticipate me in pointing to your Professor of Materia Medica, Dr. Joseph Perkins, who, when clouds overhung the horizon of the school, when all its future prospects appeared dark and gloomy, instead of yielding to despondency and giv-

ing up his efforts for its restoration, maintained his confidence and continued untiringly his exertions. Daily and nightly for a long period has he devoted his best energies, advanced his money and pledged his credit to accomplish the object now attained, the permanency and success of the Castleton Medical College. Gratifying, indeed, must it be to his feelings to look round, and see the large number of students who now frequent these halls, attracted here, I have no scruple in saying, mainly by his exertions.

I have deemed it proper, gentlemen, to give you this brief account of the progress of our school since its revival, because I wished you to be acquainted with its recent history, and to know to whom the Institution was chiefly indebted for its present success. From it you may derive great encouragement in the prosecution of the duties of the elevated calling, to which you have devoted yourselves. By it has been fully confirmed the axiom "Perseverantia omnia vincit." When then, in the practice of your profession, you find, as I have no doubt many of you will, yourselves surrounded by trials and difficulties, when every thing looks dark and gloomy around you, and there appears no way of escape from the troubles which thicken about you, do not become dispirited or apathetic, and give up your exertions, but rouse yourselves, remember the progress of your Alma Mater, and like her, pursue unwaveringly a correct course, and like her you will, you must, ultimately succeed.

To heal the ravages of disease, and to ward off, for a time at least, the stroke of death, are the objects of the profession which you have chosen. In all time it has been regarded as one of the most important of human employments. And its difficulty is equal to its importance. The man who is competent to discharge its duties must be furnished with something more than the arts of mere empiricism. The day has gone by, when to practice medicine

was only to mark a symptom and to prescribe a remedy for it, handed down by the experience and observation of others. Medicine is a science as well as an art. The practitioner must acquaint himself with the structure and functions of the organization in a state of health, as well as with the changes which are effected in them by disease. He must understand thoroughly too, the nature of the remedial agents which he applies to that organization. That is to say, before a man can consider himself qualified to assume the responsible duties of a physician, he must have obtained a knowledge of the several distinct departments of study which constitute the science of medicine. As taught in this school, these branches are Anatomy, Physiology, Surgery, Chemistry, Materia Medica, Medical Jurisprudence, Obstetrics, Pathology, Theory and Practice of Medicine, and Ophthalmology.

It would be both interesting and instructive to examine each of these departments, and show their intimate connection and mutual dependence; but as such an investigation would far transcend the limits of the present discourse, I shall confine myself to those which will be the particular subjects of our study during the ensuing course of lectures here: namely, Anatomy and Operative Surgery. To a brief notice of these branches of science, and of the manner in which I shall try to teach them, the remainder of this address will be devoted.

There are few departments of human knowledge which afford so wide a scope for investigation as Anatomy, embracing, as it does, the study of all organized bodies, whatever be their character or importance in the grand scheme of creation. But as these are greatly diversified, the applications of Anatomy differ widely; it has, therefore, been divided into several departments, according to the subjects of examination. When applied to the forms, relations, connections and structure of the human system, it is called Human Anatomy, or Anthropography. When

the structure of brutes is the subject of investigation, it is denominated Zootomy. The elucidation of vegetable formations is the object of Phytotomy. In all these, however numerous and different may be the subjects to which the anatomist devotes his attention, the end in view is the same, the demonstration of their organic arrangements, and their fitness for the performance of the functions devolving upon them in the great scheme of nature.

But for practical purposes, as well as for scientific arrangement, each of these departments is again divided. With this view Human Anatomy, the topic which will particularly engage our attention here, is divided into several branches. Thus, when the constituents of the body are examined with reference to their texture, without regard to their size, form or connections, the term General Anatomy or Histology, is applied to the information acquired. If the organization be examined with a special view to ascertaining the form, size, situation and relations of the different parts, a division of the science is formed, denominated Special, or Descriptive Anatomy. In addition, the various components of the body may be the subjects of scrutiny, with a view to determine their functions and their influence upon each other in the healthy and diseased condition. The first of these methods of examination belongs to Physiological, and the latter to Morbid or Pathological Anatomy. The different parts of the fabric may also be studied as they are found situated in any given region of the body, constituting Regional or Topographical Anatomy. And when the regions are exposed, in order to determine the influence which one part has upon another, in the modification of accidents or injuries, or in the performance of surgical operations, the name Surgical Anatomy is applied. There are, in addition to these, several other divisions of the science, but as those mentioned will occupy most of our attention in the consecutive course, it is unnecessary now to refer to the others,

which will be sufficiently explained, should it be expedient, at a future time.

To appreciate the value and importance of the whole subject, it will be profitable for us to examine briefly in detail, the different divisions of the science, that I have named to you; and the first to which I shall call your attention is General Anatomy. For our knowledge of this branch of science, we are mainly indebted to BICHAT, who may indeed be said to have created it. Removed, at the early age of a little over thirty, from the pursuit of a career of research which was original in the extreme, he yet lived long enough to throw the light of his brilliant genius upon a new development of the science which he loved, and with an unrivalled power of analysis, to demonstrate and generalize all the different tissues that are now recognized as constituents of the human system. What heightens the claim of his great work on General Anatomy, to be considered one of the highest achievements of human intellect and industry, is the almost incredible account that he began and finished it in one year, working by night and sending the copy in the morning to the printer without correction. I need not apologize, gentlemen, for thus dwelling for a moment upon the name of the distinguished Frenchman, who must always rank among the noblest of the martyrs of our science.

The special object of Histology is the Anatomy of texture, under which is not only comprised a knowledge of the proper elements of the organization, but likewise of the proportions in which they combine to form the various tissues entering into the composition of the different organs and systems. The identity of texture in the various animal elements is a fundamental principle in modern medicine, for which, as I have told you, we are indebted to Bichat. I shall now present you with a brief view of some of its most interesting aspects. The human body presents to us, at the first glance, an assemblage of organs and sys-

tems apparently dissimilar. They appear in both fluid and solid forms. Now the researches of General Anatomy have demonstrated, that the simplest condition of every animal substance is fluid. They have also shown, by an ultimate analysis, that the elements of the whole organization are capable of reduction, if not to material atoms, at least to microscopic globules which intermingle with this fluid, sometimes in a coagulable and sometimes in a coagulated form. This substance retains its liquid condition in some of the elements, as, for instance, in the animal fluids. But when coagulated, and combined with the globules, or even, perhaps, without them,—as in the serous membranes, it is thought they have not been detected,—it forms the various solids.

The problem of this formation is one of the most interesting and attractive to which human attention can be directed. The ingenuity with which the idea was originally started, is only equalled by the perseverance with which it has been pursued. You are not to suppose, gentlemen, that this investigation, so minute, so delicate and so general, has been carried on with the unaided eye, or by direct observation alone. The wonderworking powers of the microscope, that invaluable assistant of modern science, have been pressed into its service. The apparatus and science of the chemist, though designed for far different objects, have contributed their aid to that all-searching analysis, which has developed such beautiful and splendid results. If you are ever inclined to wonder that one young man could have laid the foundation, and almost completed the form of a new branch of science, read the history of the experiments of Bichat, of his unwearied observations with the microscope, of his multiplied applications of chemical analysis to the elements of the body, often under the most disgusting and repulsive circumstances, and you will cease to marvel at the extent and grandeur of the views to which those labors led.

But to proceed. When the elementary globules before spoken of are arranged in a linear series, the interstices being filled with the coagulated fluid, they form, in the simplest combination, a filamentary solid. Again, by another disposition, the character of which is not fully laid open, they form minute laminæ of solid matter. These last are sometimes attenuated into a viscid substance, exhibited especially in the cellular tissue. In combination with the filaments, they form a species of cellular or areolar arrangement. Indeed, the whole class of textures which we call tissue, is formed by the various combinations of these elementary forms of matter under different modifications. By the union again of several of the tissues an organ is formed. By the combination of two or more organs, the performance of whose functions tends to the same end, though the organs themselves may be and often are, of a different character both as to their structure and separate functions, an apparatus is constituted; for example, the respiratory apparatus consists of the larynx, trachea, bronchiæ and pulmonary tissue, organs very unlike each other, but still all concerned in the performance of the one function, respiration. On the other hand, a system is a combination of organs of similar structure; for example, all the muscles of the body possess the same constituents and unite to form what is called the muscular system. Thus by a beautiful series of combinations, we rise up from the simplest forms of organized matter, to the entire structure of the human frame, and find that we have employed the same material, been conversant with the same elements throughout. There is no more splendid instance of generalization in the whole history of science.

Such is General Anatomy. But beautiful as its developments are, and attractive to you as they must already appear from their relations to general science, I must show, more definitely its practical applications, in order to convince you of its great importance to the physician. In

order to do this, let us examine its relations to those two great branches of our study, physiology, the science of life, and pathology, the science of disease.

Physiology is, as I have said, the science of life. In its most extended sense, it investigates all the phenomena of living nature. In human physiology these are two-fold; "the direct phenomena which are effects or results of the actions and reactions occurring between the vital principle or organic force, external forces and organic matter, and the secondary phenomena which are the functions or offices of the organs; the functions being the means of life, and the organs its instruments."* Now, from what has been said of the doctrines of General Anatomy, you cannot fail to perceive its applications to this science. How is the function to be understood without a knowledge of its appropriate apparatus? And as the apparatus is composed of organs, these, too, must be thoroughly comprehended, especially as they may have separate and distinct functions of their own, apart from the apparatus. Again, these organs are composed of various tissues of different texture, each with peculiar properties and endowments of its own, though all combining in their union, to the attainment of the same result. What method then, gentlemen, is the obvious and philosophical one of studying the philosophy of man? Shall we be satisfied with knowing that he breathes by the agency of one set of apparatus, digests his food by another, secretes the elements that preserve the vital energy by another? or, if we go a step further, shall we be content when we have learned the organs that compose the apparatus, given them names, and classified them into systems? Such is not the knowledge that will satisfy the genuine devotee of science. Rather will he inquire still further, what is the texture of these organs so wondrously wrought and so accurately adapted to the performance of their functions, and what are the separate endowments of

* Prof. S. Jackson's Introductory. Phila. 1841.

the minutest elements which the closest analysis of that texture will develop. And if he pursue this method, and attempt thus scientifically to comprehend the phenomena of life, he will apply General Anatomy to the study of physiology. It is with such applications, combined with Animal Chemistry, that we look for the rapid advancement of physiology to a place among the positive sciences.

But we have also to consider the relations of this branch to pathology. Recollecting that its objects are to determine the nature, symptoms, causes, variations, and results of disease, we shall be at no loss to see how pathology is indebted to General Anatomy. A case of disease is presented to us—our first object, of course, must be to obtain a correct diagnosis. In order to do this, we must not merely be able to detect the symptoms and say that the patient has cough, or spasm, or fever. This might be done without even a tincture of medical science or medical skill. But we must be able to *interpret* the symptoms, so as to discriminate between diseases apparently similar to each other. The symptom merely indicates disorder of some function. An organ performs the function. That organ is composed of various tissues of different structure, and vital properties. How, I would ask, is the mere outward expression to be understood and interpreted unless the intimate composition of these elementary tissues is thoroughly comprehended? One of the tissues composing an organ may be diseased, while another connected with it, and possessing a different degree of susceptibility, may be entirely free. Who can pretend to decide the character of a disease from the mere external symptom, when that symptom may have so great a variety of meanings? Who can fix upon the seat of the disease, lying, as it may, perhaps in one constituent of the organ and perhaps in another, while he is himself ignorant of those constituents? Again, we desire to form our prognosis—to learn the tendency of the disease, and foretell its result. What blind work it

will be to attempt this, as, alas! too many do, without a knowledge of the different elements of the structure, of the influence which one diseased tissue may exert over others with which it is placed in relation, and of the results likely to follow from its morbid condition? And, if further, we desire such an ignorant pathology to give us the indications of cure, how can we rely upon them? What kind of Therapeutics will that be which prescribes remedies in utter ignorance of the tissues on which they are to act? The former produce their effect upon the latter "by impressing upon their acts certain modifications, and to understand the application of the one, and the effects which will be produced in the other, by its influence; a knowledge of the properties, susceptibilities and modes of action of the part upon which it is desired to make the impression, is indispensable."*

These remarks, gentlemen, will suffice to show you, that even apart from the intrinsic beauty of the subject and its scientific value, the importance of General Anatomy to the education of a physician, cannot be too highly estimated.

The province of SPECIAL ANATOMY is to examine the form, magnitude, weight, situations and connections of the different organs forming the system. Let us now take up the human organism, examine its functions in greater generality than we have yet done, and thus learn the office and the importance of this branch of the science.

The human frame is a machine endowed with the power of voluntary motion. But its organization is not permanent; the matter of which it is composed, undergoes constant change, union and separation; it dies and is renewed with every moment of time; evidently then, it has the power of reproducing itself. Again, it has the power, not only of self renewal, but of propagating the species. These several powers are classified in Physiology under the divisions of 1st, functions of relation; 2d, functions of

* American Cyclopedia, Art. Anatomy.

nutrition; and 3d, functions of generation. Let us now see what provision is made in the organism itself for the performance of these functions, and how they are related to the division of science before us.

We have said in the first place, then, that the system is endowed with the power of voluntary motion. In order to execute this function, it is provided in the first place, with the system of bones, which are the most solid part of the organism, and are the instruments of motion. These bones, which are of different forms and sizes, and variously disposed according to the uses for which they are designed, form, in their entire assemblage and combination, the skeleton, a solid frame work for the whole system. Besides affording levers for locomotion, under the laws of mechanics, you will find that the bones also serve as points of attachments for the muscles, and as a protection for the more delicate and fragile parts of the organization. We have then, gentlemen, in the investigation of this system, that part of special anatomy which is called *osteology*.

But as yet, we have only the levers, the machinery of motion; the force is wanting. The same power that has made the bones as the instruments, has made the muscles the organs of motion. They are aggregations of muscular fibre, possessing the power of contraction and relaxation. These organs move by this contraction and relaxation, alternately performed, and which, in many instances, is the result of volition, communicated as we shall presently see. We find them engrafted upon every part of the bony system, and employing it, under the direction and control of the will. We find too, other organs of the same system, that contract for various purposes of the animal economy with no direction from the will; and here, gentlemen, in the investigation of the muscular system, we have the branch called *Myology*, one of the most curious and interesting departments of the science of Anatomy.

But without some further arrangement than we have yet specified, the wear and tear of this system would soon destroy it; strength must be combined with pliancy and flexibility. See how this object is accomplished. Friction of the joints is avoided by the following admirable contrivances. They fit into each other perfectly, by means of cavities and eminences at the extremities which mutually correspond, and which are covered by a thin surface of substance called cartilage, intermediate in point of firmness between the bony and fleshy elements of the system, possessed of a high degree of elasticity, and in this connection, exquisitely polished. Those extremities are also united by strong bands of a fibrous texture called ligaments, more flexible than the cartilages, but less elastic. Although these unite the parts firmly, securing them in close contact, they in no wise impede their motions. The various characters and uses of these systems are explained to you fully in special anatomy, of which they constitute two divisions, that referring to the cartilages is *chondology*, while that which investigates the ligaments is *syndes-mology*.

But we have not arrived at the *source* of motive power. We have seen that the muscles possess the power of contraction, or irritability, as it is sometimes called, but these contractile motions depend on another cause. We find, on close examination of the human body, whitish filaments disposed like bundles of medullary threads, pervading not only the muscles, but all parts of the body, and terminating in the brain and spinal marrow. The centre of the action to which we have alluded, you will find here, in the brain and cerebro-spinal axis. The nerves themselves, diffused throughout the system, every where in contact with its muscular fibre, convey from the centre, the brain, the excitement produced in it by the acts of the will. Imparting sensibility also to the organs of sense, they convey from them to the brain, the impressions made upon them

by external objects. We find, then, that the nerves are the organs of sense, feeling and motion; while to the brain itself is assigned the highest office in the entire system, that of executing, as the organ of the mind, its various acts of perception, thought and will; the manner in which it acts in the discharge of these higher functions, will be fully taught you at a subsequent period, and is beautifully explained by the recent science of phrenology. Here, then, in the branch called *Neurology*, we investigate the highest problems of our animal life.

We have thus examined the organism in view of its functions of relation. We have seen that it possesses a system of bones, part of which are the instruments of its motion; a system of muscles, part of which are its organs of motion; and a nervous system possessed of a higher life, and itself generating or communicating the motive power. We have seen how these parts are connected with each other, and by what contrivances the friction of the parts is prevented, and their flexible motions secured. Finally, we have spoken of the brain, as the organ of the mind. Thus we see the entire means by which the immortal spirit exercises its wonderful powers, works its high purposes, and accomplishes its mighty achievements. Surely that is a science worthy our strongest admiration and our impulsive curiosity, which proposes to lay bare to our view the organization of this engine, and to unfold the wondrously contrived mechanism by which the intercourse of the mind of man with the external world, the agency of spirit upon matter, is so mysteriously carried on.

We remarked, in the second place, that the organization of the body is not permanent, but that its atoms die and are renewed every moment. The power of reproduction lies in what are called the functions of nutrition. We have now to see the aid which *Special Anatomy* affords us in their study.

To supply the loss of organic matter from the waste of the system, new matter must be constantly introduced into the body from abroad, which must be fitted for its new condition, and prepared to pass into the living vessels. For this purpose man has organs for the prehension, ingestion, trituration and digestion of the food necessary to preserve the organization against destruction. That is to say, the food taken into the mouth, passes into the stomach, and is there subject to an agency which dissolves it, and entirely changes its properties. It undergoes further changes in its passage through the intestinal canal, upon which are engrafted a number of glands, which pour in their secretions, contributing a share of the power by which the process of purification and preparation is accomplished. The food thus broken up and prepared to enter the living system, is conveyed through a system of appropriate vessels, by countless little streams into the circulating fluid. While the nutritious elements are thus absorbed and conveyed to their proper destinations, the innutrient parts are separated from them and carried off by another part of the arrangement. We have here, gentlemen, in the study of the organs of digestion and depuration, that part of our science which is called *Splanchnology*.

But we have not yet examined fully the means by which the materials prepared for the nourishment of the body are conveyed to the several structures whose waste they are designed to repair. Thrown into the heart, they are passed through its cavities, and received into the circulating blood; they are sent through the lungs, and there exposed to the influence of the atmosphere; the blood loses part of its properties, and acquires others, which adapt it for general circulation in the body for the purposes of life. The heart endowed with muscular energy, acts as a force-pump to keep up the circulation of the blood by means of arteries, by which it is sent out, and veins which return it. By

means of these channels, the fluid diffuses its life-giving properties throughout the entire organization, in innumerable currents; while the organs themselves stamp upon the rich supplies thus conveyed to them their own peculiar character, making them, by this remarkable affinity, assume their own structure. Thus it assumes, from the simplest organic form of cellular texture before alluded to, all the various characters of solid matter which we find in the entire system: and again, by the organs of secretion, it passes into the fluids necessary in different parts of the organism. By other organs and processes the waste fluids are separated and thrown off in proper canals, which perform, in various ways, the process of depuration. And here, gentlemen, we have the department of *Angeiology*, which considers the instruments of circulation, including the heart, arteries, veins and lymphatics.

We have thus glanced rapidly at the organs which are concerned in performing the functions of nutrition. Even this imperfect sketch of them will suffice to show the impossibility of understanding the process of life, without an accurate knowledge of the machinery by which its operations are carried on.

To the organs concerned in performing the third class of functions, those of generation, I shall not refer further at this time, than simply to state, that their investigation belongs to that department of the science called *Splanchnology*, already named to you. With reference to the importance of *Special Anatomy* in the study of *Physiology*, I may be allowed to say, that unless you become skilful in *Special* as well as in *General Anatomy*, you can never become enlightened and scientific physiologists. *Physiology* is the science of life, viewed as an assemblage of the functions which resist death. Every one of these functions, as has been seen, has its appropriate apparatus in the human system, designed to serve its purposes, and framed with wise intent, by the Great Author of life, for

their complete accomplishment. All the phenomena of vitality, whatever the hidden elements and powers of life may be, are dependent upon the physical instruments which are the agents of their production, and upon the connections and arrangements of the various apparatus employed in the execution of the vital functions. How absurd then, must the idea appear, of explaining the phenomena without a thorough comprehension of the instruments; of theorizing about the functions without understanding the organization. In order to a successful pursuit of this fascinating science, you must lay a broad and deep foundation for it in anatomical knowledge, without which your conceptions will always be obscure, and your acquirements unsubstantial and unsatisfactory. An acquaintance with the present branch of science will be found equally essential in the study of all the departments of our profession.

We pass now to the third general division of the science, *PATHOLOGICAL ANATOMY*, which examines the organism in its aberrations from the normal state. But while, in the first place, it investigates the organic changes caused by disease, it does not stop here, but seeks for the vital modifications that produced them, and for their tendencies to affect the general action of the system. Considered in this light, it must be regarded as the basis of all sound pathology. To the untiring industry and philosophic spirit of the French physicians, we are mainly indebted for the increasing interest that is now attached to this branch of study, and conspicuous among them are the names of Corvisart, Lænnec and Andral, to whom, with many more of their noble associates, the science of disease owes a great part of its present philosophical precision. To examine this interesting department fully would take up too much of your time. I can only assure you of its indispensable necessity, to enable you to become skillful and scientific practitioners. Although there may have been instances

in which great skill in practice has been attained without it, it is no presumption to say that such skill must have been obtained at an expense of anxiety and labor on the part of the physician, and of health and life on the part of his earlier patients, from which every mind endowed with ordinary human feeling ought to shrink with horror. How much better will it be to study the principles of medical practice in pathological investigations, and upon the dead subject, than by hazardous experiments upon the living organism? In a word, then, gentlemen, there cannot be a tincture of science in your medical philosophy, or of skill in your earlier medical practice, unless you devote yourselves to the intricate and multiplied effects of disease, by means of Pathological Anatomy.

We proceed now to a brief consideration of the last division of this part of our subject, **SURGICAL ANATOMY**.

Our object in this branch of the science, is to investigate the importance of the different organs and structures of the system, in reference to diseases, accidents and surgical operations. Laying aside then, the physiological considerations which formed the chart of our progress, and assigned the order of our movements in the division of Special Anatomy, we must here, with another end in view, adopt an entirely different mode of procedure. We must still learn the size, form, relations, connections and situation of the different organs; but we do not examine them independently of each other, nor with any view to systematic classification, according to the elements of which their structure may be composed. Our method is topographical, then, rather than general. We study a part of the system with reference to its connection with other parts; to the effects which disease or injury in it may inflict upon them; to the ease or difficulty with which it can be operated upon surgically; and to the practicability of its removal from the system, should such a course ever be necessary for the preservation of life. Obtaining, in the

first place, a clear outline of the frame, we must fill it up so to have an adequate picture of the entire surface, fixing the position and defining the character of all its eminences and depressions. We then divide the whole body into regions, either by natural indications or by artificial lines, for distinctness sake. Each of these regions or subdivisions is taken up in turn, and the organs and elements of the structure contained in it studied, so that we may understand their relative importance. Thus we learn where the knife may be introduced, and where it must be forbidden; where inflammation may be fatal, and where comparatively harmless; where a blow may cause slight injury, and where it will produce compression, concussion or death. Certainly then, if it be your purpose to practise your profession in all its parts, you will find it of paramount importance in view of the surgical division of it, to acquire a thorough knowledge of this branch of the science.

A few remarks upon the mode of teaching Anatomy that is here pursued, will close this part of my discourse. A knowledge of this extensive science is to be obtained by the study of books, by attendance upon lectures, and by the dissection of the dead body. As for the first of these, you should select some approved treatise and make it the hand-book of your studies; and while you are making yourselves familiar with the arrangement of the matter, and the details of the subject as taught in the text, you will find it necessary also to enlarge, and perhaps correct your views, by collating it with that of other authors. Read, gentlemen, as much as you please, so that you do it accurately, and lay up the results of your reading in your memory, but avoid as a bane that loose and desultory reading which leaves no substantial possession as its fruit. You can obtain books enough, and of the best kind, in regard to the subject now under discussion but in reading the simplest of them, you will find it necessary to em-

ploy all your acuteness in perceiving, all your comprehension of mind in embracing, and all your power of memory in retaining the various and complicated topics which will be presented to you. Without the faithful study of books, your attendance upon lectures, will be deprived of half its value. I would advise you, indeed, throughout the course, to read what the books have to say upon any given subject before attending the lecture, in order to prepare your mind to follow the lecturer with ease; and to read again, upon the same topic, after the lecture in order to fix the impression which it may have made, ineffably, in your memory. In the rapidity of oral discussion some points will escape even the readiest mind and the most vigilant attention; but, the book will still lie open to you, and will wait for your continued scrutiny. If you would be *full* of anatomical knowledge, read many books and read them *well*.

But experience has shown the great utility of oral lectures in this, as in most other branches of natural science, and a great part of your anatomical knowledge will be obtained in this way. In my lectures in the consecutive course, I shall call your attention to the general anatomy of the tissues composing the organ or system under demonstration, after which you will be taught its special anatomy with the views lately presented to you. During the exposition of the different parts, I shall exhibit to you their several positions and relations, show the manner in which the various regions are formed and divided, and explain fully their importance in the modification of surgical operations. During the entire course, such pathological, physiological, obstetrical and practical remarks as may be relevant to the subject under discussion, will be freely presented. In addition to the exposition of the parts in the recent subject, I shall be much assisted in demonstration by the use of the preparations with which our museum is so liberally supplied.

But, gentlemen, indispensable as books are, and valuable as lectures may be made, you can *never* become, I will not say, distinguished in the science, but even such anatomists as you ought to be before you can be safely entrusted with the lives and limbs of your fellow creatures, unless you superadd to these modes of study, the practical method of dissecting the dead body. It is not necessary for me here, before this audience of medical students, to defend the practice of dissection. The unreasonable prejudices against it, which exist only among the most ignorant classes of society, can find no place here. The religious veneration of a superstitious people for the remains of the departed—even of the lowest orders of mankind—prevented the ancient physicians from dissection, and thereby from bringing our science into philosophical system; but that time has gone by, and now the anatomist, instead of being looked upon as the despoiler of the grave, is regarded as its enemy and almost conqueror. Men have learned that we must ask even death to teach us the art of preserving life. But some of you may feel a strong repugnance to the practice. I grant that this repugnance is founded in the best feelings of our nature, and should be treated with respect. Yet when you consider, gentlemen, the absolute necessity of dissection to prepare you for the responsibilities of the profession before you, it will not be impossible to conquer that repugnance, how powerful soever it may be. Few persons indeed, as you may readily suppose, enter upon this mode of study without disagreeable emotions; but a very short time generally suffices to wear off the edge of these feelings. I have known many who could hardly be induced at first, to begin what appeared to them a loathsome and revolting pursuit, to acquire a strong interest in it in a few weeks, and finally to become expert practical anatomists. The exceeding beauty of the science will, as it develops itself to your minds, entirely destroy the associations which may now render the means

of pursuing it repulsive to your feelings. In studying the wondrous mechanism of the body, the wisely contrived organs by which its functions are performed, the delicate elements of its structure, and the skill with which they are combined, you will find scope enough for all your intellectual energies; and if you concentrate them, as you should, upon this all-important study, it will soon produce within you an interest, an ardor, even an enthusiasm, which no other scientific pursuit could excite. Here then, gentlemen, you will find dissecting rooms, in addition to lecture rooms, a school in which you can study for yourselves, as well as be instructed by another; the dead body subject, in addition to the voice of the living instructor, is to reveal to you the secrets of anatomy.

I invite you then, to a close and severe investigation of the human body, by means of dissections, during the ensuing course. It is my purpose to devote as much time as possible to the instruction of those of you as shall engage in this practical avocation; and to afford you still greater advantages, I shall be assisted in this department by Dr. E. Jamieson, our well known Demonstrator, who is one of the most expert practical anatomists to be found, and by Mr. A. G. Welsh, our Posector, who is already favorably known, as being more than commonly familiar with this branch of our profession.

It will be our business and pleasure to explain to you the different parts of the body, as you expose them in your dissections; to aid you in the course of your experimental inquiries; and, in short, by presenting the proper methods of dissection, and the objects to which your careful study must be directed, to save you, in every possible way, from unnecessary expenditure of time and labor. It will be our duty, also, in all cases where the subject under dissection has been the victim of disease, to point out, as far as practicable, the nature of the malady, and the changes which it has wrought in the form, color, and

structure of the organs, thus facilitating your study of Morbid Anatomy. The entire subject will be demonstrated, as far as it is within the reach of our power, by actual dissections.

To enable you to prosecute these studies advantageously, you are here furnished with large, airy, well-lighted and well-ventilated rooms, supplied with every requisite appurtenance. They shall be maintained during the season, in as good order and clean condition as it is possible to keep them. As to the material for dissection, I am happy to assure you, that we have made such arrangements as warrant me in promising you a sufficient supply to enable every member of the class to pursue cadaveric investigations. Every facility, then, will be afforded you for the study of practical anatomy. We shall employ our best endeavors to assist you, and have full confidence that they will be met by good will, industry and perseverance on your part. If I am not disappointed in these expectations, you cannot fail to become good anatomists.

I must now, in conclusion, devote a short time to the consideration of **OPERATIVE SURGERY**, which, as has been already stated, will occupy part of your attention in our course of study. Though it is hard to give a concise definition, it may be stated in general, that the object of surgery is to obviate the effects of injuries done to the human body, whether occasioned by internal or external causes. From this definition you will have some idea of the variety of its applications, and of the absurdity of the notion which has obtained to some extent, that its practice requires only a limited knowledge of medicine. The principle of division of labor, valuable as it is, becomes destructive when it is applied to the separation of surgery from medicine. In England, the two branches of science are dissociated, so that by law the physician is not required to know any thing of surgery, nor the surgeon to understand the treatment of any other than surgical diseases.

It is well for us that no such distinction exists in this country. The surgeon ought to be the best of physicians. Indeed, every demand for the use of the knife is an implication of the poverty of our science, whose highest aim should be to cure disease of every form with the least possible injury to the organization. But though we may admit the correctness of the remark of John Hunter, that "to perform an operation is to mutilate a patient we cannot cure," and therefore would enforce upon you the necessity of a full acquaintance with the principles of surgery, which treat of those cases of surgical disease which can be cured by internal remedies; we are also well convinced, that in the present state of medical science, the use of the knife is sometimes indispensable. I trust, therefore, gentlemen, that you will apply yourselves closely to this subject, and endeavor to prepare for the scenes of trial to which, in all probability, you will be more or less frequently introduced in the course of your practice.

As you would not dare to risk your own life in the hands of any surgeon whom you thought not thoroughly skilled in Anatomy, so may you never rashly undertake to trifle with the lives of your fellow men, by undertaking to perform dangerous operations upon them, without this indispensable preparation. Every man who loses a patient under such circumstances and for such reasons, is morally responsible for the life of his victim, for *victim* he is, to the stupidity, the idleness, or the carelessness of the man to whom he entrusted his life. May you never incur so fearful a responsibility!—now more fearful than ever, because the means of improvement in anatomical knowledge, are placed within your reach, and nothing but patient perseverance and industry are necessary on your part, in order to secure it.

In the lectures on this subject, I shall strive to be as practical as possible. Without delaying to speculate and theorize, I shall explain to you, as fully as time will

allow, the diseases and circumstances which render a resort to operation necessary. Dislocations will be made and reduced in your presence, and the manner of dressing fractures explained; and this department, so eminently important in medical practice, and so frequently hurried over at a gallop by medical lecturers, will be elaborately illustrated. The modes of applying the various apparatus for the relief of injuries, will be set forth and demonstrated as clearly as possible. The usual demonstrations on the subject of the operations of surgery, will be fully given; and, in the dissecting room, it will afford me great pleasure to assist you in the performance of operations on your own subjects. In this manner, I trust, gentlemen, that you will be able to acquire a complete knowledge of the details of Operative Surgery, and to become expert in the use of instruments.

These great subjects, then, gentlemen, will constitute the topics of our inquiry for the ensuing term. I need detain you no longer in explaining them; nor need I enforce upon you the necessity of making yourselves thoroughly acquainted with them. You will find here, as elsewhere, in the great work of human life, that nothing great is to be accomplished, nothing valuable to be gained, without untiring labor. You have chosen a noble, an elevated, but a most difficult profession. To master even its preparatory studies will require the outlay of all your powers, in the short time which you will allot to them. If you do not master those studies now, and especially Anatomy, it will be next to impossible for you to make up the deficiency after you have entered upon the toils and anxieties of professional life. I do not wish to exaggerate the difficulties of the task before you. I do not speak of them to dishearten or discourage you. Strong minds are not to be discouraged by difficulties. Noble spirits kindle with the highest ardor in view of mighty obstacles. The field before you is wide, and its toils are abundant; but its honors

are ample. Enter it, gentlemen, with an earnest purpose to "sow your seed in the morning—and in the evening not to withhold your hands;" labor in it, like zealous cultivators, with ceaseless anxiety and unfailing industry; and as surely as the laws of God are changeless, will your harvest be rich and satisfying. Rich, even in the lesser rewards of wealth and honor; richer still, in the steadfast satisfaction of your own conscience; richest of all, in the approving smile of that Great Being, whose favor is better than life—whose frown is destruction.

SOCIETY OF ALUMNI.

At a meeting of the Alumni of "Castleton Medical College," Prof. J. Perkins was called to the Chair, and E. R. Smilie appointed Secretary; the following resolutions were adopted.

1. *Resolved*, That it is expedient to organize a Society of the Alumni of "Castleton Medical College," late the "Vermont Academy of Medicine."

2. *Resolved*, That the Secretary be directed to address the proceedings of this meeting, with invitations, to the graduates of this College, to meet at Castleton, on Tuesday, the 6th of June next, at nine o'clock A. M. for the purpose of organizing a Society of the Alumni.

E. R. SMILIE,
Secretary.

FALL SESSION.

The fall session of Castleton Medical College will commence on the first Thursday of August next.

E. S. CARR,
Registrar.

