ARTICLE V.

MORBID ANATOMY.

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Mr. President and Gentlemen, —

Morbid Anatomy has now, for many years past, received a large share of attention in every country where medical science can be said to exist; and I have thought, without any feeling of partiality, that its claims to such distinction might be worthy of consideration upon the present occasion.

The general practitioner may well ask, and still more may the public, why post-mortem examinations should be made. They require much time, and often when we can but ill afford it. They are often very fatiguing. They are sometimes dangerous to life. And still further, the idea is one from which our feelings naturally shrink; however wanting some persons would seem to be in all such feeling, and even in the common sense of decency which belongs to the occasion. There are some who can never make up their minds to allow an examination of their deceased

friends; and, when such is the fact, we should not press them with our solicitations, though the "case" may be never so "interesting." But, on the other hand, as the friends often desire to have an autopsy made, and at the same time feel a reluctance to allude to the subject, it is perhaps best, that we should, in every case, on their account as well as our own, so far refer to it as to enable them to express their wishes; and, on the other hand, to give us whatever chance there may be of making the examination; for I maintain that examinations should always be made if possible.

They should be made, because they give a precision to our knowledge of disease that we do not obtain from the study of symptoms alone. They lay a surer foundation for medical science than these last. They show us, as it were, a stamp set upon the organs, and which seems to indicate something of the nature of disease. We feel satisfied that we have made a step forward, and upon sure ground. Sometimes we do not wait for the autopsy, but take this step upon the living body; and, though the idea to which I refer seems at first sight rather startling, it may be perfectly justifiable, I think, in some cases of external disease and of questionable diagnosis. The old observers often drew the most perfect picture of disease as manifested in the living body; but it was too often a dissolving view. It wanted the substantial reality that would have been given by a knowledge of the physical as well as the physiological changes that were going on within the body. Disease was not localized, but

organic were confounded with mere functional affections; and symptoms were grouped together with but little variation, when they were, in fact, referrible to a variety of internal organic lesions. In illustration, we have the case of dropsy, of asthma, and of some forms of fever; the disease now, in such cases, often receiving its name from the structural changes that are found on dissection. Thus, in the case of dropsy, we speak of disease of the heart, of granulated liver, or of Bright's disease; and, instead of dropsy of the brain, a child now dies of tubercular meningitis. The term asthma has been applied to such a variety of affections of the lungs, and even of the heart, that some are half disposed to do away with it altogether. As to the class of fevers, one of the most valuable discoveries that has ever been made in medical science, of late years, is, that in typhoid fever, commonly so called, there exists very generally, if not always, a certain affection of Peyer's glands. I shall speak presently of the relationship of the morbid appearances and the symptoms. Suffice it to say here, that the appearances so far characterize the disease, that we generally say that it had existed when they give us positive evidence, and without reference to the symptoms that may have existed during life. If, for instance, we find the affection of Peyer's glands just referred to, we say that the patient had typhoid fever, whatever the diagnosis may have been. How many diseases have been shown to be confounded with tubercular consumption! as, for example, bronchitis, pneumonia, gangrene of the lungs, or pleurisy; and any one of which

may have, from the first, the characters of a chronic affection. Many years ago, and before the introduction of auscultation, the physician in attendance at the Alms-house in this city remarked, in a clinical lecture on consumption, that, though he could not account for the fact, he had often observed, that, where there was an abundant expectoration of purulent and fœtid matter, the patients generally got well. Now, those cases, we may be pretty sure, were cases of gangrene of the lungs; and, by the aid of our dissections, we have come to be about as familiar with this disease as with consumption itself. By the aid of physical signs also, we are now familiar with it upon the living body; and, as the prognosis above given may seem to have been altogether too favorable, I would say that it is not more so than many amongst us would give at the present day, whatever may be thought of it elsewhere. Symptoms must be studied, so far as they go; and, if the ancients did not connect them with structural changes, it is not by any means certain that they did not appreciate the value of these last.

It is not by the study of symptoms alone, nor of morbid anatomy alone, that the science of medicine is to be advanced to the highest state of perfection of which it is capable. They must be studied in connection, in the sick chamber and in the dead room. As physiology is to healthy anatomy, so is pathology to morbid anatomy. Indeed, the relationship between these two last is such that many persons seem to have a vague idea that the terms are synonymous. This, however, is far from being the case, and a proper dis-

tinction should be made. As physiology teaches the laws of life, and a knowledge of it is to be obtained by a study of the healthy functions and organs; so, on the other hand, pathology, which teaches the laws of disease, is the science above referred to, and must be studied upon the functions and upon the organs in a state of disease. It is a great point to ascertain the laws of disease by an observation of its phenomena; and it would be well for science if we should know where to stop in our pathological investigations. The tendency, however, to theorize is so strong, that we are constantly liable to be led away into dark and unknown regions, where we lose ourselves, and but few are inclined to follow us; few, at least, who can afford us the light and support we need. We should keep upon the open track, see our way before us, and pursue it steadily. Certainly there are many points in pathology, as in every other science, that we would wish very much to determine; but if they are, in the nature of the case, fairly beyond our reach, it becomes us to know it. To show the futility of this kind of inquiry, we have only to compare together upon such points the opinions of authors of the highest reputation, of those who are equally learned, equally gifted by nature as observers, and equally desirous of the truth; and we shall often find the greatest diversity; and not merely upon some of the difficult questions in pathology, but upon some that would seem to be of comparatively easy solution. How much preliminary knowledge is to be acquired, before we can investigate, with any chance of success, many of the abstruse questions that

are often agitated! How much do we know of physiology and of general anatomy beyond what the plain observation of facts teaches us? Now, if we cannot understand the healthy processes, how can we expect to know any thing of the mode of action by which the various structural changes are induced, or by which the natural functions are disturbed? I have enlarged upon this tendency to theorize in matters of pathology, because it is not confined to the medical philosopher, but is carried by the general practitioner to the bedside, where it conjures up bugbears that are often more difficult to contend against than the enemy itself.

Anatomical appearances vary more or less, and it is sometimes impossible to decide, upon their evidence alone, as to the disease that had existed; but, more frequently, mistakes are owing to inattention. Softening of the brain, for instance, is not always very obvious at first sight, and yet it would betray ignorance or inattention to overlook it. How was it that so marked a structural change as Bright's disease, or the characteristic lesion of typhoid fever, should have been so long unobserved? Simply because the organs could not have been thoroughly examined. A few years ago, I remember to have seen a tumor that had been removed, and that showed upon incision a yellowish disorganized appearance that led many who examined it to regard it as a tubercular affection. Upon further examination, however, a narrow border of greyish encephaloid was found about the opaque deposit, which last then was nothing more than the tuber-

culoid substance so frequently found in cancerous growths, and which happened in this case to exist in an unusually large proportion.

When the gross morbid changes fail us, have we any further means of determining the character of disease? We have, to a certain extent, in the microscope. This instrument, though its application to pathological investigations is only of comparatively recent date, has come now to be so generally used that a knowledge of its powers may be considered as indispensable. And when we see the striking and often beautiful appearances it exhibits, we cannot but feel that they must have an important signification; and that they must bring us nearer to the source of disease than a mere examination of the gross structural changes, as the last bring us nearer to it than the symptoms. Much, undoubtedly, has been done; and, from what we know of the capabilities of the instrument, it is impossible to say what is yet to be the extent of its revelations. In the present state of science, however, its results, in regard to the determination of morbid structures, should be received, it seems to me, with caution. It requires, I am sure, a great deal of practice before one can become accustomed to seeing with his powers of vision increased several hundred-fold. A great deal of time also is required for these examinations, when one has become skilled in the use of the instrument; and it is not every one whose eyes will endure it. In order to settle a negative, it is not always enough to take a few specimens here and there from a diseased mass; the examination

must be thorough, and I have known hours to be spent in a single investigation. I have already referred to the case of an encephaloid tumor that was mistaken for tubercular disease; and I would say that the microscopists here were as much at fault as those who judged by the gross appearances, having taken only the central portion for examination, and overlooked that which surrounded it, and which essentially characterized the disease. Much has already been done that will require to be undone, and even by those most skilled in the use of the instrument.

The above remarks are strikingly illustrated in the case of cancer; a disease for which, of all others, we should wish to have, if possible, some certain test. The gross anatomical appearances too often leave us in the dark. But here, it was said, was a new mode of observation by which we might decide whether a structure was cancerous or not. Cells of a certain specific character were said to exist in growths of this nature, that were not to be found in any other; and this statement, having been made by some of the highest authorities, and abundantly confirmed, it was thought, by further observation, had come to be regarded as an established fact in medical science. It is now found, however, that the character of the cell is far from being so specific as it had been supposed; the form which had been regarded as so peculiar is not a universal, if indeed it is a common, appearance: and, on the whole, I doubt if we could, in a given number of cases of questionable cancerous disease, and in the present state of microscopical science, come

much nearer to the truth with the aid of the instrument, than we could without it.

The microscope, again, shows that some structures are not strictly cancerous, though they may appear to be so to the naked eye; and, in the case of a tumor removed by a surgical operation, the observation is received as very encouraging in regard to prognosis. It is well to establish the scientific difference; but there is only this difference practically, — that true cancer generally destroys life by attacking the internal organs; whereas the diseases in question effect the same object locally, returning sooner or later in the part or near it, however thorough the extirpation may have been. I do not refer so much to epithelial cancer, the tendency of which, as it affects the lip, skin, and other external parts, is sufficiently well known; but to what has been described, I think, as the local recurrent cancer, and which, I fear, the microscopists not very unfrequently mistake for a non-malignant disease, as it would have been formerly called.

The character of the tubercular deposit is another subject to which the microscope has been especially directed; and it has often enough been asserted, if it is not yet generally believed, that its character is specific. But this again is getting to be a disputed point; a very eminent morbid anatomist and pathologist saying to me, not two years ago, that in his opinion the tubercular corpuscle was nothing more than a shrivelled-up pus-cell. The disease also has been generally regarded as something *sui generis* by those who observed only its gross anatomical characters and

its general pathological history. I have, however, long been disposed to consider it as a form of inflammation; and the microscopic characters would now, I think, rather confirm that view of it, as tending to show the alliance of the tubercular deposit to the product of inflammation. I would say that the appearances, in the case of pneumonia and of one of the forms of tubercular disease of the lung, are sometimes so similar, if we examine the organ only to a limited extent, that it would be impossible to distinguish the one disease from the other. Secondly, I have seen a strongly marked case, to show that an extensive tubercular deposit in the lung might be absorbed, as the inflammatory deposit must be in the case of pneumonia; the existence of the disease was proved by the local and constitutional symptoms, and by the physical signs; and the entire absence of it was proved, when the patient died, two years afterwards, of tubercular disease of the brain. The bronchial glands, however, corresponding to the upper lobe, which was the one that had been diseased, were extensively tubercular; but this fact rather tended to prove the point in question. Thirdly, in the experiments of Baron and Jenner on rabbits, upon the absorption of the tubercular deposit, there must have been an absorption of some morbid deposit; and if the microscope shows that the granulations probably did not contain the characteristic corpuscle, and were therefore not to be regarded as proper tubercles, still I cannot but think that they were closely allied pathologically to this form of disease. I should be disposed to say further that all

the different forms of tubercular disease of the lungs are essentially the same, however much they may differ in their gross anatomical appearances; the product we see is the result of inflammation, modified by some morbid state of the part affected or of the system; and it may be absorbed in an early stage of the disease, if the general health is improved; or it may go on to suppuration, and even then show occasionally a tendency to recovery that would ally it to the process of inflammation. I have digressed thus fully upon the subject of tubercle, because its microscopic characters have been particularly studied; and, as at present received, tend to confirm, as I have already said, the views I have long entertained of the disease, and which certainly have differed considerably from those generally adopted.

The study of morbid anatomy establishes the distinction between functional and organic affections; or disorders and diseases, as they have been called. Some persons seem hardly to realize the amount of functional disturbance that may take place independently of structural change; and yet there are familiar and striking examples enough, as in the case of hysteria and neuralgia. The class of neuroses are essentially unaccompanied by any characteristic lesion; and, though appearances may be found which are the result of disturbed function, or which are no more than complications, there is nothing constant and characteristic. The nervous system seems to be, if any one is, the direct medium of communication with the vital principle; and it may, by its mere derangement, exhaust

the patient by keeping up a long-continued irritation of some one important organ; or it may be more or less general, as in the case of tetanus, hydrophobia, epilepsy, the convulsions of children, &c. We must learn what morbid anatomy will not do, as well as what it will do. Again, as the most grave symptoms may exist without organic disease, so, when this last does exist, death may occur suddenly, and nothing be found on dissection more than what had evidently existed for a long time; as in the case of disease of the heart.

In this place the operation of physical and chemical causes, in the production of disease, might be considered. The humoral pathology of former times might be alluded to, which fell through, as a mere hypothesis, but has been again raised, and now stands upon a more sure foundation.

As the study of morbid anatomy shows the localization of disease, when it is characterized by anatomical changes; so, from the study of these changes in a succession of cases, we learn the tendency of disease, whether to recovery or to death; its natural history, so to speak. This is illustrated in the case of simple inflammation and of cancer: we recognize the disease when it exists, judge of its duration, and look forward to the different stages through which it would have passed. The structural changes are as significant to the pathologist as the natural organs and tissues are to the comparative anatomist. Another striking example is that of tubercular disease, of which I have already spoken, and which is not very unfrequently

met with in different stages of arrest. Phthisis has been generally regarded as an almost necessarily fatal disease; and, if it is now looked upon in a more favorable light, it is due mainly to the revelations of morbid anatomy.

The adaptation of the organs to the functions they are to perform, as displayed in a comparative survey of man and the lower animals, is a favorite idea with the moral philosopher as well as the physiologist; and the treatises that have illustrated it are full of the most satisfactory and interesting proofs of design. Yet in what respect is the evidence of design more marked in the healthy system than it is in what we witness every day in the case of disease, from the mildest to the most severe form? A thorn in the flesh gives rise to a process of suppuration, by which it is finally expelled; or, in another case, a foreign body is buried in the deep-seated parts, perhaps in the internal organs, and it may there become surrounded by a thick, insensible membrane, within which it may ever after remain perfectly harmless. The tendency of abscesses towards the surface of the body, or, when situated internally, towards some natural outlet; the adhesions that are formed, with thickening of the tissues, to prevent an opening into the serous cavities, or to limit the inflammation if an opening does take place; the adhesions formed about a chronic ulcer of the stomach; the means used to arrest hemorrhage; the processes by which a dead part is safely separated from the living, — these are a few instances of the exercise of a power that we may find manifested in every part of the sys-

tem; and it is perhaps never more apparent than in the efforts to arrest the progress of a disease that must ultimately prove fatal.

Occasionally, this power is exercised without any external manifestations; and the disease is then said to have been latent. The animal functions are not disturbed, though nature feels the danger. Thus a patient, apparently in good health, dies suddenly from peritonitis; and, on dissection, we may find that a chronic ulcer of the stomach has perforated; the parietes of the organ have been destroyed; and death must have occurred long ago, had it not been for the adhesions that had taken place. Latency in this case is certainly quite exceptional, but then it is sometimes observed; the death being the result of the accidental, rather than of the primary disease. The consequences of a neglect on the part of nature to attend to these precautions is sometimes strikingly shown. A small tubercular cavity, for instance, may happen to form near the surface of the lung in the early stages of phthisis; and, if the usual adhesions have not formed over it, it may burst into the pleural cavity, and destroy the patient at once, whereas he might otherwise have lived for months: one of the first cases of pneumothorax that I ever saw was an example of this. In the ulceration that occurs in typhoid fever, such adhesions do not take place, and probably for some very good reason: the consequences, however, that now and then follow, we know but too well.

Sometimes nature seems to overreach herself in these efforts. The means she uses are disproportioned to

the object to be effected, and cost too much: they are intended to be ultimately restorative or protective, but they have come essentially to constitute the disease; and all the danger of the case, if there be any, depends upon them. Perhaps no more striking illustration of this remark could be found than in the case of tuphlo-enteritis, so called. A foreign body gets into the appendix cœci, or a calculus forms in it; and there it may remain for a long while, perfectly quiescent. This little offset to the intestine, which is almost peculiar to man amongst the mammalia, seems to be of no especial use; and, so far as we can see, the foreign body might as well remain there as not. Sometimes, however, nature seems to be seized, as it were, with a fit of capricious intolerance, and a determination to get rid of the offending cause, if so it can be called when it had been borne with so long and so patiently; and, to effect this object, a train of processes is then set up, which, however, interesting to the pathologist, are but too certainly fatal to the subject of them. The case of inflammation of the serous membranes may also be mentioned: a moderate effusion might relieve it, when a larger amount would perhaps compress the organs so as to destroy life.

Morbid anatomy may be studied with great advantage upon the lower animals. The powers of nature in the restoration of injured parts are often wonderfully well shown; and it is not much to the credit of human therapeutics to find how well they often bear up under disease; though it is true that the power of endurance may be greater in them than it is in man.

Endurance, however, has not much to do with the union of a broken bone; and certainly the most regular unions are sometimes met with in the lower animals. There are those who seem to feel that the study of comparative pathology is rather beneath their dignity; but, if such a feeling should arise, let them think of the origin of vaccination, and of what that alone has done for mankind. Truth is sacred, and we never need feel ashamed to receive it, from whatever source it may come: disease should be studied in the lower animals, and still further in the vegetable world. A curious subject of investigation, that may be alluded to here, is the analogy that exists between some of the morbid conditions in man and the normal condition of the same parts in the lower animals: the idea has been ingeniously developed by a German writer, and his work contains many striking illustrations.

Supposing, now, that the structural change represents the disease, how are we to recognize its presence in the living body, or the absence of it in mere functional affections? We must transfer to the sick-chamber the knowledge we get in the dead-room. Autopsies are very interesting scientifically; but they will not be generally made, nor their results read, and still less will the public permit them, unless it can be shown that they are practically useful. The morbid changes must be connected with the symptoms and physical signs manifested during life; so that, having the one given, the other may be inferred. We thus acquire the means of diagnosis, so far as it can be done. Diagnosis, above all other things, characterizes

scientific medicine; and the public, as well as the practitioner, appreciate the value of it. A patient wishes to be told, and in a manner that shall command his confidence, what ails him; if he will get well or not, and how long he will be sick; and this quite independently of treatment. As I heard it remarked lately, if physicians did nothing more than to answer such calls, the profession would still be supported.

The diagnosis of disease will become positive by the above mode of investigation, so far as it is possible; and yet, after all, there is a very great uncertainty in deducing the existence of organic lesions from the symptoms. As we may have functional disturbance without structural change, so the reverse is not unfrequently met with; and there is no organ perhaps that is not more or less subject to these latent affections. I have already referred to the latency of disease; it may be entire, or there may be constitutional without any local symptoms; it may exist in any degree, and may be quite marked where there is extensive organic disease; it is not confined to chronic cases, but is sometimes met with in the most acute inflammatory affections. Peritonitis, for instance, is generally supposed to be a well-characterized disease; but I have seen several dissections where it was entirely overlooked during life, though the cases occurred in the practice of some of our best observers. On the other hand, we are sometimes overpowered with symptoms; they are out of all proportion to any organic change that may exist; and it is difficult to say whether this case or the first requires the greater power of discrimi-

nation. To meet these cases, the mind must be well trained to observation; and the focus of medical vision arranged so that we may see in an imperfect light, and not be blinded when there is too much.

Physical signs, when they exist in a positive form, are perhaps more to be depended upon than symptoms as diagnostic of internal organic disease. The whole science of physical signs has, in fact, grown out of that of morbid anatomy. We do not see the structural changes as we do in the dead body; but we have the evidence of other senses of their existence, and sometimes almost equally positive. This is especially true of some of the thoracic affections. In the abdomen also there are various organic diseases, of which we have pretty satisfactory physical evidence, though the diagnosis of tumors in this region has generally been thought obscure. We are now, however, better acquainted than formerly with uterine and ovarian tumors, cancer of the stomach, cancer of the liver, &c.; and we are therefore able, in many cases, to recognize upon the living body the physical characters with which we have become familiar in our dissections. On the contrary, a certain disease of the liver often induces ascites: now, we know from dissections, that the organ in this case is generally smaller than natural: if, therefore, it should be felt in this form of dropsy, and still more if it were felt to be enlarged, it would be a reason, negatively, why this disease of the liver should be declared not to exist. Further, if, under the same circumstances, the spleen should be enlarged, it would be a reason for diagnosticating the

particular disease of the liver here referred to, inasmuch as obstruction of the portal system tends very naturally to produce a congestion, and, at last, a permanent enlargement of the spleen; as, on the other hand, it explains the serous accumulation in the peritoneal cavity. Here, then, a disease of one organ is diagnosed in part by the enlargement of another. Physical signs, however, sometimes lead us astray, as in the case of the various murmurs heard over the heart and large blood-vessels in nervous subjects. In an emaciated subject, the head of the pancreas, and even the bodies of the lumbar vertebræ, may be mistaken for a tumor; and, upon two different occasions, at a post-mortem examination, I have felt a small but very distinct tumor before opening the body, which proved to be the pylorus in a perfectly healthy condition. A woman once consulted me for something that she said was growing in her throat, and which she had felt with her finger: it was the epiglottis.

Physical signs are, of course, explained directly, by the changes that take place in the internal organs, and according to physical laws. But what is the relation of these changes to the symptoms of disease? The explanation here again is sometimes physical, and so far satisfactory. That beautiful optical instrument, the eye, is rendered as useless by any cause that intercepts the rays of light, as a microscope would be with its diaphragm closed; and so of some of the other special senses. In the case of thoracic disease, numerous examples might be found; the healthy performance of the functions in this part of the body

being so far dependant, more or less directly, upon the operation of mechanical laws. The lungs, for instance, are compressed by pleural effusion, and dyspnœa must ensue; or the air-vesicles are over-distended, and the same effect is produced. In the one case, the air cannot be got into the lungs; and, in the other, it cannot be got out of them. The diseases of the larnyx, acute and chronic, also afford striking examples. In valvular disease of the heart, the circulation throughout the whole system is liable to be more or less obstructed; the organs labor in the performance of their functions, and the vessels often strive to relieve themselves by a discharge of the watery parts of the blood; or they may even give way, and pour out the blood itself. Obstructive disease of the alimentary canal, or of the excretory ducts, the pressure of morbid growths on the surrounding parts, &c., may be alluded to; in a word, there is hardly an organ from which illustrative cases might not be taken. The weight of a diseased organ is an important element, and one that has not been sufficiently regarded; the lungs, for instance, become sometimes very heavy in pneumonia, and also in tubercular disease; the liver may increase in weight three or four fold; and an encysted ovary, or a collection of fibrous tumors developed in and about the uterus, may, it is known, almost equal the weight of the patient herself.

If many of the symptoms of disease can be explained physically by the structural changes, still more must be referred physiologically to the derangement of function that is induced. A machine that is out of

order does not generally work well, and so it is with the animal machine. Now, the different organs and tissues of the body have different degrees and kinds of sensibility; and so the symptoms vary. The sensations experienced under an attack of bronchitis, pneumonia, pleurisy, or pleurodynia, for instance, will be very differently expressed; and the only explanation that we can give is the one above referred to. The disturbance of the functions is generally more or less marked in acute inflammation of the internal organs, and is certainly not to be explained by any other than vital laws, — as in inflammation of the brain, of the stomach, or of the kidneys. And, if such is the explanation of the local symptoms, still more must it be of the constitutional, and of the special disturbances in remote parts of the system. How, for instance, irritation of the stomach is induced by disease of the brain, or by the passage of a calculus down the ureter, is more than we know; and we only cover our ignorance by saying that it is from sympathy: nor can we say how general febrile symptoms are excited by local inflammation. We are, perhaps, too much disposed to explain the symptoms by structural changes, when these last should often be regarded as only the anatomical character of the disease. It is often asked whether the affection of Peyer's glands is the cause of typhoid fever: certainly it is not, any more than an exanthematous eruption is the cause of the fever that attends it, however it may produce some of the secondary symptoms. The inflammation of the lungs in pneumonia is generally regarded as the cause of the

constitutional symptoms; and yet I am sure that I have seen cases where these last had preceded the local disease, as shown negatively by physical signs and by symptoms.

If it is asked what has morbid anatomy done for the treatment of disease, I would refer to what has already been said upon the subject of diagnosis, and upon which all sound treatment should be based. If a machine is to be put into working order, we must first know where and how it is out of order; and we must know too when it is beyond repair. Treatment is empirical or rational. By the first, as we learn by experience, we may sometimes do much good; and, though we cannot explain the operation of the means we employ, we are bound to use them, if we are sure of their efficacy: this is very properly called rational empiricism. The true, rational method, however, should of course be adopted, so far as it goes. If one localizes the disease he is to treat, and knows the course it will probably take, he proceeds understandingly, removes the obstacles to recovery, follows the guidance of nature, and trusts mainly to her efforts and resources: he knows when to interfere, and when to let alone. The difference between the scientific practitioner and the empiric, regular or irregular, is never better seen than in the treatment of incurable disease; where the one desists from all active measures that have not some definite object, whilst the other harasses his patient to the last with worse than useless experiments.

In the study of morbid anatomy, there is some cause

for apprehension that its importance may be over-estimated; that we may think too much of the physical effects of disease, and not sufficiently discriminate between the different states of the system under which they are produced. We know, for instance, that certain forms of external inflammation yield to a mode of treatment which in others would only aggravate the disease; and so it would seem to be with some internal affections. Puerperal peritonitis, for instance, may require active depletion in the sporadic form; and the very opposite course, of tonics, when epidemic.

Morbid anatomy has so far been considered in its relation to pathology; but it is interesting, in another point of view, to the philosophical anatomist. Structures are developed under disease that we know to exist in the lower animals, and infer in man from the functions performed, but which we cannot detect in the healthy state of the organs. A striking illustration of this remark I once met with in the case of the gall-bladder, a muscular coat being developed in it that to the naked eye was quite as distinct as it would have been in the intestine; and this development took place in consideration of the general law in morbid anatomy, that, when a mucous membrane is inflamed, the muscular coat external to it tends to hypertrophy: in this case, the mucous membrane was in a state of intense acute inflammation, and the cavity of the organ was filled with pus. The muscular coat is palpable enough in the intestine and in the trachea, but in the case of inflammation it becomes still more so: in the

trachea, however, this result may be owing to the effort made in coughing and expectoration. Another very striking example of muscular development is to be found in the case of the uterus: this structure, which, in the unimpregnated condition of the organ, is not apparent to the naked eye, becomes sufficiently developed in the gravid state; but I have never perhaps seen it so marked as it has been in some cases of fibrous tumor of the organ of long standing.

An entire organ even may be hypertrophied, and developed in all its parts, as the result indirectly of disease, and directly in consequence of an additional duty that it has to perform. This is a case of simple hypertrophy, and as much so as that of the voluntary muscles, which become so developed by exercise; the cases to which this term is usually applied being generally complicated with structural changes. If one kidney is destroyed, the other is said to enlarge; though I have never seen an instance of it. Hypertrophy of the lung, however, I have more than once seen; and some years ago I met with a very remarkable case of it. A young man died of tubercular disease of the right lung; in infancy he had had some disease upon the left side, which so entirely destroyed the lung that nothing remained, in its place, but a layer of compact cellular tissue, in which the bronchi still ramified to some extent, but in which probably no trace of an air-vesicle had existed for years; the heart lay far back in the left side, by the side of the spine; and the right lung, which was not very extensively diseased, was about double its usual

size; the structure of this last, except for the tubercular affection, being as perfectly normal as the biceps muscle would be in a blacksmith's arm.

As general anatomy is illustrated by an examination of the organs in a state of disease, so is physiology; parts that we may suppose to be essential to a healthy condition of the system being destroyed, and without any manifestation of disturbance during life. The serous cavities that seemed to be so admirably adapted to the constant play of the organs may be obliterated by adhesions; and, in the case of the lungs and heart at least, I think it may be said that the freedom of action seems often to be not at all impaired. One lung or one kidney may be destroyed, and the individual thrive nearly as well as if he had two. The spleen is an organ about which we know very little, physiologically: it may be supposed to be of some use, however, and yet its extirpation upon animals has been rather a favorite experiment, and no very serious consequence has seemed to follow; and so it may become completely atrophied, as the result of disease, with nothing to indicate it during life. I have seen it so reduced in size that it was with difficulty found; and, from its appearance, it must have been in the same condition for a long period before death. The gall-bladder is an organ that exists in some of the mammalia, and not in others; and there is no general physiological law connected with its presence or absence. *A priori*, then, we should not expect any great disturbance of the functions, if it should happen to be cut off from its connection with the liver; and

such is shown to be the fact. The cystic duct may be obliterated by adhesions, and the gall-bladder is then as completely wanting to the individual as if he had been born without one; and yet the functions may be sufficiently well performed, so far as I have been able to ascertain in these cases. Some structural changes, like malformations, seem to be experiments designed by nature for physiological observation.

The method of conducting a post-mortem examination is a point of considerable importance. It should be done with all possible neatness and despatch. It should be done with decency, both in respect to our own deportment, and in regard to the subject of examination also; personal exposure being generally quite as unnecessary and improper in the dead as it is in the living; though I am sorry to say, that, in the examination of the latter, this point is not always regarded as it should be. There is no reason why the body should, in any way, be disfigured; but, on the contrary, it should be left in a better condition to be viewed, in consequence of the examination having been made.

An examination should be made methodically. It does not matter so much what the method is; but all the organs should be examined in every case when possible, and in a way to show best the structural changes if there be any. Parts are sometimes removed in so bungling a manner that very little can be made out afterwards respecting them. I once saw a most distinguished pathologist mistake acute pneumonia for tubercular disease; and he maintained his point obstinately until the different parts were put together in their proper relation, and the disease was shown in its

successive stages; the two diseases, as above remarked, sometimes resembling each other most strikingly, if, as the mineralogists would say, we take only "hand specimens" for examination. We should trace the origin and progress of disease as well as its seat. We naturally look to the part where it is most advanced; but on the confines we sometimes see it in the bud; and it is with these slight variations of structure that we should particularly familiarize ourselves. All the organs should be examined if possible, I say, as appearances are often found that had not been expected; and the case of our illustrious fellow-citizen, the late Secretary of State, is in point. He died from disease in the abdomen; and, though there had been cerebral symptoms, they were slight and ill-defined, and had hardly been thought of. The head, however, was examined, and appearances were there found which showed that he had undergone, at some former period, a most severe attack of disease within the cranium.

It may seem hardly necessary to insist upon a knowledge of healthy anatomy, before one undertakes to examine and decide upon the organs in a state of disease; and yet the most gross mistakes are occasionally made. In medico-legal investigations especially, the liberty and even the life of an individual may be endangered by the incompetence of the person who makes the post-mortem examination. I have known the nerves to be mistaken for the lymphatics, the kidney for the spleen, and that too after a scrutinizing examination, and an ovarian cyst to be described as a urinary bladder. A great deal of anatomy is taught

that seems to be of no use, physiologically or practically; the physical character and relations of the internal organs, and the appearance of the different tissues, being comparatively neglected.

The pseudo-morbid appearances, as they may be called, deserve especial attention, as they often lead to error. There are, I believe, natural variations in the organs as there are in the external parts. They vary, too, according to the age of the subject. They vary according to the character of the disease of which the patient has died; as it is more or less chronic, as the blood is more or less impoverished, and as the vital powers are more or less reduced. They vary according to the mode of death; changes taking place sometimes just previously to or during the act of dying, or even after death, that may be mistaken for disease. Of these changes, congestion is perhaps the most frequent; and so nearly does it sometimes resemble the first stage of inflammation, and especially in the lungs, that I believe it would be impossible for the most skilful anatomist to distinguish the two if taken apart, though it might generally be done if all the circumstances of the case were considered: as the public are deceived by the cadaveric discoloration of the depending parts of the body externally, so we often are ourselves by a corresponding condition of the internal organs. The redness of the stomach sometimes observed in persons dying suddenly during the process of digestion, and first described by Dr. Yelloley, is very important to be noticed; as, considering the circumstances under which it is observed, it might be mistaken for the effects of a corrosive poison.

Redness of Peyer's glands I have also several times noticed under the same circumstances, though the observation has not been confirmed by others, so far as I am aware: the appearance is similar to one that is occasionally met with in various infantile diseases, as in the exanthemata, croup, pneumonia, and convulsions. Cadaveric softening of the stomach by the action of the gastric juice is, to a greater or less extent, an extremely common appearance; and it is very often misunderstood, or mistaken for the effects of disease. The whole subject would seem to have been sufficiently set at rest by Mr. Hunter's original observations, and to have rendered the abundant confirmation they have received since his time unnecessary; and yet many of the continental pathologists seem hardly to realize the true state of the case; the appearance in question having been generally attributed by them, until of late years, to inflammation, and being still so regarded by many at the present day. A few years ago, I saw a stomach that had been removed from a person who was suspected to have been poisoned, and who was disinterred for examination: softening of the mucous membrane was found; and, the nature of it being misunderstood, the discovery did but little towards allaying the excitement that already existed. And here may be mentioned those impostures which nervous females sometimes practise, and which a knowledge of morbid anatomy will enable us to detect.

In concluding my remarks upon the subject of this address, I feel how inadequately I have performed my task, and how much more forcibly the importance of the subject might have been set forth. Medicine is

not one of the exact sciences, and the attempts that have been made to place it in that rank have sufficiently shown its imperfections. There are too many elements at work; and we must observe their operations, but not undertake to draw the line of action for them too closely. We must be content, then, to take medicine as it is. It has made a great advance towards exactitude of late years; and I can see no course more likely to carry it forward than the one we are now pursuing, and in which Morbid Anatomy holds so prominent a rank.

Before closing this address, Mr. President, I can but allude generally to those of our members who during the past year have been taken from amongst us; many of whom were not merely honored by the profession, but most highly esteemed by the community.

I should do great injustice, indeed, to my own feelings, and should be guilty of neglecting a sacred duty that belongs to me, in the position I here occupy, should I pass unnoticed an event that has so recently occurred in this community, and with which the members of our profession were so particularly connected. Of the crowd of human beings who were, on the occasion referred to, so suddenly hurried from life into eternity, three were Fellows of this Society; and they would probably, except for this melancholy catastrophe, have been with us at this time. They have departed; but they leave behind them a name to which such a community as the one in which we live will ever do honor; honor due to them not merely for their high professional attainments, but for what makes

the true man, — their moral worth. Two of our friends were past the meridian of life, but were still actively engaged in professional practice, and with all the advantages of a long course of personal experience; one of the many proofs of the estimation in which they were held being shown in the fact that they were each of them, at the time of their death, President of the Medical Society of the District in which they resided, and were thereby officially Vice-Presidents of the Society at large. One of them, particularly, had been for many years a most active and influential member of this Society, and his loss must be sincerely felt. Their companion was younger in years; but, being highly qualified to gain and to maintain the respect and confidence of the community and the profession, he had already received a large share of public favor; and, if his life had been spared, there is no doubt that he would have held a high rank amongst us. It is not for me, however, to eulogize the dead: those who knew them well have offered such a tribute of respect to their memory as they fully deserve, and as, I am sure, will be most acceptable to the Society. But, whilst we deplore the loss of those who were taken away, we cannot be sufficiently thankful that so many are here met together whose lives were in such jeopardy upon that sad occasion; and with what a fearful chance against them. Especially would we remember those of our associates, who, with three exceptions only, so entirely and miraculously escaped, when death in such an awful form was all about them. Hovering, as it were, upon the verge of eternity; and feeling, during those two or three moments of dreadful suspense, that

amidst the crash and destruction the very gates of another world were opening before them, what must have been their sensations when they found that they had passed safely through the terrible crisis, and that they were once more amongst the living! It must have been a scene which they never can recall without a thrill of horror; but their lives were spared; and, in the name of this Society, I would offer to them our most sincere congratulations, as I would to the friends of the deceased our heartfelt sympathy.*

* This terrible accident occured on the 6th inst., at 10 o'clock, A.M. The railway train for New Haven had proceeded but forty miles on its way from New York, when it came to an open drawbridge at Norwalk, and was precipitated at once into the river below. As it was going, at the time, at full speed, the consequences may be imagined; but they were too awful to be described. The connection of the medical profession with the accident was owing to the fact that the annual meeting of the National Medical Association had just been held at New York, at which meeting it was estimated that there were present from the New England States not less than sixty or seventy members.

The names of those of our profession who were in the cars at the time of the accident were as follows, so far as I have been able to ascertain them: —

From Massachusetts — Drs. Abel L. Peirson, of Salem; James M. Smith and James H. Gray, of Springfield; Ephraim Buck, J. Mason Warren, and George Bartlett, of Boston; William D. Lamb, of Lawrence; Jonathan W. Bemis, of Charlestown; Joseph Roby, of Newton (Professor of Anatomy at Maryland University); Lemuel Dickerman, of Medfield; Daniel Thompson, of Northampton; and Charles H. Brown, of Ipswich.

From Connecticut — Drs. Archibald Welch, of Hartford; Samuel Beach, of Bridgeport; and Levi Ives, of New Haven.

From New Hampshire — Dr. Josiah Bartlett, of Stratham.

From Maine — Dr. Benson, of Waterville; and Dr. Tallcott.

From the State of New York — Dr. William C. Dwight.

There were also given the names of Drs. Evans, Bissell, Gloss, Nevins, Russell, Romer or Rainer, and George Elizur.

Of the killed, there were Drs. Peirson, Smith, and Gray, of Massachusetts; Welsh and Beach, of Connecticut; Bartlett, of New Hampshire; and Dwight, of New York.

Of those who were more or less injured, there were Drs. Bemis, Lamb, Dickerman, and Brown, of Massachusetts; and Ives, of Connecticut: but they are all understood to be doing well.