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Remarks upon the study of Pathology; being part of an Address delivered before the Boylston Medical Society, November, 1821.
By JOHN WARE, M. D. President of the Society.

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AFTER studying the causes of disease, and acquiring in this way a familiarity with the general principles of the science of Pathology, we come to disease itself, the phenomena which it exhibits, and by which it is known.

In the first place we may consider disease as affecting the different textures of which the system is composed, and producing different symptoms according to the *texture* affected; and in the second place, as situated in the different organs into the composition of which these textures enter, and producing different symptoms according to the *function* of the *organ* affected.

The laws of disease, like the laws of health, have their peculiar modifications in each of the simple textures; and it is of great importance in every case of disease to distinguish accurately those textures in which morbid processes are really going on, and to avoid ascribing them to those, which, though contiguous, do not partake in them. If we examine those organs, which are compounded of several textures, we shall find a great difference in the severity and danger of their diseases, according to the texture affected. In the lungs, for example, a simple inflammation of its serous covering, though severe in degree, is a disease generally void of danger, and treated with ease. An inflammation of its mucous membrane alone, is not often more dangerous,

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and is commonly removed without difficulty. A similar affection of the cellular texture, or the parenchymatous substance is of a graver character; whilst any combination of two or more of these affections, at the same time, becomes more dangerous and difficult to treat, in proportion to the degree of severity and complication of the symptoms. A thorough knowledge of the vital powers and relations of these different textures in health and disease, will be of immense service, in assisting us in analysing complicated cases, in setting apart those symptoms which denote the affection of one texture, from those which denote the affection of another, and in judging of the severity of the deranged actions in each.

The history of the different membranes united in the formation of the abdominal viscera, affords us also admirable illustrations of the importance of this kind of investigation. The diseased actions of these membranes may go on with entire distinctness and at different times in each, or they may co-exist at the same moment. Thus the peritoneum may be the seat of inflammation, or of dropsy; the mucous membrane of inflammation, of hemorrhage, of diarrhea, or of dysentery; the muscular coat of spasm, of colic, and of some of the phenomena of dysentery; and these different affections may exist separately, as distinct diseases, or they may become complicated in some individual case.

We are constantly liable to error, if we forget for a moment, in studying pathology, to take into view the modifications of disease, when situated in different textures. What gross ignorance would be indicated, by him who has studied and thought so superficially, as to apprehend that the eyelids would become united to the eye by adhesion in an inflammation of the conjunctiva; that the mucous membrane of the bowels would be glued together in dysentery, or the lips of the urethra in gonorrhoea! Yet these, though examples of extravagant error, illustrate very well the sort of mistakes into which we may fall, if we neglect to attend to this subject. In considering inflammation, for instance, in any of its stages, we should be liable to have constantly in our minds, its processes as they proceed in that texture, with relation to which we happened first to have studied it; we should learn to attach to the term inflammation in general, some limited and precise ideas, which we have derived from the study of its progress in some particular texture only, and to consider it as a specific series of actions, the same in every part. In this unqualified manner has it too frequently been used in books of medicine.

But we must not, on the other hand, carry this regard to the textures so far as to exclude the consideration of every thing

else. We find to be sure in a general way, that the same texture exhibits every where, in disease, similar phenomena, and undergoes similar changes; that the serous membranes in the head, the chest, and the abdomen, have every where the same predominating tendency to high adhesive inflammation and to serous effusions; the mucous membranes to suppurative inflammation, and to the effusion of blood or hemorrhage, the cellular membrane to the formation of abscesses. But there are other considerations of equal or greater importance, which are not to be neglected. The phenomena, the progress, the treatment, and the result of diseases, affecting any particular texture, are much influenced by the nature of the function of that organ into whose composition that texture enters. Thus in an inflammation of the tunica arachnoides, we have, besides the common symptoms of serous inflammation, symptoms arising out of the peculiar situation and functions of the organ which that membrane covers; viz. a derangement of the intellect, or phenomena indicating pressure upon the brain. Thus too, in an inflammation of the pericardium, the motions of the heart are affected, in inflammation of that part of the peritoneum covering the stomach, indigestion and vomiting are produced; of that part connected with the bladder and uterus, we have difficulties in the passage of urine, or bearing down pains of the womb.

It is necessary then, always keeping in view a regard to *textures*, to take also into consideration the *functions* of organs, when we investigate disease. To this part of the study, indeed, our previous inquiries are rather preparatory, since upon distinctions drawn from this source, we are chiefly to found our arrangement of the symptoms, our prognosis, and our treatment of any disease.

A moment's reflection is sufficient to convince us that a consideration of the functions and relations of the organ which is involved in the disease, as well as the texture affected, is of great consequence in forming a correct prognosis; that is in forming a judgment of the degree of danger, and probable result of the disease. An inflammation of the tunica arachnoides might threaten life or reason very seriously, which, of the same degree and extent in the pleura, could be attended by no fatal consequences. An effusion in the pericardium may be fatal, which in the tunica vaginalis would be comparatively of trifling moment. The same deposition, or adhesion, which in the iris or cornea threatens seriously to impair the organ of sight, would in many other parts be disregarded as unimportant. The same effusion of blood, which from the mucous membrane of the lungs alarms us as the precursor of an insatiable and incurable disease, from

the same membrane in the eye, the nose, the urethra, or the womb, conveys no terrors, and may even sometimes be regarded as a salutary symptom.

If we examine a man labouring under any considerable disease, analyse the phenomena it exhibits, arrange its symptoms in the order in which they naturally present themselves to our minds, we find it to be made up of affections of several different organs, of various kinds, and different degrees of importance, but all, combining more or less to give to it its pathological character. It is true that, ordinarily, some predominant class of symptoms gives its name and its nosological character to a disease; but it is to be remembered that the nosological is a very different thing from the pathological character. The former is founded upon a regard to a few leading pathognomonic symptoms, and having for its object a definition by words; the latter upon an extended view of the disease in all its connexions and relations, and having for its object a definition by things. It is no doubt right, that the predominating symptoms should give to a disease its name and systematic place, but it is of more importance that all the other phenomena should be taken into consideration, and should exercise their proper influence over our views of the pathology of the disease and the measures we are to take in its treatment. It is well known to every practitioner of medicine, that cases, which according to established definitions, stand together in the same systematic rank, may yet be very different in their nature, and require almost opposite modes of treatment.

The phenomena of disease however extensively affecting the system, do probably in most cases arise from the original affection of some one organ, which produces secondarily the effects we observe elsewhere. This is undoubtedly a circumstance to be borne in mind, but it does not at all lessen the importance of attending to the state of other parts; since their disorder, although sympathetic and secondary, is not less real than if it had been excited in any other way. If we know that any particular symptoms are produced by sympathy, it may justly influence us in the mode we take to relieve them, but not at all in our view of them as constituting a part of the disease. It is only by carefully studying *all* the morbid phenomena, that we can understand which are primitive, and which sympathetic. It is not, however, necessary to dwell upon this point, my principal object being to advert to the mode of studying the elementary affections, whether primary or secondary, original or sympathetic, of the different functions, as part of the science of Pathology.

Our object should be to investigate the history of the morbid states of every organ, as denoted by the performance of its func-

tion, following it on from its healthy condition, and constantly comparing it with that, through all its changes, from the slightest deviations to which it is subject, either primary or secondary, to those of a more grave and severe character, in which it is the seat of diseases, threatening its structure, or even the life of the whole system itself.

As an example of what may be effected in this way, I would adduce the advantages which have been derived from the modern investigations into the pathology of the digestive organs. We are all of us aware, how different an aspect many parts of the science of pathology have assumed, in consequence of these investigations. They are of the kind, it seems to me, which should be applied to every function in the system. Not that equal benefit could be expected from every quarter, but enough would be gained amply to repay the same zeal and the same assiduity. Nor do I conceive that our knowledge of the pathology of these functions has yet received all the advancement of which it is capable. Though we have received great light already, much yet remains to be learned, and much probably to be unlearned. It is particularly to be remarked, as connected with the mode of study which I would endeavour to recommend, that in these investigations, the attention has not been confined to those affections which are strictly and originally of the digestive organs; but has been farther extended to the state of these organs in other diseases, to the influence which they exert upon other parts when they are the subjects of disease, and to the reciprocal influence exerted upon them by those parts.

It is easy to illustrate the advantages of such a system of inquiry as this, as applied to other functions besides those just spoken of. To take for example, those of the brain and nervous system. In order thoroughly to understand their pathology, we must examine them not only when obviously and originally affected by disease, but when only deranged secondarily in the affections of other parts. We must search out their complete morbid history, by examining them in every possible relation. It is not necessary to believe that the brain is the original seat of fever, to make us sensible how important an influence the state of its functions ought to have in forming our estimate of the nature, danger and treatment of the disease. No one who has been conversant with fever at the bedside of the patient, can be ignorant of the great varieties which are to be observed in the state of the intellectual functions, and of the manifest connexion they have with the nature and progress of the disease, even when we have every reason to believe that its actual weight falls upon another part. And yet no one can be ignorant how

much we have yet to learn with regard to the various species of febrile delirium, the causes that produce them, and the consequences of which they are the precursors.

A similar importance is to be attached to the state of these functions in other diseases. Who does not perceive with terror, and watch with anxiety, the approaches of a delirium, towards the close of severe internal inflammations; of the lungs, of the bowels, or of the womb? Who has not seen in this symptom; when it has supervened in a case to all appearance advancing very favourably to a termination in health, the first indication of a speedy and fatal issue? Who does not lament the imperfection of a science which leaves us yet without any sufficient explanation of the state of the system, or of the organs upon which these unhappy occurrences depend; without any knowledge of the signs by which they may be foretold, or the means by which they may be prevented.

Various affections of these functions are observed in different diseases of the abdominal viscera, which show an intimate connexion between the state of these organs, and that of the brain. Upon this connexion probably depends the existence of that singular malady, usually denominated *Delirium Tremens*; and a rational pathology of that disease must be founded upon an intimate knowledge of the nature and laws of that connexion. It seems to me that it can hardly be doubted, by those conversant with the diseases of drunkards, that this particular affection of the brain is produced ultimately by that state of the stomach, liver, and digestive organs in general, which is brought on by excessive indulgence in the use of spirituous liquors. It would not be difficult to show the resemblance of these cases in all their symptoms, except those appertaining to the brain, to others in which there is obviously only that derangement of the digestive system which is so common among the intemperate. It would, indeed, be easy to select a series of cases, illustrating every gradation of this disease, from its slightest form, in which it exhibits merely a deranged state of stomach of a peculiar character, to its most severe, in which not only the functions of the abdominal viscera are completely deranged, but those of the brain and nervous system exhibit the peculiar symptoms which are so strongly characteristic of the disease.

But still further, these peculiar symptoms are not confined to cases of this sort. They are liable to be excited in the course or towards the termination of every severe disease to which drunkards are subjected. There is a pre-disposition in their constitutions to delirium of this character, and it may be produced, in a greater or less degree, whenever there is any severe

impression made upon the system, or any unusual commotion is excited in it. In the temperate, every severe disease excites a sympathetic derangement of the digestive system, the circulating system, and frequently of the brain. In the intemperate also, a corresponding sympathetic derangement is excited, and excited more easily than in the temperate; but it every where exhibits a peculiar character originating from their habits of life. Thus when in ordinary constitutions, there would be merely slight nausea, a loss of appetite, and a loathing of food, there will be in drunkards a perplexing derangement of the stomach, which rejects every thing, whether of nourishment or medicine, which is thrown into it; when in the temperate there would be merely a painful affection of the head, or at most, an innocent wandering of the intellect, there will supervene in the intemperate the peculiar phenomena of delirium tremens. This sometimes happens to such an extent, that the original disease is completely shrouded and obscured by these accidental symptoms which have arisen in the course of it. It certainly not unfrequently occurs, that a case shall at its commencement exhibit distinct marks of Pneumonia, shall after a few days become apparently converted into delirium tremens, but upon dissection after death present the usual appearances induced by inflammation of the lungs. Hence it may often be the case that patients whom we deem to be affected simply with delirium tremens are in reality the subjects of a very different disease, the symptoms of which have been obscured and concealed by the occurrence of this disorder of the functions of the brain, before we had an opportunity of observing them. And from this cause probably arises the difference of opinion and uncertainty which exists in the minds of physicians with regard to the best method of treating this complaint.

I have introduced these observations upon some of the disordered states of the functions of the brain, merely as an illustration of the objects we should have in view in this department of the study of pathology. In the same way the state of these functions should be examined in all diseases, and in the same way also the morbid history of all the other functions. It is almost unnecessary to point out how the knowledge we shall have acquired from this method of studying General Pathology, will assist us in the examination of the pathology of particular diseases, or to what extent it will be useful. It will in fact be no longer the acquisition of knowledge, but its application to the practical purposes for which it was designed. There is much to be said upon this division of the science, and much also upon another most important subject, the connexion of the study of the Materia

Medica, and of General Therapeutics, with Pathology considered in the view which we have taken of it. But these are not topics which the present occasion affords any opportunity to discuss.

It may seem perhaps an omission that I have not spoken of the study of Morbid Anatomy, as part of the science of Pathology. I have avoided alluding to it particularly for two reasons; first, because Morbid Anatomy is rather a mode of getting at the facts on which the science is built, than part of the science itself; and secondly, because at the present day its importance and benefits are fully understood and sufficiently acknowledged; and have sometimes, I fear, been insisted on to the exclusion of some other modes of investigation, of great, if not of equal importance.

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Cases in Morbid Anatomy. By JOHN GORHAM, M.D.

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CASE I.

Tuberculated state of the mucous membrane of the larynx, and part of the pharynx, complicated with phthisis pulmonalis.

MR F. W. I. the gentleman who was the subject of this case, was rather above the middle height, well formed, but slender, of a convivial disposition, and possessed of a fine voice, which he was always ready to exert for the amusement of his friends. His age, if I recollect aright was about 36 years. He had been healthy, with the exception of a severe attack of acute rheumatism which he experienced in Russia some years before.

I visited him for the first time in the latter part of December, 1821. He had laboured for some days under a sore throat, to remedy which he had applied a large blistering plaster over the anterior part of the neck, which affected him severely, and for which he required my advice. In a few days, the blistered surface, by the application of emollient dressings, healed, but the soreness of the throat was but little diminished. At this time, however, he pursued his usual occupations, and I had no opportunity of seeing him until some time in January, 1822, when he called upon me for advice. On attentively examining the throat, the mucous membrane of the uvula and fauces was found to be inflamed; the redness, however, was not uniform, it being more intense over the amygdalæ than on any other part; the uvula and velum appeared smooth and shining, and somewhat mottled, with superficial vessels turgid with blood running in various di-